THE

LAW OF PATENTS

AS ILLUSTRATED BY LEADING CASES

WITH DISCUSSION OF PRINCIPLES, ANNOTATIONS, IMPORTANT STATUTES AND RULES

BY

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OF

THE DISTRICT OF COLUMBIA AND NEW YORK BARS

IN TWO VOLUMES

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PREFACE

The reasons for this work, and its purpose.

Many practitioners do not have all of the reports containing the patent cases at hand; and many want, it is believed, an arrangement or compilation of the cases for reference and guidance. Many lawyers, too, in general practice, often wish to read the decisions of the courts upon a given question in which a manufacturing or inventing client is interested, as well as the comment of the text writer.

The book is intended to put into as compact a form, as is consistent with thorough treatment, the substance of the best cases under various appropriate headings, and to accompany this condensation of the cases with a text which, it is believed, will offer some features of value under present conditions. It presents also and in order for convenient reference, the statutes, rules, code, etc.

The cases run in logical order. They present, "as near as may be," a text-book of patent law in the words of the courts. They embody the facts in the many cases where the facts are so essential. They group opposing and contradictory with the "reconciling" cases; and in both the cases and the Introduction stress is put upon the illustrations of facts, especially in such live topics as Claims, Construction, Equivalents, Infringement, License, etc.

The short extracts which conclude the several topics are intended to throw side lights of illustration upon the principal cases. Sometimes a case upon an apparently settled point is presented fully that the argument of the court may appear; and sometimes condensation is obtained by merely canceling repetitions.

The language of the court is clearly separated from any notes or comments, which always appear in brackets.

In the Introduction some topics generally regarded as occasional have been enlarged in treatment because little has been said upon them elsewhere and because they are likely to become more important in the near future.

The manuscript has been delayed in publication so that the important and interesting cases of 1912 and 1913 might be included. It therefore goes to press at the end of a period of discussion of cases involving important principles, after careful deliberation and a painstaking selection of over a thousand cases from nearly six thousand cases primarily selected which are either herein presented under separate sections or discussed in some of the chosen cases.

"Ut res magis valeat quam pereat."

WALTER F. ROGERS.

WASHINGTON, D. C.,
January 12, 1914.

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INTRODUCTION.

I. ORIGIN AND NATURE OF PATENTS.

The patent system of the United States is a development of the older system of Great Britain, with, however, fundamental differences.

The British system arose from a negative provision in the Statute of Monopolies, 21 Jac. 1 (1624), based upon common-law precedents, especially excepting from a sweeping prohibition of monopolies those granted for a term of years to the importers of a new art or trade and those granted for a term of fourteen years to the "first inventor" of "new manufactures." The patent system of the United States rests upon a positive provision of the Constitution, empowering Congress to create and protect property in ideas of invention.

There is in the books and in the minds of many historians a certain misapprehension of the origin of the British patent law. It was Parliament which first endeavored to sustain monopolies —the trade monopolies of the town guilds. The concentrated power of the guilds controlled Parliament through their representatives. The Crown, in the first instance, granted monopolies under a salutary principle. The privileges and charters and patents were then granted by the Crown for the purpose of introducing new arts and trades from abroad, so that the workmen who could not get employment in the trades because they were not members of the guilds might receive employment under the new arts and crafts, and the new trades. The result, however, was such an extension of the privileges granted by the Crown that they soon became abuses—far greater abuses than were the guilds. They were made the basis for extortion and shameless revenue-producing trickery. The common-law courts constantly strove to hold even the scales of justice between the royal privilege and Parliament as representing the guilds. It is to their eternal credit that the courts evolved and bravely maintained, as far as possible, the doctrine which holds today as the true doctrine.

The character of the monopolies of the 16th and 17th centuries and the classification of monopolies of new inventions as trade monopolies are evidenced in the histories of the times. They supply interesting illustrations of the views of the courts and of the people, who always favorably distinguished a monopoly for a new invention or for a new trade.

The common law had, in fact, provided an adequate remedy against monopolies. It classed as unlawful, monopolies of existing arts and trades but recognized the legality and advantages of encouraging the introduction of new trades and manufactures by granting a monopoly for a limited term. These principles were recognized in two famous cases in which monopolies were defeated and yet strong expression given to the exceptions of monopolies for new trades or new inventions. (Darcy v. Allein, [1602] 11 Coke 846, 1 Web. P. C.; Abridge 1 Brodix Patent Cases, 1; and Clothworkers of Ipswich [1615], Godbolt 252.) Though legislation subsequently became necessary, it was not to supply a deficiency in the law, but to reassert the law which was being evaded and defied.

Sir Edward Coke had been the law officer in the cited playing-card monopoly case of Darcy v. Allein. He defines "monopoly" in terms which have been significantly paraphrased in recent decisions of the courts of the United States, nearly three hundred years later. In his Institutes (vol. 3, p. 181) he says:

"A monopoly is an institution or allowance by the King—by his grant, commission, or otherwise, to any person or persons, bodies politic or corporate, of or for the sole buying, selling, making, working, or using of anything whereby any person or persons, bodies politic or corporate, are sought to be restrained of any freedom or liberty that they had before, or hindered in their lawful trade."

The distinction made by Coke in the concluding clause necessarily excludes patents from his definition because the grant of a patent for a limited number of years does not restrain the people "of any freedom or liberty that they had before" and does not hinder them in their lawful trade. The invention was not in their possession and the agreement or contract with the people is that the disclosure of the invention shall be made in exchange for a limited monopoly.

It is probable that if Elizabeth had been succeeded by one of equal capacity and of the same intense pride in the English people the matter might have been concluded, but as ever with King and commoner alike, the necessities of the exchequer drove James and Charles to permit and even encourage excesses under their primarily praiseworthy endeavors to follow Elizabeth in giving a national character to the various trades.

Keeping in mind how bitter was the fight, how bitter the protest and the sense of personal and national outrage engendered by these monopolies, it is of prime significance that Parliament, when it enacted the Statute against Monopolies in 1624, made that notable exception in Section 5 in favor of the introduc-

tion of a new trade and that pregnant exception in Section 6, in favor of new inventions.

It will be observed, however, that the purpose of the Statute of Monopolies was not so much to encourage and protect the original inventor, as to encourage the introduction of new manufactures into the realm; that the granting of a patent remained an exception and was, as it is at the present time, granted by the favor of the Crown.

Hapless Charles I, driven by his money necessities, went himself into business on a reckless scale. The result was the creation and extension of the infamous national monopolies of glass, starch, salt, cloth-finishing, alum, soap, etc.

The licensees and holders of charters and benefits and their inspectors were vehemently and on every hand charged with extortion and blackmailing, the most offensive form of house-searching and exactions, and with bringing malicious suits and causing ruinous delays for the purpose of squeezing the "consumer."

Clarendon, in his "History of the Rebellion," states the result, the practice and the failure, briefly thus:

"Projects of all kinds, many ridiculous, many scandalous, all very grievous, were set on foot; the envy and reproach of which came to the king, the profit to other men, insomuch as of £200,000 drawn from the subjects by these ways in a year, scarce £1,500 came to the king's use and account."

Finally, Pym in his immortal speech in Parliament in 1640, condensed the complaint against the abuses of the favors of the Crown and placed the monopolies first on his list of grievances. It was in this debate that Colepepper is credited with the following speech relating to the practices of the inspectors and licensees when enforcing the charters and grants of the Crown, a speech which well might serve as a text for certain economic futurists:

"These men, like the frogs of Egypt, have gotten possession of our dwellings, and we have scarce a room free from them. They sup in our cup, they dip in our dish, they sit by our fire; we find them in our dye-vat, washbowl, and powdering-tub; they share with the butler in his box, they have marked and scaled us from head to foot. They have a vizard to hide the brand made by that good law in the last Parliament of King James, they shelter themselves under the name of Corporation; they make bye-laws which serve their turns to squeeze us and fill their purses."

Then when the common law had been evaded and defied and when the statute accepted by the ruler had been rendered practically nugatory by the abuse of the royal privilege—came the

revolution which for all time confirmed both the letter and spirit of the statute.

The Statute of James I, the Statute of Monopolies, came over in the Mayflower with the Pilgrims, and the patents granted by the General Court of Massachusetts were first to recognize the principle of originality, for they granted the monopoly for certain inventions forbidding others to use such articles unless they were different from those of the patentee.

The idea of granting patents for new inventions prevailed in that and other colonies. When the Constitutional Convention met, its members had before them, and under consideration, the English idea, and a suggestion of a different idea, in the practice of the colonies. The English idea had been to encourage monopolies so that the introduction of a new trade or a new art was the essence of the law. The constitutional idea, however, was that of encouraging domestic invention, and in the first patent law of 1790, and in all subsequent amendments of that law, the basic idea has been to encourage original invention. The introduction of those inventions into use was wisely left to the incentive of business enterprise. The intention was to encourage inventive thought; to secure a disclosure of the inventive thought as promptly as possible. Evidently, it was not deemed wise to require that inventive thought, which might be years in advance of the day, should be withheld until the inventor had been able to make provision for actually introducing the manufacture. The sooner the inventive thought was disclosed the sooner it became public property; the sooner it would be an incentive to others to improve upon that inventive thought.. It was intended to offer the strongest incentive for a prompt application and disclosure. Inventors were to be made to feel the necessity of promptly completing their inventions and this they could do either by actually reducing to practice the invention or by filing an application for a patent. They need not provide, in advance, for the manufacture or trading.

When it is conceived that the essential spirit is to benefit the public by securing a disclosure, it is clear that the disclosure should be prompt and complete.

The English law, while primarily a trade law, served also by interpretation to foster and encourage invention. All things considered, there is no more impartial tribute than that of Bentham in "Rationale of Rewards," p. 92:

"It is an instance of a reward peculiarly adapted to the nature of the service and adapts itself with the utmost nicety to those rules of proportion to which it is most difficult for reward, artificially instituted by the legislature, to confer. If confined, as it ought to be, to the precise point in which the originality of the

invention consists, it is conferred with the least possible waste of expense. It causes a service to be rendered, which, without it, a man would not have a motive for rendering; and that only by forbidding others from doing that which, were it not for that service, it would not have been possible for them to have done. Even with regard to such invention, for such there will be, when others beside him who possess the reward have scent of invention, it is still of use by stimulating all parties and setting them to strive which shall first bring the discovery to bear. With all this it unites every property that can be wished for in a reward. It is variable, equable, commensurable, characteristic, exemplary, frugal, promotive of perseverance, subservient to compensation, popular and reasonable."

(Quoted by Godbolt, 252, and Coryton, p. 37.)

The patent laws of the United States express in the form of statutes the purpose of the legislators when dealing with a form of property of which the striking feature is, that the public is to be the legatee.

The contract which the patentee makes with the public and the right which he obtains by a patent are apparent from the statutes. It will be noted that the right granted the inventor is not the right to make, use and sell the invention; he had that at common law. The patent gives him the right to exclude others from making, using or selling the invention for the limited term of his monopoly. In short, the spirit of the patent law of the United States is that of an untrammeled grant of exclusion in exchange for a clear disclosure of a complete new invention. The inventor has no property right in an unpatented invention which he can enforce against others. On the other hand, it has been held that a secret in trade is fully recognized as property in equity, the disclosure of which will be restrained by injunction.

II. PATENTABILITY—WHAT IS PATENTABLE.

The central statute of the patent laws of the United States is R. S. U. S. Sec. 4886. Under that statute the subject of a patent must have been "invented or discovered." These words are not used quite in a dictionary sense; they refer to inventions having industrial value. That is to say, a principle is not patentable, but a mode, method or means of seizing upon a principle and putting it into practical service may be patentable. It is not, however, essential that the invention shall have been actually applied to a use. The patent is granted for the disclosure of the means or method by which it may be applied to a practical use and the process or means in practice may differ in details or structure from the disclosure of the patent. There are many interesting illustrations of this rule especially in the early English cases and the early American cases.

The time or labor spent on the completion of the invention is not a factor of patentability. The criterion is the result, whether the outcome of years of scientific research or of the happy thought of an instant. In all cases it is shown that it is not the mere discovery of the principle that may be protected, but the result of the thought, the invention that brings the principle into service. Chance may have brought to light the basis of a process or the elements of a combination, but the patent is granted for the inventive thought that sees, comprehends and applies, "* * * and in addition to the discovery they needed the invention of a process by which it could be practically carried out." (Mowry v. Whitney, 81 U. S. 620, 20 L. ed. 860.) It may be widely variant from the discovery as it appeared—it may be identical, but the discovery must be seized as a mode, method or means, or evolved into some form or instrument of action.

(1) **The Statutory Classes of Invention.**—The statute divides patentable subject-matter into four classes: "Art, machine, manufacture and composition of matter."

The term "art" is intended to include those methods and processes which embody an act or a series of acts that may be carried out by hand without reference to a special mechanism, such as the methods, processes and modes of operation which form the basis of the industries, such as dyeing, tanning, distilling, and assaying. Each of these industries is, in the broad sense, an "art," and is commonly so called; it is apparent that the patent law used the word in a more general sense, for it has never been doubted that it is intended to include not only those inventions which create a new industry, but also the steps—the separate processes of any art or industry.

It may be noted, however, that there is a certain nicety in the use of the substantially synonymous words "process," "mode" and "method." The words "mode" and "method," and especially the latter word, are, perhaps, the more accurate rhetorical designation where the operation is mechanically performed, and the elements or ingredients suffer no change in themselves to produce effect one upon the other; that is to say, a mode or method of operation or sequence of acts, a manipulation of mechanism involving invention. "Process" seems the more accurate rhetorical designation where some chemical or elementary operation is involved or where the properties of one or more ingredients, under particular conditions, produce the result. For example, the mode or method of attaching a sweat band to a hat or of making a paper bag, the process of tanning a skin by subjecting it to a succession of specified baths, or the process of dyeing a sweat band or the process of bleaching paper. These are not, it should be again observed, legal distinctions.

A "machine" is a body, or assemblage, or combination of mechanical parts adapted to receive, transmit and modify force or motion to do work. This term of the statute includes the great majority of inventions, for a transom-lifter answers the definition as well as a printing-press. Tools may, in accordance with their character, be classed either as machines or as articles of manufacture.

A machine patent may be had for an improvement upon an old machine. The term also includes the parts of a machine as well as several machines when combined to perform a single function.

Among the most important distinctions of the patent law are those between a machine patent and a method or process patent, and between a method and the mere function of a machine.

A machine patent is readily understood to stand for something permanent, certain, unchanging—a combination of mechanical elements—a thing; while a method or a process patent is not necessarily confined to a particular machine, but may be referred to various mechanisms.

The function of a machine, "the expected action of the machine," is often claimed as a method, but is held to be not patentable. The planing of a board, the weaving of a fabric, or any mere operation of a machine accompanies the machine and may not be patented as a method. (Corning v. Burden, 15 How. [U. S.] 267, 14 L. Ed., 683.) There is, however, a well-defined kind of method which is often mistaken for the mere function of a machine where the method consists of the order or sequence in which the functions of a machine are performed. Such a method may be patentable if it define a new sequence of operations involving invention in the arrangement. (See, for example, Ex Parte Young, 46 O. G. 1635, C. D. [1889] 116.)

After discussing various authorities the Commissioner held that the decisions of the courts did not appear to him to sustain the position of the lower tribunals of the Patent Office that the mechanical method before him was "evidently and necessarily the operation contemplated in the construction of the machine," and therefore not patentable; but that, on the contrary, they recognized "as patentable novel mechanical process, notwithstanding the fact that machines have been devised of which the processes are the evident and necessary operation."

The decision of the Supreme Court in Corning v. Burden, supra, does not rule out such claims. That decision means that when an action which has been performed by hand is done by machinery, there is not, for that reason, a new method.

The Supreme Court in Risdon v. Medart, 158 U. S. 68, 39 L. Ed. 899, construed a set of claims covering the method of making pulleys to be claims for purely mechanical processes and held

them for that reason alone not patentable, stating, in effect, that only such processes as involved chemical or similar elemental action, or the action of an agency of nature were patentable. The rule (as understood) was shortly followed by the Circuit Court of Appeals for the Seventh Circuit, in Wells Glass Company et al. v. Henderson et al., 67 Fed. 930, 15 C. C. A. 84, and by other Circuit Courts in American Strawboard Co. v. Elkhart Egg Case Co., 84 Fed. 960, and Stokes v. Heller, 96 Fed. 104.

In an article in 29 American Law Review (July-August, 1895), pp. 559-578, the Risdon case is discussed at length from the standpoint that that case "can not make claims defining steps in the production of an article which may be performed by hand or by a set of machines, fall under the narrow designation of 'function of a machine.'" The writer cites approximately forty cases in which the Supreme Court, Circuit Courts and the Patent Office had approved and sustained claims of patents for mechanical methods.

Subsequent to that article, in the case of Union Paper Bag Co. v. Waterbury, 70 Fed. 240, 17 C. C. A. 84, Mr. Justice Brown, who wrote the opinion in Risdon v. Medart, sat with Circuit Judges Shipman and Lacombe. Though the claims in that case were purely mechanical processes the case was not disposed of upon the authority of Risdon v. Medart; but the claims were examined with reference to patentable novelty—a practical admission by that court that a majority at least could not accept the then recent Supreme Court ruling as rendering unnecessary a further examination of the claims, and of itself disposing of the patent in suit. (See subsequent notes under heading IX, subheading "Claims, Process, Method").

The authority of the suggested rule of Risdon v. Medart, certainly the extent of its application, was modified to the vanishing point by the opinions, and especially the strong dissenting opinion, in Westinghouse v. Boyden, 172 U. S. 537, 42 L. Ed. 1136, and finally by the unanimous decision in the case of The Expanded Metal Co. v. Bradford, 214 U. S. 365, 53 L. Ed. 1035.

The essential question in every case is whether or not a new and useful idea of means or method has been invented, is disclosed, and is stated in the claim. It may happen that a new process or a new machine produces a new product. If so, the product may be separately claimed and separately patented. See Rubber Company v. Goodyear, 76 U. S. 789, 19 L. ed. 566. Examples of the practical importance of these distinctions in the older cases are found in Kay v Marshall, 2 Web. Pat. Cas. 34-84; Burr v. Duryee, 68 U. S. 531, 17 L. ed. 650; Merrill v. Yeomans, 94 U. S. 568, 24 L. ed. 235. Striking examples in later cases of a failure to apprecia'e the distinction between process and product or article of manufacture are found in Welsbach v. Union, 101 Fed. 131, 41 C. C. A. 225; Goodyear

v. Davis, 162 U. S. 122, 26 L. ed. 149; Durand v. Schullze, 61 Fed. 819, 10 C. C. A. 97; Maurer v. Dickson, 113 Fed. 870, 51 C. C. A. 494, and Mosler v. Mosler, 127 U. S. 354, 32 L. ed. 182. The matter is also of importance in the consideration of "double patenting" where there are earlier and later patents and applications to the same inventor for the same invention, a subject to be hereinafter treated.

The term "manufacture" had a wide application in the English law because it was the single term there used. In the law of the United States it covers articles or fabrics made, as finalities, distinguished from machines by not having any rule of action, and distinguished from composition of matter by not involving the relation of ingredients. As, for example, a woven wire door mat, a chain, a penholder, a plow-point, a lamp, or a chimney. These distinctions were noted, for example, in one of the early cases, Cornish v. Keen, Web. Pat. Cas., 513.

Mr. Curtis in his work on "Patents," says:

"A 'composition of matter' is a compound of two or more ingredients forming a homogeneous whole; as paint, a glue, an ink, or a dye. In certain cases the line between an article of manufacture and a composition of matter may vanish, as for example, where an artificial fuel is produced in the form of a block and consists of wood impregnated with a liquid inflammable agent, the article so produced might be called either a manufacture or a 'composition of matter.' The patent may be for the method of compounding, or for the result—the composition."

(2) The Statutory Bars.—The statute recites certain bars. It requires first that the subject-matter must have been "invented or discovered" by the applicant. The restrictive, definitive purport of these terms has been considered in the opening of this division. This requirement forbids the obtaining of a patent by any other than the inventor or discoverer.

The invention or discovery must be "new and useful;" the latter requisite may be disposed of briefly before proceeding to the more extended consideration of invention and patentable novelty.

(a) Utility, Want Of.—Want of utility is a bar seldom raised against an application by the Patent Office and seldom successfully employed as a defense in a suit; it is, however, in various phases an important factor.

Applications are frequently criticized by the Patent Office as incomplete, or as being insufficiently illustrated or described, or as inoperative, and therefore, wanting in utility. But utility in its broadest sense approaches a presumption more nearly than any other point recited in the statute and is seldom questioned by the courts or the Patent Office, except in cases of perpetual motion, or in such cases, for example, as a spark arrester which

works so vigorously as to stop the locomotive, or some visionary, obviously impracticable, scheme. As an example of the latter, see Ex Parte De Bausset, 43 O. G. 1583, 1888, C. D. 66.

These cases illustrate really but a phase of "utility," for they show that the invention must be "useful" to accomplish the end designed, that is, operative, practicable. The more inclusive sense of the term is indicated by what has been said of perpetual motion and visionary schemes. Such "inventions" do not come within the purview of the statute; they are not within the realm of the useful arts.

In a similar category are placed inventions capable only of a pernicious use as distinguished from a beneficial use. That is to say, inventions which on grounds of public policy are held to be not useful because they are injurious to the morals, health or good order of society.

At page 15 of the original edition of his work on "Patents," Mr. Curtis, with reference to "useful," said:

"It has been held, upon the use of the same word in the same connection in the old patent act of 1793, that it was used merely in contradistinction to what is frivolous or mischievous to society. This term was held to be satisfied, if the alleged invention was capable of use, and was not injurious to the well-being, good policy or sound morals of society." (Citing Lowell v. Lewis, 1 Mass. 186; Bedford v. Hunt, Ibid. 303; Kneas v. Schuylkill Bank, 4 Wash. (U. S.) 9-12, Fed. Cas. No. 7, 875.)

In the case of Fuller v. Berger et al., 120 Fed. 274, 56 C. C. A. 588 (1903), it was held that Patent No. 613,844 for a bogus-coin detector for coin-operated vending machines, adapted to be used for any coin-operated machines was not void for lack of utility because it was assigned by the inventor to a manufacturer of gambling machines and had been used solely in connection with such machines. The court cites and discusses several cases and distinguishes Rickart v. Du Bon, 103 Fed. 863, 43 C. C. A. 360, in which the patent involved was for the process of spotting tobacco leaves to deceive and defraud the public and which was, therefore, held not to be within the meaning of the term "useful." The court in Fuller v. Berger quotes and further comments upon the illustration of Mr. Walker in his work on "Patents," section 82, of a Colt revolver which, while it might be used for homicide or to assist a burglar, nevertheless had so many essentially useful functions that it could not be defeated on the ground of want of utility. The court concluded, following this illustration of the revolver, that if the tribunal could see "that the instrument was susceptible of good uses, though, in fact, never put to such before the suit was begun, the patent could be sustained."

Utility, then, is an essentially practical term. It weighs no

question of morals or danger against positive advantages, and may not be raised, for example, against spirituous liquors or explosive compounds. When, however, adulterations, infernal machines or abominable devices are presented to the Patent Office, they may be rejected under the construction of "useful," upon the broad basis of public policy, as injurious to public health or morals. These cases seldom arise, therefore, in the courts, and then only in such instances as have been hitherto stated.

(b) Novelty, Want Of.—The statute (see 4886) requires the useful inventon or discovery to be new. The term requires no definition. The thing must be new, but not every new thing is patentable, and the statute proceeds to qualify the term by defining what will negative novelty:

1. Use or knowledge by others in this country, prior to the invention or discovery.

2. A patent or description in a printed publication in this or any foreign country, prior to the invention or discovery.

Finally, even when invention and novelty are predicated or established, there stands in the way the two requirements that:

3. It must not have been in public use or on sale or described in any printed publication for more than two years prior to the application, and

4. It must not have been abandoned.

These several requirements may be applied in the form of statutory bars under the following heads: (c) Want of Invention; (d) Want of Patentable Novelty. These include the consideration of citations anticipating the invention, and of evidence in the form of references which anticipate the substance thereof and involve the bar of want of invention in the study of the differences between the invention for which a patent is sought or had, and the prior use, knowledge, patent or publication or other bar raised against the invention. (e) Public Use or Sale; (f) Abandonment.

(c) Want of Invention.—This bar is seldom applied purely. An example of such an application is found in the Corn Planter Cases, 23 Wall. (U. S.) 232, where it was held that the feature of reissued patent, No. 1,094, of a peg to prevent the rear part of the machine from tipping up and dumping the driver was devoid of invention. It is, however, the final test in almost all cases involving the question of patentable novelty. When an earlier and exact counterpart of the invention is produced the question is at once settled, the invention is directly "met," "anticipated," it is not "new." In the vast majority of cases, however, there is some tangible difference between the invention in question and the citation urged against it, and the point to be decided then is whether or not the creation of this difference

involved the exercise of invention. For example: In the leading case of Hicks v. Kelsey, 18 Wall. (U. S.) 670, it was shown that wagon-reaches made of wood of the same construction as that shown by the patent were old and common, and it was held that the mere substitution of iron for wood was not invention; in Vinton v. Hamilton, 104 U. S. 485; 21 O. G. 557, it was not invention to put a cinder notch in a cupola furnace because this was old in blast furnaces.

Analogous to this practical definition of invention by exclusion are the cases of business systems and house arrangements patents for which have been, so frequently, held invalid by the courts.

The cases abound in definitions of invention, to all of which applies the statement of the Supreme Court in McClain v. Ortmayer, 141 U. S. 419, 35 L. ed. 800, 12 Sup. Ct. 76, that invention cannot be defined but that each case turns upon the facts of that particular case. One of the broadest definitions is in the ancient case of Arkwright, Web. Pat. Cas. 71, where Butler, J., said, "If there be anything material and new which is an improvement to the trade, that will be sufficient to support a patent."

There have also arisen a number of negative rules which operate by process of exclusion and though variously stated may be collated as the basis of a practical guide, provided always that the exception follow the rule and that the proper emphasis be given the qualifying words which ought in every case to accompany these negative rules.

1. It is not invention to produce a device, or a change in any device, which any ordinarily skilful mechanic or worker in the art could produce as a matter of course to accomplish the desired result. That is to say, mere mechanical skill, "the expected skill of the calling," is not invention.

There are a number of "rules" which, frequently cited separately or as separate rules, more properly, it is thought, fall under the head of "mechanical skill," as corallaries to the suggested rule of differentiation.

It is not invention to merely improve upon workmanship; to make solid parts previously made separable; to make separate parts previously made integral; to merely change the relative location of parts without changing the function performed; to omit a part or parts with a corresponding omission of function.

It may, however, be invention to omit a part when there is a rearrangement or reorganization so that the same result is secured by a less number of parts.

2. It is not invention merely to substitute superior for inferior materials in any or all of the parts of the thing. That is, mere substitution of material, is not invention.

Under this rule, there is no invention in substituting one well known form of a particular material for another well known form of the same material. There are, however, many apparent exceptions to these rules which support the proposition that it may be invention to substitute one material for another where there is involved some new mode of construction; where there is developed some new property or use of an article; where a new mode of operation or a new function is produced; where the result of the invention is the first practical success in the art; or where the application of the material had not been known before, or the practice of the invention demonstrates the superiority in cheapness, durability or efficient action.

3. Mere change in form, proportion or degree only is not invention.

This might well be a sub-topic under "mechanical skill," but for certain distinctive aspects. When the Act of 1790 was amended by the Act of 1793, Section 2 of the new law concluded as follows:

"And it is hereby enacted and declared, that simply changing the form or the proportions of any machine, or composition of matter in any degree, shall not be deemed a discovery."

Mr. Chief Justice Marshall, in Davis v. Palmer, 2 Brock (U. S.) 298, 310, Fed. Cas. No. 3645, sustaining the patent and referring to this change in the statute, held that the word "simply" was of great importance; that it was not every change of form or proportion which was declared to be no discovery, but that it was simply a change of form or proportion, and nothing more. His conclusion was that if by changing the form and proportion a new effect is produced, there is not simply a change of form or proportion, but a change of principle or result also, a new and different effect.

And for further, among many, striking exceptions to this "rule" see, for example, Edison Electric Light Co. v. U. S. Electric Lighting Co., 52 Fed. 300, 3 C. C. A. 83; Winans v. Denmead, 15 How. (U. S.) 330, 14 L. ed. 717; American Ordinance Co. v. Driggs-Seabury, 114 Fed. 936, 52 C. C. A. 556; Hutter v. De Q. Bottle Stopper Co., 128 Fed. 283, 62 C. C. A. 652; Yost Electric Mfg. Co. v. Perkins Electric Switch Mfg. Co., 179 Fed. 511; Browning Hook & Eye Co. v. Tri-Eye Hook & Eye Co., 199 Fed. 189; Andrew Wire & Iron Works v. Wilson Mfg. Co., 199 Fed. 798.

4. Mere aggregation (or juxtaposition) of old elements is not invention.

None of the negative rules require more careful attention to their qualifications than does this rule. In effect, the rule is merely that it is not invention to select old elements; to merely

join together a group of old elements which do not co-operate to produce a unitary result or in which each element has only its customary function. It is believed there is no case of authority in which invention has been denied to an aggregation of new elements.

This principle is again discussed under "Claims" (Heading IX.) The modern rule is presented by National Cash Register Co. v. American, 53 Fed. 367, 3 C. C. A. 559, discussing Pickering v. McCullough, 104 U. S. 310, 26 L. ed. 749. The earlier case had established a rigid rule of combination requiring the result to be due to the joint and co-operating action of all the elements.

The necessity for qualifying the rule of Pickering v. McCullough is evidenced by the fact that the courts before and since that case have sustained many patents in which the invention involved only old elements in a combination producing a new and useful result, but not having each element precisely "co-acting" with every other element.

In the case of Steiner v. Tabor, 178 Fed. 839, the court cites Loom Co. v. Higgins, 105 U. S. 580, 26 L. ed. 1177 and Expanded Metal Co. v. Bradford, 214 U. S. 366, 53 L. ed. 1034, in support of the familiar rule that the use of the old elements does not prevent the possibility of invention. It is well settled that a new combination of elements old in themselves, but which produce a new and useful result, entitles the inventor to the protection of a patent.

5. It is not invention to merely use an old thing for a new purpose. That is to say, mere double use is not invention.

This is a principal feature of the discussion of invention and patentable novelty.

The cases of the Supreme Court, and of the other courts to which general text-book reference has been made, show that the rule and its exceptions have their origin in the early cases and statements of the courts, and they also show a great variance of views. It was not until after Potts v. Creager, 155 U. S. 97, 39 L. ed. 275, 15 Sup. Ct. 194 (elaborately reviewed in Potts v. Creager, 97 Fed. 78, 38 C. C. A. 47) that the Patent Office and courts gave full weight to the exceptions to the rule in favor of patentability where a new result is achieved in applying an old thing to a new use so as to involve the exercise of the inventive faculties.

A few illustrations will serve to indicate the development of the rule and its exceptions. Webster's Pat. Cas. 207, presents an illustration from Losh v. Hague, by Lord Abinger:

"If a surgeon had gone to a mercer and said, 'I see how well your scissors cut,' and he said, 'I can apply them instead of a lancet by putting a knob at the end,' that would be quite a differ-

ent thing, and he might get a patent for that; but it would be a very extraordinary thing to say, that because all mankind has been accustomed to eat soup with a spoon that a man could take out a patent because he says you might eat peas with a spoon."

Again, Webster "On the Subject Matter," at page 25, in a note says:

"If the composition of matter now called a silver tea pot had existed before the introduction of tea, and been used for making a similar infusion from other ingredients, its appropriation for application to making tea could not have been the subject-matter of a patent, this being the double use of a known thing, as of a medicine, celebrated for one disease, to another; but if such a composition of matter were not known, there might have been patents for a silver pot as well as for the first earthen tea pot. No one can say that a silver and an earthen pot are same manufacture."

In Bean v. Smallwood, 2 Story (U. S.) 408, Fed. Cas. 1173, frequently approved by the Supreme Court, Mr. Justice Story said:

"Now, I take it to be clear, that a machine or apparatus, or other mechanical contrivance, in order to give the party a claim to a patent therefor, must in itself be substantially new. If it is old and well known, and applied only to a new purpose, that does not make it patentable. A coffee mill applied for the first time to grind oats or corn or mustard, would not give a title to a patent. A cotton gin applied without alteration to clean hemp, would not give title to a patent for the gin as new. A loom to weave cotton yarn, would not, if unaltered, become a patented machine as a new invention by first applying it to weave woolen yarn. A steam engine if originally applied to turn a grist mill would not entitle a party to a patent for it, if it were first applied by him to turn the main wheel of a cotton factory. In short, the machine must be new, not merely the purpose to which it is applied. A purpose is not patentable, but the machinery only, if new, by which it is to be accomplished. In other words, the thing itself which is patented must be new, and not the mere application of it to a new purpose or object."

And further in the same opinion, Mr. Justice Story said, quoting from Lord Ellenborough, in Huddart v. Grimshaw, Web. Pat. Cas. 86:

"There are common elementary materials to work with in machinery and it is the application of these materials to any particular purpose that constitutes invention; and if the application of them be new, if the combination in its nature be essentially new, if it be productive of a new end and beneficial to the

public, it is that species of invention which, protected by the King's patent, ought to continue to the person the sole right of vending."

This was the view which undoubtedly influenced the Supreme Court in the unfavorable opinion in the case of LeRoy v. Tatham, 14 How. (U. S.) 156, 14 L. ed., 367, which first came before the court, in an action at law, the celebrated patent involving a new principle in making lead pipe, but which rather unfortunately claimed only machinery identical in construction with previous machinery for making macaroni and clay pipes. When this case again came before the Supreme Court by bill in equity in 63 U. S. 132, 16 L. ed. 356, the court sustained the patent rendering, however, an opinion, which, while interesting as an essay, supplied no clear foundation for any principle of law.

Judge Blatchford in Poillon v. Schmidt, 6 Blatch. (U. S.) 304, Fed. Cas. No. 11,241, says that the claim for machinery in LeRoy v. Tatham was read by the Supreme Court as if a claim for a method of casting lead to separate and reunite, at a welding heat under pressure, in a close vessel, by the use of the machinery described, to form lead pipe in the manner set forth.

That is to say, realizing what a great improvement the inventor had actually made, the Supreme Court instead of holding that the application of old machinery to so different and new a purpose was invention, interpreted the claim as if for a new process to save the patent.

The previously noted case of Potts v. Creager, supra, and its antecedent cases sustain the principle that under some circumstances an old structure may be patented where it is to be employed in some remote art and for a non-analogous purpose and especially where changes were required to adapt the device to its new use. The converse of the case is well presented in Briggs v. Duell, 93 Fed. 972, 36 C. C. A. 38.

6. It is not invention to substitute in an art, machine, manufacture or composition of matter, for any element or device, another which performs the same function in substantially the same way and accomplishes substantially the same result. That is to say, the substitution of equivalents is not invention.

While the subject of "equivalents" might have been briefly treated at this time, it has been reserved for a fuller consideration under heading IX.

7. Mere duplication of parts is not invention.

There are, however, striking examples of apparent exceptions to this almost axiomatic rule. In addition to the more familiar cases, Parker v. Hulme, Fed. Cas. No. 10,740, has been cited,

and is accepted in Goss v. Scott, 108 Fed. 260, 47 C. C. A. 302, as an early authority that duplication may be patentable.

In that case, it should be observed, however, the judge was instructing the jury with reference to the whole patent and the whole invention. He believed the inventors had discovered a new principle of operating water wheels for saw mills in which the water was delivered vertically in the line of revolution of the shaft and in which percussion and reaction were both relied upon to create a vortex and greatly improve the action of both horizontal and vertical wheels, the horizontal wheels having been previously invented. Part of the claim of the inventors was for two or more vertical wheels on the same shaft, and the court made the statement which is quoted in Goss v. Scott, meaning, however, that the fact did not militate against the patent and that it might be even itself a patentable feature.

It does not appear, however, that it was necessary to so decide to sustain the patent or to hold infringement. The court in Parker v. Hulme refers to a case which does appear to have been decided by the same court on the question of duplication—Knight v. Gavit, in which it was held that two rollers produced a new effect in making paper and that the claim was valid. The case is cited as a foot note to Parker v. Hulme.

Goss v. Scott, supra, presents a striking exception to the general rule. In that case the products of two presses were brought together and the court found invention in putting them together because there was required a change in the manner in which the webs were fed from the two machines to make the completed product which was not merely a duplication of the two machines.

These cases, as many others under these various "rules," again illustrate the fundamental principle at the basis of the consideration of patents, namely, that the real question is whether or not what has been done over the prior art amounts to invention or is so obvious as to be merely mechanical skill or judgment.

8. In general conclusion of these negative rules it may be said that it is not invention to put old devices or elements into new articles or structures without producing any new result.

This statement is in some respects substantially the same as those relating to the substitution of equivalents or mere double use, and in a sense involves also the rule of mere mechanical skill. Or, as is summed by the Supreme Court in Smith v. Nichols, 88 U. S. 112, 22 L. ed. 566:

"But the mere carrying forward, new or more extended application, of the original thought, a change only in form, proportions, or degree, the substitution of equivalents, doing sub-

stantially the same thing in the same way by substantially the same means with better results, is not such invention as will sustain a patent."

This excellent statement covers the majority of the "rules," but it is the exceptions which more particularly require to be borne in mind because they best illustrate how close and careful must be the consideration of whether or not a new idea of means or method has been invented.

(d) Want of Patentable Novelty.

(aa) Prior Use. The invention must not have been known or used by others, in this country, prior to the completion of the invention in this country by the applicant. A single use by another, in this country, prior to the date of applicant's invention would negative novelty even though the knowledge be that of one person and the thing in use be hidden from sight, as, for example, a bolt in a safe, or a feed-clamp in an arc light.

To obtain a valid patent the applicant must have been the inventor of the device, though he may have used it himself or it may have been used by the public for two years before applying for a patent, or he may, if necessary, experiment with it for even longer time (see "Public Use"). The bar of prior use has a special exception in favor of the inventor in R. S., Sec. 4923.

Keeping in mind the qualification that the inventor must believe himself to be the original and first inventor at the time of applying for a patent, it may be said broadly that no amount of foreign use will affect the patentability of an invention.

In the cases there are striking illustrations of this principle and also of the care required in considering allegations of prior use or public use, and in distinguishing such uses from unsuccessful experiments or abandoned experiments.

(bb) Prior Patents and Publications.—A prior patent to another is the most obvious and direct bar to the grant of patent. A patent is granted, as will be hereafter shown, for the invention covered by the claims. Matter not claimed is therefore not "patented," and must be cited as a "publication."

This distinction becomes of importance in the consideration of domestic patents, as bars or "references," for where the subject-matter in question is shown and described but not claimed in the reference, the bar may be overcome by an affidavit from the applicant to facts showing a completion of the invention in this country before the filing of the application upon which the domestic patent issued; also that the invention has not been in public use or on sale for more than two years prior to his application, and that he has never abandoned the invention. A foreign patent claiming or not claiming the invention, and a

printed publication may be overcome by the same oath applied to the time prior to the date thereof. (See Rule 75.)

A foreign patent procured by or for the inventor for the same invention is not a bar to the grant of a domestic patent for the same invention. But if the application shall have been filed more than twelve months before the domestic application then no patent shall be granted in this country. The time limit under this statute for design patents is four months (R. S. Sec. 4887, as amended March 3, 1897, and March 3, 1903).

A domestic patent may be applied as a substantial anticipation, against the same inventor in a subsequent application for patent as showing want of patentable novelty, or as evidencing the kind of abandonment of features not claimed technically known as "dedication to the public." The first point will be further considered under "Double Patenting," and the second under "Abandonment—Dedication to the Public."

Patents are generally cited or produced as statutory bars, without reference to the particular heading under which they fall. When a description or drawing making part of a patent is cited, it is a publication (Ex parte Borden, 23 O. G. 439), and publications are referable to the date only, as will be seen. In such a case, however, the publication carries intrinsic evidence of "prior knowledge" back to the date of filing, where it was a part of the application as filed, and may be a reference as indicating prima facie prior use.

Without a further discussion of foreign patents it may be said that it is immaterial whether they are cited as patents or as publications if the purpose be to exhibit them as parts of the prior art.

A "printed publication" is anything which is printed, and without any injunction of secrecy is distributed to any part of the country. (Rosenwasser v. Spieth, 129 U. S. 47.)

The Circuit Court in Parson v. Colgate, 15 Fed. 600, held a trade circular not a publication. (Doubtful.) Two circuit courts have shown a disposition to discredit a drawing unaccompanied by a description. (Reeves v. Keystone Bridge Co., 1 O. G. 466, Fed. Cas. No. 7565.) The Commissioner of Patents as shown in Ex parte Borden, supra, held a clear, full and obvious drawing sufficient. He stated that often such a drawing is the best anticipation, as not admitting of any discussion of terms such as arises upon description. The Supreme Court of the United States settles this in Wright v. Yuengling, 155 U. S. 47, 39 L. ed. 64—a drawing may be a reference.

It is hardly necessary to add that the description must be of the invention, and the drawing must show the invention. The best test may be found in the requirement put upon the in-

ventor in his description—that it shall be "of the manner and process of making, constructing, compounding and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same, * * *." The age or language of the reference is immaterial. Virgil and the Bible have been frequently cited, and, in one instance, a drawing and description of a prehistoric whistle was cited.

(e) Public Use or Sale.—This and "abandonment" fall under the general term of laches. Public use or sale for more than two years prior to the application is a bar; that is, use in public or by the public in the way of business, with or without the consent or allowance of the inventor, or an offer for sale or actual selling.

It has been shown in the consideration of "prior use" that a single use by another, even though concealed from sight, is a bar. The same is true as to public use. In Egbert v. Lippman, 104 U. S. 333, 26 L. ed. 755, the use of a corset steel for eleven years by a lady who afterward married the inventor was held to be public use. But use in public for experimental purposes is not public use of the character which will create a bar, as in the case of the Nicholson pavement, which required a prolonged trial to determine its wearing qualities, and which was tried for six years near a toll-gate by the inventor without losing his right to a patent. (Elizabeth v. Pavement Co., 97 U. S. 126, 24 L. ed. 100). It will be observed in this case that the inventor had not parted with the pavement; had not laid it for profit; but was making a test, and not merely using it in the ordinary course of business, though the very nature of the invention required an open public experiment.

All cases prior to Andrews v. Hovey, (1887), 123 U. S. 267, 31 L. ed. 160, had been of use by others, with the consent and allowance of the inventor or by the inventor himself. This case is the first that directly takes up the point of public use without the consent and allowance of the inventor.

The court says: "The evident purpose of this section 7 of 1839, was to fix a period of limitation which should be certain and require only calculation of time, and should not depend upon the uncertain question of whether the applicant had consented to or allowed the sale or use." That such "consent and allowance" is not a factor has been expressly decided also by the Court of Appeals of the District of Columbia. (Ex parte Drawbaugh, 67 O. G. 929.)

(f) Abandonment.—The patentee receives his patent as the result of a contract with the public, by which his dominion over

his own invention is secured, in consideration of a full disclosure of his invention, so that at the expiration of the set term it may be generally made or used. When, however, the public already have that disclosure, there is no benefit or consideration which can be extended by the inventor. Once the disclosure is complete the public may seize it, and there is no official recompense except by a special act of the legislators proceeding from a sense of moral justice. Patents are not bestowed as medals, to mark and reward a benefactor. This is the broad principle, but, as instanced for example under "Public Use" it is not applied rigidly against the "first inventor."

The word "abandonment" contemplates a perfected invention, "adapted for use" or embodied in practical means. This term is not properly applied to "crude experiments," nor is it required in those instances of vague invention which are of the past, forgotten, and are brought to light and memory upon the spur of subsequent successful inventions. As indicated, the term "abandonment" applies to the surrender to the public of a complete invention embodied in a practical means or clearly disclosed, and so given to the public forever. (Bates v. Coe, 98 U. S. 31, 25 L. ed. 68; Consolidated Fruit Jar Co. v. Bellaire Stamping Co. (1886), 27 Fed. 377; Am. Hide Co. v. Am. Tool Co. (1870), 1 Holmes (U. S.) 503, 4 Fish, (U. S.) 284, Fed. Cas. No. 302.)

Abandonment is a question of intention, and the courts have required the strongest proofs before decreeing abandonment. They have held that no delays in the Patent Office without fault of the inventor work an abandonment, (Sayles v. C. N. W. Ry. Co. [1865], 2 Fish. (U. S.) 623, Fed. Cas. No. 12414; Crown Cork, etc. Co. v. Aluminum Stopper Co., 108 Fed. 845, 48 C. C. A. 72; United States v. American Bell Tel. Co., 128 U. S. 315, 32 L. ed. 450), that the mere abandonment of the application is not abandonment of the invention, (Western Electric Co. v. Sperry Elec. Co., 58 Fed. 186, 7 C. C. A. 164; Dederick v. Fox, 56 Fed. 714; Lindsay v. Stein, 10 Fed. 907); and that no number of successive applications indicates an intention to abandon; but that, in reference to the question of abandonment, all such may be regarded as one application, the ones subsequent to the first being known as "continuing" applications. (Godfrey v. Eames, 68 U. S. 317, 17 L. ed. 684).

In these matters, however, the courts are giving much closer scrutiny to the matter of abondonment and especially to a lapse of time as supporting and giving force to testimony of what was done in the interval. (Consolidated Fruit Jar Co. v. Bellaire Stamping Co., 27 Fed. 377.)

The time for abandonment may be prior to the filing of the

application or subsequent to the application, and a patent itself may furnish the strongest evidence of one form of abandonment which will be hereinafter discussed under the sub-heading "Dedication to the Public."

In recent years there has been a marked change in the attitude of the courts in applying these familiar and long-established doctrines of abandonment. Even the hard and fast views of abandonment which for years obtained in the Patent Office under the direction of the Supreme Court of the District of Columbia, requiring complete and positive proof of actual abandonment, have been modified so that, in effect, the burden is really upon him who has permitted another to come to the Patent Office or put his invention in use during the period of inactivity of the earlier reducer who, under the old rule, would have been entitled to be known as "the first inventor."

The case of United States Rifle and Cartridge Co., et al. v. Remington & Sons (1886), 118 U. S. 22, 30 L. ed. 53, precisely applies this doctrine:

"The renewal of Cochran's application on December 5, 1870, was under the provision of the Act of July 8, 1870, Chap. 230, Sec. 35, which allowed any inventor whose application for a patent had been rejected or withdrawn before the passage of that act to renew it within six months after its passage; and provided, further, that upon the hearing of such renewed application, abandonment should be considered as a question of fact. (16 Stat. at L. 202.)

"The rules of law which must govern this case are clearly established by the judgment of this court in Planing Machine Co. v. Keith, 101 U. S. 479, 25 L. ed. 939. The decision of the Commissioner in favor of the applicant, upon the question whether the invention has been abandoned, is not conclusive, but may be contested and reviewed in a suit brought for the infringement of the patent. There may be an abandonment of an invention to the public, as well after an application has been rejected or withdrawn, as before any application is made. Such abandonment may be proved, either by express declaration of an intention to abandon, or by conduct inconsistent with any other conclusion. An inventor whose application for a patent has been rejected, and who, without substantial reason or excuse, omits for many years to take any step to reinstate or renew it, must be held to have acquiesced in its rejection, and to have abandoned any intention of further prosecuting his claim."

This decision virtually set aside the ruling of the Supreme Court of the District of Columbia in Ex parte Cochran, which had reversed the decision of Commissioner Fisher in ex parte Cochran, 1869 C. D. 30. The Commissioner had held that

an inventor could not withdraw his application, make no effort to renew it for eight years during which time the subject-matter of the invention had been incorporated into the substance of many subsequent inventions, and then file a new application, and obtain a patent which, to support the novelty of the invention, had to relate back to the first application.

After the Act of 1870, a decision to the same effect as that of Ex parte Cochran, but based upon the new law and by another Commissioner, was made in Gray v. Hale, et al., 1871, C. D. 129. This decision was also overruled by the Supreme Court of the District of Columbia. That both the Commissioners were right was evidenced by the decision of the Supreme Court in the cited case, U. S. Rifle & Cartridge Co. et al. v. Whitney Arms Co., et al.

In view of the policy of the law, the more "advanced" decisions have been based upon a principle of "equitable estoppel"; but they have also foundation in the statute, and upon the term "abandonment" in the statute.

The present views of abandonment were not only stated in the early decisions of the Commissioners but they were strongly expressed in the decision of the Commissioner of Patents in Farmer v. Brush, 17 O. G. 150, 1880 C. D. 5.

"If an inventor abandons or forgets his invention before its public use, it may become the property of a subsequent inventor. Abandonment, in the sense in which the term is here used, is the cessation of all effort to furnish the invention for public use. Such abandonment may be voluntary and absolute, as when the invention is deliberately thrown aside with a purpose never to resume it; but it also may occur when the invention is thrown aside, not with a purpose never to resume it. If it is merely laid aside temporarily, with an intention to resume it, there is no abandonment. But the question of abandonment in such case is not one of mere mental operation. A mere mental purpose or intention to give the public at some future time the benefit of a completed invention, unaccompanied by any corresponding acts or words, amounts to nothing; the presumption raised by acts of the party of a purpose to abandon will not be overcome by his testimony that he mentally intended not to abandon it. Such testimony will be construed in connection with the acts of the party; and although it may throw light upon such acts, and, taken in connection with them, may determine their meaning and effect, yet it will not always be decisive when contradictory, rather than explanatory, of such acts.

"Now, a mere delay of two years in the application for a patent is not evidence of abandonment; but neglect to confer the benefits of the invention upon the public, whether it is or is

not accompanied by neglect to apply for a patent, is evidence of abandonment. The inventor may voluntarily keep his invention secret as long as he sees fit to do so, provided he applies for a patent before another invents the device. He may abandon or forget his invention, provided he resumes or recalls it before another makes the invention. But his rights do not, in either case, relate back through the intermediate 'vacuum' to the original invention, so as to give him the benefit of its date as against a rival inventor."

This is the reasoning of the Supreme Court, and, as more directly in point with reference to Patent Office practice, of the Court of Appeals of the District of Columbia in Mason v. Hepburn, 13 App. D. C. 86, 84 O. G. 147, and in the application of the principle in the dictum of the court with reference to "Renewals" in Cain v. Park, 14 App. D. C. 42, 86 O. G. 747, and the cases cited therein and discussed, post, under "Interferences." The case of Mason v. Hepburn established the rule that a completed invention may be lost by "concealment." That is to say, that even if an inventor had made an invention and actually introduced it to practice prior to another, his right to a patent would be barred by a designed or negligent concealment from the public and the subsequent entry of another into the apparently unoccupied field.

(g) Abandonment—Dedication to the Public.—In the great majority of patents the description of the invention covers more than the applicant can or does claim as his invention, for the description necessarily sets forth the invention in its relation to the art, and generally includes connecting and related parts to clearly indicate the place of the invention in a particular art, while the claims are drawn to precisely cover that part or improvement which the applicant regards as his own invention, because of his belief that the features unclaimed are not patentable or because of some inadvertence, accident or mistake, or because of neglect by himself or his attorney. In such a case prima facie the unclaimed feature is abandoned, that is, dedicated to the public.

"Nothing is better settled in the law of patents than that the patentee may claim the whole or only a part of his invention, and that if he only describe and claim a part he is presumed to have abandoned the residue to the public." (McClain v. Ortmayer, 141 U. S. 419, 35 L. ed. 800.)

That this "rule," however, courtesies to great inventions or even "meritorious" inventions, is shown in discussing "Equivalents" under "Letters-Patent and Their Construction and Scope."

Abandonment is, as has been said, not presumed; but an omission to claim matter clearly shown and described operates

as evidence of intention to abandon. Such omission may be direct opposition to the real intention of the inventor, and he has, in such cases, certain remedies; that is, he may under proper conditions, reissue or file another application. The distinction is, in brief, as follows: After the grant of a patent—that which is shown and described therein, and which might have been claimed, but was not, may be had by reissue, provided the error arose by inadvertence, accident or mistake, and here be not laches. Before the grant of a patent—matter shown and described but not claimed, may, where it is sufficiently distinct to constitute a separate invention, be placed in another application pending at the same time.

In one case only (by the Office rulings) can matter shown or described (disclosed) in a patent, be covered by an application filed subsequent to the grant of the patent; and that is where the subject-matter was not claimed in the patent, because covering a separate and distinct invention. (Mullen v. Mullen, 50 O. G. 837; Ex parte Beggs, 50 O. G. 1130, and decisions cited, and R. S. U. S. Sec. 4916.)

The doctrine of "dedication" may make an earlier patent invalidate a later patent, or create a bar to a subsequent application, and is a restriction upon the disintegration of a single, integral and indivisible invention into separate parts claimed in separate applications. Its effect, in practice, is illustrated in the consideration of "Double Patenting." Under this topic now being discussed (but equally applicable to that just named), may be cited, as an illustration, Ex parte Johnston, 46 O. G. 1641, 1889 C. D. 130, stating both sides of the question.

Johnston's patent, No. 348,018, showed two different eyeglass frames. Originally there was a broad claim covering both forms. This was canceled, and the patent went out with a claim to one form. Subsequently (within six months) he applied for the second form. Quoting Ex parte Roberts, 1887 C. D. 61, and decisions there cited, it is summed up as follows:

"It results from the necessary conditions under which the patent issues, that, when an applicant fails to claim an element, part, or feature of his invention, which he might have claimed, he dedicates such unclaimed element to the public. The omitted thing is part of the original invention, necessary to its operation and use; but in all these cases there was no proposition like the one now before me; that is, where an absolutely independent invention is shown, which had no connection by way of arrangement or combination with the other distinct and separate invention shown and claimed, it would be dedicated to the public."

Held, not dedicated. (Quotes Eastern Paper Bag Co. v. Standard Paper Bag Co., 30 Fed. 63.)

(h) Double Patenting, or Two or More Patents to the Same Inventor for the Same Invention. This heading may perhaps more accurately be stated as relating to earlier and later patents and applications of the same inventor for the same invention. "It is hardly necessary to remark that a patentee could not include in a subsequent patent any invention embraced or described in a prior one, granted to himself, any more than he could an invention embraced or described in a prior patent granted to a third person. Indeed, not so well; because he might get a patent for an invention before patented to a third person in this country, if he could show he was the first and original inventor, and if he should have an interference declared." (James v. Campbell, 104 U. S. 832, 26 L. ed. 786.)

It has long been the established practice of the Patent Office to use patents as references without any regard to the identity of the inventor of any particular patent. For example, if an inventor should substitute for an element of his patented combination some element old in the same relation and having the same function, his claim for the alleged new combination would be properly rejected upon his own patent and a patent showing the substituted element. That is to say, his application would be held to be wanting in patentable novelty over his own patent in view of the other patents, because it is not invention to replace an element of a combination by another element old in the same relation and having the same function. In such a case the patent is cited against an application which is not for the same invention. The patent is simply one of the many and it is used as a reference because it is the best illustration of the gist of the claim. But, as indicated in the quotation from James v. Campbell, and as stated more fully under "Abandonment, Dedication to the Public," a patent may, and generally does, describe matter which is not claimed. And it may be that certain features are unclaimed merely because old and well-known or not thought patentable. It is a common occurrence for a patentee to take a patent with a claim which he later regards as more narrow, specific or restricted than the invention, or which does not make any claim to some feature, described or disclosed. This undue limitation may be remedied by a reissue for the same invention he intended to claim, where it can be shown that the patent is inoperative or invalid by reason of inadvertence, accident or mistake, and there has been no laches. Where no such showing can be made the only remedy is by a new application, and this remedy can be had only where the matter unclaimed is another invention, different from that claimed, which was properly reserved for the new application. For the doctrine of "Dedication to the Public," that matter unclaimed is presumed

to be dedicated to the public, operates where the new application is for an integral and necessary part of the invention of the patent, or for a mere difference of breadth or scope.

In many cases, however, the applicant presents his subsequent or separate applications as separate and distinct inventions. The rules of the Patent Office do not permit two or more independent inventions to be joined in one application, but two or more separate and distinct inventions may be joined when they mutually contribute to produce a single result. It will be readily seen that there may be many cases which will present the most difficult questions of joinder, and that where an applicant had not fully covered all he described, it may have been because of his obedience to a positive requirement, a well-understood practice of the Office, because his case is one of two or more inventions which may or may not be joined at his option, or because he has run counter to the principles of joinder by reason of a mistake of judgment or through neglect. That is to say, the separation may have arisen through an obedience to the requirement of the rules, an acceptance of the privileges of the rule, or a failure to understand or observe the converse of the rule, which is, that the Patent Office must see that all that an applicant claims of a simple, integral, indivisible invention shall be in one patent, for the courts will not sustain two or more patents for the same idea or structure of invention. This attitude of the courts is exhaustively discussed in the decision of the Supreme Court of the United States in Miller v. Eagle Mfg. Co., 151 U. S. 186, 38 L. ed. 121, under the text, that it is the "well-settled rule that two valid patents for the same invention can not be granted either to the same or to a different party." The court cites Suffolk Company v. Hayden, 70 U. S. 315, 18 L. ed. 76; James v. Campbell, 104 U. S. 382, 26 L. ed. 786; Mosler Safe Co. v. Mosler, 127 U. S. 355, 32 L. ed. 182; McCreary v. Pennsylvania Canal Co., 141 U. S. 467, 35 L. ed. 817; and Underwood v. Gerber, 149 U. S. 224, 37 L. ed. 710, to the effect that of two patents for the same invention issued to the same inventor, the latter is void, regardless of the filing date of the applications, and states in substance that, the reason for the rule established for the above-cited cases is that the power to create a grant is exhausted by the first patent, and for the further reason that a new and later patent for the same invention would operate to extend or prolong the period allowed by law. (Odiorne v. Amesbury Nail Factory, [1819] 2 Mason 28, 1 Robb 300.) The summing up of the court is as follows:

"The result of the foregoing and other authorities is that no patent can issue for an invention actually covered by a former patent, especially to the same patentee, although the terms of

the claims may differ; that the second patent, although containing a broader claim, more generical in its character than the specific claims contained in the prior patent, is also void; but that where the second patent covers matter described in the prior patent, essentially distinct and separable from the invention covered thereby and claims made thereunder, its validity may be sustained.

"In the last class of cases it must distinctly appear that the invention covered by the later patent was a separate invention, distinctly different and independent from that covered by the first patent; in other words, it must be something substantially different from that comprehended in the first patent. It must consist in something more than mere distinction of the breadth or scope of the claims of each patent. If the case comes within the first or second of the above classes, the second patent is absolutely void."

The practice of the Patent Office was stated by Commissioner Hall in Ex parte Roberts, 40 O. G. 543, and by Commissioner Mitchell in Ex parte Mullen & Mullen, 50 O. G. 837, and by various later decisions requiring that but one application shall issue for the same invention, the later ones being rejected upon the earlier, or the allowed application.

The practice of the courts in following the rules interpreting the subject and distinguishing proper divisional patenting from illegal and improvident double patenting, is presented in Thompson-Houston v. Ohio, 80 Fed. 712, 26 C. C. A. 107.

It is not always clear, however, which of two patents is the senior. In Electric Light Co. v. Brush Co., 52 Fed. 130, 2 C. C. A. 682, the Second Circuit held that were patents are issued on the same day, the complainant might elect between the two, but the same circuit in Crown v. Standard, 136 Fed. 841, 69 C. C. A. 200, held that the priority of numbering must control.

In Benjamin Electric Mfg. Co. v. Dale Co., et al., 158 Fed. 617, 85 C. C. A. 439, it was accepted as a general rule that, of two patents granted to the same inventor, the one first numbered takes precedence of the other; but an exception was noted where the patentee had an application pending for the second when the first was issued, and especially where the two are the result of the splitting of the same original application by the Patent Office, in which case neither would be held an anticipation of the other and they may be treated as a single patent. This exception would apparently cover practically all of the cases in which the question is likely to arise.

It appears remarkable that upon a principle so elaborated there could be any considerable number of illustrations. However, the practical difficulties arise in the construction of differ-

ent phrases or terms of claims relating to the same invention. A striking illustration of attempting to cure an error of having taken too narrow claims in a patent by broadening the claims in a co-pending but not divisional application instead of reissuing the patent, is found in Union Typewriter Co. v. Smith, 181 Fed. 966, 104 C. C. A. 430.

The views of the courts with reference to the relation of several related applications is succinctly expressed in Anderson v. Collins, 122 Fed. 451, 58 C. C. A. 669:

"Even where each of several applications which subsequently ripen into patents to the same inventor discloses all the inventions claimed in all the applications, and they are all pending at the same time, no one of the applications or patents can be used to anticipate any of the claims of the others which it does not itself claim and secure. Ide v. Trorlicht, Duncker & Renard Carpet Co., 115 Fed. 137, 145, 53 C. C. A. 341; Walker on Patents, Sec. 180; Westinghouse Electric & Mfg. Co. v. Dayton Fan & Motor Co., (C. C. A.), 106 Fed. 724, 726; Suffolk Mfg. Co. v. Hayden, 3 Wall. (U. S.) 315, 318, 18 L. ed. 76; Graham v. McCormick, (C. C. A.) 11 Fed. 859; Graham v. Mfg. Co., (C. C. A.) 11 Fed. 138, 141."

In that case the first patent was held not an anticipation of the subsequent patent "(1) because the applications for the two patents were pending in the Patent Office at the same time, and (2) because the combination described and claimed in the second is not described or claimed in the application for the first patent." It may be added to this that, even if the subject-matter had been described, the rule would not have been altered, because the question is in this particular topic, whether or not the claim was either a narrow or a broader expression of the same invention; and, secondly, whether or not if they be broad and narrow expressions of the same invention they were co-pending applications. See also, for discussion and authorities Victor Talking Mach. Co. v. American Graphophone Co., 140 Fed. 860, affd. 145 Fed. 350, 76 C. C. A. 180.

It follows, as before suggested, from these principles that a second patent may not be had for a preceding patented combination and non-patentable elements. See, for example, the discussion in Dodge Coal Storage Co. v. New York Cent. & H. R. R. Co., 139 Fed. 976, affd. 150 Fed. 738, 80 C. C. A. 404.

Some General Rules. This discussion of the statutory requisites of invention and the statutory bars and their interpretation indicates the intimate relation of the various divisions of the patent law.

In defining invention and "What is Patentable," there must be included also some reference to priority of invention, the scope

of the patent, reissues, infringement, and other more "advanced" phases of the patent law, which follow under appropriate headings.

The law and the cases may, it is suggested, be condensed to thus present the principles of patentable inventions:

1. The disclosure of a new idea of means or method useful in a practical art and not obvious even to those skilled in the art, is the foundation for every valid patent.

That the idea is of practical value, that is, useful, may be shown by:

(a) Practical demonstration;

(b) Physical embodiment, from which, even without practical demonstration, it is obvious that the idea is capable of practical utility;

(c) An application for patent, or a patent, disclosing a proposed physical embodiment which can be made of practical value by an exercise of the ordinary skill of the art.

2. An idea is not, however, new or patentably novel merely because no prior means of giving it practical effect are in existence, or because, under the statements of the older decisions, it has not been "embodied in practical means" for a mere prior disclosure may be a sufficient guide to a practical embodiment which any one may make.

3. An idea of means or method is new and patentably novel, if not obvious without the aid of the new idea to those skilled in the art, and not previously known in this country, and not previously made accessible anywhere by patent or publication.

4. The person upon whose disclosure an application for a patent is based must not have received the idea from another; but he may, if he first conceived the idea, have it developed or embodied by another.

5. If this is new and patentably novel, the idea may be the basis of a valid patent, if not subject to the prohibitions of the public use or sale or publication for more than two years prior to the application, or not patented abroad upon an application by or for the same inventor filed more than twelve months before the domestic application or unless the idea is proved to have been abandoned, or the conduct of the inventor establishes such a presumption of abandonment or of dedication to the public as to create an equitable estoppel against him.

III. WHO MAY OBTAIN A PATENT.

There is no limitation in the statutes, it being provided that "any person who has invented or discovered" may secure a patent. (R. S. U. S., Sec. 4886.)

The statutes and rules of practice (R. S. U. S., Sec. 4885 and

Rule 26) provide for application and the taking out of a patent by an executor or administrator or by the guardian of an insane person; for the granting of a patent to an assignee of the whole or jointly to the inventor and the assignee of a part, without limit to the number of patentees; and (R. S. U. S., Sec. 4897, Rule 175) for the renewal of a forfeited application by "any person who has an interest in the invention or discovery, whether as inventor, administrator or assignee."

It is therefore apparent that an executor, an administrator or a guardian may be an applicant and a patentee, and that an inventor and his assignee, for example, may be joint patentees. It is necessary, however, that the inventor, if alive and competent, shall make oath to the specification.

An invention to be patentable need not be the product of a single mind; it may be a joint invention; it may be the result of the invention of many where the inventive faculty of all is exercised in the completion of a single invention. It is not sufficient that one shall have invented one improvement and the other a distinct and independent improvement; nor is it sufficient that one person furnish the capital and another make the invention.

The rule that, if one man does all the inventing and another does all the constructing, the first is the sole inventor, was presented in the leading case of Agawam Co. v. Jordan, 7 Wall. (U. S.) 583, 602, 603, 19 L. ed. 177, cited in many subsequent authorities, and quoted hereinafter under "Interferences."

It frequently happens, however, that those who might be joint patentees, but are not joint inventors, file a joint application for a patent. In such a case, it is not unusual for one of these, who has concluded himself to be the sole inventor, to then file a sole application. There then may be an "interference" proceeding between the joint applicants and the sole applicant to decide who is the first inventor.

It should be noted that the sole applicant must file his sole application before the invention has been in public use for two years prior to the joint application.

The rule of procedure in the Patent Office under which joint inventors are treated as a different entity from one of the inventors filing a sole application, is well presented with citations from various authorities in Ex parte Weil & Grant, 173 O. G. 1081, 1911 C. D. 249.

IV. THE PATENT OFFICE—ITS ORGANIZATION AND FUNCTIONS.

The Patent Office and its conduct are provided for in the Revised Statutes, Sec. 441, 475, 478, 480-487 and various other statutes relating to details.

Though the statutes make the Patent Office a bureau of the Department of the Interior and provide that the Commissioner of Patents shall superintend or perform all duties respecting the granting and issuing of patents under the direction of the Secretary of the Interior, nevertheless in his judicial capacity the Commissioner of Patents is an independent tribunal, the law having given no right of appeal or petition from him to the Secretary of the Interior where the Commissioner exercises his discretion or judgment in any matter relating to the examination of applications for patents or the granting of patents. This is true nowithstanding the fact that, by Section 483 R. S. U. S. the regulations or rules of practice established by the Commissioner of Patents must receive the approval of the Secretary of the Interior. (Butterworth, Comr., etc., v. United States ex rel. Hoe, 112 U. S. 50, 28 L. ed. 656.)

Since Butterworth v. United States ex rel. Hoe, there have been many cases before the Secretary of the Interior asking a review of the acts of the Commissioner of Patents. A distinction has been made between those acts of the Commissioner which are judicial or quasi-judicial and those which are ministerial. The line is defined in Houston v. Banker and Bannister v. Eastman, 44 O. G. 697, quoted in the opinion of Assistant Attorney-General Hall in Ex Parte Cote Co., 65 O. G. 1915.

That the Commissioner in recording assignments is a ministerial officer, see Ex Parte Church, 82 O. G. 1987.

There are two Assistant Commissioners. Either of these, when rendering a judicial opinion and decision, is the Commissioner or Acting Commissioner within the law.

The examination of applications is performed by a body of Primary Examiners and Assistant Examiners, constituting nearly fifty divisions. In addition to this is a clerical force, an assignment division for recording assignments, etc., and various other business divisions at the head of whom is the Chief Clerk, now under the law, a member of the examining corps.

The statutes clearly set forth the duties of the Commissioner and the Examiners-in-Chief but do not define the duties of the Primary Examiners. Theoretically all examinations and all actions of the Patent Office are by the Commissioner of Patents. Practically a formal decision of the Primary Examiner from which no appeal has been taken may become conclusive even against any action by the Commissioner. See, for example, United States ex rel, Newcomb Motor Co. v. Moore, 30 App. D. C. 464, 133 O. G. 1680, 1908 C. D. 332.

While the Commissioner has supervisory authority over the various examiners it is seldom exercised. Though cases which have been rejected may reach him by appeal, few which have

received favorable action are brought to his attention except incidentally in an interference contest.

The Examiner of Interferences is a Primary Examiner having charge of interferences. The decisions of the Primary Examiners and the Examiner of Interferences are reviewed upon appeal by the Examiners-in-Chief, a tribunal of three. Petitions upon questions of practice are taken directly from the Primary Examiners to the Commissioner whose decision is final. Appeals from the Exeminers-in-Chief are heard by the Commissioner, or by one of the two assistant Commissioners; and appeals may be taken from any of them to the Court of Appeals of the District of Columbia.

It has been in some measure unfortunate that the public has not had clearly in mind the relation of the Patent Office to the public.

The purpose of the patent laws to "promote the progress of science and the useful arts" was not merely to promote the interests of authors and inventors, but rather, to promote the interests of the whole public. For this reason patents are granted in exchange for a disclosure of the invention. The Patent Office is, in effect, a great industrial library in its relation to the public. In its practical workings the printed disclosures are, for lack of proper facilities, stored in such a manner as to require almost inventive ingenuity to trace the travels of an idea through various arts.

There can be no question of the influence of patented inventions upon the arts. This is evidenced, not only in the production of new inventions, but in the actual creation of new industries in this generation, whose genesis and development are pictured and phrased in the copies of patents which flood the inadequate quarters of the Patent Office.

The electric light, the electric car and motor, electric railways, the telephone, the bicycle, with all its allied features, the gas engine in its varied commercial forms, the typewriter, amateur photograph, cash registers, cash carriers, basic steel, the manufacture of aluminum, the graphophone, the kinetoscope, the half-tone process of photo-engraving, the chrome-tanning process, smokeless powder and other high explosives, acetylene gas, linotype machines, automatic weighing machines, tabulating machines, adding machines, flying machines and the whole realm of electro-chemistry, all are productions of this generation and all are directly traceable to the impulse given invention by the hopes of reward from the limited monopoly of a patent.

If in some occasional cases there have been attempts to utilize patents to cover more than the contract warranted, on the other

hand, in many cases, patents have broken up or prevented commercial monopolies by opening new fields, and the disclosures presented through the patents constitute an almost inexhaustible field of practical value upon which many of these industries have been established after the expiration of the patents, and in many cases, unfortunately, after the inventor or the patentee had failed in receiving his due reward.

V. APPLICATIONS—PROCEEDINGS IN THE PATENT OFFICE.

The Statutes and the "Rules of Practice" (gratuitously distributed by the Patent Office) specifically recite the formal requirements of an application and the rules, in an appendix, give various forms for the preamble, specification, claims, oath, etc., as well as for papers used upon petition, appeal, interference, etc.

The leading statute upon the vital parts of an application is Sec. 4888 R. S. U. S., providing for an application in writing, "of the manner and process of making, constructing, compounding, and using" the invention, "in such full, clear, concise and exact terms as to enable any person skilled in the art and science with which it appertains, or with which it is most nearly connected, to make, construct, compound and use the same." The section in conclusion requires that the inventor "shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery."

Secs. 4889-4894 provide for drawings, when requisite, for specimens of the ingredients or composition, etc., for models, when requisite; define the oath required from the applicant; provide for the issuance of a patent following an examination by the Commissioner of Patents, and for a limitation of one year upon the time of completing an application after filing.

Sec. 4903 provides for a notice to the applicant of the rejection of a claim.

Secs. 4909-4919 provide for appeals from the Primary Examiner to the Examiners-in-Chief after the claims have been twice rejected, or from the "examiner in charge of interferences," in an interference cause; for an appeal from the Examiners-in-Chief to the Commissioner; for an appeal from the Commissioner to the Supreme Court (this appeal under section 9, act of February 9, 1893 now being to the Court of Appeals of the District of Columbia); and for notice of such appeal. They also define the proceedings on appeal to the Court, the determination of such appeal and its effect in governing further proceedings in the Patent Office.

It is provided, however, in Section 4914 that no opinion or decision of the court in any such case shall preclude any person interested from the right to contest the validity of a resulting patent in any court wherein the same may be called in question.

Sec. 4915 provides that, after a patent has been refused by the successive tribunals, the applicant may have remedy by a bill in equity and, in case of a favorable adjudication, the Commissioner of Patents may be authorized to issue a patent.

The "Rules of Practice" define the details of procedure upon an application. Many of these require no comment. Some of them, however, are, in effect, substantive law and have been the subject of various interpretations by various Commissioners and the courts.

When an application is filed complete, that is, with the petition, specification, claims, oath, drawings and fee, it is given a serial number and then assigned to the proper division to be examined in the order of filing. The action by the Examiner may relate to formal matters and be in the form of objections, directly reviewable upon petition by the Commissioner without fee, or to the merits of the case and be in the form of a rejection. Ordinarily an action will embody both objections and rejections.

If the Examiner thinks that more than one invention is set forth in the application he requires division. The rule of joinder of inventions in one patent in the courts is broadly that the inventions must be connected in design and operation, but it is doubtful if, on principle, a patent could be held invalid because two or more independent inventions had been joined (Hogg v. Emerson, 11 How. (U. S.) 587, 13 L. ed. 824).

A court, however, may refuse relief in such a case (Sessions v. Romadka, 145 U. S. 29, 36 L. ed. 609, 12 Sup. Ct. 799).

The rule of joinder of two or more inventions in one application in the Patent Office is based upon Rules 41 and 42 and permits joinder only where the distinct inventions are dependent upon each other and mutually contribute to produce a single result.

The practice under this rule is one of policy rather than of law. The constant (and perhaps unfortunate) tendency to multiplication of divisions in the Patent Office and the elaboration of classification tend to more and more limit what may be included in one application.

There are certain well recognized lines of division that seldom vary and are seldom questioned: For example, between an electric motor and a fan which it might drive; between a steam engine and an air pump which it might operate; between a scoop for throwing water into the tank of a locomotive, and an injector for forcing the water into the boiler. Notwithstanding their

relation in one organism, such things as these are clearly distinct and independent inventions. The progress of classification, however, has now practically taken apart the motor, engine, and pump, so that almost every separate part is the subject of separate classification leading to the requirement that an application shall relate to but one of these parts of the engine, motor or pump.

It has long been the practice of the Patent Office to permit one species to be claimed in connection with generic claims which would cover more than one species, but two species may not be joined, nor may two species be joined with generic claims.

Formerly the requirement of division was treated as an objection. It is now treated as an action upon the merits and a rejection entitling the applicant to an appeal through the regular channels (Steinmetz v. Allen, 192 U. S. 543, 48 L. ed. 555, 24 Sup. Ct. 416).

Under the statutory provision giving the applicant a right to a re-examination, in practice the applicant may amend his application as often as it is refused or rejected by the Examiner until it is finally refused or finally rejected, whereupon the applicant's remedy is by appeal. Each amendment or necessary action by the applicant must be within one year of the preceding official action and must be responsive to the official action to have it classed as a proper amendment.

If the application be found allowable, it is "passed to issue" by the Primary Examiner and, at any time within six months thereafter, upon payment of a final fee of $20, the patent will issue for a term of seventeen years from the date of the grant. If, however, the application be refused, that is, a "second time rejected," the applicant may appeal, upon the payment of an appeal fee of $10, to the Examiners-in-Chief, a tribunal of three. If this tribunal reverse the Primary Examiner, it is the duty of the Primary Examiner then to prepare the case for allowance, though he may still refuse to do so and even again reject the application upon the discovery of new evidence, that is, of any new anticipatory matter, or bar, or new objections. In case of affirmance it may then be appealed, within a limit of appeal set, to the Commissioner of Patents, upon the payment of an appeal fee of $20. If the Commissioner reverses the Examiners-in-Chief, the patent will then issue through the Primary Examiner. If, however, he affirms the rejection, an appeal may then be taken to the Court of Appeals of the District of Columbia upon certain formal proceedings duly set forth in the rules of practice and especially in the appendix thereto with reference to such appeals. If the Court of Appeals reverses the Commissioner, then the case is remanded to the Commissioner and now reaches

the Primary Examiner who will forward the application to issue; and, upon the payment at any time within six months of the final fee, the patent will be granted and printed, to run for seventeen years from the date of the patent to the patentee, his heirs or assigns.

The recording of a patent by the Patent Office is made essential by the provisions of R. S. U. S. Sec. 4883. If it could be proved that a patent had not been recorded, the patent would no doubt be held void. In the absence of such proof, however, proper record is presumed (Luten v. Dover Const. Co., 489 Fed. 405).

The applicant may, after refusal of his patent by the Court of Appeals of the District of Columbia, as hitherto stated, file a bill in equity for the purpose of securing a decree as authority for the Commissioner of Patents to grant the patent (R. S. U. S. Sec. 4915).

In the consideration of an application, the Patent Office is especially careful that no new matter shall be introduced. If claims to matter which has been described or illustrated in the application but not claimed previously, be presented, a supplemental oath is required on the ground that the statute requires the applicant's oath not to what is described, but to what is claimed. All such amendments must correspond to the original model, drawings or specification, as indicated.

This rule, however, does not prevent the amendment of an application to more clearly set forth the invention.

This is well presented in Ex Parte Snyder, 22 O. G. 1975, 1882 C. D. 22, 24:

"The applicant will not be permitted, under the guise of an amendment, to introduce into his application a wholly different invention, nor to change the construction and operation of an invention which has been fully described and shown, nor to present a different or preferable form of his invention. He may be permitted, upon proper occasion, to supply suitable connections, to add a spring to a pawl, a handle to a crank, a belt to a pulley, teeth to a wheel, an outlet to a closed receptacle, or other manifest defects or omissons in features essential to the operation of the invention or the completeness of the disclosure, and which were caused by a clerical error of the draftsman or the unfamiliarity of the inventor with official forms. These amendments, supplemental in their nature, may be made as completing the invention imperfectly shown and described. They add to the invention disclosed some part or feature which agrees with the construction and operation already presented. An applicant can not be permitted, however, to erase the lines of his drawing and delineate anew the construction and operation of a part fully

shown and described, or replace a well described but inferior arrangement by a preferable form of his invention."

It should be observed that the inventor is not obliged to be familiar with the theory of his invention especially in technical or chemical cases, it being sufficient that he clearly sets forth the process or clearly describes the product or article (Sec. IX., "Letters-Patent, Their Construction and Scope").

In case of the citation of a patent against the claim of an applicant where the patent does not claim the invention it may be overcome as a reference by an affidavit under the provisions of Rule 75 setting up ex parte proof of a completion of the invention previous to the filing date of the cited patent or a previous conception of the invention followed by either an actual reduction to practice or the constructive reduction of filing the application, provided there has been reasonable diligence in such completion of the invention.

After an application is allowed, it may become forfeited at the expiration of six months unless the final fee is paid. Then any time within a period of two years the applicant or any one in interest may renew the application upon the payment of a fee as in the case of an original application, and there may be as many renewals as are necessary or desired within that period providing that none of them is filed later than two years after the date of forfeiture (Ex parte Lambert, 135 O. G. 1581, 1908 C. D. 187).

One of the most important functions of the Patent Office is the determination of what claims shall be allowed in view of the prior art as developed by the examination. Inasmuch as claims are treated at some length under the head "Letters-Patent, Their Construction and Their Scope," the subject will not be dwelt upon here.

It will be sufficient to observe that while, on the one hand, the criticisms of claims by the Patent Office are sometimes strained and may occasionally seem to have little to do with patentable novelty, on the other hand, it is the important function of the Patent Office to, as far as possible, prevent the necessity for construction or interpretation of the claims of a patent by insisting upon a clear statement of the novel idea of means or method.

The Patent Office has, with the courts, varied through the years in its interpretation of "functional" claims, broad and narrow claims, process claims, etc. The tendency of the Patent Office at one time to unduly restrict claims using such terms as "means" and "mechanism" was halted by two striking decisions, Ex parte Knudsen, 72 O. G. 589, 1895 C. D. 29, and Ex parte Halfpenny, 73 O. G. 1135, 1895 C. D. 91.

These cases did not first announce, but did much to establish, the proper view that the sole question is whether or not a claim clearly sets forth the novel idea of means or method, and, in the latter case, the following claim was held not to be necessarily vague or indefin'te, merely because of its breadth of statement:

"The combination of bobbin-feeding, bobbin-separating, and stick-filling mechanisms co-operating to feed and separate bobbins and fill bobbin-sticks therewith, substantially as and for the purpose specified."

Various special matters relating to applications for patents are treated under appropriate headings herein.

VI. APPEALS FROM COMMISSIONER OF PATENTS.

Sec. 9, creating the Court of Appeals of the District of Columbia (Act of February 9, 1893), provided that the determination of appeals from the decisions of the Commissioner of Patents, then vested in the general term of the Supreme Court of the District of Columbia, in pursuance of the provisions of Sec. 780, R. S. U. S., should thereafter be vested in the said Court of Appeals. The Judicial Code, Sec. 250, provides that the judgments and decrees of the Court of Appeals of the District of Columbia, shall be final in all cases arising under the patent laws, the copyright laws, etc., excepting in certain general questions of jurisdiction, constitutionality, etc., as recited in the section, which, following a general principle of the federal judiciary, may be reviewed upon appeal to the Supreme Court.

In the case of In re Hien, (1897), 166 U. S. 432, 41 L. ed. 1066, 17 Sup. Ct. 624, the history of appeals and procedure thereunder from the Commissioner of Patents and the relation thereto of appeals in equity, are discussed and the power of the Court of Appeals to limit the time of appeal by rules, notwithstanding the provisions of Sec. 4894 practically giving the applicant one year in which to answer an official action, was affirmed.

The appendix to the "Rules of Practice" and the rules of the court clearly set forth the special procedure in patent appeals.

The rules also include—in the appendix—instructions to appellants, with reference to the filing of the notice of appeal with an assignment of reasons of appeal to the Commissioner of Patents within forty days, inclusive of Sundays and legal holidays but including Saturday half-holidays, from the date of the decision of the Commissioner of Patents sought to be reviewed; the preparation of the transcript record by the Commissioner; the forwarding of the record to the court with the petition for appeal, and a deposit of $15.00; the entry of an appearance of a

member of the bar; the docketing of the case; the forwarding of models, etc. It should be observed that the petition for appeal and the transcript of record are filed forty days from the time of giving the notice of appeal.

The court strictly enforces its rules for the filing of records and briefs, and upon the limitation of hearings.

VII. DESIGNS.

The design law is based upon Sec. 4929, R. S. U. S.

By Sec. 4931 the term of patents for designs is set, as the applicant may, in his application elect, at three years and six months, or seven years, or fourteen years.

By Sec. 4933 patents for designs are made subject to the general rules of patent law.

By Chap. 105, of the Act of February 4, 1887, provision is made for a specified penalty of $250.00 for the unauthorized use of patented designs, and that other remedies at law or in equity shall not be impaired by this provision.

The present central section of the design law, Sec. 4929, was amended May 9, 1902. Previously it provided for the patenting of any "new, useful, and original shape or configuration" of any article of manufacture. In the present law the word "useful" is omitted and the word "ornamental" is inserted, so that the law now provides that any person who has invented any new, original and ornamental design for an article of manufacture may receive a design patent therefor, under the same conditions, with reference to statutory bars, as apply in case of application for patents for inventions generally under Sec. 4886, R. S. U. S.

This amendment was in conformity with previous decisions of the courts of the United States, and, especially the case of Rowe v. Blodgett, Etc., Co., (1901), 112 Fed. 61, 50 C. C. A. 120. In that case a design patent on a horse-shoe calk was held to relate to an article not intended for display and for an obscure use, and, therefore, not within the policy and meaning of the design law. In cases subsequent to the amended statute of 1902, practically identical questions have frequently arisen. For example, in Roberts v. Bennett, (1905), 136 Fed. 193, 69 C. C. A. 533, where the court said:

"The drawings (of plaintiff's prior mechanical patent) show a basket almost identical in shape, barring some negligible corrugations, with that shown in the design patent. If the plaintiff was entitled to any patent for the advantages claimed for such construction, they were covered by the prior mechanical patent. 'Functional utility entitled the patentee to the mechanical patent already discussed but mere functional utility did not

entitle him to a design patent for the same article.' Christopher C. Bradley v. Richard Eccles, 126 Fed. 945, 61 C. C. A. 669; Royal Metal Mfg. Co. v. Art Metal Works, (C. C. A.) 121 Fed. 128; Id. (C. C. A.) 130 Fed. 778.

"2. There is nothing in the shape or construction of the basket of the patent in suit which 'appeals in any way to the eye, or serves to commend it to purchasers and users as a thing of beauty.' Bradley v. Eccles, supra. It is not useful as a design. The term 'useful' in relation to designs means adaptation to producing pleasant emotions. There must be 'originality and beauty; mere mechanical skill is not sufficient.' (Rowe v. Blodgett & Clapp Co., [C. C. A.] 103 Fed. 794, 873; Bevin Bros. Mfg. Co. v. Starr, [C. C. A.] 114 Fed. 362; Eaton v. Lewis, [C. C. A.] 115 Fed. 635, affirmed 127 Fed. 1018, 61 C. C. A. 562.)"

In brief, the function of the object illustrated is not important in design patents, and, where the illustration is such as to be apparently intended to emphasize the function, it may be objectionable. The essential thing is that the article or thing shall have been given a new and original appearance, which shall enhance its salable value and enlarge the demand for it, and therefore be of meritorious service to the public. See, for example, the earlier cases, Smith v. Whitman Saddle Co., 148 U. S. 674, 37 L. ed. 606, 13 Sup. Ct. 768, and Gorham Mfg. Co. v. White, 81 U. S. 511, 20 L. ed. 731, and various other cases which, in addition to those above, on one side criticise the "perversion" of the design law and on the other side sustain many design patents. In the latter class see, for example: Mygatt v. Zalinski, 138 Fed. 88; West Disinfecting Co. v. Frank, 146 Fed. 388; Ex parte Smith, 130 O. G. 1688; H. S. Earle Mfg. Co. v. Clark & Parsons Co., 154 Fed. 851; Ex parte Norton, 22 O. G. 1205, 1882 C. D. 14; Ex parte Gray, 114 O. G. 543, 1905 C. D. 21; New York Belting, etc., Co. v. New Jersey Car Spring, etc., Co., 37 U. S. 445, 34 L. ed. 741, 11 Sup. Ct. 193.

It has been held that, as one may not take out two patents for the same invention, it is immaterial that one is for a design and the other for a mechanical device, where the two are indistinguishable in their characteristics and are manifestly the outcome of one and the same inventive idea, and that it is also immaterial that the design patent because for a mechanical structure is invalid. (Williams Calk Co. v. Neverslip Mfg. Co., 136 Fed. 210, citing Cary Mfg. Co. v. Neal, 90 Fed. 725, and distinguishing Collander v. Griffith, 2 Fed. 206.

VIII. INTERFERENCES—ORIGIN AND PROCEDURE IN PATENT OFFICE.

Under the laws of the United States a patent may be granted to the original or first inventor only. The Revised Statutes provide for a determination of the question of priority of invention by the Primary Examiner (Examiner of Interferences) whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with any pending application or with any unexpired patent, and that the Commissioner may issue a patent to the party who is adjudged to be the prior inventor (R. S. U. S., Sec. 4904).

The statutes also provide for the method of taking testimony, summoning witnesses, etc. (R. S. U. S., Secs. 4905, 4906, 4907, 4908 and, as an incident, the concluding clause of 4913).

Secs. 4909, 4910, 4911 and the other general appellate sections elsewhere cited provide for an appeal in inter partes or interference cases through the same channel as in ex parte cases.

The Rules of Practice set forth an elaborate procedure in interference causes in the United States Patent Office.

Rule 93 defines an interference as a proceeding instituted for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention.

As has been indicated, the fact that one of the parties has obtained a patent will not prevent an interference. Though the Commissioner has no power to cancel a patent, he may grant it for the same invention to one who proves to be the prior inventor.

When the Primary Examiner finds two or more applications or an application and a patent claiming substantially the same patentable invention, he forwards a statement to that effect to the "examiner in charge of interferences"—that is, the Examiner of Interferences—who then, if the papers appear to be in good form, forwards to the parties in interest, i. e., applicants, patentees, and assignees, copies of the declaration of the interference, setting times for each party to file a preliminary statement.

The preliminary statement is important as forming the basis of facts and dates in the interference proceeding. It is a sworn statement required of each party, before inspecting the application of any other applicant, of the date of the original conception of the invention, the date upon which a drawing of the invention was made, the date when the invention was first disclosed to others, the date of reduction to practice, and the extent of use of the invention.

When the invention is made abroad it is required that the statement set forth: That the applicant made the invention involved in the issue in interference; whether or not the invention was ever patented and if so when and where, giving the date and number of each patent, the date of publication and the date of sealing thereof; whether or not the invention was ever described in a printed publication and if so when and where, giving the title, place and date of such publication; and when the invention was introduced into this country, giving the circumstances with the dates connected therewith, which are relied upon to establish the fact.

While there are provisions for amending preliminary statements, the general rule is that each party will be confined to the dates and allegations which he sets up in his preliminary statement: That is, he may not avail himself of any proof of a conception or a disclosure or a reduction to practice, for example, back of the date which he has given in his preliminary statement.

Before testimony is taken in the case it is open to motions to dissolve, motions to amend, motions to shift burden of proof, etc., following an opportunity for each party to inspect all the cases after the preliminary statements have been approved by the Examiner of Interferences.

The questions which arise on motions to dissolve are based upon the assertion by one or more of the parties that the claim in issue is not patentable, or that one of the parties has no right to make the claim, that the counts of the issue have different meanings in the cases of different parties, or that there has been such informality in the declaration of interference as would preclude a proper determination of the question of priority.

In the former practice the inclusive term "interference in fact" was used to designate questions of the right of a party to make the claim or different meanings in the claims as applied to different applications. This phrase was omitted from the later rules because of the fact that it was inclusive of both motions appealable directly to the Commissioner and motions appealable first to the Examiners-in-Chief.

The line in appeals on motions, it may be observed here, is the same as in the case of other appeals. That is, all matters relating to patentability or the merits of the interference pass from the Primary Examiner through the regular line of appeals; those relating to form or procedure go directly from the Examiner of Interferences to the Commissioner.

The fact that an interference contest is closely related to the administration of the Patent Office and the granting of patents leads also to additional incidents, as, for example, the suggestion

of a statutory bar by the Examiner of Interference or the Examiners-in-Chief to the Commissioner; the suspension of an interference for the consideration of new references which might show the invention of the issue of a party to be unpatentable, and therefore lead to a dissolution of the interference; the addition of new parties; the prosecution or defense of an interference by an assignee, etc.

The rules of practice also provide for filing a divisional application so that some part of an application which is not involved in the interference or which will not be affected by the determination of the interference may proceed in a separate application. They provide also for avoiding an interference by disclaiming the invention in issue and for a judgment by default. Provision is also made for permitting an amendment to include matters which are shown but not claimed and which are still a necessary incident notwithstanding the fact that the Primary Examiner, as a precedent to an interference, suggests the claims of one applicant to another where, in his opinion, they may be made and be the basis of an interference.

Rule 130 (July 31, 1906) provides that:

"Where the patentability of a claim to an opponent is material to the right of a party to a patent, said party may urge the nonpatentability of the claim to his opponent at final hearing before the Examiner of Interferences as a basis for the decision upon priority of invention, and upon appeals from such decision. A party shall not be entitled to take such step, however, unless he has duly presented and prosecuted a motion under Rule 122 for dissolution upon the ground in question, or shows good reason why such a motion was not presented and prosecuted."

Under this rule, questions ancilliary to that of priority and involving the right of a party to a patent may not only be brought up by motions to dissolve, but may also be presented at final hearing and may often be made the subject of testimony in a case.

It was for years the practice of the Patent Office to formulate the issue between parties claiming substantially the same patentable invention whether their claims were in substantially the same terms or not. Since the case of Hammond v. Hart, 83 O. G. 743, 1898 C. D. 52, however, it has been the rule of interferences in the Patent Office that generic and specific claims do not interfere and that, to provide for a declaration of interference, the several parties must make substantially the same claims in substantially the same language.

Claims are, therefore, suggested by the Primary Examiner, sometimes of one party to others, sometimes of each of the parties to all of the others. One who does not make the suggested

claims within a specified time is held to have abandoned his rights to the subject-matter of the claims.

This plan, while having the advantage of defining the issue in terms common to each party, has the disadvantage of not having the issue drawn in the light of a comparison of the several applications. This disadvantage, however, has a corrective in the provision of Rule 109, permitting amendments and a consequent reformation of the issue, upon motion, after the applications have been open for inspection.

Parties to an interference are presumed to have made the invention in the chronological order in which they filed their completed applications for patents: That is, the burden of proof is upon him latest in filing his application.

If one party have a patent granted before the filing date of the other party then the applicant must prove his case beyond a reasonable doubt. A preponderance of evidence is sufficient as between two or more applicants in ordinary cases, or where the application of the junior party was co-pending with the application which eventuated in a patent to his opponent.

In taking testimony the procedure is substantially that which obtained under the Equity Rules (67th rule) prior to the adoption of the rules promulgated by the Supreme Court on November 4, 1912.

It is the general rule of evidence in patent causes (with indications of probable qualification) that the unsupported statement of a party will not be accepted as sufficient proof of conception of an invention or of its reduction to practice (Petrie v. De Schwienitz, 19 App. Cas. D. C. 386, 99 O. G. 1387, 1902 C. D. 534).

The decision in interference proceedings is not conclusive of the question of priority of invention. The same question may arise in separate suits instituted in the courts under Secs. 4915, 4918 and 4920 of the Revised Statutes.

Upon an adverse decision of the Court of Appeals of the District of Columbia in an interference case (as well as in case of an application for a patent), the defeated applicant may file a bill in equity in the district of which the defendant is an inhabitant, or where he may be found. This proceeding is an original one and, therefore, new evidence may be presented. The court may not, however, enjoin the Commissioner from issuing a patent to the previously successful party pending such a suit, but the judgment of the court that the complainant is entitled to a patent will authorize the Commissioner to issue another patent for the same invention.

Priority—General Rules.—In determining priority of invention in an interference, the principal rule which has ob-

tained since the expression of the law in Reed v. Cutter, 1 Story. 590, is that the inventor who first reduces his invention to practice is entitled to an award of priority with the single exception that the inventor who first conceived the invention may be held the prior inventor where he has exercised reasonable diligence in reducing the invention to practice.

The reduction to practice may be either actual, as evidenced by the construction of a complete and operative (or successfully operated) device, or constructive, as evidenced by the filing of an allowable application clearly showing and describing the complete invention.

Sec. 4920 R. S. U. S. which sets forth the defenses in actions for infringement, contains a clause which is the basis of one phase of interference practice. In the second clause the statute says that it shall be a defense if one has "surreptitiously or unjustly obtained the patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same." By this provision, priority of invention may be a defense in an infringement suit and, by analogy, in an interference cause an earlier conception connected with a later reduction to practice by reasonable diligence may lead to an award of priority over him who first reduced to practice.

Conception and Disclosure.—Conception is evidenced when an inventor first conceives, not the desired object to be attained, but the idea of constructing a device or a mode of practicing a process, or bringing together an assemblage of parts necessary to constitute an operative machine or article, or, in other words, first conceives the idea of means or method substantially in the manner in which he finally embodies his ideas and discloses the same in an intelligent manner either orally or by means of drawings, models, sketches or descriptions.

One who first reduces an invention to practice is then, prima facie the first inventor. But it has been seen that one may date his patentable invention back to the time of his conception and disclosure, providing he connects the conception and disclosure with the reduction to practice of the same invention by proof of reasonable diligence, so that they are substantially one continuous act.

Where drawings are relied upon as evidence of conception of the invention they are required to show a complete conception free from ambiguity or doubt, and such as would enable those skilled in the art to reduce the conception to practice without any further exercise of the inventive faculties (Morganthaler v. Scudder, 11 App. Cas. D. C. 264, 81 O. G. 1417, 1897 C. D. 24; McKnight v. Pohle & Croasdale, 22 App. Cas. D. C. 219, 105 O. G. 977, 1903 C. D. 619).

Reduction to Practice.—"Reduction to practice" is not a statutory phrase. It is a phrase coined by the tribunals to indicate what may be proof of completion of the invention. It means that the invention must have been reduced to that form and condition in which it is capable of being put to some useful purpose and that, in most cases, it must have been actually tested to determine its capacity to perform the work intended. The classes of reduction to practice have been set forth in Sydeman v. Thoma, 32 App. Cas. D. C. 362, 141 O. G. 866, 1909 C. D. 340, as follows:

"Decisions involving this often-litigated question of actual reduction to practice may be divided into three general classes. The first class includes devices so simple and of such obvious efficacy that the complete constrution of one of a size and form intended for and capable of practical use, is held sufficient without test in actual use. (Mason v. Hepburn, 13 App. D. C. 86, 89; Lindemeyer v. Hoffman, 18 App. D. C. 1, 5; Loomis v. Hauser, 19 App. D. C. 401, 404; Couch v. Barnett, 23 App. D. C. 446, 449; Rolfe v. Hoffman, 26 App. D. C. 336, 342.) The second class consists of those where a machine, embodying every essential element of the invention, having been tested and its practical utility for the intended purpose demonstrated to reasonable satisfaction, has been held to have been reduced to practice notwithstanding it may not be a mechanically-perfect machine. In other words, it is sufficient reduction to practice although a more desirable commercial result may be attained by some simple and obvious mechanical improvement, or by substituting another well-known material for the one used in the original construction, as for example, metal for wood, cast metal for sheet metal, and the like. (Coffee v. Guerant, 3 App. D. C. 497, 499; Norden v. Spaulding, 24 App. D. C. 286, 290; Smith v. Brooks, 24 App. D. C. 75, 80; Andrews v. Nilson, 27 App. D. C. 451, 457; Lowrie v. Taylor, 27 App. D. C. 522, 526; Burson v. Vogel, 29 App. D. C. 388, 394; Howard v. Bowes, 31 App. D. C. 619, 622.) The third class includes those where the machine is of such a character that the particular use for which it is intended must be given special consideration and requires satisfactory operation in the actual execution of the object. (McDonald v. Edison, 21 App. D. C. 527, 529; McKenzie v. Cummings, 24 App. D. C. 462, 467; Gallagher v. Hien, 25 App. D. C. 77, 82; Ocumpaugh v. Norton, 25 App. D. C. 90, 94; Sherwood v. Drewson, 29 App. D. C. 161, 173.)

"In cases falling within the second and third classes described long delay in putting the machine in actual use for the intended purpose, has always been regarded as a potent circumstance in

determining whether the test was successful or only an abandoned experiment."

It is settled that a drawing of even the simplest machine or device, perfect in every detail and plainly demonstrating the principle, efficacy, and practical utility of the invention will not constitute reduction to practice; nor will a model. They are but evidence of conception (except when part of an application on file) requiring subsequent actual reduction to practice which in some cases, as will be seen, must be connected thereto by reasonable diligence. (Porter v. Louden, 7 App. D. C. 64, 74, 73 O. G. 1551.)

The mere discovery, then, of an improvement may not constitute the subject-matter of a valid patent. It is the practical application of the idea of means or method. On the other hand, as clearly established in the Telephone Cases, 126 U. S. 535, 31 L. ed. 863, 8 Sup. Ct. 783-788, the law does not require that a discoverer or inventor, in order to receive a patent for a process or machine, must have succeeded in bringing his art to the highest degree of perfection. It is enough that there is a clear description such as to enable those skilled in the matter to understand what the process or machine is and how it may be practiced or made. It has followed from these principles that an invention to be patentable must have reached the stage where it has been reduced to practice or is capable of reduction to practice, or may be the subject of a complete and allowable application. In brief, nothing short of a complete invention can be the basis of a right to a patent. It is, therefore, a rule of interferences and of patent law generally that unsuccessful experiments or abandoned experiments do not constitute anticipatory knowledge or use. (Automatic Weighing Machine Co. v. Pneumatic Scale Co., [1909] 166 Fed. 288, 92 C. C. A. 206.)

Long delay in practicing an invention claimed to have been reduced to practice or in applying for a patent has always been regarded as potent circumstances tending to show that the alleged reduction to practice was nothing more than an unsuccessful or an abandoned experiment, and it is required that he who was first to conceive must have been exercising diligence when his rival entered the field. (Paul v. Hess, 24 App. Cas. D. C. 462, 115 O. G. 251, 1905 C. D. 610.)

The same rules apply, of course, to process cases. In these cases, as elsewhere, a constructive reduction to practice by the filing of an allowable application is made the equivalent of an actual reduction to practice. (Croskey v. Atterbury, 9 App. Cas. D. C. 207, 76 O. G. 163, 1896 C. D. 437; Stevens v. Seher, 11 App. Cas. D. C. 245, 82 O. G. 1932, 1897 C. D. 761; Rosell v. Allen, 16 App. Cas. D. C. 559, 92 O. G. 1936, 1900 C. D. 333.)

Diligence.—In the consideraion of diligence it is obvious that a complicated invention requiring many experiments and much study to give it practical form will reasonably delay the reduction to practice after the first conception for a greater length of time than where the idea and the machine embodying it are of simple character. The sickness of the inventor, his poverty and his engagement with other contributory inventions are all circumstances which may affect the question of reasonable diligence. (Christie v. Seybold, (1893) 55 Fed. 69, 5 C. C. A. 33.)

It has been repeatedly held that the question of due diligence must be determined in each case by its own circumstances. The delay that is proper in one case or a course that is due diligence in another case can not, in the absence of any statutory requirement of time, be measured by any arbitrary standard. (Griffin v. Swenson, 15 App. Cas. D. C. 135, 89 O. G. 919, 1899 C. D. 440.)

Originality—Ancillary and Enuring Inventions—Employer and Employee. In many interference causes the parties are strangers and even widely separated. Each has made an invention independently of the other and in many cases have no knowledge of each other or of each other's invention until the interference is declared. In other cases, however, the evidence upon which the parties rely is interlaced. They may bear the relation of employer and employee; they may both be workmen in the same factory or partners in the same enterprise, etc. It may be that the same reduction to practice is claimed by both and in such cases, ordinarily, each claims the derivation of the idea of invention from him by the other. A case may present a situation where it is impossible that both can be testifying truthfully; or may present a case of honest difference, as where, for example, there has been a suggestion made by one to be followed by counter-suggestions and a subsequent reduction which each regards as in his own interest.

The broad rule is that the original inventor is he with whom originated the idea embodied in the invention. If he merely constructs or adapts or reduces to practice the idea of another he is not an original inventor.

In Agawam Co. v. Jordan, (1869) 77 U. S. 583, 19 L. ed. 177, it was held that, where an employer had conceived the plan of the invention and was engaged in experiments to demonstrate it, no suggestion from the employee not amounting to a new method or arrangement, that is, not amounting to a complete invention, was sufficient to deprive the employer of the exclusive property in the perfected improvement.

In this case, the court said that if an employee "make valuable discoveries ancillary to the plan of the preconceived design

of the employer, such suggested improvements are in general to be regarded as the property of the party who discovered the original improved principle, and may be embodied in his patent as part of his invention."

The principle of ancillary or enuring inventions thus merging in the original invention, has been illustrated in various decisions of the Court of Appeals of the District of Columbia as, for example, Gedge v. Cromwell, 19 App. D. C. 192, 98 O. G. 1486, 1902 C. D. 514; Gallagher v. Hastings, 21 App. D. C. 88, 103 O. G. 1165, 1903 C. D. 1531, and Milton v. Kingsley, 7 App. D. C. 531, 75 O. G. 2193, 1896 C. D. 420. These cases are reviewed in the extreme case of Jackson v. Summerfield, 112 O. G. 1212, 1904 C. D. 403 in which were separate claims for a distinct or ancillary invention. The Commissioner held that these claims and the additional invention went with the principal invention because of the terms of the contract between the parties and the co-relation of the ideas.

It is apparent that a separate and distinct invention would not come under this heading in the absence of a clear contract and a clear proof of the original of the main idea. The cases in the opposite class to those above cited are set forth hereinafter under the heading "Licenses, Contracts, and Restrictions." It should be observed that there appears a tendency to lean strongly toward recognizing the accretion of ancillary or enuring inventions to the principal invention when the applications are in interference, while there is some reluctance on the part of the courts to take away from a patentee an improvement which he may have separately patented.

Estoppel—Concealment—Res Adjudicata.—An interesting application of a phase of abandonment known as "concealment" has been a feature of interference practice since the decision in Mason v. Hepburn, 13 App. D. C. 86, 84 O. G. 147, based, however, upon broad judicial dictum and upon the policy of the patent law by the Supreme Court. In that case, the court announced the principle that, even if an inventor had conceived an invention and actually reduced it to a practice, his right to a patent would be barred by a designed or negligent concealment of the invention from the public and the subsequent entry of another into the apparently unoccupied field.

This doctrine was said by the same court to be applicable to renewal applications. It had been supposed for years that an applicant might "renew" his application at any time within two years—the term given by the statute—but in Cain v. Park, 14 App. D. C. 42, 86 O. G. 797, the Court plainly indicated that one might not renew under any and all circumstances without any reference to a new and independent inventor in the same

field. This principle was specifically suggested in other decisions and was emphasized by a strong opinion in the case of Barber v. Wood by the Examiners-in-Chief April 20, 1911, in deciding against the prior applicant who had delayed his renewal in the face of a patent granted to a later inventor who had also, in the meantime, advertised and marketed the invention.

The basis of this ruling was found in the provision of the statute, R. S. U. S., Sec. 4897, which concludes as follows:

"And upon the hearing of renewed applications preferred under this section, abandonment shall be considered as a question of fact."

The cases which have sustained this view of estoppel by concealment rest upon the policy of the patent laws to reward him who discloses his ideas of invention; and it has ordinarily appeared that the interference arose because the party, thus attempting to utilize the invention he had concealed, had been spurred to activity by his rival's patent or occupation of the market. The principle of estoppel thus applied has, as indicated, a direct foundation also in the statutory bar of "abandonment" as set forth herein under the heading "Patentability—Abandonment."

It has been frequently held by the Court of Appeals that the doctrine of res adjudicata necessarily applies in favor of the successful party to an interference to whom an award of priority has been made, against his opponent's attempt to renew the interference upon the same application or a new application with the claims for the same invention thereof in different or broader form. (Gold v. Gold, 34 App. D. C. 229, 150 O. G. 570, 1901 C. D. 269, citing Blackford v. Wilder, 28 App. D. C. 531; Horine v. Wende, 29 App. D. C. 415; Carrol v. Hallwood, 31 App. D. C. 165.)

The Court of Appeals had previously held in U. S. ex rel. Newcomb Motor Company v. Moore, 30 App. D. C. 464, that, where an interference has been dissolved without appeal from the decision, the right to make the claim must be considered res adjudicata in a later interference between the same parties on the same application. In Gold v. Gold, supra, the court held, however, that, where no appeal had been taken from the decision of the Primary Examiner dissolving the interference on the ground that the claims in issue are not patentable, and a second interference was declared involving claims not essentially different from those involved in the former interference, the question of patentability was not concluded by the decision in the prior interference.

Appellate Jurisdiction of Court of Appeals, D. C.—There has been a great deal of discussion of the relations between

the Court of Appeals and the Patent Office. It has been held by the Court that appeal from the decisions of the Commissioner of Patents is limited to two classes of cases: (1) where the claims of the application for patent or a reissue of a patent, after having been twice rejected, have been finally rejected on appeal to the Commissioner in due course of procedure; (2) where, on appeal to the Commssioner in interference proceedings, there has been a final decision on priority in favor of one of the parties thereto.

The court, therefore, declined to review the decision of the Commissioner of Patents granting a motion to dissolve the interference, (In re Fullagar, 32 App. D. C. 222, 138 O. G. 259, 1909 C. D. 270); and this appears to be the prevailing rule notwithstanding an apparent contradiction.

The court has also held that the question of the patentability of the issue of an interference is not a jurisdictional one, and that the court will not, therefore, review the action of the Patent Office holding the issue patentable, but will confine its consideration to the question of priority; or, as substantially reaffirmed, that it is the settled doctrine of the Court of Appeals that the allowance of a claim in the Patent Office is conclusive of the question of patentability in an interference proceeding, because the appellate jurisdiction in respect to patentability is limited to cases where claims have been rejected on that ground. However, the court also held that the question of the right of one of the parties to make the claim was not concluded by the decision of the original motion to dissolve the interference on that ground, but that in conformity with its previous holdings beginning with Podelsak & Podelsak v. McInnerney, 26 App. D. C. 399, 120 O. G. 2127, 1906 C. D. 558, the question of the right of one of the parties to make the claim under the disclosures of his application will be entertained as ancillary to the question of priority. (Gold v. Gold, 34 App. D. C. 229, 150 O. G. 570, 1901 C. D. 269.

Effect of Decisions in Interferences in Patent Office.—The Supreme Court of the United States has laid down the rule that, where the question decided in the Patent Office (or by analogy in Court of Appeals of District of Columbia) is one between contesting parties as to priority of invention, the decision there made must be accepted as controlling upon that question of fact in any subsequent suit between the same parties, unless the contrary is established by testimony which in character and amount carries thorough conviction. (Morgan v. Daniels, [1894] 153 U. S. 120, 38 L. ed. 657, 14 Sup. Ct. 772.)

Interfering Patents.—In cases under Sec. 4918 of the Revised Statutes relating to suits in equity to have an interfering patent declared invalid in whole or in part, the first question to be deter-

mined is whether the patents involved are interfering patents, and it must appear that the claims of the respective patents, or some of them, cover the same patentable invention. The claims of a patent may be construed to determine the question of interference and it may happen that the structure described in one patent will infringe the claims of another patent though the patents are not interfering within the meaning of the statute. (Simplex Railway Appliance Co. v. Wands, 115 Fed. 517, 53 C. C. A. 171.)

In that case it was said that, "if the Wands' headblock, in view of the state of the art and the functions which it performs be regarded as the mechanical equivalent of Bower's strengthening piece, the two claims now under consideration cover substantially the same combination and hence interfere." This is in line with the practice of the Patent Office prior to Hammond v. Hart, supra.

That the question of patentability may arise always in some form in interferences and under Sec. 4915, as well as elsewhere, is evidenced by the decision of the Supreme Court in Hill v. Wooster, 132 U. S. 693, 33 L. ed. 502, 10 Sup. Ct. 228.

IX. LETTERS PATENT AND THEIR CONSTRUCTION AND SCOPE.

Letters-patent of the United States run to the inventor or patentee, his heirs or assigns, for a term of seventeen years from the date of the grant. Upon the face of the patent the grant is of the exclusive right to make, use and sell the invention throughout the United States and the territories thereof.

It is apparent, however, that anyone has at common law the right to make, use and sell his invention, so that, though the grant runs in those words, it means, as has been said by the Supreme Court of the United States, the right to exclude others from making, using and selling the invention.

For many years under section 4887 of the Revised Statutes, a United States patent was limited to expire with the preceding foreign patent for the same invention by the same inventor having the shortest term. This provision of the statutes was repealed as of January 1, 1898. Under the new section, R. S. U. S. Sec. 4887, a foreign patent for the same invention by the same inventor or for him does not affect the term of the United States patent, but if a foreign patent be granted on an application filed more than twelve months before the filing of the application in the United States then no patent will be granted in this country, or if granted will be invalid.

The statute in its old form was a source of extensive litigation, the cases being reviewed and discussed, for example, in

Welsbach v. Apollo, 96 Fed. 332, 37 C. C. A. 508; Sawyer v. Carpenter, 143 Fed. 976, 75 C. C. A. 162. These cases rest principally upon Bate v. Hammond, 129 U. S. 151, 32 L. ed 645; Pohl v. Anchor, 134 U. S. 381, 33 L. ed. 953; Commercial v. Fairbank, 135 U. S. 176, 34 L. ed. 88; Huber v. Nelson, 148 U. S. 270, 37 L. ed. 477; Bate v. Sulzberger. 157 U. S. 1, 39 L. ed. 601; and are supplemented by Leeds & Catlin Co. v. Victor Co., 213 U. S. 301, 325, 53 L. ed. 805. The cases were to the effect that the United States patent was limited by law, whether so expressed in the patent or not, to expire with the foreign patent having the shortest term, that is, with the foreign patent previously granted without reference to any lapsing or forfeiture or any variation of the term of the foreign patent from any condition subsequent, according to the foreign statute; and that a United States patent granted after the expiraion of the foreign patent is void. See, for a summary, Cameron Septic Tank Co. v. City of Knoxville (1913), 227 U. S. 39, 57 L. ed. —.

This case, also reviewing a number of other cases of the federal courts, held that the treaties relating to the International Convention are not self-executing and require an act of Congress to make them effective, and therefore that patents granted upon applications filed prior to January 1, 1898 are limited by a corresponding foreign patent under the provisions of the previous statute.

* * *

Many "rules" of construction are found in the books and cases, but few have the character of rules of law. In the consideration of patents the circumstances of each case are of the first importance and the exceptions to many of the apparent rules are such as to qualify their usefulness as "fixed" guides. This does not mean that there are not principles of construction, but that they require peculiar care in their application to a branch of the law where the basis of the property right is in ideas of invention.

Though a patent is granted by the United States Patent Office as the result of an examination and is prima facie valid, that is, presumed to have been regularly issued for a patentable invention, it is subject in any suit to a re-examination and to construction and interpretation in the light of the prior art, and in view of self-imposed limitations or practical admissions of word or deed in the prosecution of the application.

The prior art at all stages of a cause is open to the court and, in the consideration of whether or not invention be involved, the court may also take judicial notice of matters of common knowledge even when they are not pleaded.

The patent may be found invalid because of some statutory

bar which, if duly presented, should have prevented the grant of the patent; or it may be limited, or, in effect, even broadened, *by an interpretation, inter alia or in the light of the prior art*, where interpretation is permissible.

It is a circumstance to be considered, however, that in attempting to broaden claims by construction the patentee lays himself open to the danger of having his claims anticipated by a similar reading of the prior art.

It is a general rule of patent law that matter which is described but not claimed is presumed to have been dedicated to the public.

As hitherto set forth, there are methods of rebutting this presumption. The patentee may do so by way of reissue or separate application; another, under proper conditions, by proving he made the invention before the date of the application for the patent upon which his claim is refused.

It is clear that the claim can not present a subject-matter different from that presented in the specification; and claims of patents have been held invalid because reciting features having no supporting statement of their function in the specification; and because "new matter" not found in the application as filed.

The effect of acquiescence in the rejection of claims by the Patent Office is that of an admission, operating, ordinarily, to forbid the suggestion of any interpretation of the claim of the patent which would give it the meaning of the rejected and cancelled claim.

The inventor and patentee are entitled to all the uses and advantages which naturally flow from the invention, and it is not necessary that they should all be perceived by the inventor or described in the patent. In fact, it is a present day practice to advance in the specifications of highly technical patents the supposed scientific principles, as suggestions or theories of the inventor.

When the terms of the patent are clear and when the claims are definite, there can be no interpretation, ordinarily, because nothing can be added to or taken away from the clear meaning of the claims of a patent. The claims may not be altered in meaning by construction or interpretation, but they may be explained so that the claim shall be read to cover the real invention which, in the light of the specification and drawings and the prior art and other circumstances, it may appear the applicant intended his claim to state.

In other words, in considering a patent, the specification and claims are read together and if there be any ambiguity in the claim it may be cleared by the import of the specification. The specification may delimit the claim or support a broader inter-

pretation. It may be stated, however, as a general rule, that elements may not be added to or taken from a claim, and this is especially true of combination claims.

Broadly, it may be said that while a patent is subject to rigorous examination it receives as a rule a "liberal" construction, the courts, where it is possible, being inclined to apply the principle of the maxim, "Ut res magis valeat quam pereat" (that the thing may prevail, rather than be destroyed). This does not, however, mean a complaisant construction which passes over a clearly limited claim and substitutes for it a broader or different claim which might have been made.

The attitude of the courts is well presented in Keystone Mfg. Co. v. Adams, 151 U. S. 137, 144, 38 L. ed. 103, 104, where the court said:

"But when in a class of machines so widely used as those in question it is made to appear that at last, after repeated and futile attempts, a machine has been contrived which accomplishes the result desired, and when the Patent Office has granted a patent to the successful inventor, the court should not be ready to adopt a narrow or astute construction, fatal to the grant."

In the consideration of patents it is a broad principle that the inventor in taking out a patent under the statutes of the United States subtracts nothing from his actual invention and adds nothing to it. It is also a principle that the patent is not a grant of something already owned by the government. It is an exchange of a limited monopoly to the inventor to exclude others from making, using or selling the invention in consideration of a disclosure of the invention. These principles have had much to do with the tendency toward a liberal construction of many patents because the viewpoint has been that the inventor, unless he has absolutely limited himself, should not have his contract restricted by any astute or technical reading of his claim. The idea is that the claims should be construed, if possible, to sustain the patentee's right to all that he has invented, but that the construction should not be carried to the point of interpolating anything which the claim does not contain in terms or meaning, and in no case to give to the patentee something rightly belonging to the public.

Inasmuch as the construction and interpretation of patents turn principally upon the claims, as does the examination in the Patent Office, it will be logical to consider the subject-matter under the head of "Claims" including in that consideration occasional illustrations of the application of statutory bars and, broadly, of the doctrine, or as it might better be termed, doctrines, of equivalents, and, where the discussion seems to re-

quire it, repeating some of the governing principles of construction.

Various incidents such, for example, as interfering patents, the estoppel existing between patentee and assignee or a licensee, joinder of inventions in a patent, double patenting, dedication to the public, and the whole range of the determination of invention and patentable novelty are discussed under other appropriate headings.

CLAIMS.

The claim, in a sense, is the patent, for it is the measure of the patentee's right to exclude others from making, using or selling the invention.

The claim has been a statutory requisite since 1836, and the requirement has been, as it is now under R. S. U. S. Sec. 4886, that the inventor "shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery."

There are many "rules" governing the framing and the interpretation of claims, but a careful study of the cases will show that the one essential thing is that the novel invention shall be clearly expressed.

The purpose of the claim is to define just what is the thing of which the patentee claims to be the inventor and just what he is granted the right to exclude others from making, using or selling during the life of the patent. It is the purpose of the specification as a whole to enable the public or that part of the public "skilled in the art" to practice the invention described, after the expiration of the patent.

In the early days of the patent system of the United States the specification and the claim were in effect one. That is, the new invention was ascertained by consideration of the whole specification including any "claim" advanced by the patentee. Under the present system the claim itself must particularly point out the invention, and when the claim is clear nothing in the specification or drawings of the patent can be used to alter the meaning of the claim. It is only when the claim does not properly define the invention in clear terms or some apparently limiting term is merely relative or unessential that the specification may be resorted to for the purpose of interpreting the claims, sometimes to limit the claim to the exact thing described, sometimes to show that a broader meaning is intended where a narrower meaning might be inferred.

Each separate or distinct part and combination is required

to be covered by separate and distinct claims, and each claim is, in effect, an independent patent.

The importance of covering the whole invention by claims is evidenced from what has been hitherto stated, that the patentee is presumed to have dedicated to the public matter not claimed.

While the patentee need not define in his claims all the connections and relations of parts, nor, in fact, all of his invention, he must define a practically operative means; not that he must define a whole process or a whole machine in any given claim, but that he must define either such a whole process or whole machine or article, or some distinct and separable element or some distinct and separate combination of elements.

It has hitherto been shown under "Patentability," that the claim may not be for a principle but must be for a concrete invention, for some mode or means of seizing upon a principle.

There are many claims sustained by the courts, especially in broad and pioneer patents, in which what appears to be a principle is covered. But in these cases it is not the natural principle, not the physical law, that is covered, but some idea of mode or means of applying such a principle or law in some art.

It has been often said that, "claims should indicate the class of inventions," that is, whether the invention is an art, machine, manufacture or composition of matter. But this is not an accepted rule in its strict terms, for a claim must, of course, be clear and definite, and it will then be apparent on its face whether the invention is a process, machine or article, whether those terms be used or not.

Claims must correspond with the description; they must not cover a mere result or function; must not be alternative, that is, covering two different forms in one claim, and must not be multiplied so as to define the same invention by a series of claims which all mean the same thing. This latter rule is, however, much stretched in actual practice where in many cases claims differ by a single word or phrase and sometimes by mere shades of expression.

Claims of an application or patent may bear proportional relations, as genus and species, combination, subcombination, element, process and subprocess.

A genus claim states in broad terms the essential characteristics common to all of a family or group, while a species claim is one of the many ilustrations of the genus, and defines the peculiar characteristics that distinguish it from others of its kind.

A combination claim covers the novel assemblage of parts that constitute a new machine or article of manufacture. Its breadth is governed by the prior state of the art. It may state the essential parts that characterize the new instrument, and may be ac-

companied by claims for subcombinations and the elements that form the combinations.

A process claim defines the steps or series of acts of a new art, and may be accompanied by subprocess claims.

There are distinctions between species and subcombination and subprocess claims. A species claim covers the whole, defining it by limitations of peculiar characteristics. A subcombination or subprocess does not define the whole, but a part only. Generic and specific claims are, in that relation, broad and narrow statements of the same invention. Subcombinations and subprocesses may cover the parts, the modifications, in fact, may be, distinct inventions.

A genus claim, however, should not define a principle merely, but should be the broadest statement of the method or means of seizing the principle and putting it into service, and such a claim will cover all subsequent species. The present practice of the Patent Office permits but one species, that is, one invention, to be claimed in an application, but it may accompany a genus claim, which is a broad claim for the same invention.

As has been heretofore stated, in the early days of the patent system of the United States the specification and the claim were not so clearly separated. They were, in fact, one, and a claim was frequently stated in terms of description such as are now more appropriate in the purely descriptive part of the specification It is to be observed, however, that it was these early rules of constructions which have carried into our present practice the principle that if the meaning of a claim be in doubt it may be interpreted by the specification, especially where it is necessary to do so "to save the patent." Even so late (1870) as Seymour v Osborne, 78 U. S., 516, 20 L. ed. 33, the court indicated how closely related are the two purposes of the claim and specification, namely to define the invention and to describe the invention. The court said:

"Such combination is sufficiently described if the ingredients of which it is composed are named, their mode of operation given, and the new and useful result to be accomplished pointed out, so that those skilled in the art, and the public, may know the extent and nature of the claim, and what the parts are which co-operate to produce the described new and useful result."

The so-called "liberal"" attitude of the courts toward invention, that is, the general endeavor of the courts to interpret the patent law in the spirit of the constitution, is illustrated for example, in the early case of Ryan v. Goodwin, 3 Sumner (U. S.) 514, 519, Fed. Cas. 12,186, a case decided by Mr. Justice Story and referred to at length by Curtis on Patents Sec. 234.

The defendants had asserted that the specification and claims were vague, ambiguous and uncertain. It was held that:

"If, taking the whole together, the court can perceive the exact nature and extent of the claim made by the inventor, it is bound to adopt that interpretation, and to give it full effect."

The court continuing said:

"I confess that I do not perceive any ground for real doubt in the present specification. The inventor claims as his invention the combination of phosphorus with chalk or any other absorbent earth or earthy material, and glue, or any other glutinous substance; in making matches, using the ingredients in the proportions substantially as set forth in the specification. * * * I do not know of any principle of law which declares, that, if a man makes a new compound, wholly unknown before for a useful and valuable purpose, he is limited to the use of the same precise ingredients in making that compound; and that, if the same purpose can be accomplished by him by the substitution in part of other ingredients in the composition, he is not at liberty to extend his patent so as to embrace them also. It is true that, in such a case, he runs the risk of having his patent avoided, if either of the combinations, the original or the substituted, have been known or used before in the like combination. But, if all the various combinations are equally new, I do not perceive how his claim can be said to be too broad. It is not more broad than his invention. There is no proof, in the present case, that the ingredients enumerated in this specification, whether chalk, or any other absorbent earth or earthy substance, were ever before combined with phosphorus and glue, or any gum or other glutinous substance, to produce a compound for matches. The objection, so far as it here applies, is not that these gums or earths have been before so combined with phosphorus, but that the inventor extends his claim so as to include all such combinations. * * * My present impression is that the objection is not well founded. * * * My opinion is, that the specification is not, in point of law, void from its vagueness, or generality, or uncertainty."

Again, the same Justice in Carver v. Braintree Mfg. Co., 2 Story (U. S.) 432, 440, Fed. Cas. No. 2,485, presents substantially the same argument with reference to a machine, in which in a patent for a machine for ginning cotton the patentee had claimed variations as being equally his invention without describing the manner of producing those variations.

An indication of the view that was taken of a specification and the claim as one, and at the same time a statement of the still active principle that the patentee can not insert an element

in his claim for the purpose of reaching an infringer is found in the following statement of Curtis on Patents, 237:

"An infringement is a copy made after and agreeing with the principle laid down in the patent; and if the patent does not fully describe anything essential to the making or doing of the thing patented, there will be no infringement by the fresh invention of processes which the patentee has withheld from the public."

Mr. Curtis also presents in Sec. 242 the rule hitherto suggested requiring a practical application of an invention, saying that the inventor can not protect his invention by merely stating his discovery.

"He must give it a practical application to some useful purpose, to attain a result in arts or manufacturers not before attained, and his specification must show the application of the principle to such a special purpose, by its incorporation with matter in such a way as to be in a condition to produce a practical result."

He, however, immediately thereafter accepts as an established principle of law the view of the court in Foote v. Silsby, 2 Blatchf. (U. S.) 260, Fed Cas. No. 4919.

"Where a party has discovered a new application of some property in nature never before known or in use, by which he has produced a new and useful result, the discovery is the subject of a patent, independent of any peculiar or new arrangement of machinery for the purpose of applying the new property."

This statement of the law as it was then interpreted and is now interpreted indicates the necessity of looking beyond the mere description of the parts or the exact parts or combinations themselves, to see whether or not some new principle has been discovered and applied, and then to determine in what appropriate language the principle may be stated.

Mr. Curtis in his chapter on "The Specification" cites many instances illustrating the extremes of interpretation of claims, first in specific cases confining the claim to the exact thing stated, and then in other cases interpreting the claim so as to fairly include the invention set forth.

In LeRoy v. Tatham, 14 How. (U. S.) 156, 14 L. ed. 367, (though subsequently, 63 U. S. 132, 16 L. ed. 336, the claim was interpreted as a method to save the patent), is an example of the danger of a misstatement of claims, and the following from Mr. Curtis will sufficiently evidence the advantage of the present method of precision in defining a claim over the other method of relying upon the description:

"This is well illustrated by several cases. In one, the invention claimed was 'the communication of motion from the

reed to the yarn-beam, in the connection of the one with the other, which is produced as follows,' describing the mode. The patent was sustained, only by construing it as a claim for the specific machinery invented by the patentee for the communication of motion from the reed to the yarn-beams, specially described in the specification. As a claim for all possible modes of communicating the motion, etc., it would have been utterly void. In another case, a patent 'for an improvement in the art of making nails, by means of a machine which cuts and heads the nails at one operation,' was seen at once not to be a grant of an abstract principle, but of a combination of mechanical contrivances operating to produce a new effect, and constituting an improvement in the art of making nails. So, too, where the patentee, in a patent for a machine for turning irregular forms, claimed 'the method or mode of operation in the abstract explained in the second article, whereby the infinite variety of forms, described in general terms in this article, may be turned or wrought,' and the second article in his specification explained the structure of a machine by which that mode of operation was carried into effect, and the mode of constructing such a machine so as to effect the different objects to be accomplished, it was held that the specification did not claim an abstract principle or function, but a machine. So, also, it has been held that the making of wheels on a particular principle which is described in the specification is the subject of a patent; and where the plaintiff claimed as his invention 'the application of a self-adjusting leverage on the back and seat of a chair, whereby the weight of the seat acts as a counterbalance to the pressure against the back of such chair, as above described,' it was held not to be a claim to a principle, but to an application to a certain purpose and by certain means."

That the same rules of interpretation now apply is evidenced for example, in the decision of the Supreme Court in Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U. S. 405, 51 L. ed. 922, in which the court quotes from Section 485, Robinson on Patents, as follows:

"The principle of the invention is a unit, and invariably the modes of its embodiment in a concrete invention may be numerous and in appearance very different from each other."

Equivalents.—The term "equivalents" in the law of patents, or in the usage of the term in patent causes, has, of course, a basis in the dictionary meaning, but it has a wide range of application, its definitions differing, as do nearly all the tests applied in the patent law, with the circumstances of the case.

There are in the various arts accepted equivalents such, for example, as a spring for a weight, or one machine element or

mechanical movement for another. Even here, however, caution is needed in the statement. While it is generally true, for example, that a worm is the equivalent of a rack and pinion, or a bolt and screw, etc., there might even in these familiar features of machine elements or mechanical movements be some novel application amounting to invention.

When in the same art may be found an element doing the same work in substantially the same way there is rarely a question even that it may be substituted for another equally familiar element in a combination without involving invention; but from that point the decisions diverge.

One of the most striking applications of the doctrine of equivalents is found in the consideration of "double use." This subject has been treated under a preceding heading and it is apparent that in such cases the question of equivalents goes beyond mere structure and is colored by the use of the structure. For, in accordance with the familiar principle, even the same structure may not be an anticipation if taken from some remote art conveying no suggestion of application in the manner set forth in the patent under examination.

In the literature of the cases there are abundant expressions of the courts which would apparently confine all claims to the exact definition of the terms of the claims. On the other hand, there are cases of the highest authority which so construe claims of apparently plain import as to embrace the real invention made by the inventor or to cover a wilful infringement in principle. There is especially a wide divergence, in the measurement of equivalents in broad or pioneer patents on the one hand, and on the other hand in narrow patents showing but little advance in the art.

Some of the most striking and often quoted expressions of the courts stating the general rule limiting a claim to its express terms are to be found in the following cases though in not all of them was the patent narrowly limited: Merrill v. Yeomans, 94 U. S. 568, 24 L. ed. 235; Keystone Bridge Co. v. Phoenix Iron Co., 95 U. S. 274, 24 L. ed. 344; Lehigh Railroad Co. v. Mellon, 104 U. S. 112, 26 L. ed. 639; Burns v. Meyer, 100 U S. 671, 25 L. ed. 738; Fay v. Cordesman, 109 U. S. 408, 420, 27 L. ed. 979; Yale Lock Mfg. Co. v. Sargent, 117 U. S. 373, 378, 29 L. ed. 950; White v. Dunbar, 119 U. S. 47, 30 L. ed. 303; Dryfoos v. Weise, 124 U. S. 32, 31 L. ed. 62; Huber v. Nelson Mfg. Co., 148 U. S. 270, 291, 37 L. ed. 447; Brown v. Stilwell & Bierce Mfg. Co., 57 Fed. 731, 6 C. C. A. 528; Dunlap v. Willbrandt, 151 Fed. 223, 80 C. C. A. 575; Lanyon Zinc Co. v. Brown, 129 Fed. 912, 64 C. C. A. 244; Universal Brush Co. v. Sonn, 154

Fed. 665, 83 C. C. A. 422; Cimiotti Unhairing Co. v. American Fur Co., 198 U. S. 399, 49 L. ed. 1100.

In Keystone Bridge Co. v. Phoenix Iron Co., supra, the Supreme Court said that when a patentee has limited himself in his claims "his right to protection is also limited, since the claim actually made by the patentee is the measure of his right to relief."

In Lehigh Railroad Co. v. Mellon, supra, the court said that the patentee "gains no exclusive right except for such a machine as his patent describes and secures, though it may be far less broad or comprehensive than his actual invention."

In Burns v. Meyer, supra, "it is true the patent can not be extended beyond the claim. That bounds the patentee's right."

In Merrill v. Yeomans, supra, that the patentee may not show that his invention is broader than his claims, and that what is not claimed is surrendered to the public.

In White v. Dunbar, supra, the court embodied a figure of speech first used in an older British case to the effect that a claim is not "a nose of wax which may be turned and twisted in any direction, by only referring to the specification, so as to make it include something more than, or something different from, what the words express."

The other cases cited above contain similar strong expressions.

One of the fullest expressions of the Supreme Court is found in the case of McClain v. Ortmayer (1891), 141 U. S. 419, 35 L. ed. 800, 12 Sup. Ct. 76. In that case the court said:

"While the patentee may have been unfortunate in the language he has chosen to express his actual invention, and may have been entitled to a broader claim, we are not at liberty, without running counter to the entire current of authority in this court, to construe such claims to include more than their language fairly imports. Nothing is better settled in the law of patents than that the patentee may claim the whole or only a part of his invention, and that if he only describe and claim a part, he is presumed to have abandoned the residue to the public. The object of the patent law in requiring the patentee to 'particularly point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery,' is not only to secure to him all to which he is entitled, but to apprise the public of what is still open to them. The claim is the measure of his right to relief, and while the specification may be referred to to limit the claim, it can never be made available to expand it. Thus, in Keystone Bridge Co. v. Phoenix Iron Co., 95 U. S. 274, 278, 24 L. ed. 344, 345, the manufacture of round bars, flattened and drilled at the eye for use in the

lower chords of iron bridges was held not to be an infringement of a patent for an improvement in such bridges where the claim in the specification described the patented invention as consisting in the use of wide and thin drilled eye-bars applied on edge. In delivering the opinion of the court Mr. Justice Bradley observed: 'It is plain, therefore, that the defendant company, which does not make said bars at all,' (that is, wide and thin bars,) 'but round or cylindrical bars, does not infringe this claim of the patent. When a claim is so explicit, the courts can not alter or enlarge it. If the patentees have not claimed the whole of their invention, and the omission has been the result of inadvertence, they should have sought to correct the error by a surrender of their patent and an application for a reissue. * * * But the courts have no right to enlarge a patent beyond the scope of its claim as allowed by the Patent Office, or the appellate tribunal to which contested applications are referred. When the terms of a claim in a patent are clear and distinct, (as they always should be,) the patentee, in a suit brought upon the patent, is bound by it. He can claim nothing beyond it.'"

In McCarty v. Lehigh Valley R. Co. (1895), 160 U. S. 110, 40 L. ed. 358, 16 Sup. Ct. 240, the court said, when asked to read a feature into the claims for the purpose of sustaining the patent:

"While this may be done with a view of showing the connection in which a device is used, and proving that it is an operative device, we know of no principle of law which would authorize us to read into a claim an element which is not present, for the purpose of making out a case of novelty or infringement. The difficulty is that if we once begin to include elements not mentioned in the claim in order to limit such claims and avoid a defense in anticipation, we should never know where to stop. If, for example, a prior device were produced exhibiting the combination of these claims plus the springs, the patentee might insist upon reading some other element into the claims, such for instance as the side frames and all the other operative portions of the mechanism constituting the car-truck, to prove that the prior device was not an anticipation. It might also require us to read into the fourth claim the flanges and pillars described in the third. This doctrine is too obviously untenable to require argument."

Similar restatements of this doctrine are found also in Continental Paper Bag Co. v. Eastern Paper Bag Co. (1908) 210 U. S. 405, 51 L. ed. 922, 28 Sup. Ct. 748, and citations of that case.

McClain v. Ortmayer, supra, however, is of the same char-

acter as Keystone Bridge Co. v. Phoenix Iron Co. quoted therein. The claim was limited to a horse collar having specific features including a double spring fastening, whereas the defendant used a curved hook. Moreover, the complainant had filed a second application for a patent for a single hook, stating: "The single-roll spring must be conceded to be a structure positively and unequivocally different from the two-roll spring."

In McCarty v. Lehigh, supra, a broad claim for a truck-bolster had been rejected; the applicant had abandoned his claim for notched plates on the truck-bolster and had acquiesced in the action of the Patent Office, putting in his allowed claim no suggestion of the feature which he later wished to bodily inject into his claim when before the court.

Upon similar critical examination of the cases containing the stringent judicial dicta it appears that the most vigorous expressions occur where the applicant himself had given a different interpretation in the Patent Office from that he urged in court, where there was some plain self-imposed limitation made by the applicant to distinguish his invention from the prior art and secure his grant and an effort to omit an element or to inject one, or the conclusion of the court that the restriction was necessary to sustain the patent in the light of the prior art or that the terms of the claim expressed all the patentable novelty invented.

For example, in White v. Dunbar, the reissued patent was for a process for putting an enveloping material between the metal can and the shrimps not "capable of discoloring the shrimps." The original patent had disclosed as his invention only the use of textile fabric. The purpose of the expansion in the reissue was to include also paraffined paper used by a rival, which was clearly unwarranted.

In Merrill v. Yeomans, supra, the court, on familiar principles, declined to construe a process claim for making a new product, "deodorized oil," as a claim for the product.

In Dunlap v. Willbrandt Mfg. Co., supra, the court held that claim 2 of patent No. 483,435 claimed as a principal feature a tube entering the bottle of an atomizer and made in three separate parts to facilitate cleansing, one of the parts being a hollow coupling connecting the other parts of the tube. Each of the parts was said to be a necessary element, and the claim was held not infringed by a structure made in two parts directly joined together. This case recognizes another class of claims (illustrated by cited cases) in which the very divisibility of the parts or a particular method of adjustment constitutes the law of the structure or is the essence of the invention. "In such cases," said the court, "it might be unimportant whether a

structure was made in two pieces instead of three or whether a part is mechanically attached to the remainder of a structure or is integral with it."

In Lanyon Zinc Co. v. Brown, supra, the particular feature especially urged as important or "an essential feature" was not found in the defendant's structure. The distinction is shown hereinafter in a comparison of this case with Metallic Extraction Co. v. Brown, where the same patent was held infringed by a structure not within the exact terms of the claim.

In Burns v. Meyer, supra, the patent claimed "as a new article of manufacture, a side-saddle tree, having the side bars and seat made separately and then united, substantially as for the purpose set forth." Advantages were claimed for this saddle tree made of separate pieces. The defendant's patented saddle tree had side bars and the seat made of one piece of bent wood, and did not have the advantages of the complainant's patent, and was held not to infringe.

In Lehigh Railroad Co. v. Mellon, supra, the claim contained a specific, even minute description of the car wheel and the limitation had been put into the claim with the express purpose of avoiding a prior patent. This case is hereafter compared with Devlin v. Paynter to illustrate the distinction.

In Universal Brush Co. v. Sonn, supra, the claim was for a method including depositing a mass of hot, plastic composition, within a chambered brush frame having a "contracted aperture." The court was of the opinion that to substitute for the words "contracted aperture," the words "face aperture" would amount to a reconstruction of the claim. This the Court of Appeals refused to do. The lower court believing that the patent was for a fundamental invention held it infringed by the defendants, although they omitted the contracted aperture in their method and employed an equivalent. The Court of Appeals, however, regarded the patent as one for an improvement of known methods of construction and entitled to a limited range of equivalents only, and not infringed.

In Brown v. Stilwell & Bierce Mfg. Co., supra, the patentee had limited his claim to a connection by which gas was put into the steam dome of the boiler, or some other part of the boiler, and held that a steam pump was not a connection with the steam dome or the steam space of the boiler. Upon rehearing it was said that the purpose was different and that the escape pipe of the defendant did not connect with the boiler or any outlet from the boiler.

In Cimiotti Unhairing Co. v. American Fur Co., supra, the court held that one of the essential elements of the claim could not be found in the defendants' structure and that the defend-

ants had no equivalent for that element, but an entirely different and superior mechanism.

It is believed that in practically all of the notable cases emphasizing the rigid definitions it will be found that the facts of the cases left no opportunity for doubt or "construction."

Under the subheading of "Primary and Pioneer Inventions," it will appear that mere breadth of statement in a claim does not necessarily involve interpretation or construction any more than any other broad definition inclusive of all species or analagous things.

There is an interesting class of cases in which, notwithstanding an apparently express limitation in the claim the courts have construed a claim to cover an infringing structure not literally within the terms of the claim. In these cases it has appeared that the real invention or the invention meant by the claim did not lie in the claim as limited by the action of some single element or some classifying phrase, but in a new idea of means or method of which the expression of the claim is an over-limitation, a mere illustration of one form.

In these cases it is also apparent that the court regarded it wrong that an infringer who had embodied a valuable idea of means or method first invented by the patentee should be able to share the reward intended for the inventor by merely making a plainly equivalent structure producing the same result in substantially the same way and differing only in an obvious shifting of a part or some merely colorable evasion of structure or action.

What may be termed the rule of liberal construction may, for the present, be sufficiently evidenced by quotations from two cases.

In Miller v. Eagle Mfg. Co., 151 U. S. 186, 38 L. ed. 121, 131 the court said:

"The range of equivalents depends upon the extent and nature of the invention. If the invention is broad or primary in its character, the range of equivalents will be correspondingly broad, under the liberal construction which the courts give to such inventions."

In McCormick Harvesting Mach. Co. v. Aultman (Sixth Circuit, 1895) 69 Fed. 371, 16 C. C. A. 259, the court speaking by Taft, Cir. J. said:

"Whether he specfically claims in his patent the benefit of equivalents or not, the law allows them to him according to the nature of his patent. If it is a mere improvement on a successful machine, a mere tributary invention, or a device the novelty of which is confined by the past art to the particular form shown, the range of equivalents is narrowly restricted. If it is a

pioneer patent with a new result, the range is very wide, and is not restricted by the failure of the patentee to describe and claim combinations of equivalents. Nothing will restrict the pioneer patentee's rights in this regard save the use of language in his specifications and claims which permits no other reasonable construction than one attributing to the patentee a positive intention to limit the scope of his invention in some particular to the exact form of the device he shows, and a consequent willingness to abandon to the public any other form, should it be adopted and prove useful. Instances of such a limitation may be found in Keystone Bridge Co. v. Phoenix Iron Co., 95 U. S. 274, and in Brown v. Manufacturing Co., 6 U. S. App. 427, 16 U. S. App. 234, 57 Fed. 731, 6 C. C. A. 528. But there is no such limitation in the patent under discussion, and the rule applies which was so fully explained in Winans v. Denmead, 15 How. (U. S.) 330, 14 L. ed. 717, where the court said:

"Patentees sometimes add to their claims an express declaration to the effect that the claim extends to the thing patented, however its form or proportions may be varied. But this is unnecessary. The law so interprets the claim without the addition of these words."

"Again, in Goodyear Dental Vulcanite Co. v. Davis, 102 U. S. 222-230, 26 L. ed. 149, the Supreme Court said that a patentee was protected against equivalents whether he claims them or not. A most satisfactory discussion of this general subject may be found in the opinion of the Circuit Court of Appeals of the First Circuit in Reece Button-Hole Mach. Co. v. Globe Button-Hole Mach. Co., 61 Fed. 958, 10 C. C. A. 194, where Judge Putnam, on behalf of that court, examines the two lines of cases of which Winans v. Denmead and the Keystone Bridge Case are respective types, and reconciles them, so far as they may be reconciled. See also, Keystone Manufacturing Co. v. Adams, 151 U. S. 139, 38 L. ed. 103, 14 Sup. Ct. 295; Miller v. Eagle Manufacturing Co., 151 U. S. 186, 38 L. ed. 121, 14 Sup. Ct. 310."

The leading example of the cases in which, notwithstanding an apparent limitation in a claim, infringement has been held where another had copied the substance of the invention is Winans v. Denmead, 15 How. (U. S.) 330, 14 L. ed. 717, in which the invention related to the peculiar construction of cars for the transportation of coal, and the patent was granted in 1847 after the law had required a claim. The specification described only a conical form, and the claim was in the following language:

"What I claim as my invention, and desire to secure by letters-patent, is making the body of a car for the transportation of coal, etc., in the form of a frustum of a cone, substantially as

herein described, whereby the force exerted by the weight of the load presses equally in all directions, and does not tend to change the form thereof, so that every part resists its equal proportion, and by which, also, the lower part is so reduced as to pass down within the truck frame and between the axles, to lower the center of gravity of the load without diminishing the capacity of the car as described."

It is true that in the specification and claim nothing but the conical form is specifically set forth, nevertheless, it does appear in the claim itself that the purpose and object of the structure could be carried out by other cars differing geometrically in form provided they had substantially the same relations of parts. That is to say, while the specific term employed is "frustum of a cone" the claim proceeds to state the effect of any geometric form which holds and disposes of the load in the way described. The defendant in this case made his car of a different geometric form, not a frustum of a cone, but of a pyramidal form which obtained the same results in the same way.

The court made the distinction that, when a patent covers one geometric form only, it will be so limited where only that form is capable of embodying the invention, but that where the whole substance of the new invention may be copied in a different form then the form is not vital or essential; and held in this case that the applicant was entitled to equivalent forms which will produce the same results.

In Reece Button-Hole Machine Co. v. Globe Button-Hole Machine Co., (First Circuit, 1894) 61 Fed. 958, 10 C. C. A. 194, the often cited case of Winans v. Denmead, supra, is elaborately reviewed and indorsed. The patent in suit was No. 240,546. It relates to sewing machines for stitching buttonholes, being an improvement upon that class of machines in which the stitching mechanism is made to travel first along one side of the buttonhole slit, then about the eye and along the other side of the slit.

The distinctive mechanical operation was that the needle-bar, by the movements imparted to it longitudinally and laterally by a frame on the machine is caused to travel backward, etc. Throughout the specification and the claims it appeared that this relative movement was the essential feature of the invention. It appeared also that no previous machine had automatically stitched a buttonhole in the form in which it is ordinarily desired—that is, with the eye. Claim 5 read as follows:

"In a buttonhole sewing machine, a framework for the needle-bar and looper, and a bedplate to hold the material, combined with two cams and with mechanism between the said cams and framework, whereby the needle bar, by the movements imparted to it longitudinally and laterally of a buttonhole by the

said frame, is caused to travel backward in a substantially straight line until near the eye of a buttonhole, then backward and outward and inward, then forward and inward, to follow the contour of the edge of the enlarged eye part of the buttonhole, and then forward substantially in a straight line along the other side of the buttonhole, as set forth."

The court pointed out as the essential feature of this claim the compound movement given the needle-bar resulting from simultaneous longitudinal and lateral movements. While this was old and common in the arts it had never been so applied before, that is, in combination with mechanism of this character, and it was held to constitute a "patentable invention of a fundamental character, highly meritorious, and one to be protected by liberal construction."

It will be observed that in effect the meaning of the claim of Reece is that the plate is fixed and the frame moves, but the court held that the essential thing was that there were relative movements between these parts and that the absolute movements were nonessential, and that, though in the defendant's structure, the frame was fixed and the plate moved it was an infringement. The court said, in effect, that to hold otherwise would destroy the whole value of the Reece patent. The court then, after indorsing in strongest terms the principle of Winans v. Denmead, distinguishes a long series of cases which, if they stood alone, the court said, "might be regarded as carrying so far the effect of literal construction of specifications and claims as would compel us to find for the defense on the proposition in question."

Hoyt v. Horne, 145 U. S. 302, 36 L. ed. 713, 12 Sup. Ct. 922. This case is an illustration of one of the many cases in which the Supreme Court sustained a mechanical method claim (prior to their condemnation of all such mechanical methods in Risdon v. Medart), based upon the principle of earlier decisions of the court.

The claims illustrate how closely a mechanical method claim may approximate a combination claim and read as follows:

"1. The improvement in beating rags to pulp in a rag engine having a beater-roll and bed-plate knives consisting in circulating the fibrous material and liquid in vertical planes, drawing the same between the knives at the bottom of the vat, carrying it around and over the roll and delivering it into the upper section of the vat, substantially as described.

"2. A rag engine for paper-making, comprising the vat, the beater-roll mounted on a horizontal shaft in one end of the vat, and the horizontal partition dividing the body of the vat into an upper and lower section or passage, the fibrous material and

liquid being carried from the lower section between the knives and delivered over the top of the beater-roll into the upper section or passage, substantially as described."

In this case also the defendant was manufacturing under a patent, and, in fact, showed a construction apparently an improvement over the Hoyt construction. Nevertheless, the court thought the defendant had appropriated "all that was of value in the Hoyt device, viz., the beater-roll at the end of the tub, extending across its entire width, and the circulation of the pulp in vertical planes at the only point where such circulation is of value."

The court regarded the substitution of a vertical for a horizontal mid-feather on the inoperative end of the tub as "merely the use of an old and well-known mechanical equivalent, and obviously intended to evade the wording of the claims of the Hoyt patent." The court held the defendant infringed claim 1 and did not pass upon the more doubtful question of claim 2.

Under heading IX, "Letters-Patent and Their Construction and Scope," and elsewhere, many examples are given of the views of the courts upon invention. An apt illustration at this point may be found in the case of In re Harbeck, — App. D. C. — 191 O. G. 586, because the subject-matter is simple, it reviews the position of the Patent Office, and it quotes largely from the decisions of the Supreme Court, summing up what is considered by the Court having to do with the grant of patents to be the lesson of the cases decided by the highest tribunal in passing upon the validity of patents.

It should be understood that in this case the art is accepted as stated by the Court and that the reasons of the opinion are important without reference to the future history of the patent which may be granted upon this application; and that this is an *illustration of what is generally known as a "liberal" view of invention.*

The following claims substantially indicate what was before the court.

"1. The vessel having walls made of layers of paper united to each other by a fused cement.

"2. The can body composed of oblong layers of paper cemented to each other step fashion by a fused cement and having its stepped ends cemented together by the fusible cement and caused to adhere to each other by the application of heat.

"3. The can body composed of layers of paper cemented together by fused cement and creased with three creases to facilitate bending at the corners into a square form and to flatten for shipment.

"6. The combination of the can body made of layers of paper

cemented together by fused cement and having sheet metal heads applied thereto, said can body being made square with creased rounded corners, and said heads being rounded at the corners to correspond."

The court said:

"The principal feature of the invention consists in the use of fused cement, instead of a soluble adhesive. It is claimed that all former efforts in this direction, and numerous patents are cited, have proved defective, in that soluble adhesive or cement was used, and, when the solvent evaporated or dried out, it left the walls of the vessel porous, and not impervious to gases or moisture. Overcoming this defect is the problem appellant claims to have solved. Not only is no solvent used in appellant's cement, but he claims to use a combination which gives rise to no objectionable odors when his vessel is put into use."

* * * "The application was rejected by the Patent Office for the reason that the change from the prior art, where the sheets were made of layers of paper united by the use of soluble cement, to the use of fused cement, which, according to the specification, marked the transition from failure to success in this art, was a mere mechanical step capable of being taken by any one skilled in the art. * * * It is easy to dispose of a case, where the issue of invention is close, by holding that the advance over the prior art constitutes a mere mechanical change apparent to those skilled in the art. But, in the absence of proof to support this conclusion, and where the question of patentability is close, the doubt should be resolved in favor of the applicant. (In re Eastwood, 33 App. D. C., 291.)"

The court then discusses Smith v. Goodyear Vulcanite Co., 93 U. S. 486, quoting from that decision a citation from Webster on Patents and the distinction of the case of Hotchkiss v. Greenwood (11 How. [U. S.] 248). The following is the quotation from Webster—a statement somewhat broader than the test suggested by the court later in the case:

"The utility of the change, as ascertained by its consequences, is the real practical test of the sufficiency of an invention; and since the one can not exist without the other, the existence of the one may be presumed on proof of the existence of the other. Where the utility is proved to exist in any degree, a sufficiency of invention to support the patent must be presumed."

The court then carefully sums up in what is intended to be a distinction or test of invention as follows:

"While the use of new materials to produce a known result, or of known materials to produce a new but obvious result, may not always constitute invention, if the new idea, when applied, brings success out of failure, produces a new and useful result

and saving in operation or production, or efficiency instead of inefficiency, gives to the device new functions and useful properties, it is invention, and may be patented. Appellant has met these requirements."

The court then cites with approval the following from Webster Loom Co. v. Higgins, 105 U. S. 580:

"It is further argued, however, that, supposing the devices to be sufficiently described, they do not show any invention; and that the combination set forth in the fifth claim is a mere aggregation of old devices, already well known; and, therefore, it is not patentable. This argument would be sound if the combination claimed by Webster was an obvious one for attaining the advantages proposed—one which would occur to any mechanic skilled in the art. But is is plain from the evidence, and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to ever the most skilled persons. It may have been under their very eyes, they may almost be said to have stumbled over it; but they certainly failed to see it, or to estimate its value, and to bring it into notice. * * * Now that it has succeeded, it may seem very plain to any one that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produces a new and beneficial result, never before attained, it is evidence of invention."

The court then said:

"We are of opinion that appellant has discovered something new and useful and has demonstrated its utility. These are the elements which enter into patentable invention." As the court said in Diamond Rubber Co. v. Consolidated Tire Co., (220 U. S. 434):

"This satisfies the law, which only requires as a condition of its protection that the world be given something new and that the world be taught how to use it. It is no concern of the world whether the principle upon which the new construction acts be obvious or obscure, so that it inheres in the new construction."

"In other words, the inventive discovery made by appellant consisted in an intelligent apprehension of the elements entering into the device and the bringing of them together in such relation as to produce a new and useful article of commerce. The extent to which he modified or altered existing inventions is unimportant, since he accomplished a new and beneficial result not so obvious as to suggest itself to those skilled in the art. It remained for appellant to discover the hidden cause that marked the line between failure and success. In Diamond Rubber Co. v.

Consolidated Tire Co., supra, the court divides patentable invention into two classes, as follows:

"In other words, the invention may be broadly new, subjecting all that comes after it to tribute (Railway Co. v. Sayles, 17 U. S. 554, 556); it may be the successor, in a sense, of all that went before, a step only in the march of improvements, and limited, therefore, to its precise form and elements."

Benbow-Brammer Mfg. Co. v. Strauss, et al., (Second) 166 Fed. 114, 92 C. C. A. 98. The Schroeder patent, No. 535,465, had previously been before the courts in various cases and circuits, noted in the statement of this case. In all of these prior decisions the patent had been sustained, but in one case it was held not to be infringed. This was, however, reversed in Benbow-Brammer Mfg. Co. v. Richmond Cedar Works, (Seventh) 170 Fed. 965, 96 C. C. A. 101.

The claim reads as follows:

"1. An operating shaft having a rotary reciprocating motion, a cylinder placed upon the shaft and having a sliding movement thereon, and through which cylinder motion is alone communicated to the shaft, and a double row of teeth or cogs upon the cylinder extending at an angle to the shaft, combined with a driving shaft having means for revolving it attached to one end, and a wheel for engaging the teeth on the cylinder at the other, the driving shaft being driven continuously in one direction, substantially as shown."

It will be observed that this claim calls for a cylinder having a sliding movement upon the shaft. The court said of the defendants' structure:

"It shows a skilful attempt to avoid the claim by the substitution of well-known equivalents for some of the elements which do the identical work of the Schroeder combination. In both structures the stirrer is agitated by a rack and pinion motion, the rack being located on the operating shaft and the pinion on the driving shaft. The main difference between the two is that in Schroeder's machine the reciprocating motion is produced by the up and down movement of the rack and in defendants' by the up and down movement of the pinion. This change is accomplished by substituting for the driving shaft of the claim a driving shaft which, as the defendants' brief asserts, 'is well known in mechanics as a "floating" shaft, and making the necessary mechanical changes incident to the substitution.

"We are dealing, not with a great invention, but with a meritorious one which has made a distinct advance in the art in question. We think the claim should be given an interpretation liberal enough to protect the inventor from the use of machines

which differ only in nonessential changes which any skilled mechanic would know enough to make."

Bundy Mfg. Co. v. Detroit Time-Register Co., (Sixth Circuit, 1899), 94 Fed. 524, 36 C. C. A. 375. Taft, Lurton, and Clark. The following claims of patent No. 452,894 were involved:

"(3) A clock movement and hour and minute recording wheels, synchronous mechanism actuating said wheels, a key provided with a bit carrying numbers, brought into alignment with the hour and minute wheels by the turning of the key, a recording strip, and an impression hammer, in combination as set forth.

"(4) A clock movement, hour and minute recording wheels, synchronous mechanism actuating said wheels, a key provided with a bit carrying numbers brought into alignment with the hour and minute wheels by turning of the key, a ward upon the key, a recording strip, and an impression hammer operated by mechanism actuated by the ward of said key as it is turned, in combination as set forth."

The defendant apparently did not use a turning key, a key which carried a number on its bit, or an impression hammer. The court, reversing the lower court, held that while Bundy was not in a broad sense a pioneer in the art, his invention marked a distinct step in the art and that his mechanism was the first structure of its kind. Citing various cases hitherto discussed, the court held that the particular differences urged by the defendant were immaterial and not of the essence of the invention as presented by the claims, and concluding on this point said:

"True, we have not limited Bundy to impression mechanism in the shape or form of a hammer, nor to a key operated only by turning or carrying the workman's number only on a projection upon its side. To have done so would be to destroy his patent, and open his invention to the assaults of those who, with only colorable changes, could avail themselves of the very heart of his invention."

Adam v. Folger, (Seventh Circuit, 1903) 120 Fed. 260, 56 C. C. A. 540. In Folger's patent No. 680,769, the fifth claim comprised eight elements. One of these elements was stated as "a supplementary valve, arranged in the plug of the main valve." The invention lay, the court said, in substance, in conceiving and putting into workable form the idea of regulating separately the flow of the water, while preserving the unity of action of the supply valves for both water and gas. The defendant used the supplemental valve and instead of locating it, as called for by the claim

of the patent in suit, in the main valve, he moved it from the plug to the side of the main valve.

The court in holding that this change did not avoid infringement of the claim said that, "If a patentee claims eight elements to produce a certain result, when seven will do it, anybody may use the seven without infringing the claim," thus summing up several cited cases. The court proceeds, however, to say that "form, location, and sequence of elements are all immaterial, unless form or location or sequence is essential to the result, or indispensable, by reason of the state of the art, to the novelty of the claim," citing several cases.

B. F. Avery & Sons v. Case, 143 Fed. 214, 78 C. C. A. 110. In this case in the same circuit (the Seventh) Adams v. Folger and other cases of the same type are cited to sustain the interpretation of a claim to include a different location where location was not of the essence of patentable novelty.

This case is also interesting as given a rather precise definition of the term "means."

Claim 5 of patent No. 650,771 reads as follows:

"(5) In a plow, the combination with a standard, share, and moldboard of a depth-runner, comprising two sections pivoted at their forward ends upon opposite sides of the standard, means for adjusting the height of their rear ends, a knife or rudder pivoted at its forward end between the sections of the depth-runner, and means for adjusting the height of its rear end independently of the adjustment of the depth-runner, substantially as described."

The court found that Avery had devised a novel combination in which a weighted support extended from the plow-structure to the rear end of the runner, and sustained, by means of a throughbolt, both the runner and the rudder in adjustable relations to each other and to the plow. But the court held that the broad claims 2 to 6, including the quoted claim 5, were not properly limited to the combination which included suitable means of securing the runner and the rudder in adjustable relations to each other and to the plow at one operation, but that the phrasing of the claim applied equally well to the old patents of the art.

Having thus refused an elastic interpretation of the broad claims, the court sustained the more specific claims 7 and 8 without reference to the fact that the defendant had a different location of the upper ends of the brace rods.

Upon critical comparison of the claims in the defendant's structure, however, the court concluded that, in reality, the defendant was within the terms of the claims, holding the defendant, therefore, an infringer in either event.

Cazier v. Mackie-Lovejoy Mfg. Co., (Seventh), 138 Fed. 654, 71 C. C. A. 104. In patent No. 696,940, for a trousers-hanger, the novelty of the claim lay in the particular clamping-jaws. The other elements of the claim were old. The defendant appropriated the novel clamping-jaws but used with them another form of suspending arms equally old, but not those defined by the claim. The court said that to hold otherwise than that the defendant infringed, "would be to rob an inventor by a blind literalism," citing and discussing Adam v. Folger, etc.

Metallic Extraction Co. v. Brown, (Eighth), 104 Fed. 345, 43 C. C. A. 568.

Patent No. 471,264. Claim 1 read as follows:

"1. In an ore roasting furnace having means for stirring and advancing the ore, a supplemental chamber at the side of the main roasting chamber, and cut off from said main chamber by a wall or partition, and carriers in said supplemental chambers connected with the stirrers, but removed from the direct action of the heat, fumes, and dust, substantially as herein described."

The defendant manufactured under patent No. 532,013. The court speaking of the patent in suit said:

"In the light of the present record, it must be conceded, we think, that Brown was the first to conceive the idea of constructing a supplemental chamber adjacent to the oven of an ordinary ore-roasting furnace, and locating the rabble-operating mechanism therein, for the purpose of shielding it from the heat and prolonging its life. No other inventor prior to this time appears to have hit upon that mode of construction, and in suggesting it he appears to have made a marked advance in the art of furnace building, even if his invention can not be properly termed a pioneer invention."

And of the construction of the claim in discussing infringement:

"We can conceive of no reason for such a self-imposed limitation, since it is obvious that whether the supplemental chamber was placed at the side of the main roasting oven, or underneath, it would operate in the same manner and produce the same result. As we have before intimated, we think that the words stating the location of the supplemental chamber crept into the claim inadvertently, because of the style of furnace that happened to be chosen to illustrate or embody the invention. We are accordingly of opinion that the first claim of the Brown patent should be construed to cover a supplemental chamber placed beneath the main roasting chamber, as in the Ropp device, because a supplemental chamber so placed is a mere mechnical equivalent for one located at the side thereof."

(The court cited Winans v. Denmead, Hoyt v. Horne, Mc-

Cormick v. Aultman, Reece Buttonhole Mach. Co. v. Globe Button-Hole Co., Western Electric Co. v. La Rue, Devlin v. Paynter.)

In interesting comparison with this case is the case in the same circuit of Lanyon Zinc Co. v. Brown, 129 Fed. 912, 64 C. C. A. 344. The court referred to the previous cases on the patent No. 471,264, including Metallic Extraction Co. v. Brown, and Lanyon Zinc Co. v. Brown, 119 Fed. 918, 56 C. C. A. 448.

In the present case, the question was whether a structure made in accordance with patent No. 691,112 in which the furnace is supported by posts and the rabble operating mechanism is placed in the unenclosed space beneath was an infringement. The court held it was not an infringement and in this case applied the rule that the patent is limited to the claim as made, citing McClain v. Ortmayer, Keystone Bridge Co. v. Phoenix Iron Co., and White v. Dunbar.

That is, in these two cases on the same patent the court, in one, turned for authorities to the class of Winans v. Denmead and in the other to the class of Keystone Bridge Co. v. Phoenix Iron Co.

Mossburg v. Nutter, (First Circuit, 1905) 135 Fed. 95, 68 C. C. A. 257. This case involved patent No. 491,012. In describing the invention the court said:

"In this type of bicycle bell, the striking mechanism is set in operation by the contact of a friction roll with the tire of the wheel. In its normal position, the roll is held out of contact with the tire. When, however, the rider desires to ring the bell, he presses a lever or finger piece, which causes the roll to move into contact with the tire; and when this pressure is withdrawn, the roll immediately resumes its normal position."

The following claims fairly state the invention:

"(1) In a bell for bicycles and other velocipedes, an oscillatory plate or disk mounted to turn in the rear of the gong, and complementary striking mechanism, carried by said plate and adapted by the movement thereof to be thrown into and out of action by contact with and removal from the bicycle or velocipede wheel."

"(4) A bell for bicycles and other velocipedes, consisting of a bracket secured to the fork of the machine and extending beside its wheel, a gong supported upon the outer end of the bracket, a plate or disk centrally pivoted on the outer end of the bracket and fitted and adapted to turn freely in the inner side of the gong and carrying a striker adapted to operate on said gong, mechanism carried by said plate or disk for transmitting the power of the bicycle or velocipede wheel to operate the striker, and means for turning said plate or disk to throw

its power-transmitting mechanism into and out of contact with said wheel, substantially as herein described."

In the opinion, the court defines the meaning of the phrases employed in the claims. In discussing the two patents especially cited and speaking of the nearest one, the court said that it "never reached the Ericson conception of mounting the entire bell on a pin at the outer end of the rigid bracket." And, "it is an important structural modification, producing an improved mode of operation, in that the whole bell structure no longer swings bodily through the air." The court in speaking of the broad claims said: "Upon their face alone, it may be that claims 1 and 2 are broad enough in their terms to include the Hill & Tolman and some other prior bells." And concluded that the phrases of the claims when read with the drawings and specifications were intended to cover and do distinctly cover by their language the primary feature of the Ericson invention; and though, in one of the defendants' bells, the gong was not made stationary on the end of the pivot but was pivoted with the lever and so rotated with it and in the other there were separate pivots for the gong and lever whose axes were not pivoted so that the gong rotated with the lever and had a slight bodily movement, the court held these to be equivalent to the combination of the patent in suit and to be within the meaning of the claims of the patent in suit.

They proceded upon the idea stated as follows:

"The claims of a patent are to be fairly construed, so as to cover, if possible, the invention, and thus save it, especially if it be a meritorious one. In approaching a patent, we are to look primarily at the thing which the inventor conceived and described in his patent, and the claims are to be interpreted with this particular thing ever before our eyes. In confining our attention too exclusively to a critical examination of the claims, we are apt to look at them as separate and independent entities, and to lose sight of the important consideration that the real invention is to be found in the specification and drawings, and that the language of the claims is to be construed in the light of what is there shown and described."

McSherry Mfg. Co. v. Dowagiac Mfg. Co., (Sixth), 101 Fed. 716, 41 C. C. A. 627.

In this case claim 1 of patent No. 446,230 for a grain drill included as an element "the clamping-plates for a pivotal connection with the draft-bars." The defendant used a pivotal bolt and wedge-plate for the same purpose.

Of this, Judge (now Mr. Justice) Lurton with whom sat Judges Taft and Day, said:

"It is true that he calls for clamping-plates in his claim,

and that he does not claim any other method of making his connection. But he has not shown any intention to confine himself to that specific mode of connection. The form he described and claims is not of the essence of his invention, and the law allows a patentee any form which is the equivalent of that claimed, unless he has expressly limited himself to the one claimed and described, or unless it is necessary to limit him to the specific form in order to save his patent from anticipation."

While in a sense this case is an example of a construction of a specific term to give it a broader meaning the defendants' structure, perhaps, might have been classed under the term of the claim without doing violence to the meaning of the words.

Sessions v. Romadka, 145 U. S. 29, 36 L. ed. 609, 12 Sup. Ct. 799. In this case the claim of patent No. 128,925 for a trunk fastener reads as follows:

"3. The spring catches I, constructed and applied to the front of the body, as described in combination with the tongues or hasps J, on the top, when arranged to operate as set forth."

The defendant made his device in pursuance of a patent. The court, after discussing the difference between the two patents, said:

"In view of the fact that Taylor was a pioneer in the art of making a practical metallic trunk fastener, and invented a principle which has gone into almost universal use in this country, we think he is entitled to a liberal construction of his claim, and that the Romadka device, containing as it does all the elements of his combination, should be held an infringement, though there are superficial dissimilarities in their construction."

There are a number of cases in the reports in which it would appear from the trend of the opinions that the principle of construction of Winans v. Denmead and Reece Button-Hole Co. v. Globe Button-Hole Co. had been adopted. On a closer analysis, however, many of these cases are found to turn upon some immaterial or formal difference between the structure of the defendant and of the complainant leaving the defendant's structure within the terms of the claim in suit. A few examples will serve to illustrate this class of cases.

King's County R. & F. Co. v. U. S. Consol, S. R. Co., (Ninth), 182 Fed. 59, 104 C. C. A. 429. In this case claim 17 of patent No. 619,693 reads as follows:

"A machine for seeding fruit, comprising a cylindrical carrier composed of thin plates of two constructions aranged alternately, the plates of one construction having long teeth spaced apart circumferentially so as to exclude the seeds of the fruit, and the plates of the other construction being of smaller diameter and smooth circular contour and of such thickness as to

exclude the seeds of the raisins, pressing means for impaling the fruit on such teeth, a seed stripping device, and a fruit stripping device, substantially as set forth."

It will be observed that the claim of the patent in suit calls for plates (disks) having long teeth and alternating sets of plates or disks of smaller diameter and smooth circular contour. The defendant made up the first of two plates which held between them the long teeth, but this structure was in effect the structure set forth in the claim of the patent. The defendant also used corrugated annular plates of smooth circular contour alternating with the other plates or disks, but this was also within the terms of the claim.

In short, the difference between the two was merely that in the patented structure the disk was stamped out of a single piece of metal, whereas in the defendant's structure it was constructed of three parts. It would appear, however, that the defendant's structure would fall within the definition of the claim without the necessity of any such construction of the terms of the claim as was made in Winans v. Denmead and in the Reece Button-Hole case.

This case is especially interesting in that the court, in referring to a prior patent, Crosby, No. 56,721, said:

"The Crosby invention undoubtedly anticipates and described the whole theory of the Pettit patent; but it does not appear ever to have been put to use, and there is no evidence that any machine was ever constructed under it."

The court goes on, however, to point out some deficiencies of the Crosby specification and objections which would be made if the Crosby structure had been built. The case involving an appeal from an order granting a preliminary injunction, the court found it unnecessary to classify the Crosby patent, but plainly indicated that it would probably be held to be an unsuccessful and abandoned invention.

The court further said: "Pettit was not only the first to invent a built-up impaling cylinder, but he was the first to invent and construct a raisin-seeding machine embodying the principle upon which all such machines must necessarily operate."

Then, in summing up in the matter of equivalents, citing several authorities:

"If his improvement is but a narrow one, or if he has used language such as clearly to show his intention to limit his invention to a particular form described, then he is held to the language of his claim, and limited to that specific form. But if his is a pioneer invention, or one of such merit as to be entitled to a liberal construction, the claim will not be thus limited, even if couched in specific language, unless the inventor

has also shown his positive intention to relinquish to the public all other forms in which his invention might be embodied."

Western Electric Co. v. La Rue, 139 U. S. 601, 35 L. ed. 294. In this case, patent No. 270,767, for a telegraph key, was held infringed by the telegraph sounder described in letters patent No. 352,317. The third claim of the patent in suit read as follows:

"The combination, in a telegraph key, of the lever fulcrumed upon the torsional spring, with the adjusting screws HH', for regulating the amplitude of the lever movement, and the retractile resistance of the torsional spring, substantially as described."

It is questionable if this case falls within the class of claims which do not in terms precisely cover the defendant's structure, for though the defendant's structure differed in details, it was held to embody the combination of the third claim of the patent in suit.

The case is also a famous ilustration of invention. La Rue had applied a torsional spring to a telegraph key which had previously been regulated by a coil spring or a flat spring. Torsional springs had been used in clocks, doors, etc.

Houser v. Starr, (Sixth, 1913), 203 Fed. 264, (C. C. A.)

In considering patent No. 533,095 for a drawing instrument, the court discussed the third claim, which reads as follows:

"3. The combination of the sliding bar D, the shaft L, with its integral guide arms, the sliding shaft I, the arm H, the spiral spring S to elevate the several parts, the operating and depressing arm K, and the pencil holder, to produce continuous or broken lines, substantially as described."

The defendant employed the complete combination excepting the "arm H," but to find infringement, the court said, it would be necessary to interpret the phrase as covering any means for producing right-angled, transverse motion in the second shaft of the machine.

In this case the court puts upon one side a class of cases illustrated by Hoyt v. Horne, McSherry v. Dowagiac, and Metallic Extraction Co. v. Brown; and on the other side White v. Dunbar, Cimiotti v. American Co., Coupe v. Royer, Brown v. Stilwell, and Keystone v. Phoenix Iron Co., placing the case before the court in the latter class, and finding no infringement because the defendant did not use the "arm H," but suggesting a possibility of the opposite classification if the claim had referred to an invention more broadly novel.

The difficulty of stating "fixed rules" is suggested in this case, where the court said:

"The meaning of 'equivalent' is a question of fact to be de-

termined by the language of a claim, in connection with the specification, the drawing, the state of the art, and history of the application. Attempts to make arbitrary rules, as of law, for determining questions of fact, lead, to artificiality and seldom help."

(The subject of equivalents is again considered under "Infringement," with additional illustrative cases.)

Combination; Aggregation.—By far the largest number of claims fall under the class of "machine," and under the designation of "combination" claims.

Under a preceding heading the true place of "aggregation" in patent law has been stated. There have been many restrictive definitions of combination, such for example, as that of Pickering v. McCullough, heretofore discussed, which have been applied in practice only where invention was lacking. There are, however, other definitions which are more universally applicable, and of these definitions perhaps none is more accurately stated in the light of the past practice as well as the practice subsequent to the decisions than are those of Lynch v. Dryden, 1873 C. D. 73, and Forbush v. Cook, 2 Fish. (U. S.) 669, Fed. Cas. No. 4931.

"A combination within the meaning of the patent law may be defined to be a novel assemblage of parts, either old or new, so coacting either simultaneously or successively as to produce a unitary result."

"A patentable combination is one of which the several parts co-operate to produce a certain result, not that their operation must be simultaneous, but they must co-operate in the sense that the function of each part aids and is aided by those of the other parts."

It may be advisable here to also state, in opposition to the definition of combination, one of the early definitions of aggregation of Hailes v. Van Wormer, 87 U. S. 353, 22 L. ed. 247.

"The grouping together devices, in which each produces its customary effect, unmodified by the others, and no more, and no result follows from the union which was not previously produced by some of the elements."

The stricter rule of combination has occasionally been restated, as, for example, in Deere & Co. v. J. I. Case Plow Works, 56 Fed. 841, 6 C. C. A. 157, citing Florsheim v. Schilling, 137 U. S. 64, 34 L. ed. 574, and other cases, in which it is said that in a patentable combination of old elements all the constituents must so enter into it that each qualifies every other. It must form either a new machine of a distinct character and function or produce a result due to the joint and co-operating

action of all the elements and which is not the mere adding together of separate contributions.

Carefully read these definitions and distinctions may be applied, but in practice the accepted rule is rather imbued with the spirit of the National Cash Register Co., et al. v. American Cash Register Co., 53 Fed. 367, 3 C. C. A. 559, that it is not necessary in a new combination of old elements that each should modify or change the characteristic mode of action or method of operation of all the others, but only that the combination should produce a new and useful result as the product of the combination and not a mere aggregate of several results each the complete result of one of the combined elements. Where a new result is produced by the combination, it is enough that each element contributes to its production. In the Deere & Co. cultivator case just cited, the court found the claim void of novelty in view of the prior art, the parts of the combination were old in similar combinations and no new result was achieved by selecting certain parts, or equivalent parts, and putting them together in the familiar manner. (See as accepting this as the rule of the Patent Office, McCormick v. Robinson, 124 O. G. 2903.)

In considering or drawing a combination claim the rule of the weight of authority runs with the best practice. When a combination is presented, the first question is whether or not that combination is new, not merely whether or not the several parts or some of the parts are new. As a mere difference in structure can not avail an infringer if it be within the claim of a patent, conversely a claim of an application or a patent may be met or barred by the same combination or an equivalent combination. As illustrated in the case of Aron v. Manhattan Railway Co., 132 U. S. 84, 33 L. ed. 272, the claims before the court related to the well-known swinging gates for elevated railroad trains in which the rods and links may be placed upon the inside of the guard railing as well as upon the outside, and in which the operating mechanism may, if desired, be placed beneath the platform, and in which the gates may be so hinged as to lie against the body of the car when opened instead of against the guard railing and in which sliding gates may be used instead of swinging gates.

In considering these claims a transom lifter, a gate opener for any use or a door closer which had the principal features of the combination claims would be a substantial anticipation, because, it would be said (and it was said), that the additional specific features are only such as are common in the car to which the operating mechanism was applied and because the specific changes were only such as came within the expected skill of

the calling, that is, involved mere mechanical skill and not invention. However, if in this case, there had been some change, some reorganization which the court thought did involve invention, then if the point had been covered in the claims, that change would have been patentable. It will, therefore, be apparent how necessary it is to first determine what is the feature and combination of novelty and then to determine how that shall be best expressed so as to most clearly define either the particular part which is the invention, the new combination which is the invention, or in other things than machines, the new method or process, the new product, or the new composition which has been invented.

Some examples:

Lynch et al., v. Dryden et al., 1873 C. D. 73. Claim:

"The combination, in a walking cultivator, of the following instruments, to wit: A split tongue or frame, an arched or raised axle mounted on wheels, and two beams hinged thereto in such a manner as to permit them to be moved vertically and laterally, independently of each other, substantially as described."

This case recites the usual and expected definition of combination as follows:

"It would seem, however, from the decisions of the courts respecting combinations, cited in the cases above referred to, that two things are always essential: first, a novel assemblage of parts exhibiting invention; second, that the parts shall co-operate in the production of a useful result. By the term 'co-operate,' as here used, the courts do not mean merely acting together or simultaneously, but acting to one common end, to a unitary result. Each and every part must have its subfunction to perform, and each must have a certain relation to and dependence upon every other, and all must act in producing the result."

The claim is criticised as follows:

"The relation of the tongue to the other parts is such that they are in no way affected by the circumstance as to whether the tongue is split or not. Their operation is exactly the same, and they produce exactly the same result with a straight tongue as with a split. The axle, wheels, plows, etc., have no influence in securing the benefits arising from the use of the split tongue; neither does the split of the tongue have the remotest bearing or influence upon the functions of the other parts; neither do the parts in any proper sense co-operate in producing a unitary result. The split tongue tends to keep the horses from treading upon the corn. That it does without the aid of any of the other parts, and here the peculiar function of the split tongue ends.

It would do exactly the same with any other cultivator, whether walking or riding, whether the plows are attached or detached, and whatever might be the shape of the axle."

National Cash Register Co. et al., v. American Cash Register Co., (Third), 53 Fed. 559, 3 C. C. A. 559. Claims:

"2. In a cash registering apparatus, a series of keys to designate certain amounts, a pawl-carrying bar, c, and a series of toggle-levers, x, intermediate between each key and the said pawl-carrying bar, the toggle-lever, b, actuated by the bar c, combined with the drawer-holder D and drawer C, substantially as described."

(The reference letters in this claim are plainly unnecessary and an element of weakness, and the concluding parts are not definitely located.)

"3. In a cash-registering apparatus, a series of keys to designate certain amounts, combined with the drawer, the drawer-holder D, mediately connected with said keys, and the spring to throw the drawer open when released by the drawer-holder, substantially as described."

These claims were held not substantially identical, and it was held that claim 3 could not be restricted to all or any of the devices used in the mediate connection between the series of keys and the drawer-holder, not only because they are not even specified in the third claim, but also because they are expressly claimed in the second claim.

These claims do not strictly meet the rigid requirements of the definitions of combination.

In this case, the court defines a combination and qualifies the original acceptation of Pickering v. McCullough.

"We have not overlooked the suggestion of appellee's counsel that Campbell's conception and arrangement were merely of an aggregation of known elements, not amounting to a true combination, and that therefore he was not entitled to a patent for anything. This suggestion is based upon the allegation that each of the elements associated by Campbell does not qualify every other of them; but this is true only in the sense that each does not modify or change the characteristic mode of action or method of operation of the others. In doing its appointed share toward effecting the single result achieved by the co-operation of all, each element acts, of course, according to the law of its own being; but, though of necessity so acting, it is still none the less combined with the others and does 'qualify' each and all of them (not their distinctive methods of operation) in the sense that each is by the co-operation of the others capacitated to contribute, by acting in its own peculiar way, to the common end, which, without the co-operation of each and

every other of the co-ordinated elements, it would be powerless to accomplish or advance. Some of the language used by Mr. Justice Matthews in delivering the opinion of the Supreme Court in the case of Pickering v. McCullough, (1882 C. D. 28, 21 O. G. 73, 104 U. S. 310, 26 L. ed. 749), has been pressed upon our attention as indicating, it is claimed, that, in a patentable combination of old elements, all the constituents must so enter into it that each changes the mode of action of every other and that each element must not merely perform its own part in the combination, but must also in some way be directly and immediately concerned in the performance of their respective parts by every other of the elements. No such doctrine as is thus claimed to be deducible from the opinion in Pickering v. McCullough appears to have been essential to the judgment in that case; nor do we think it necessary to attribute to the particular language referred to (1882 C. D. 28, 21 O. G. 73, 104 U. S. 310, 26 L. ed. 749) the meaning ascribed to it by counsel. If, instead of an extract, the whole opinion be read in connection with the authorities which are cited in it, it may be readily perceived that the substance of the doctrine intended to be affirmed is that a combination to be patentable must produce a new and useful result as the product of the combination and not a mere aggregate of several results each the complete result of one of the combined elements."

Yale Lock Mfg. Co. v. Sargent, 117 U. S. 373, 29 L. ed. 950. Claim:

"The arrangement of two or more roilers, H H', of varying eccentricity, when combined with the cam, in the manner and for the purpose specified."

While this claim is somewhat awkward in its construction, it defines a combination. This combination does not meet the strict requirements of the definitions, because the cam performs its function unmodified by the rollers, and vice versa, though the relation is intimate.

(Patent No. 98,622, January 4, 1870, Sargent.)

Clough v. The Gilbert & Barker Mfg. Co. et al., 106 U. S. 178, 27 L. ed. 138.

Claims:

"1. The bat-wing burner perforated at the base in combination with the surrounding tube, substantially as described.

"2. Also, in combination with the bat-wing burner perforated at the base, and surrounding tube, the tubular valve for regulating the supply of external gas to the burner, substantially as described."

These claims do not meet the strict requirements of the rigid

definitions, but no objection was made to them by the court upon that ground.

(Patent No. 104,271, June 14, 1870, Clough.)

(See this case more fully discussed under "Infringement.")

Lake Shore and Michigan Southern Ry. Co. v. National Car Brake Shoe Co., 110 U. S. 229, 28 L. ed. 129.

Claims:

"1. The shoe A and sole B, both being constructed and adapted to each other substantially as described, so that the sole can have a lateral rocking movement on the shoe, for the purposes specified.

"2. The combination of shoe A, sole B, clevis D, and bolt G the whole being constructed and arranged substantially as specified."

(Upon the question of infringement it was held that claim 2 was not limited to "lateral rocking movement.")

It is apparent that the claims are not well expressed. Nevertheless, though claim 2 is a bald combination without any statement of the relative location and relation of the parts, it does present a combination which was sustained.

(Patent No. 40,156, October 6, 1853, Bing.)

Ide v. Ball Engine Co. et al., 144 U. S. 550, 37 L. ed. 843.

Claim of Patent No. 301,720, Ide, July 8, 1884:

"In a fly-wheel governor, the combination, with relatively moving parts, of a dash-pot, substantially as described."

The claim is not presented as a model, but it was not criticised as being a bad combination, though reduced to the simplest elements and the broadest terms, and without any precise definition of combination.

[In the succeeding examples the selections have been made not only to illustrate views of the courts and Patent Office upon claims, but also to present forms of claims for various kinds of inventions which have been accepted as properly stating the invention or have been criticised as the context sufficiently indicates.]

In re Iagan, 162 O. G. 538.

The Commissioner of Patents held a claim of twenty-three typewritten lines in length and which was a complete inventory of all the elements contained in applicant's device, as prolix and improper and also that it was not necessary to specifically apply any citations in such a case.

He quotes as follows from a previous decision:

"This is a remarkable claim. It is for a combination consisting of no less than fifteen essential elements, the absence of any one of which would destroy it, and any fourteen of which might be used with impunity. It contains an inventory of ev-

ery minute detail of the apparatus. It is difficult to see how it could have been made more specific, unless it had included, as an additional element, the solder by which the parts are put together.

"It is scarcely necessary to say that no combination precisely similar is to be found in the Office. The fifteen elements here united were never united before, and probably never will be again. The applicant himself, in the next machine which he constructs, will doubtless omit one or more of them, and so destroy his combination and avoid his own patent." (Ex parte Lawrence, 1869 to 1871 C. D. 83.)

Langan v. Warren Axe & Tool Co., (Third) 184 Fed. 720, 107 C. C. A. 631.

(Patent No. 595,181.) Combination claim held invalid, affirming the lower court because the combination was held old though one of the elements was accepted as probably new.

While in the Patent Office the applicant amended his claim, which was criticised as incomplete, and this claim was then allowed:

"The combination with the pair of grab-hooks, each consisting of a shank having an eye at its front end and at its rear end having a projecting perforated ear, immediately in front of which latter is located an angularly-disposed driving-tooth, said shank being widened above its tooth for the purpose of producing an increased impact-surface, of a draft device connected with the eyes at the front ends of the shanks, substantially as specified."

The court said:

"Not only is the claim for a combination foreign to what is set forth in the specification, but there is no new coaction or cooperation of the elements of the combination. The grab-hooks and draft appliance of the patent, in combination, coact as grab-hooks and draft appliances have always done. The grab-hook of the patent, by reason of its peculiar construction and form, is very probably an improvement of no little utility. But the patentee can not, merely because of that fact, have a patent for a combination which shall have, as one of its elements, a pair of such grab-hooks. He did not invent the combination. He invented, if he invented anything, an improved grab-hook. Indeed, this is conceded by the patentee's counsel, and he argues that because the Patent Examiner, when the original claims were before him, said that "claim 6 is incomplete without the links, and the eye in the end of the shank is useless without the other elements," the claim as it now stands should be construed as one describing, as the real invention, a specific form of grab-hook. Manifestly, we cannot so construe it. The claim is for a

combination of grab-hooks, of a peculiar form, and a draft device. We are not at liberty to distort its plain language. It may be, as the patentee's counsel declares, that the criticisms of the Examiner led to the present form of the claim. But if the Examiner's criticisms were unsound, the patentee could have had them reviewed by an appropriate appeal. This is not a case where there was a mere change of phraseology to suit the views of an Examiner. The structure of the claim was remodeled in a fundamental respect. It was changed from a claim for an improved grab-hook to a claim for a combination of an improved grab-hook and a draft device. We are therefore compelled to read the claim as one for a combination, and not for an improved grab-hock."

This case does not rest upon precedents; and, in so far as it means that a claim for new combination may not recite the old devices with which it is employed, is not supported by the authorities with the possible exception of such cases as the following: In re McNeil and In re Ratican.

In re McNeil, 20 App. D. C. 294, 100 O. G. 2178, 1902 C. D. 563.

The claim in this case read as follows:

"5. The combination, in a sewing-machine, of a suitable trimmer, stitch-forming mechanism in rear of said trimmer including a plurality of eye-pointed thread-carrying devices forming parallel rows of stitches upon opposite sides of the line of feed and eye-pointed thread-carrying devices reciprocating back and forth between said opposite rows of stitches and forming intermediate interlocking rows of stitches, substantially as described."

The court quotes wih approval the opinion of the Assistant Commissioner affirming the preceding tribunals. The Assistant Commissioner said:

"It is old in a sewing-machine to combine a trimmer with a stitch-forming mechanism. This combination is shown in patent to Borton and Willcox. In this patent the trimmer is arranged in advance of the stitch-forming mechanism in the line of the seam, and said stitch-forming mechanism includes devices for forming two rows of stitches.

"The particular stitch-forming mechanism shown by appellant and which constitutes an element in the combination of his claims is not separately claimed by the appellant. Such a stitch-forming mechanism is shown, described, and claimed in the patent to Woodward."

* * * * * * * * * *

"Borton and Willcox having invented the combination of a trimmer with a stitch-forming mechanism, it is not invention to

combine a trimmer with another stitch-forming mechanism whether the stitch-forming mechanism be new or old. No new result is accomplished by appellant which differs in kind from the result accomplished by Borton and Willcox. There is no special coaction between the particular stitch-forming mechanism and the trimmer. Each acts in its own way and is not affected by the other and performs its function in the combination irrespective of the other. I think that what the appellant has done is within the province of the mechanic and does not amount to invention."

The court also cited Durham v. Seymour, 6 App. D. C. 78, 71 O. G. 601, 1895 C. D. 307, and cases cited and reviewed therein. It will be observed that the opinion says that the combination would not be invention "whether the stitch-forming mechanism be new or old." This statement, however, was not necessary to the decision because the stitch-forming mechanism was found in a prior patent. The meaning of the opinion, however, appears to be that if a new stitch-forming mechanism had been claimed in combination instead of separately it would not have been patentable.

In re Ratican, 36 App. D. C. 95, 162 O. G. 540:

"4. A traveling street washing and sprinkling apparatus comprising a wheel-truck having a water-tank thereon and supply and delivery pipes for said tank, and a sector-shaped delivery-nozzle on the delivery-pipe, mounted to turn universally, said delivery-nozzle having a plurality of comparatively small apertures in its circular walls, said apertures being arranged in parallel rows, and the apertures of one row being arranged to overlap two adjacent apertures in another row."

The court said:

"One nozzle of the prior art was effective for street-cleaning and another for street-sprinkling.. When this nozzle is used for either purpose it operates exactly as did the nozzle of the prior art. If appellant has made an improvement upon the nozzle of the prior art he is entitled to be protected in the use of his invention, but he is certainly not entitled to a patent on a new combination merely because he has improved a single element of that combination. (In re McNeil, 20 App. D. C., 294, 1902 C. D. 562.)"

The principle of the three preceding cases will probably be applied only in rare cases, and cases of doubtful patentable novelty.

It has grown, however, to be common practice to imbed a feature of novelty in an elaborate combination claim. Sometimes this results from a lack of knowledge or appreciation of the scope of the prior art; sometimes from a purpose to give

greater dignity to a slight advance in the art; and sometimes to better describe the structure of a rival which the patent is expected to reach. An example is found in Torrey v. Hancock, (Eighth) 184 Fed. 61, 107 C. C. A.

The claim of patent No. 556,972, reads as follows:

"In a rotary plow, the combination with a plow-beam, of a box-bearing arranged on the plow-beam, an axle rotatable in the box-bearing, a plowing-disk secured to the said axle, rotated solely by the natural draft thereof and the friction of the soil, set diagonally to the line of draft and inclined out of a vertical plane for cutting the furrow and turning the soil therefrom, a furrow-wheel mounted on an axle at the same side of the plow-beam as the plowing-disk and arranged in advance thereof, an arm pivoted to the rear portion of the plow-beam and provided with a caster-wheel arranged in rear of the plowing-disk, and a stop device for limiting the swinging motion in one direction of the arm carrying the caster-wheel, said furrow-wheel and caster-wheel being inclined for resisting the side pressure of the plowing-disk, substantially as described."

The court found that the emphasized phrase was the single feature of novelty and, in fact, that the novelty really lay in the phrase "set diagonally to the line of draft." Finding the feature oid in various devices the patent was held void.

In interference causes in the Patent Office the issues were formerly drawn by the Examiner with the view of stating broadly the common patentable idea of means or method of the interfering parties. The present practice is to suggest claims taken from one or more of the applications, so that all parties shall have the same claims. Not infrequently a claim such as is set forth above in Torrey v. Hancock is made the issue of an interference. Once such an issue has become the subject of testimony it is the position of the Patent Office that there can be no construction or interpretation of the claim. Therefore, he who proves the first invention of the precise combination set forth in a claim of this character is held the first inventor though the other party might have shown himself first to use disks in a rotary plow of the same type "set diagonally to the line of draft and inclined out of a vertical plane." In brief, the Patent Office in the examination of an application is, in theory, interested in the invention. In an interference cause it must accept the phraseology of the claim in issue. The courts theoretically are concerned with the actual invention; and practically in case of a narrow or doubtful invention hold the inventor to the precise terms of his claim, but in a broad or a primary or pioneer invention, or a "meritorious" one, endeavor to ascertain the actual feature of the invention or what the inventor actually did in-

vent and what he had in mind in drawing his claims. There are modes of practice and procedure which enable the skilled practitioner to reach a fair conclusion, but the tendency of the times appears to be to more simplicity and precision in these matters, so that patents shall seldom require interpretation or construction and so that in any cause, whether in the Patent Office or without, the proceeding may be based upon a clear statement of the actual invention, with only the limiting clauses necessary or desirable to place the invention in its proper relation to the art.

In Roberts v. H. P. Nail Co., 53 Fed. 916 (Taft, Cir. J.), cited with approval in Canda v. Michigan, 124 Fed. 486, 61 C. C. A. 194, and Goshen v. Bissell, 72 Fed. 67, 19 C. C. A. 13, the following respective claims of patents Nos. 426,067, and 444,652, were considered:

"1. In metal-coiling apparatus, a rotary coiling-cone having a longitudinal rib with a lateral flange, substantially as and for the purposes described."

"3. In metal coiling apparatus, a rotary coiling-cone having an exposed outer surface along which the rod travels, a hollow collar, and driving-gear, substantially as and for the purposes described."

It was contended by the defendant that these claims did not cover an operative combination because they covered only one part of the machine required to perform the work. But the court held, following Wells v. Jaques, 5 O. G. 364, that, in a combination patent, it is permissible for the patentee after claiming the whole machine to claim a combination of fewer parts than the whole even though taken alone, it may not result in any known or useful product.

Hancock Inspirator Co. v. Jenks, 21 Fed. 911 (1884, Mich. Brown, J.). The defendant objected that the claims for the injector did not include as elements an induction tube and a chamber which, it was admitted, are essential to the operation of the device. The court remarked, however, that "the construction would be equally inoperative without a boiler to furnish the steam and a well to supply the water, and a pipe leading to and from the boiler." And the court upon this point said in terms which well define the general principle:

"But, in drawing the claims for a combination patent, we do not understand it to be necessary to include any elements except such as are essential to the peculiar combination, and are affected by the invention. Other portions of the machine are usually shown in the drawings to exhibit their relation to the patented combination, and they are wholly unnecessary to the validity of the claims. Indeed, it is manifest that the more ele-

ments introduced into the combination, the easier it would be to evade the patent; since, to sustain a suit for infringing a combination, it must be made to appear that the defendant used every element of such combination, however immaterial it may be. Vance v. Campbell, 1 Black (U. S.) 429."

(And to the point that a combination or subcombination need not be in itself operative, but may require associated features to complete the whole result, see, for example, Railroad Co. v. Du Bois, 79 U. S. 47, 20 L. ed. 265; Parks v. Broth, 102 U. S. 96, 26 L. ed. 54; Thomson-Houston v. Black River, 135 Fed. 759, 68 C. C. A. 461; and the following example and cases cited.)

Clark Blade & Razor Co. v. Gillette Safety Razor Co., (Third 1912), 194 Fed. 421, 114 C. C. A. 383. The second claim of Gillette patent No. 775,134 reads as follows:

"As a new article of manufacture, a detachable razor-blade of such thinness and flexibility as to require external support to its cutting edge."

It will be observed that this claim states the invention so as to indicate the necessity of other parts to make it useful or operative. The court sustained the patent and on this point said:

"As to our fifth conclusion, we note it should be added that claim 2 is not invalid because not for an operative device, for, if such were the law, patentability must have been denied to Elias Howe for "the grooved and eye-pointed needle" which constituted his seventh claim. (Howe v. Williams, 2 Fish. Pat. Cas. 395, Fed. Cas. No. 6,778), and of which it was said in Deering v. Winona, 155 U. S. 286, 39 L. ed. 153, 15 Sup. Ct. 118:

"'The invention of a needle with the eye near the point is the basis of all the sewing machines used, but the methods of operating such a needle are many; and, if Howe had been obliged to make his own method a part of every claim in which the needle was an element, his patent would have been practically worthless.'"

Gold v. Gold, 34 App. D. C. 229, 150 O. G. 570, 1910 C. D. 269.

This case embodies a discussion of the jurisdiction of the Court of Appeals, and especially with reference to the right to make claims, and also upon the question of res adjudicata. The claims themselves are interesting as an example of broad and almost functional statements, yet clearly stating the ideas of invention involved:

"1. In combination, an admission-pipe carrying a supply of steam at pressure greater than atmospheric and a steam-heating system taking steam from the [said] admission-pipe and circulating it, and including thermostatically-controlled means for de-

termining whether it shall be circulated at admission-pipe pressure or at approximately atmospheric or lower pressure and for automatically maintaining it at such determined pressure.

"2. A steam-heating system including in combination an admission-valve and an exhaust valve, both under automatic control and adjustable by hand to cause a circulation of steam at a high pressure or at a low pressure, at will.

"3. In combination, an admission-pipe for carrying a supply of steam at high pressure, and a steam-heating system including in combination an admission-valve for taking steam from [the] admission-pipe, and an exhaust-valve, both under automatic control by the temperature beyond the exhaust-valve, and each adapted to be held open so as to cause a circulation at high or low presure at will.

* * *

"5. A steam-heating system including in combination an admission-valve and exhaust-valve, both valves being under automatic control, and hand-operated means for opening the exhaust valve and neutralizing the automatic control thereof.

"6. A steam-heating system including in combination an admission-valve, an exhaust-valve, both valves being under automatic control, and means for neutralizing such control of the admission-valve.

"7. A steam-heating system including in combination an admission-valve, an exhaust-valve, both the [said] valves being under automatic control by the steam, and means for neutralizing such control of either of the [said] valves at will.

* * *

"10. In combinaton, an admission-pipe carrying a supply of steam at pressure, greater than atmospheric, and a steam-heating system including an admission-valve and an exhaust-valve, both under automatic control, and means for converting the [said] system into an admission-pipe pressure system, or an atmospheric pressure system at will."

* * * * * * * * * *

Note—The term "said" is frequently employed in claims, but is generally unnecessary or tantological, as indicated by the brackets here introduced to illustrate the suggestion.

Forrest City Foundry & Mfg. Co. v. Barnhard, (Sixth) 176 Fed. 561, 100 C. C. A. 197.

(Patent No. 580,151, Barnard, April 6, 1897.) Valid. The claims were as follows:

"1. In a nozzle for spraying liquids a chamber substantially

circular in one plane of section provided with an outlet-port and with an inlet-passage, the axis of which lies in the plane of a circular section and between a diameter and a tangent of such section; whereby a rotary motion is imparted to the liquid in the chamber by the force of the inflow, which motion is retained after it escapes from the chamber, substantially as described.

* * *

"3. A spraying-nozzle comprising a chamber of approximately circular form in cross-section, provided at its periphery with a tangential inlet-port, and at its center with an outlet-port, the axis of which is transverse to that of the inlet-port."

* * *

(See drawings in opinion.)

The wording of these claims indicates that the medium being acted upon by the machine was constantly in mind, and that the structure was arranged with reference to the laws governing liquids.

Morgan Engineering Company v. Alliance Company, (Sixth), 176 Fed. 100, 100 C. C. A. 30.

(Patent No. 791,951, Shem, March 17, 1905, for Cranes.) Held to involve invention and to have been infringed. Claims 1 and 2, however, held void because too broad. The following claims indicate the two classes and the subject-matter:

"1. A crane having a bridge with main hoisting-trolley mounted upon the main girders of said bridge, and a supplementary trolley mounted upon supplementary girders independent of said main girders, substantially as specified.

* * *

"3. A crane having a bridge with main and supplementary hoisting-trolleys, the main hoisting-trolley being mounted upon the main outer girders of the bridge, and the supplementary trolley being mounted upon supplementary interior girders, the hoisting-chains from the main trolley depending between the said main and supplementary girders, substantially as specified."

On patentable novelty the court held, in effect, that the reorganization of a crane having main and supplementary trolleys so that the hoisting-chains from the main trolley are placed inside instead of outside the girders supporting the main trolleys required invention.

Greenwald Bros., Inc. v. Enochs et al. (Third), 183 Fed. 583, 106 C. C. A. 351.

(Patent No. 662,714). Held valid and infringed, reversing the lower court:

"In a skirt, the combination substantially as described of a hip portion of elastic material, a skirt portion secured to the bottom edge of said hip portion, and a band of greater elasticity than said hip portion at a point near the upper edge thereof."

The court referred to this invention as one in a long developed art in which there was meagre sphere for invention. "Where a field is barren, a marked improvement in product evidences coresponding originality in making such improvement."

The court then proceeds to point out the two especial points of novelty, first in using the jersey as a section of a skirt and then having the waist band of greater elasticity than the hip portion, stating the practical advantages.

National Hollow Brake-Beam Co. et al. v. Interchangeable Brake-Beam Co. et al. (Eighth), 106 Fed. 693, 45 C. C. A. 544.

This case presents an elaborate review, citing numerous cases and constituting, in effect, an essay on several phases of patent law. It presents a patent as a contract with the government; affirms the doctrine that a patent is not anticipated by a similar device in a remote art not analogous; that the proof of prior use must be beyond reasonable doubt; that a new combination of old elements may be patentable; that extensive use while it may be persuasive evidence of novelty is not conclusive evidence of novelty; that the mere function of a device is not patentable; but that the means by which the function is performed are patentable; that a combination of an earlier combination of mechanical elements and their function is not patentable; that a patentee is entitled to all uses of his invention whether known to him or not; that one who invents and secures a patent for a machine or combination which first performs a useful function is protected thereby against all machines or combinations which perform the same function by equivalent mechanical devices and conversely may have the same rule applied in bar to his claims, while one who merely makes or secures a patent for a slight improvement can reach only those whose very device or improvement he describes or claims or mere colorable evasions thereof; that the term "mechanical equivalent" when applied to the interpretation of a pioneer patent has a broad and generous signification and when to a narrow patent, an equally narrow meaning, in the great majority lying between these two extremes; that the same rules apply to all classes of invention; that mere changes of form or of some of the mechanical elements of a combination will not avoid infringement where

the principle of the patented invention is adopted, unless the form of a machine or the elements changed is the distinguishing characteristic of the invention; that ordinarily independent inventions are patentable where the advance in the art has been gradual; that a patentee is estopped from maintaining that the amended claim covers the devices shown in the references against the canceled claim, and that it has the breadth of the claim rejected, but that this is the limit of the estoppel and that he is not prevented from claiming and securing every new and useful improvement not disclosed by the references; that the description of details not claimed is not a limitation upon the claims; that a reference letter does not limit the claim to the specific form of device or element shown, unless that particular form was essential to, or embodied the principle of, the improvement claimed; that the interpretation which sustains and vitalizes the grant of a patent should be preferred to that which strikes down and paralyzes it; that infringement is not avoided by the use of different means of fastening or operating a combination which is different from those which are pointed out for the purpose but which are not claimed in the patent; that the absence of an element of a combination avoids infringement.

Of the several patents involved the claims of two were held valid and infringed, while the others were held to be either invalid or not infringed. The four cardinal claims were the second claim of patent No. 361,009 and the first, second, and seventh claims of patent No. 480,194, which read as follows:

"(2) The combination, in a brake beam, of a hollow beam, a strut, end plugs or caps, 8, and a truss rod, 3, which extends through the caps, 8, and is provided with nuts, substantially as and for the purpose specified."

"(1) A metallic brake beam, consisting of a compression member, a tension member, and an interposed strut; the compression member having a camber, and the beam structure containing means of adjustment whereby the camber of the compression member is produced and the resiliency of the beam made available.

"(2) A metallic brake beam, consisting of a hollow compression member, a tension member, and an interposed strut, the compression member having a camber, and the beam structure containing means of adjustment whereby the camber of the compression member is produced and the resiliency of the beam made available."

"(7) In a trussed brake beam, the combination of a tension member having threaded ends and nuts therefor, a strut, and a

cambered compression member, which maintains the tension of the parts and prevents the rotation of the nuts, substantially as specified."

It was held that the combination which produced results set forth in the three claims of patent No. 480,194 was claimed in the second claim to the same inventor quoted from the patent 361,009 because in the earlier patent there was present the combination by which the resilience or camber in the beam could be utilized and whether or not the inventor had previously utilized it was immaterial. The claims of patent No. 480,194 were therefore held invalid by reason of the previous patent to the same inventor 361,009.

Process; Method.—A process is an action or a series of actions, a mode of operation; referable to various mechanisms and not confined to one.

It may not be a mere result or function, nor the mere statement of a principle. A new art or mode, that is, a new process or a new method, must be the result of invention or discovery and must meet all the statutory requirements of patentable novelty. These are the substantial maxims of the patent law. The terms "process" and "method" are synonymous, but, as hitherto observed there is a nicety in the employment of these words, "process" being customarily applied to designate some chemical or elementary operation, while "method" or "mode" are employed with reference to a sequence of acts, a manipulation of mechanisms, or a modification of the usual operations of existing mechanisms involving invention. This is not a legal distinction ,but merely a rhetorical suggestion.

In the consideration of process and method claims it is advisable to decide if the claims define an action or a mode. In the customary cases which recite purposes and effects as well as the act it is ordinarily advisable to see that the process or mode is defined and is patentable independently of the statement of function and instrumentalities. There are, however, classes of claims, such for example, as "mechanical method" claims which may require for accurate statement either a recitation of purpose or function or instrumentality, as is the case in occasional machine and article claims.

In O'Reilley v. Morse, 15 How. (U. S.) 61, 14 L. ed. 601, the eighth claim read as follows:

"Eighth. I do not propose to limit myself to the specific machinery, or parts of machinery, described in the foregoing specification and claims; the essence of my invention being the use of the motive-power of the electric or galvanic current, which

I call electro-magnetism, however developed, for marking or printing intelligible characters, signs, or letters, at any distance, being a new application of that power, of which I claim to be the first inventor or discoverer."

This claim was held invalid by the Supreme Court of the United States, because to the use of a law of nature, on the ground that a principle is not patentable, that no one can have a monopoly of a power or law of nature. It has been suggested that if Morse had put his claim in the following form, it might have been sustained:

"The method of conveying intelligence to a distance, which consists in conducting a current of electricity from one place to another, and alternately establishing and interrupting or diminishing the current and causing the intervals to be marked or otherwise indicated."

This is on the suggestion of the following claim sustained by the Supreme Court in The Telephone Cases, 126 U. S. 1, 31 L. ed. 863.

"Fifth. The method of, and apparatus for, transmitting vocal or other sounds telegraphically, as herein designated by causing electrical undulations similar in form to the vibrations of the air accompanying said vocal or other sounds, substantially as set forth."

There has been some question (though academic) of the form of this telephone claim independently of the now objectionable phrase "and apparatus for." It has been thought that the telephone claim might have been more effectively or safely worded, that is worded so as to have been defended more easily, if it could have involved the basic principles of a continuous contact between the diaphragm and the electric circuit, or could have used an appropriate phrase such as was afterward so aptly employed to define the microphone patents, namely, "variable resistance." The claim as it was stated, however, rested upon the fact that it did not cover all electrical undulations in telephony, but covered the production of a ertain kind of undulation which should follow not only the variations of pitch and tone of the human voice, but of also those of "character."

One of the early cases discussing a process claim is that of Tilghman v. Proctor, 102 U. S. 707, 26 L. ed. 279, in which the claim of the patent read as follows:

"The manufacturing fat acids and glycerine from fatty bodies by the action of water at a high temperature and pressure."

The claim in this famous case was based upon the chemical principle or scientific fact that the elements of neutral fat re-

quire to be severally united with an atomic equivalent of water in order to separate from each other and become free. The court held that the claim did not merely state that principle, but a process of *applying the principle.*

It is obvious that other claims might have been based upon the claim made, and if the claim were to be drawn today it would probably be stated in some such terms as:

"The process of manufacturing fat acids and glycerine which consists in subjecting a mixture of fat and water to a high temperature, under pressure, substantially as and for the purposes set forth."

Royer v. Coupe, et al, 146 U. S. 524, 36 L. ed. 1073. The claim read as follows:

"The treatment of the prepared rawhide in the manner and for the purpose set forth."

It was held to mean what should have been phrased in the form of a claim as follows:

The process of preparing rawhide which consists in the removal of the hair from the hide by means of sweating, drying the hide hard, then softening the hide by slightly soaking in water, fulling the hide, stuffing it with twenty parts of tallow, two parts of wood-tar, and one part of rosin, fulling the hide a second time repeatedly moistening the hide with water and stretching and cutting into belting, substantially as described.

It will be noted that a composition is here included.

The Supreme Court of the United States in Underwood v. Gerber, 149 U. S. 224, 37 L. ed. 710, and Brigham v. Coffin, 149 U. S. 557, 37 L. ed. 845 (hereafter discussed), has held that a composition adds no weight to a proces claim. This is somewhat in the line of the decisions that a new element does not add patentability to an old combination, as in Langan v. Warren Axe and Tool Co., and in re McNeil, supra.

The view, however, is more apt, it is thought, with reference to process claims than with reference to combination claims. It has been suggested that Langan v. Warren and McNeil are not in accord with the general trend of authority, and even in process claims, as examples will illustrate, it may be that the recitation of some new compound and its mode of action may help to set forth a new and patentable process.

Weatherhead et al. v. Coupe et al. 147 U. S. 322, 37 L. ed. 188. (Patent No. 213,323.) Not infringed, claim 3 criticised. The claims read as follows:

1. The combination of a friction table or beam, over which the hide is drawn, a stretcher, substantially as described, and a

revolving roller, to which the hide is secured and around which it is wound as the hide is drawn over the friction-beam and stretcher, substantially as set forth.

2. The combination of a revolving roller, to which the hide is secured and around which it is wound, a laterally-yielding stretcher, and a laterally-yielding friction table or beam, substantially as described.

3. The improvement in the method of stretching hides, which consists in dragging the hide over a stretcher, and also over a friction table or beam, by means of a revolving roller, to which the hide is secured, as described, whereby as the hide is passed over the table or beam the thicker portions of the hide are detained or made to lag by pressure applied to such thicker portions, to increase at such points the friction between the hide and the table, substantially as specified.

The court said:

"It was correctly held by the circuit court that the third claim is for the exclusive right of using the machine referred to in the first claim and that it can not be infringed otherwise than by infringing the first claim."

That is to say, claim 3 does not really cover a method or a combination of mechanism having a certain function, but is a claim for the mere function of the machine.

Lawther v. Hamilton et al. 124 U. S. 1, 31 L. ed. 325. Claim of patent No. 168,164:

"The process of crushing oleaginous seeds and extracting oil therefrom, consisting of the following successive steps, viz., the crushing of the seeds under pressure, the moistening of the seeds by direct subjection to steam, and, finally, the expression of the oil from the seed by suitable pressure as and for the purpose set forth."

Of this claim Justice Bradley, speaking for the court, said:

"And why is not such new method of obtaining the oil and making the oil-cakes a process? There is no new machinery. The rollers are an old instrument, the mixing machinery is old, the hydraulic press is old. The only thing that is new is the mode of using and applying these old instrumentalities. And what is that but a new process? This process consists of a series of acts done to the flaxseed. It is a mode of treatment. The first part of the process is to crush the seed between the rollers. Perhaps, as this is the only breaking and crushing of the seed which is done, the rollers are required to be stronger than before; but if so, it is no less a process."

The case of Risdon v. Medart, 158 U. S. 68, 39 L. ed. 899, 15 Sup. Ct. 745, has hitherto been discussed.

That case was clearly intended to establish the rule that only such processes as involved chemical or similar elemental action or the action of an agency of nature are patentable.

This rule was followed by two circuit courts of appeals and at least in two other circuit courts as previously cited. Reference has also hitherto been made to the article in 29 American Law Review (July-August, 1895) citing numerous cases in which the supreme court and other courts had approved and sustained claims of patents for mechanical methods. Reference is also there made to the case of Union Paper Bag Co. v. Waterbury, 70 Fed. 240, 17 C. C. A. 84, in which the Circuit Court of Appeals for the Second Circuit (sitting with Justice Brown who wrote the opinion in Risdon v. Medart), refused to accept as sufficient to dispose of a claim the ruling of Risdon v. Medart.

Subsequently in Westinghouse v. Boyden, this matter came up before the Supreme Court of the United States, as reported at 170 U. S. 537, 42 L. ed. 1136.

By a bare majority of one (Justice Shiras, Brewer, Gray and McKenna dissenting) the court decided that though Westinghouse was unquestionably the discoverer of the function and of the process described, the patent (although admittedly for a pioneer invention) must be limited to the mechanical combination of the patents or absolute equivalents.

The claim in question read as follows:

"In a brake mechanism, the combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, and a triplevalve having a piston, whose preliminary traverse admits air from the auxiliary reservoir to the brake-cylinder, and which by a further traverse admits air directly from the main air-pipe to the brake-cylinder, substantially as set forth."

The Supreme Court in this case after citing several cases said:

"This rule was clearly laid down in the leading case of Corning v. Burden, 15 How. (U. S.) 252, in which Mr. Justice Grier, delivering the opinion of the court, drew the distinction between such processes as were the result or effect of 'chemical action, by the operation or application of some element or power of nature, or of one substance to another' and the mere result of the operation of a machine."

Then coming to a conclusion upon this the court, while stating that there was no desire to qualify previous holdings with respect to pioneer patents did, in effect, limit this pioneer invention to the structure presented by the patent.

The court in referring to Mr. Justice Grier's opinion in Corning v. Burden, must have overlooked the fact that the same justice at the same term read the opinion in O'Reilly v. Morse, in which, in dwelling upon the proper interpretation of broad patents, he said:

"The great art of printing, which has changed the face of human society and civilization, consisted in nothing but a new application of principles known to the world for thousands of years. No one could say it consisted in the type or the press, or in any other machine or device used in performing some particular function, more than in the hands which picked the types or worked the press. Yet if the inventor of printing had, under this narrow construction of our patent law, claimed his art as something distinct from his machinery, the doctrine now advanced, would have declared it unpatentable to its full extent as an art, and that the inventor could be protected in nothing but his first rough types and ill-contrived press."

In the dissenting opinion in Westinghouse v. Boyden, Mr. Justice Shiras says:

"I can not assent to what is perhaps rather intimated than decided in the opinion of the court,—that what is called a 'process,' in order to be patentable, must involve a chemical or other similar elemental action."

And in conclusion gave a definition which had previously been accepted by the court and has since been applied to the proper construction of the claims of a pioneer patent. It will be observed that the Supreme Court in Westinghouse v. Boyden interpreted the functional clause of this claim as making it in effect a mechanical method claim, and it was the purpose of Mr. Justice Brown, undoubtedly, to put the ban upon this form of claim as well as upon the mechanical method claim.

As hitherto noted, however, the same court, after dividing nearly evenly in the Brake case, finally, in the Expanded Metal Co. v. Bradford, 214 U. S. 365, 53 L. ed. 1035, unanimously sustained a mechanical method having a functional clause claim, so that it would seem that Risdon v. Medart and Westinghouse v. Boyden need no longer be matters of deep concern.

The claim in the Expanded Metal case read as follows:

"The herein-described method of making open or reticulated metal work, which consists in simultaneously slitting and bending portions of a plate or sheet of metal in such manner as to stretch or elongate the bars connecting the slit portions and body of the sheet or plate, and then similarly slitting and bending in places alternate to the first-mentioned portions, thus producing

the finished expanded sheet metal of the same length as that of the original sheet or plate, substantially as described. Long before these cases, however, the correct principle had been followed by the courts and the Patent Office. One interesting example will suffice.

Evans W. Shippen, 1875, C. D. 126.

The claim in this application read as follows:

"The improvement in the art of manufacturing wooden shoes by machinery, hereinbefore set forth, which consists in cutting, shaping, and boring the blank by submitting it successively to the operation of mechanism substantially such as set forth."

Certainly no balder mechanical process could be presented than in this case. While it is true that at this day some further elaboration of this claim might be required to clearly state the invention, the meaning of the claim would be substantially the same.

It is, therefore, somewhat remarkable that the Commissioner of Patents should, in 1875, have so precisely stated the proper view of the law which was afterward to be so entirely mistaken in Risdon v. Medart by the Supreme Court, and afterward brought back to the view of this early case and the authorities upon which it rested by the same court in the Expanded Metal Case.

"What is set forth is a certain well-defined order of mechanical operations. The successive steps are all adapted to each other, and the operation performed on the block at one step fits it to receive the operation to be performed upon it at the next; and although the operation is wholly mechanical, and requires a peculiar set of instruments, yet the order in which the successive operations are performed is not inherent in the machinery.

The function of a machine is that operation which, when set in motion, it inevitably performs. Thus it is the function of a grinding-mill to comminute whatever is passed through it, of a lathe to give shape to bodies placed in it, or of an auger to bore. But where the operation of the machine, or of a series of machines, is supplemented by some new method of operation not contemplated in the construction of the machine, and not the inevitable result of its operation, and the new method subserves a new and useful purpose, it may amount to a patentable process, even though the operation depend necessarily upon the machinery. Such was the process claimed in the Voelter patent sustained by the court (5 Fish. (U. S.) 340), in which the mill or stone upon which the wood was to be reduced to fibre was old, and the novelty consisted in placing the wood in such a way that

the fibre was torn transversely—the change in which the invention consisted being solely in the method of using the machine, which method was not contemplated originally in making the machine, did not necessarily result from its operation, required evident invention, and produced a new and improved result."

(See also, for full discussion and correct conclusion, In re Weston, 17 App. D. C. 431, 94, O. G. 1786, 1901 C. D. 290.)

Ex parte Young, 46 O. G. 1635, 1889 C. D. 116. The claims in this case, allowed by the Commissioner, are illustrated by the following:

"1. As an improvement in the art of manufacturing boxes from a strip of paper, etc., the described method of preparing the connected blanks for pasting and folding, consisting in intermittingly advancing the strip, and, during intermissions in its advance movement, cutting and creasing to successively and completely form the respective blanks of a series of unfolded, unpasted blanks connected at their ends by narrow necks, substantially as set forth.

"2. As an improvement in the art of manufacturing boxes from a strip of paper, etc., the described method of preparing the connected printed blanks for pasting and folding, consisting in intermittingly advancing the strip, successively printing the respective blanks during intermissions in the advance movement of the strip, and cutting and creasing the other blank also during intermissions in the advance movement of the strip to successively complete the respective blanks of a series of unfolded unpasted blanks connected at their ends by narrow necks, substantially as set forth."

Eastern Paper Bag Co. v. Standard Paper Bag Co., 30 Fed. 63, 41 O. G. 231, (cited in Ex parte Young).

The claim of patent No. 258,272 read as follows:

"The herein-described improvement in the art or method of manufacturing satchel-bottom paper bags from a tube, which consists first in forming the diamond fold, then cross-folding the leading corner of the diamond fold, and subsequently completing the satchel-bottom by cross-folding the rearmost corner of the diamond fold, and together with it the main body of the bag-blank, on the line of this second cross-fold, substantially as and for the purpose described."

Globe Nail Co. v. United States Horse Nail Co., 19 Fed. 819. The claim in Reissue patent 5,207 reads as follows:

"The process of curving the bodies of nails and beveling their points by spreading the metal laterally, and afterward forcing them through an open die to shear off superfluous metal, substantially as and for the purpose specified."

In the two preceding much quoted and approved cases purely mechanical method claims were held valid, because they involved invention.

Dayton Fan & Motor Co. v. Westinghouse Electric & Mfg. Co., (Sixth) 118 Fed. 562, 55 C. C. A. 390.

The Tesla patents Nos. 511,559 and 511,560, December 26, 1893, held valid and infringed and not anticipated by the inventor's previous patent No. 416,193. The court held that an inventor may be entitled to a patent for the method or process of producing a new and useful result and also a patent for a mechanical means by which the result is produced when the method or process is susceptible of being performed by other known means, and the means are of invention and otherwise patentable.

The claims in suit of patent No. 511,559, are as follows:

"1. The method of operating motors having independent energizing circuits, as herein set forth, which consists in passing alternating currents through both of the said circuits, and retarding the phase of the current in one to a greater or less extent than in the other.

"2. The method of operating motors having independent energizing circuits, as herein set forth, which consists in directing an alternating current from a single source through both circuits of the motor, and varying or modifying the relative resistance of self-induction of the motor circuits, and thereby producing in the currents differences of phase. as set forth."

The discussed claims of patent No. 511,560, read as follows:

"1. The combination with a source of alternating currents, and a circuit from the same, of a motor having independent energizing circuits connected with the said circuit, and means for rendering the magnetic effects due to said energizing circuits of different phase, and an armature within the influence of said energizing circuits.

"2. The combination with a source of alternating currents, and a circuit from the same, of a motor having independent energizing circuits connected in derivation or multiple arc with the said circuit, the motor or energizing circuits being of different electrical character, whereby the alternating currents therein will have a difference of phase, as set forth.

"6. In an alternating-current motor, the combination with the field-magnets or cores and independent energizing currents of different active resistance, and adapted to be connected with the line or transmission circuit, of an armature wound with closed energizing coils or conductors, as set forth."

It has been said that this case is an illustration of the manner in which the criticisms of the Supreme Court in Risdon v.

Medart and Westinghouse v. Boyden may be avoided. It will be observed that in this case the patentee covered both the mechanism and the method stating the method in such manner as to clearly indicate the distinction between the function of the patent and the method of the claims. The two patents were assumed to be for different inventions.

Article; Product; Composition.—An article of manufacture, or a new product to be patentable, must have certain characteristics which distinguish the new thing from the prior state of the art, from antecedent articles or products. The claim should define these characteristics, and not the process or mode by which the article is produced. There may arise an instance in which a new article can be defined only by the process of making it, but the cases seldom present a satisfactory example.

A claim for a composition should recite the ingredients, agents, or materials, contained in the composition. As a rule, it is not essential, nor indeed good practice, to recite the proportions, which are of course stated in the specification. But in the rare cases where the essence of the invention lies in the proportions, they must of course be stated.

The recitation of a composition in a claim for an article of manufacture does not protect the composition, though the composition as a whole become a part of the article. (See Underwood v. Gerber [post].).

In Ex parte Painter, 57 O. G. 999, 1891 C. D. 200, it is stated that there may someimes arise an article which can be defined only by the process of making it. As an example the following claim is cited by the Commissioner from Globe Nail Co. v. United States Horse Nail Co., 19 Fed. 819: "A nail made by punching or cutting from hot-rolled ribbed bars of metal a headed blank substantially as described, and by elongating, hardening, and compressing the shanks of such blanks by cold-rolling from the head to the point, thereby giving to all parts of the nail so produced the peculiar qualities specified."

But in that case the court does not sustain the claim as an article claim, and it shows that an article claim might have been drawn, and in the decision defines precisely what the article is by stating its characteristics. The case does not suggest any difficulty in drawing an "article claim" to cover a new article, and it must be an unusual product that has new characteristics which are so vague as to be indefinable.

See, for examples of article claims the following two cases:

Ex parte Cobb, 5 O. G. 751, 1873 C.D. 60, "As a new article of manufacture, an inodorous and water-proof straw plastering board made in continuous lengths and wound in rolls, substantially as described."

Gandy et al., v. Main Belting Co. et al., 143 U. S. 587, 36 L. ed. 272. "2. The improved article of manufacture consisting of a hard, even-faced, rigid, impervious, nonelastic belt composed of cotton canvas or duck, having its warp-thread larger than the weft, both warp and weft being hard-spun, the fabric tight-woven and folded, stitched, and saturated with linseed-oil."

(It would seem that some of the qualifications in this claim might have been omitted without detriment.)

Oval Wood Dish Co. et al., v. Sandy Creek (N. Y.) Wood Mfg. Co., 60 Fed. 285, (C. C. A.)

Claims of patent No. 273,773: "1. A plate or dish cut or scooped from a block of wood in concavo-convex form, as an article of manufacture. 2. A plate or dish cut or scooped from the face of a block of wood in concavo-convex form and segmental in cross-section, as an article of manufacture. 3. A plate or dish consisting of a shell cut or scooped from the face of a block of wood in concavo-convex form and with horizontal upper edges, as an article of manufacture. 4. A plate or dish consisting of a shell cut or scooped from the face of a block of wood in concavo-convex form, segmental in cross-section, and with horizontal upper edges as an article of manufacture."

"The patent expressly refers to the machine and says the plates are made by a revolving cutting-knife and a flat facing-knife working alternately, by which process thin, tough flexible dishes are made of the same size and shape, which may be nested togethed in the smallest possible compass. A dish having these characteristics and the features covered by the claims is a new article possessing advantages not existing before. A dish not having these features, but made by hand, for instance, in attempted imitation of the complainants' dish, would not infringe. The dish of the patent is not carved, turned, pressed, or sawed. It is a scooped dish—a dish scooped from a block of wood by a revolving curved knife or its equivalent. In no other way can this dish be made."

The claims in this case furnish examples of claims for an article resting largely upon the process of making the article. They should be regarded as exceptions, however, and not as models of form in different circumstances.

Underwood et al. v. Gerber et al., 149 U. S. 224, 37 L. ed. 710.

Claim of Patent No. 348,073, August 24, 1876, to the plaintiffs:

"A sheet of material or fabric coated wih a composition composed of a precipitate of dye-matter, obtained as described, in combination with oil, wax, or oleaginous matter, substantially as and for the purposes set forth."

Claim of Patent No. 348,072, issued at the same time to the same parties:

"The coloring composition herein described for the manufacture of a substitute for carbon paper, composed of a precipitate of dye-matter, in combination with oil, wax, or oleaginous matter, substantially as set forth."

The court said:

"As No. 348,073 does not claim the composition of matter, although it describes it, that composition must be regarded as disclaimed, and as being public property, and there was no invention in applying it to paper, as claimed in the patent sued on."

Brigham v. Coffin et al., 149 U. S. 557, 37 L. ed. 845.

Claim of patent No. 283,057, Aldrich, August 14, 1883:

"1. As an improved article of manufacture, a rubber cloth or fabric composed wholly or in part of rubber, having one or both of its surfaces printed or stamped with useful or ornamental designs or figures in an ink or printing compound of a different color or shade from the body of the cloth or fabric, substantially as set forth."

The second claim was like the first, except that the ink or compound is described as being:

"Composed in part of rubber, caoutchouc, gutta-percha, or some analogous substance and a coloring material or materials, substantially as specified."

The other claims were upon the same line with the addition of certain details, as of vulcanizing, varnishing, subjecting to heat or the sun's rays.

The court said:

"At the same time, while giving the composition of the ink, the patentee expressly declares that he does not claim the same in and of itself considered, because he proposed to make such ink or printing compound the subject of another patent. The case then reduces itself to the single question whether there is any novelty in printing or stamping a rubber cloth with designs in an ink of a different color or shade."

(And that should have been the claim.)

(See Underwood v. Gerber, supra; and, for example, Weirman v. Shaw Stocking Co. [Third], 157 Fed. 928, 85 C. C. A. 222. Ex parte Opdyke, 50 O. G. 1293, 1890 C. D. 39.

Claim:

"As a new article of manufacture, eye-glasses or spectacles having the part which comes adjacent to the nose formed of a winding of animal or vegetable material."

The Commissioner states the examiner's objection as follows, mineral wire having been shown:

"He takes the ground that while applicant is entitled to the

broad claims in the case involving the use of horse-hair for nose-pads and for such known equivalents as the courts would recognize, he is not entitled to put up bars to future inventions by a claim for the use of all possible known and unknown vegetable and animal substances which may be found adapted to the same use; that no one can tell what new materials of either origin the progress of the arts may develop, nor what new properties of old materials may appear; that the employment of such materials is clearly outside of known equivalents and of any rights applicant may possess; that his patent can at the most protect him no further than the disclosure he makes, the contribution he makes to the public good, or the step of advance he makes in his art, and that under all theories of patent law such a claim as that under consideration should be refused."

"I have not a word to suggest in opposition to the views expressed by the examiner."

(Proceeds then to state that above is matter for rejection, and not objection—that is, goes to the merits of the claim.)

The Incandescent Lamp Patent Case, 159 U. S. 465, 40 L. ed. 221.

Claims:

1. An incandescent conductor for an electric lamp of carbonized fibrous or textile material and of an arch or horseshoe shape, substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of an electric circuit and an incandescing conductor of carbonized fibrous material, included in and forming part of said circuit, and a transparent hermetically-sealed chamber in which the conductor is inclosed.

3. The incandescing conductor for an electric lamp, formed of carbonized paper, substantially as described.

4. An incandescing electric lamp consisting of the following elements in combination: first, an illuminating-chamber made wholly of glass hermetically sealed, and out of which all carbon-consuming gas has been exhausted or driven; second, an electric-circuit conductor passing through the glass wall of said chamber and hermetically sealed therein, as described; third, an illuminating conductor in said circuit, and forming part thereof within said chamber, consisting of carbon made from a fibrous or textile material, having the form of an arch or loop, substantially as described, for the purpose specified.

Speaking of claims 1, 2 and 4, the court said:

"Under these circumstances, to hold that one, who had discovered that a certain fibrous or textile material answered the required purpose, should obtain the right to exclude everybody from the whole domain of fibrous and textile materials, and

thereby shut out any further efforts to discover a better specimen of that class than the patentee had employed, would be an unwarranted extension of his monopoly, and operate rather to discourage than to promote invention. If Sawyer and Mann had discovered that a certain carbonized paper would answer the purpose, their claim to all carbonized paper would, perhaps, not be extravagant; but the fact that paper happens to belong to the fibrous kingdom did not invest them with sovereignty over this entire kingdom, and thereby practically limit other experimenters to the domain of minerals."

(And see in the same line, Matheson v. Campbell [Second], 78 Fed. 910, 24 C. C. A. 384.)

Arbetter v. Lewis, 34 App. D. C. 491, 154 O. G. 516, 1910, C. D. 371.

In this interference case the following counts sufficiently indicate the character of the invention:

"1. A hem or seam for sewed articles, consisting of a main layer of textile or similar material and a superimposed layer of material having a turned-under edge and secured to said main layer by two connected rows of locked or enchained stitches entering and emerging at different points on the same side of the work, one of said rows entering under said edge, and said edge lying between the extremities of said stitches.

3. A hem or seam for sewed articles, consisting of a main layer of textile or similar material, and one or more superimposed layers of material secured to said main layer by two connected rows of locked or enchained stitches entering and emerging from different points on the same side of the work, one of said rows entering the main layer only and the other row entering under the edge of the superimposed layer or layers."

It will be observed that the invention involved merely a seam or article of manufacture without reference to the method of process of producing the seam or article or a machine by the operation of which the article is produced.

Incidentally in this case, the court held that:

"A limitation in a claim that is merely arbitrary and without function ought not to be permitted to deprive the first inventor of reward simply because the one first to file an application has inserted it."

This referred to the fact that the limitation "under the edge" had for its reason the statement that there was concealment of one of the threads whereas the seam of neither party accomplished that result.

Dilg v. Moore, 34 App. D. C. 106, 150 O. G. 269, 1910 C. D. 267.

This is a case of a bill in equity brought under section 4915.

The claims in question illustrate a form of article claim and read as follows:

14. A ball-retaining device for ball-bearings consisting of a ring-shaped portion or base having series of standards springing from one edge thereof only and provided with sector-shaped or flaring angularly-arranged extensions, whereby suitable spaces are formed for receiving and confining the balls between adjacent standards.

15. A ball-retainer consisting of an anular base portion and a series of integral parts extending from one edge only of said base, and having flaring portions arranged at an angle thereto, whereby suitable spaces are formed for receiving balls which are sprung into said spaces and confined between said parts.

16. A ball-retaining device for ball-bearings consisting of a ring-shaped portion or base having a series of standards springing axially from one edge thereof only and terminating in sector-shaped or flaring angularly-arranged flanges or extensions, whereby suitable spaces are formed for receiving and confining the balls between adjacent standards."

It was held that the evidence was not sufficient to show that the elements of these claims were described and disclosed in applicant's original application, it having been held in a previous decision on appeal from the Commissioner of Patents that they were not so disclosed.

(It may be interesting to consider if the "whereby" clause could have been omitted or modified to accord more directly with the fact that the claims are for an article, and if any modification would really have been desirable.)

In re Russell, 36 App. D. C. 444, 165 O. G. 474.

The following claims illustrate the narrow subject-matter of the appeal, and the practice of ringing the changes upon an expression of an idea of invention:

1. A metal can having the inner and outer faces of the same provided with a coating of flexible enamel.

2. A metal can having the inner and outer faces of the same provided with a coating of flexible enamel, said coating being adapted to fill the joints of said can and form a tight connection.

3. A metal can formed from black sheet iron or steel having the inner and outer faces of the same provided with a coating of flexible enamel.

4. A metal can formed from black sheet iron or steel having the inner and outer faces of the same provided with a coating of flexible enamel, said coating being adapted to fill the joints of said can and form a tight connection.

5. A metal can having the inner and outer faces of the same provided with a coating of flexible enamel, and a thicker coating

of said enamel on a portion of said faces for the joints of said can to form a tight connection.

6. A metal can formed from black sheet iron or steel having the faces of the same provided with a coating of flexible enamel, and a thicker coating of said enamel on a portion of said faces for the joints of said can to form a tight connection.

7. A metal can having the inner and outer faces of the same provided with a coating of flexible enamel and a second coating of said enamel on a portion of said faces for the joints of said can to form a tight connection.

8. A metal can formed from black iron or steel having the faces of the same provided with a coating of flexible enamel, and a second coating of said enamel on a portion of said faces for the joints of said can to form a tight connection.

9. A metal can having one face of the same provided with a coating of flexible enamel, and a like coating on both faces of the same at the joint-forming portion to form a tight connection.

Of these claims 1 and 9 were refused while claim 5 was allowed. The rejection was based upon the proposition that there was no invention in substituting appellant's enameled coating for the tin coating on the outside of the can. The patent also showed an aluminum lining on the inside of the can. It will be noted that the specific point of the allowed fifth claim related to the thicker coating at the joint portions.

In re Decker, 36 App. D. C. 104. 162 O. G. 999.

The following claim is an example of a certain form of articles of manufacture:

"A bilged barrel-body composed of a wound sheet of paper-pulp disposed in a series of undistorted layers, superposed directly one upon another each of which layers is of a uniform thickness and uniform degree of solidity from end to end of the barrel, substantially as set forth."

In this case it was held that where an article is fully described in a patent for a machine designed to make such an article, the claims for the article were properly rejected whether the machine disclosed in the patent was operative or not.

The point in this is that whatever invention might be required would be in the production of the machine and not in the production of a clearly-described article of manufacture.

In Parke-Davis Co. v. Mulford, (N. Y.) 189 Fed. 95, 103, the following claim was held not objectionable as being too abstract or merely for effect, especially in view of the specification:

"1. As an article of manufacture, a substance consisting of the blood pressure raising principle of the suprarenal glands chemically combined with a nonsuprarenal substance whereby

the stability of a water solution of said blood pressure raising principle is maintained."

Union Carbide Co. v. American Carbide Co.,(Second), 181 Fed. 104, 104 C. C. A. 522.

Patent No. 541,138, Willson, 1895, for "a useful product existing in the form of crystalline calcium carbide." Valid and infringed.

The defendants cited a publication known as "Woehler" publication which the court said was merely the result of laboratory experiment. The defendants' experts in following the Woehler process carried it far beyond the statement of the publication and secured a material having no resemblance to the Woehler product, as described. The court was not satisfied that "the defendents' experts in producing their compound did no more than to follow the teaching of the Woehler article."

Willson's original claim was as follows:

"As a new product crystalline calcium carbid having a bluish iridescence, substantially as described."

This claim was rejected, whereupon an amendment was filed with the following two claims:

"1. As a new product, crystalline calcium carbid existing as masses of aggregated crystals having a bluish iridescence, substantially as described.

"2. As a new product, crystalline calcium carbid, existing as masses of aggregate crystals, substantially as described."

The Patent Office held that the two claims were not patentably different, whereupon the first claim was erased leaving the second, the single claim upon which the patent issued.

"In determining the question of patenable novelty, there can be no hard and fast rule. Each case must be decided upon its own facts. Mere change of form in and of itself does not disclose novelty. A new article of commerce is not necessarily a new article patentable as such. But patentable novelty in a case like the present may be founded upon superior efficiency; upon superior durability, including the ability to retain a permanent form when exposed to the atmosphere; upon a lesser tendency to breakage and loss; upon purity and, in connection with other things, upon comparative cheapness. So, as supplementing other considerations, commercial success may properly be compared with mere laboratory experiments."

Potter v. Tone, 36 App. D. C. 181, 163 O. G. 729.

The following claims are cited as additional examples of claims for a chemical product:

1. The within-described product, being silicon monoxid SiO.
2. A physically homogenous, light brown material com-

posed essentially of silicon and oxygen in about the ratio of their atomic weights.

3. A material consisting of silicon and oxygen in which these elements are present in the ratio of one atom of silicon to one atom of oxygen.

4. A material containing silicon combined only with oxygen, the oxygen being less than is contained in silicon dioxid.

5. A compound of silicon and oxygen having the approximate specific gravity 2.24 and containing less weight of oxygen than of silicon.

6. A compound of silicon and oxygen only, which can be further oxidized.

7. A compound of silicon and oxygen having approximately the same specific gravity as the amorphous dioxid but containing but half as much oxygen.

8. The within-described material containing silicon monoxid characterized by the extreme fineness of particle produced by sublimation into an inert environment.

9. A compound of silicon and oxygen, which, when pure, has a soft brown color.

10. A pulverulent compound containing monoxid of silicon and being characterized by a soft brown color.

11. The herein-described new condensation product from the gases produced by electrically heating a mixture of carbon and silica, said product consisting substantially of silicon and oxygen, and having a specific gravity of approximately 2.22.

12. The herein-described new product condensed from the gases produced by electrically heating a mixture of carbon and silica, and consisting substantially of silicon and oxygen, in the proportions of sixty-three parts silicon to thirty-seven parts oxygen, in the form of a brown substance which, by treatment with hydrofluoric acid, yields a residue of amorphous silicon.

The opinion of the Examiners-in-Chief, cited with approval by both the Commissioner and the court, was to the effect that it was sufficient in this case to turn to the value of the invention for educational purposes in demonstrating to chemists the character and properties of "the long-sought silicon monoxid," and the few examples of its uses were sufficient to confer utility. In short, it was held that to establish reduction to practice of a chemical compound, it is not necessary to show that it is capable of use in some commercial way and such process has been successfully practiced; but it is sufficient if it be established that the compound has apparent usefulness.

Two cases by the Court of Appeals of the District of Columbia are interesting examples of chemical claims and the manner in which the Patent Office and the Court of Appeals are gov-

erned by the views of the federal courts in cases involving the construction or interpretation of patents.

In re Ellis, 37 App. D. C. 203, 167 O. G. 981. The court presents two claims as examples of the eight appealed claims as follows:

"The finish-remover comprising composite finish-solvent material including a liquid, finish-solvent, ketonic derivative of cyclic CH_2 hydrocarbon.

"The finish-remover comprising composite finish-solvent material including a liquid, finish-solvent, ketonic derivative of cyclic CH_2 hydrocarbon and miscible solvent material of a generally penetrating and loosening character."

The Patent Office had confined the applicant to claims specifying adipin ketone as an ingredient.

The applicant had in his specification enumerated many other substances of the same chemical group possessing the same properties as adipin ketone and capable of being used with equally satisfactory results. The court therefore held that the applicant was entitled to include in his claims the broad expression "a liquid finish-solvent, ketonic derivative of cyclic CH_2."

In re Dosselman and Neyman, 37 App. D. C. 211, 167 O. G. 983. This case was decided on the same day as the case of In re Ellis. Illustrative claims appealed in this case are as follows:

"The substantially fluent finish-remover comprising substantially equal parts of ketonic finish-softening material and other miscible finish-softening material and incorporated evaporation-retarding material including paraffin.

"The substantially fluent finish-remover substantially neutral to wood comprising composite finish-softening material including aromatic finish-softening material and incorporated colloidal thickening material.

"The substantially fluent finish-remover substantially neutral to wood consisting substantially of organic finish-softening material and incorporated substantially solid thickening the remover to substantially semi-paste consistency."

The court held that such phrases as "ketonic finish-softening material," "aromatic finish-softening material" were too broad because acetone was the only substance specified in the original disclosure and there was no presumption that ketones generally could be used.

(See for other chemical cases, post "Infringement.")

Functional Claims.—There is, perhaps, no word which has been more abused or more loosely applied in the criticism of claims than the word "Functional."

In Ex parte Knudsen, 72 O. G. 589, 1895 C. D. 29, Acting Commissioner Fisher divided such claims into four classes.

The classification does not now seem to be of so much importance as the conclusions reached in that case which served to direct in the proper channel the practice of the Office previously directed by cases in the line of Ex parte Pacholder, 51 O. G. 295, 1890 C. D. 55, deprecating in all but exceptional cases claims turning upon such phrases as "means" or "mechanism."

The Supreme Court in Corning v. Burden, 15 How. (U. S.) 252, 14 L. ed. 683, had classed as unpatentable claims which cover merely the expected function of a machine or apparatus which had been before performed by hand, and that class of claims was so included in Ex parte Knudsen. It was said also that claims such as are illustrated, for example, in Smith & Egge Mfg. Co. v. Bridgeport Chair Co., 46 Fed. 393, are functional because they covered sets of mechanism by setting forth the results which such classes of mechanism severally produce.

However, it would seem that such claims present first the question of invention; and there are valid or approved claims so closely resembling this tabooed class of claims as to be distinguished only by the fact that they happen to relate to novel inventions. That is to say, in many cases the question is merely one of novelty. The mere presence of such terms as "means" or "mechanism" ought not, it is thought, be a matter of objection. For it is sufficient in such cases if an idea of invention be presented, and, if the expressions clearly distinguish what is new from what is old, the claims are patenable. If they do not, then they should be rejected upon a reason based upon a statutory bar. They are "objectionable" only when too vague and indefinite to be properly examined. Ex parte Halfpenny, 72 O. G. 1135.

Ex parte Hahn, 8 O. G. 597, 1875 C. D. 107. "The combination of two carriers, each capable of revolution around a central axis, and both capable of lateral movement in the main frame, substantially," etc.

This claim was held not functional, and the following case cited as an example of a "functional claim:"

Sickles v. The Falls Company, 2 Fish. (U. S.) 202, Fed. Cas. No. 12,834. "Imparting a co-existing movement to two reciprocating catch-pieces in the operation of trip-off valves."

Lull v. Clark, 22 O. G. 1535, 1882 C. D. 461. "The so forming of a self-locking shutter-hinge case in two pieces as that the blind or shutter hung thereon may swing open or shut on a horizontal plane and lock when open to its limits, and so that also when locked open the strain shall be taken off from the spindle

and thrown onto cam-arms, and thus effectually relieve the spindle from the weight or strain of the shutter."

This badly-drawn, indefinite claim was construed by the court to be for mechanism; but it was necessary to turn to the specification for definition of the mechanism which produced the results.

Ex parte Simonds, 1870 C. D. 23. "Producing in cuttitng presses a successive change in the point of contact of the cutting block with the cutting die."

Held, a "functional" claim, i. e., a claim to an effect or function of the machine. Nevertheless, it is not clear that an idea of invention may not be expressed by that claim.

Ex parte Cornell, 1 O. G. 573, 1872 C. D. 120. "Preparing the end of the beam, as described, in a machine fitted with a web-cutter, n, and flange-cutters, h h, made substantially as described, and combined and operated with reference to each other to cut away the flange and trim the end of the web, substantially as set forth."

It was said that while this claim might be sustained by a court in the light of the specification, it ought not to be allowed by the Office because drawn to an act or result, i. e., functional. The claim is really uncertain and indefinite.

Ex parte Gray, 1877 C. D. 18, 11 O. G. 329. "A scroll-saw having a V-shaped frame, A, the arms of which are adapted to be lengthened or shortened in such a manner as to increase or diminish the distance between the bend or cross-bar 1 of the frame and the saw-blade B, as set forth."

This claim was criticized as "functional;" but, on appeal, was held not so because an idea of means was plainly defined and was either patentable or not.

Ex parte Knudsen, 72 O. G. 589, 1895 C. D. 29.

Claim:

1. The combination, with a suitable valve for controlling passage of fluid under pressure, of differential spring mechanism for said valve, said spring mechanism being arranged to exert a materially greater pressure in resisting the initial movement of said valve from its normal position than said spring mechanism exerts in the initial return movement of said valve toward its normal position after it has been forced to a considerable distance from said normal position, whereby when said valve has been moved to a considerable distance from its normal postion by fluid pressure it will remain in the position to which it has been so moved until said fluid pressure has materially decreased below the amount of pressure necessary to effect the initial movement from its normal position, substantially as described.

Acting Commissioner Fisher said:

"The claim is not a process claim, nor can it be fairly construed to cover a process. It is clearly for a combination of two elements, one of which is expressed by the term 'differential spring mechanism,' followed by a description of the arrangement of said mechanism. It is not for controlling a fluid-pressure valve by differential spring mechanism, etc., and is neither functional nor for the function of the machine. It is the evident intention of the claim to cover not only the specific subordinate means for producing certain motions of the valve, but to cover certain devices without regard to the special means by which they produce these motions. The language of the claim seems to me to be definite, and the only objection to be urged against it is that it is too broad in view of the art. Rejection of claims of this class should always be accompanied by citation of references and such citations should be made at the time of the first office action."

(See also, Expanded Metal Co. v. Bradford, supra., for a striking example of a mechanical method claim resting upon a functional clause, but clearly stating the invention.)

In re Perlman, (1913) — App, D. C. —, 186 O. G. 560. This case well illustrates the present tendency to treat a certain class of "functional" claims with reference to whether or not they clearly state the novelty, that is, whether or not in view of the art they are sufficiently definite to define the novelty. In this case it was held that the applicant was not a pioneer inventor in this line and he was criticized for expanding his claims to an enormous number, and the claims on appeal were rejected because not sufficiently limited to the novel features and in many respects indefinite, dependent upon the statement of function rather than structure to distinguish from the prior art.

"10. In a wheel, the combination with a wheel body of a demountable rim therefor adapted to be moved into and out of an operative position on the wheel body, and a tapered element connected to the wheel body and having a wedging engagement with one of the first two-mentioned elements and adapted to exert an outward radial pressure on the demountable rim and engaging the rim for retaining the same in its operative position on the wheel body.

"36. In a wheel, the combination of a wheel body having spokes, a felly, and a metallic band or rim fixed to the felly and comprising an unbroken and uninterrupted ring, a demountable rim adapted to be moved axiallly into and away from an operative position on the fixed rim, the demountable rim having substantially radial flanges for positively engaging the marginal

beads of the shoe of a pneumatic tire, and means for clamping said beads against said flanges.

"48. In a wheel, the combination with a wheel body, of a demountable rim therefor adapted to be moved into and away from an operative position on the wheel body, and a wedging element disposed for effecting action tending to separate or space the rim from the wheel body and serving as means of engagement for retaining the rim in operative position on the wheel body."

There are two cases which well illustrate on one hand the difficulties created by claims not in conformity with usage, and on the other hand, the extent to which the courts will sometimes go in interpreting claims of a "functional" character, or claims which fail to set forth in clear terms the new combination.

Brown v. Guild, "Corn Planter Case," 23 Wall. (U. S.) 181, 23 L. ed. 161.

In reissue patent No. 1039, claim 1 reads as follows:

"What I claim under this patent is a seed-planting machine wherein the seed-dropping mechanism is operated by hand or by an attendant, in contradistinction from mechanical dropping, the mounting of said attendant upon the machine in such a position that he may readily see the previously made marks upon the ground, and operate the dropping mechanism to conform thereto, substantially as herein set forth."

Referring to this claim, Mr. Justice Bradley, speaking for the court, says:

"The first of these claims, if construed simply as claiming the placing of the seed-dropper on the machine, would probably be void, as claiming a mere result, irrespective of the means by which it is accomplished. But, if construed as claiming the accomplishment of the result by substantially the means described in the specification, it is free from that objection; and we ought to give a favorable construction, so as to sustain the patent, if it can fairly be done. By reading the claim in connection with the final qualifying clause, thus, 'the mounting of said attendant upon the machine,' etc., 'substantially as herein set forth,' the fair construction would seem to include the means and manner of placing him upon the machine."

Columbus Watch Co. v. Robbins, (Sixth) 64 Fed. 384, 12 C. C. A. 174. In reissue patent No. 10,631, the claims rest largely upon such words as "adapted" followed by statements of function, for example:

"(1) As an improvement in stem winding and setting watches, a winding and hands-setting train which is adapted to be placed in engagement with the winding wheel or the dial wheels by longitudinal movement of a stem arbor that has no

positive connection with said train, substantially as and for the purposes specified.

"(2) As an improvement in stem-winding and setting watches, a winding and hands-setting train which is adapted to be placed in engagement with the winding wheel or the dial wheels, and is normally in engagement with said dial wheels, substantially as and for the purpose shown.

"(3) As an improvement in stem winding and setting watches, a winding and hands-setting train which is adapted to be placed in engagement with the winding wheel or the dial wheels by the longitundinal movement of a stem arbor, and is normally in engagement with said dial wheels, substantially as and for the purpose set forth."

* * * * * * * * * *

Taft, Cir. J., in the opinion referring to these claims, held that they must be construed narrowly, saying:

"The only adaptation capable of appropriation by the inventor is that which is shown in the specification and drawings of his patent, and this is the necessary limiting effect of the words, 'substantially as and for the purpose specified.' In this way the court may sustain the validity of the claims, as it is its duty to do when possible."

The court then cited the claim of the Corn-Planter Case and the above remarks of Mr. Justice Bradley. Under this interpretation the claims were held infringed.

A similar illustration from the early cases is Le Roy v. Tatham, supra.

It would appear that in many cases the claims of patents have invited infringement and been the source of litigation; and that, on the other hand, the courts have sometimes, in effect, rewritten the claims of a patent when the defense was merely technical.

In Eastern Dynamite Co. v. Keystone Powder Mfg. Co., 164 Fed. 47 (Pa.), the following claim was held bad as covering merely a principle or function.

"In a machine for packing explosive gelatin, the combination of a packing-screw and its case, of a hopper, means within the hopper for forcing material therefrom to said screw, and means whereby the pressure upon the material in the hopper will remain constant during the operation of the machine, regardless of the quantity consumed by said screw, substantially as described."

In Denning Wire & Fence Co. v. American Steel & Wire Co., (Eighth) 169 Fed. 793, 94 C. C. A. 634, the following claim of patent No. 788,305, was held not void as covering merely a function or the function of a machine.

"(1) In a wire-fence machine, the combination of mechanism for intermittently feeding a plurality of longitudinal strand-wires, mechanism for simultaneously and intermittently feeding a plurality of stay-wires transversely and so as to cross each other in pairs, both lying on the same side of the strand-wires, a cut-off for the several stay-wires, and coilers to knot them around the strand-wires."

In Dey Time-Register Co. v. Bundy, (N. Y.) 169 Fed. 807, several claims including and similar to the following cited claims were held to plainly present a certain and definite mechanical meaning and to require explanation from the specification only of the terms "regular records" and "irregular records." They were held, however, not to be infringed because the defendant's structure accomplished the same general ultimate result by substantially different means operating in a substantially different way; and that, notwithstanding the apparent breadth of the claims, they were, in fact, limited by the prior art to the precise point indicated.

"(35) A clock-controlled time-recorder having automatically-acting time-printing means adapted to print regular records in a certain color and irregular records in a certain other color. * * *

"(54) A clock-controlled time-recorder having automatically-actuated time-printing means adapted to print regular records with an impression of a certain color, and irregular records with an impression of a certain other color. * * *

"(60) A time-recorder including, in combination, time-controlled printing mechanism, means for taking impressions from said printing mechanism upon a record-surface, and means whereby the impressions made by said printing mechanism during different predetermined intervals are made in different colors."

Curtis v. Atlas Co., (Pa.) 136 Fed. 222. The court held valid and infringed claims 1 and 2 of patent No. 533,867, but as void claims 3 and 4 because indefinite and uncertain or rather as not stating the real invention made by the applicant.

"(3) A detachable foot-rest for rat-trap pedals, having a clamp shaped to receive a rat-trap plate, and faced with rubber, and means for detachably securing said clamp to said plate, substantially as described.

"(4) A detachable foot-rest for rat-trap pedals, having a perforated metallic clamp adapted to receive a rat-trap plate, a rubber facing cast upon and extending through the perforations of the metallic clamp, and means for detachably securing said clamp to said plate, substantially as described."

The other claims which were held valid defined the novel

construction of the pedal by which the parts were given their advantages over the prior art; that is, how the "clamp" was "shaped" and how "adapted," etc.

Brown Mfg. Co. v. Deere, (Seventh) 61 Fed. 972, 10 C. C. A. 208.

Claim 1 of patent No. 190,816, reads as follows:

"1. The pipe-box provided with a projection adapted to co-operate with a spring, weight, or the draft, to rock the said pipe-box against or with the weight of the rear cultivators or plows, substantially as and for the purpose described."

In presenting this claim to the court counsel for the patentee urged it should be read as if written as follows:

"The combination in a corn-cultivator of a pipe-box, a projection thereon, a spring hitched to such projection at its free end, and one or more 'rear cultivators or plows' also pivoted to the pipe-box; these being so connected and combined that the spring, acting through such projection, shall co-operate with the operator in the manipulation of the beams by hand."

Of this the court remarked that: "It is only under the emergencies and 'for the purpose of the present case' that such a combination could be read into the claim," etc. It may be interesting to observe that in this case counsel for the patentee argued that a weight used in this case was not practically the equivalent of a spring. This argument, however, did not obtain.

The court also held that claim 1 was for the pipe-box as a single device and that the word "adapted" could not be given a strained and unwarranted significance synonymous with "combined."

(See, for additional example, and illustration of approved use of "adaption," Mossburg v. Nutter, supra, under "Equivalents.")

In Hobbs v. Beach, 180 U. S. 383, 45 L. ed. 586, the court amongst other things discussed and sustained the following claim of reissue patent No. 11,167:

"6. The combination of opposing clamping-dies having diverging working faces constructed to co-operate in pressing an adhesive stay-strip upon an interposed box-corner, one of said clamping-dies being constructed to act with an elastic or yielding pressure to enable the die to operate upon the box-corners of different thicknesses, substantially as described."

It will be observed that this claim does not positively include the parts which operate the "diverging working faces," and especially that it does not include the spring or its arrangement for giving the "elastic or yielding pressure;" but that these relations turn upon the word "constructed." In some cases this form of claim might be dangerous because inviting litigation or requiring interpretation, or open to a limitation that a part itself

was constructed to perform the function as distinguished from being joined with other operative parts different in construction, for producing the result. In this claim it will be observed, however, that force is given rather to the phrases "constructed to operate" and "constructed to act."

That functional limitations in a claim can not be ignored in determining the question of infringement, see, for example, Thomson Meter Co. v. National Meter Co. (N. Y.), 106 Fed. 519; Neasseth v. Larkin (Pa.),) 111 Fed. 409; Anthony Co. v. Gennert (Third) 108 Fed. 396, 47 C. C. A.; Regent Mfg. Co. v. Penn Electrical Mfg. Co. (Seventh) 121 Fed. 80, 57 C. C. A. 334.

The relation of the "rule" of equivalents to broad or primary inventions has been hitherto briefly presented under this heading. In many cases the claim is in such comprehensive terms as not to necessarily involve the application of any rule of equivalents, because ordinarily it is found impossible to put together any combination of parts which do not come within the sweeping terms of such claims as, for example, the claims in Morley Machine Co. v. Lancaster, post, under "Infringement."

The rule relates rather to the secondary division of such inventions or patents, where there is some distinctive idea not necessarily creating a new art, but marking a distinct advance.

There are cases in which the opinion of the courts compares the means or method of the defendant with that described or illustrated in the patent in suit—cases in which little is said of the claims and the decision turns upon types of structure or method, or upon operations and results. It would appear that, in such a case, the court has concluded the claims to be sweeping and that the defendant can make nothing which will not infringe, and that, therefore, no close analysis of the claim is required.

(The application of these principles is generally involved with the question of infringement, and for that reason the topic will be again considered under the heading "Infringement.")

Formal Objections in General: Alternative, Ambiguous, Indefinite, Incomplete, Duplicate, Multiplied, Identical—The purpose of formal objections, as a class is to make the claim a clear and exact statement of the idea of invention. Some of the many general requirements have already been stated, and the preceding illustrations in some cases note minor objections. These minor objections are too numerous to define seriatim, and in fact the terms designating the objections generally carry their own definition.

An "alternative" claim is one in which it is doubtful which of two or more things is covered. A claim having the phrase "one or more" is alternative in form, if the elements covered by such phrase are not duplicates; when they are duplicates the claim is

not alternative. (Assistant Commissioner Fisher in Ex parte Hulbert, 63 O. G. 1687, 1893 C. D. 74; Ex parte Thorsen, 63 O. G. 1688, 1893, C. D. 75.)

Ex parte Mayall, 4 O. G. 210, 1873, C. D. 134.

"1. The employment in the manufacture of packing of canvass or other suitable woven fabric, treated first with beeswax or other lubricant and then with rubber solution substantially as and for the purposes described. 2. The manufacture of packing from strips of canvas or other woven fabric suitably treated, wound spirally upon a mandrel in successive, separate and independent layers, the tube thus produced being divided into packing rings substantially as herein described and illustrated in the accompanying drawings. 3. Packing composed of canvas strips preliminarily treated with beeswax or other lubricant, followed by rubber solution, as described, and then wound spirally in successive, separate, concentric layers on a suitable mandrel or form, substantially as and for the purposes shown and set forth.

These claims were thought "nondescript." They cover in a rude way four inventions: 1. Art of making fabric. 2. Fabric for packing. 3. Method or art of making packing from fabric. 4. Packing cut into rings. Is claim 1 for a product? The inventor contended it was the use of material. Claims 2 and 3 cover the same product. Claim 2 is drawn to the art of forming packing from prepared canvas. The latter part simply obscures the real method aimed at, and bears no relation to the first part. Claim 3 is for a product, indirectly qualified by recitation of method. An article is not patentable merely because produced by a certain method.

McCormick Harvesting Mach. Co. v. C. Aultman & Co. et al., (Sixth) 69 Fed. 371, 16 C. C. A. 259. This case is presented more fully under the heading: "Primary or Pioneer Inventions." Of the claims there recited the court held that the tenth and eleventh claims were substantially identical because the parts omitted in claim 10 and supplied in claim 11 must be understood in claim 10. That is to say, as a patent office criticism, either claim 10 was incomplete or the two claims were substantially identical, and one should have been canceled prior to issue. It will be observed also from the statement of the case herein that neither claim recites all the parts necessary to the operation. In a primary or pioneer invention this might be immaterial after the grant of the patent, but in case of a mere improvement it is important to determine that all the parts essential to the combination have been recited, and this rule applies to all applications for patent.

Thomson-Houston Electric Co. v. Elmira & Horseheads Ry. Co. (N. Y.) 69 Fed. 257. This case furnishes an example of what

the court thought was an unnecessary multiplication of claims in an anxious endeavor to cover every shade of the invention. The complainant admitted that claims 9-14, inclusive, "cover substantially the same ground." The court divided the numerous claims into groups and selected the leading ones as covering the full invention. See, also, Benjamin Electric Co. v. Dale (N. Y.) 141 Fed. 989; Bellows v. United Electric Mfg. Co. (Second), 160 Fed. 663, 87 C. C. A. 551.

The practice of having broad and narrow claims has been, of course, indirectly sanctioned in very many cases. and is directly sanctioned, for example, in Parke-Davis Co. v. Mulford, 189 Fed. 95.

It would be practically impossible within the limits of this topic, as suggested, to cover all, or approximately all, of the criticisms of claims which have been approved or rejected, because there is no limit, on the one hand, to the capacity of an inventor or his representative in originating forms of expression, and, on the other hand, no limit to the opportunities for the examiner either to minimize or magnify objections. From the hundreds of interesting decisions of the Commissioner of Patents a few may be selected, in addition to those hitherto given, to illustrate the general trend of the criticism of claims upon matters of form.

A claim is not alternative where, in the description in the claim, two terms are correctly employed to designate the same element. (Ex parte Holder, 107 O. G. 833, 1903 C. D. 442; Phillips v. Sensnich, 132 O. G. 677, 1908 C. D. 14.)

In Caldwell & Barr, 120 O. G. 2125, 1906 C. D. 58, it was held that a claim including a description of an element as "brick or the like" was alternative and indefinite.

Such a phrase as "asbestos or its equivalent" was held objectionable. (Ex parte Phillips, 135 O. G. 1801, 1908 C. D. 195). "Brake or locking device" alternative and indefinite. (Ex parte Leon, 164 O. G. 250); also "button or end wheel" alternative.

In Chapman, 120 O. G. 2440, 1906 C. D. 79, a claim for "lumber parially saturated with sulphuric acid" was held objectionable in the phrase "partially saturated," obviously inapt.

In Donk, 119 O. G. 965, 1905 C. D. 498, claims for an apparatus which included amongst other elements an "arrester," a "mechanical separator," and a "chemical separator" were held not vague and indefinite where the specification clearly set forth the meaning of the terms, but that the matter was simply one of breadth or scope.

In Morgan Envelope Co. v. Albany Paper Co., 152 U. S. 425, 38 L. ed. 500, it was held that a combination claim could not include the article operated upon by the mechanical parts; and this was repeated in American Tobacco Co. v. Streat, 83 Fed. 700, 28

C. C. A. 18; and Union Paper Bag Co. v. Advance Bag Co., 194 Fed. 126, 139; and the Patent Office practice follows these cases.

The Patent Office has objected to the inclusion of an intangible element like a hole as in Davin, 100 O. G. 452, 1902 C. D. 251, but in Ljungstrom, 119 O. G. 2235, 1905 C. D. 541, the Commissioner held that the use of the term "outlet" is not for that reason objectionable.

The office has also established a practice of objection to elements which are inferentially positively included, and the reason for making this sometimes doubtful objection is that it is in the interest of clearness and good form to positively and directly include an element. (See, for example, Vinke, 96 O. G. 2061, 1901 C. D. 124; Dodge, 125 O. G. 665, 1906 C. D. 439.)

(For slight differences in claims held sufficient to differentiate them, see, for example, Wiens, 101 O. G. 1369, 1902 C. D. 387; Lahue, 101 O. G. 448, 1902 C. D. 357; Ach, 96 O. G. 2411, 1901 C. D. 139; Wishart & Seidel, 101 O. G. 3107, 1902 C. D. 479; Reese, 113 O. G. 849, C. D.: Massie, 113 O. G. 2505, C. D. And see also, for example, Dececo Co. v. Gilchrist [Second] 125 Fed. 293, 60 C. C. A. 207.)

The examples show instances of claims turning upon reference letters which have been sustained by the courts but the Patent Office has, especially in recent years, objected to such claims because not definitely setting forth the structure claimed. (See, for example, Osborne, 92 O. G. 1797, 1900 C. D. 137.)

Words, Terms, and Phrases.—It is customary to conclude claims with some phrase as "substantially as described," "substantially as and for the purpose set forth," etc. These phrases are generally considered as not of themselves qualifying, but as emphasizing the fact that the claim may be referable to the description. (See Brown v. Guild "Cornplanter Patent," 90 U. S. 181, 23 L. ed. 161; Columbus Watch Co. v. Robbins, 64 Fed. 384, 12 C. C. A. 174.

It has been said that the first phrase is merely formal, while the latter is one of limitation; but the distinction seems to be of no practical importance.

In Houser v. Starr, (Sixth Circuit, 1913) 203 Fed. 264, 270, 120 C. C. A. the court said:

"The words 'substantially as described' do not create this necessity for construction by the entire patent; they are only a formula in recognition of the rule, and the cases, like Pope v. Gormully, 144 U. S. 248, 253, 36 L. ed. 423, 12 Sup. Ct. 641, and Fox v. Perkins, 52 Fed. 205, 214, 3 C. C. A. 32, which make reference to the phrase, can not mean anything more."

The terms "means" and "mechanism" have been much dis-

cussed by the Patent Office, but are now accepted as raising merely a question of patentability.

Ex parte Halfpenny, 72 O. G. 1135, 1895, C. D. 91. Claim 3 is an example of the claims objected to by the examiner.

3. The combination of bobbin-feeding, bobbin-separating, and stick-filling mechanisms, co-operating to feed and separate bobbins and fill bobbin-sticks therewith, substantially as and for the purpose specified.

Acting Commissioner Fisher said: "The objection of 'indefiniteness' or 'vagueness' commonly urged against claims, when such objection is based on the fact that the claims include as elements 'means' or 'mechanism,' limited only by the function which such means or mechanism performs, is inaccurate. Those terms do not, under such circumstances, render the claims indefinite or vague. It would be more accurate to say of those terms, when only limited in the manner above stated, that they render the claims too broad—an objection which goes to the merits of the claims, and which calls for a rejection. (Ex parte Opdyke, 50 O. G. 1293, 1890 C. D. 39." (Compare claim under "Primary or Pioneer Inventions.")

Likewise in Weaver, 81 O. G. 967, 1897 C. D. 165, it was held that the use of the term "means" with the proper qualifying words, is not prohibited by any decision of the office or courts. Generally, however, the question is what are the "proper qualifying words."

(And see, for example, Young v. Eick, 113 O. G. 547, 1904 C. D. 465.)

Lacroix v. Tyberg, 33 App. D. C. 586, 150 O. G. 267, 1910 C. D. 263.

It has been almost a rule of the Patent Office to object to claims where the word "means" was employed to indicate two separate features of invention. Objection was made by Lacroix that Tyberg had no right to make claims in the line of counts 1, 2 and 3. It was held, however, that the words "means for transferring the bunches from the mold to the wrapping mechanism" must be generic terms and applicable to each species of transferring device, though in Tyberg's case this means covered three different elements.

Claims 1, 2 and 4 sufficiently indicate the invention, it being noted that claim 4 does not include as an element the wrapping mechanism:

"1. The combination, with a wrapping mechanism, of means for supporting a plurality of bunches, and means for transferring bunches from the supporting means to the wrapping mechanism.

2. The combination, with a wrapping mechanism, of means

for supporting a mold, and means for transferring the bunch from the mold to the wrapping mechanism.

4. The combination with a bunch-support operating to sustain a plurality of bunches, of a lifting device including means for engaging each bunch, and devices for operating the lifting device to remove the bunches from and transport them from the support."

Claims have sometimes rested upon the definition of a single word, term or phrase.

In Brush Elect. Co. v. Ft. Wayne Elect. Light Co. (Ind.), 40 Fed. 826, Brush's patent was sustained as a broad patent upon the interpretation of the word "dissimultaneous," a word coined for the occasion, while in Brush Elect. Co. v. Western Elect. Co., 69 Fed. 240, another circuit held that the word did not state the broad patentable novelty found in it by the other courts. (Affirmed (Seventh) 76 Fed. 761, 22 C. C. A. 543.

In Edison Elect. Light Co. v. U. S. Elect. Lighting Co., 52 Fed. 300, 3 C. C. A. 83, the court gave the widest scope to the vital word of the claim "filament."

Many other cases cited herein bear upon a phrase or a term in a claim.

Bresnahan v. Tripp Giant Leveller Co. et al., (First), 102 Fed. 899, 43 C. C. A. 48.

The claim in issue of patent No. 384,893 reads as follows:

"A machine for beating out the soles of boots and shoes, provided with two jacks, two molds, and means, substantially as described, having provision for automatically moving one jack in one direction while the other is being moved in the opposite direction, whereby the sole of the shoe upon one jack will be under pressure, while the other jack will be in a convenient position for the removal of the shoe therefrom."

In the machine human intervention is necessary at the treadle to set the machine in operation and every time a blank is introduced for compression. The court, therefore, said that the word "automatically" used in the claims of the patent was not used in the strict sense but that it was sufficient as applied to any part of the patented machine. The claim was said to be a very broad one and it was held that no method of making the connection between the actuating-jacks and the crank-shaft by means well-known in the art at the date of the patent would evade it.

Other examples of stress upon a single word or phrase of a claim are found in preceding cases, as, for example, under "Equivalents."

For the restriction of claims using the terms "adapted," see Columbus Watch Co. v. Robbins, supra. For "participial" forms and use of terms such as "so arranged," see "Functional Claims."

(For reference letters see McCormick v. Aultman, supra.) Reference letters do not of themselves limit. If the part be named the reference letter is merely a convenience; but if it be not named the letter may stand for the specific statement of the part, and may offer an opportunity to limit by construcion a claim otherwise in too broad terms.

As a general rule, nothing could be further from the truth than the idea that by reciting all of the elements the invention is better protected. The opposite is generally true. Each element added is a limitation.

There has been some discussion of the force to be given the customary opening clause of a claim in which the type of machine or article is stated as, for example, in such a phrase as "In a pill-dipping machine, the combination," etc. It is thought generally advisable to employ such a clause of introduction especially in cases where the invention appears to lie peculiarly in the application of a principle or a mechanism to the particular art. However, in such a case as Potts v. Creager, 155 U. S. 597, 39 L. ed. 275, sustaining a claim because an old device had been put to a new and nonanalogous use, there could have been no different result, it is thought, even if the distinguishing reference to "clay disintegrators" had been omitted from the claims; and in the opposing case of Briggs v. Duell (Second), 93 Fed. 972, 36 C. C. A. 38, holding no invention involved in substituting for a lever a rack and pinion used in the same way in other but analogous arts, there clearly could have been no different result even if the claim had been introduced by the clause, "In an apparatus for planing cakes of ice for storing." In the latter case the claims were read as if they contained the opening clause; as would no doubt have been done in the former case if the clause designating the art had been omitted.

There are undoubtedly cases in which the presence of some clause clearly limiting the claim to the particular art would result in resolving a doubt in the favor of the applicant, or keep before the court the new use claimed in the patent.

An example of the possible importance of the introductory clause is found in Forsyth v. Garlock (First), 142 Fed. 461, 73 C. C. A. 577.

The claim of the patent in suit No. 622,889 reads as follows:

"A sheet material made up of a pliable sheet, one or more, of metal, and a sheet, one or more of vulcanized rubber, united to the pliable metal sheet substantially as described."

The court held that, though substantially the same article had been shown in the prior art for wholly different purposes, the patent was valid because of the new use to which the material had been put. The court also held that though the defendant re-

quired in any event two sheets he was within the meaning of the claim covering "one or more" sheets.

In discusing the claim the court said: "If the claim had commenced with the words, 'In gaskets or steam-packing,' or something of that nature, the view on which we have considered the case would easily be sustained, and Potts' patent could not become material."

To a different effect is the case of Sly Mfg. Co. v. Russell & Co. (Sixth), 189 Fed. 61, 65, 110 C. C. A. 625, in which it was held that the mere use of the word "crusher" in the introductory clause of a claim did not limit when another intent was apparent. (Citing ex parte Casler, 90 O. G. 446, 1900 C. D. 5, to the point that the introductory phrase is not an element of the combination and does not necessarily limit the claim.)

Patents as "Monopolies."—Following the agitation against restraint of trade in England three hundred years ago, the courts, the people and the Parliament excepted from a sweeping prohibition of monopolies the importation of a new trade or a new invention. (See under "Origin and Nature of Patents," supra.)

Patents of the United States rest upon even a firmer basis, and in no wise are related to monopolies in restraint of trade..

The patent laws express in the form of statutes the purpose of the legislators when dealing with a form of property of which the striking feature is that the public is to be the legatee.

There must be first the disclosure of a new idea of a means or method useful in a practical art and not obvious even to those skilled in the art. The disclosure is by means of an application, and utility and novelty are determined by an examination in which the application must run the gauntlet of all prior knowledge or prior use in this country, of all prior patents and publications, of any domestic public use or any publication more than two years prior to the application; and the possibility of meeting a rival who has already occupied the field, or of being estopped by the applicant's previous negligence or concealment or by his foreign patent dating back more than twelve months.

When the application is allowed the applicant has a period of six months in which to pay the final fee or he may let his application become forfeited and then renew within two years, subject, however, under a recent ruling, to have his right to renew taken away by the activity of some rival who enters the field in that time; and the principle of this rule obtains now in the courts in the consideration of a patent. After a patent is granted it is still open to question. It is only prima facie valid. The patentee has little hope of ever securing damages, but if he has a good patent is practically certain of enjoining an infringer, provided he has the capital to conduct the suit.

The law provides also that the patentee may, under conditions precedent of the statutes, amend his patent to more accurately describe the illustrated invention or to limit his claim, and may even reissue to enlarge his claim to include the idea of means or method which he had illustrated and described and which he had *intended to claim, provided he establishes these propositions, and* provided he has been reasonably diligent in applying for the reissue and is not held to have expressly or by circumstances dedicated to the public the matter not claimed in the original patent.

The patentee may hold as infringers all who employ substantially his idea of means or method, if the claim of his patent be broad enough to cover the idea and if he is entitled to such a claim.

Thus is the limited grant of exclusion offered the inventor, nicely balanced by the many obstacles and restrictions. But there are additional features which seem to tip the scale far down toward the public's more selfish interest.

As the law now stands, if a patentee has maintained his patent in eight circuits of the United States and one circuit should find his patent invalid or should find that some one manufacturing a similar device is not an infringer, then his rival may make the thing in that circuit and sell it in all the other eight circuits. (See, post under "Infringement.")

Thus the patent laws have always had in mind, first and foremost, the interest of the public. As they stand today they give the inventor no more than is essential to induce him to invent and disclose and thus promote the progress of the arts.

What is the contract with the patentee? What are his rights?

There has never been any doubt in the minds of the courts of the property right of a patentee. Chief Justice Taney, speaking for the Supreme Court in Bloomer v. McQuewan, 14 How. (U. S.) 539, 549, 14 L. ed. 532, said:

"The franchise which the patent grants consists altogether in the right to exclude everyone from making, using, or vending the thing patented without the permission of the patentee."

Again, Mr. Justice Peckham, in Bement v. National Harrow Co., 186 U. S. 70, 46 L. ed. 1058, speaking for the Supreme Court, said:

"It was therefore the owner of a monopoly recognized by the Constitution and by the statutes of Congress. An owner of a patent has the right to sell it or keep it, to manufacure the article himself or to license others to manufacture it; to sell such article himself or to authorize others to sell it. As stated by Mr. Justice Nelson in Wilson v. Rousseau, 4 How. (U. S.) 646, 674 (U. S.), 11 L. ed. 1141, in speaking of a patent:

"The law has thus impressed upon it all the qualities and

characteristics of property for the specified period, and has enabled him to hold and deal with it the same as in the case of any other description of property belonging to him, and on his death it passes, with his personal estate, to his legal representatives and becomes part of the assets."

One of the older cases is Grant v. Raymond, 6 Pet. (U. S.) 218, 241, 8 L. ed. 376 cited, and quoted in Bement v. National Harrow Co., in which the court said:

"And it can not be doubted that the settled purpose of the United States has ever been, and continues to be, to confer on the authors of useful inventions an exclusive right to their inventions for the time mentioned in their patents. It is the reward stipulated for the advantage derived by the public from the exertions of the individual, and is intended as a stimulus to those exertions. The laws which are passed to give effect to this purpose ought, we think, to be construed in the spirit in which they have been made, and to execute the contract fairly on the part of the United States, where the full benefit has been actually received, if this can be done without transcending the intention of the statute or countenancing acts which are fraudulent or may prove mischievous. The public yields nothing which it has not agreed to yield; it receives all which it has contracted to receive. The full benefit of the discovery, after its enjoyment by the discoverer for 14 years, is preserved; and for his exclusive enjoyment of it during that time the public faith is pledged."

The Bement case also cites and quotes Heaton-Peninsular v. Eureka, 77 Fed. 288, 294, 25 C. C. A. 267 (Sixth), in which it was said of the patentee:

"If he sees fit he may reserve to himself the exclusive use of his invention or discovery. If he will neither use his device nor permit others to use it, he has but suppressed his own. That the grant is made upon the reasonable expectation that he will either put his invention to practical use or to permit others to avail themselves of it upon reasonable terms, is doubtless true. This expectation is based alone upon the supposition that the patentee's interest will induce him to use, or let others use, his invention. The public has retained no other security to enforce such expectations. A suppression can endure but for the life of the patent, and the disclosure he has made will enable all to enjoy the fruit of his genius. His title is exclusive, and so clearly within the constiutional provisions in respect of private property that he is neither bound to use his discovery himself nor permit others to use it."

Again, in United States v. American Bell Telephone Co., 167 U. S. 224, 42 L. ed 144, the court said:

"The only effect of it was to restrain others from manufac-

turing and using that which he invented. After his invention he could have kept the discovery secret to himself. He need not have disclosed it to anyone. But in order to induce him to make that invention public, to give all a share in the benefits resulting from such an invention, Congress, by its legislation, made in pursuance of the Constitution, has guaranteed to him an exclusive right to it for a limited time; and the purpose of the patent to protect him in this monopoly, not to give him a use which, save for the patent, he did not have before, but only to separate to him an exclusive use. The government parted with nothing by the patent. It lost no property. Its possessions were not diminished. The patentee, so far as a personal use is concerned, received nothing which he did not have without the patent, and the monopoly which he did receive was only for a few years."

In the comparatively recent case of Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U. S. 405, 52 L. ed. 1122, Mr. Justice McKenna quoted from the above case as follows:

"Counsel seem to argue that one who has made an invention and thereupon applies for a patent therefor occupies, as it were, the position of a quasi-trustee for the public; that he is under a sort of moral obligation to see that the public acquires the right to the free use of that invention as soon as is conveniently possible. We dissent entirely from the thought thus urged. The inventor is one who has discovered something of value. It is his absolute property. He may withhold a knowledge of it from the public, and he may insist upon all the advantages and benefits which the statute promises to him who discloses to the public his invention."

Mr. Justice McKenna then continued:

"And the same relative rights of the patentee and the public were expressed in prior cases, and we cite them because there is something more than the repetition of the same thought by doing so. It shows that wherever this court has had occasion to speak it has decided that an inventor receives from a patent the right to exclude others from its use for the time prescribed in the statute. 'And for his exclusive enjoyment of it during that time the public faith is forever pledged.' (Chief Justice Marshall in Grant v. Raymond, 6 Pet. 242, 243, 8 L. ed. 385.)"

As indicating the view of the policy and purpose of the patent law held by a tribunal having to repeatedly pass upon patents, see, for example, Thomson v. Citizens' National Bank of Fargo, and vice versa (Eighth), 53 Fed. 250, 3 C. C. A. 518, in which the court opens the opinion as follows:

"Letters patent grant a public franchise, giving to the inventor some compensation for the exercise of his inventive genius in the discovery of, and his labor and ingenuity, in reducing to

practice and describing, novel and useful inventions, by which the public may attain beneficial results with less expenditure of time and labor. From every patented invention of value the compensation derived by the inventor is small in proportion to the benefit conferred upon the public. The inventor's reward is limited to a few years, at most, while the benefit to the public continues forever. No patented invention can, in the nature of things, be valuable to its owner unless it is of greater value to the public ,even during the term of his franchise, since the latter will not purchase the right to vend or use it unless it is more profitable to do so than to do without it. Letters patent issued under our constitution and laws thus offer the necessary pecuniary inducement to those gifted with inventive genius, without which they would not be able to bestow the thought, time, and toil required to find, perfect by experiment, reduce to practice, and give to the public many of those useful inventions which have enabled us to excel in the manufacture and use of machinery, and to progress in all the useful arts, that promote the efficiency and comfort of our citizens. The time, thought, labor, and expense that produce a valuable invention are the inventor's, the completed invention which is their product is his, and when, in consideration of his describing it, and making it useful to the public forever, he is granted the exclusive right to use and vend it for a limited time, this franchise should not be regarded as a monopoly conferred on him at the expense and to the prejudice of the public, but as a just and fair consideration, granted for valuable services rendered, which both equitably and legally entitle him to the same protection for this property that the owner of any other species of property enjoys."

X. INFRINGEMENT.

[This topic has been put in advance of the next three, because it so directly supplements the preceding topic.]

Section 4884, R. S. U. S. provides that a patent shall contain "a grant to the patentee, his heirs, or assigns, for the term of seventeen years, of the exclusive right to make, use, and vend the invention or discovery throughout the United States and the Territories thereof."

Infringement is the unauthorized making, using, or selling for practical use or for profit of an invention covered by a valid claim of a patent during the life of the patent. It may involve any one or all of the acts of making, using and selling.

It is, therefore, an infringement for an unauthorized person to make a patented machine, for use or for sale, though, in fact, it is neither used nor sold; it is an infringement to use it though

made by another; and it is an infringement to sell it whether made by one's self or by another unauthorized person.

Section 4899 R. S. U. S. provides that any person who purchases of the inventor or, with his knowledge or consent, constructs an article embodying the invention prior to his application for patent has the right to use and sell the particular article notwithstanding the grant of a patent for the invention.

In the consideration of infringement the doctrine of equivalents is pervading and its principles are applied as has been stated hereinbefore under "Letters-Patent and Their Construction and Scope."

It is, therefore, apparent that a broad claim would be infringed by devices which might widely differ in construction from the illustration of the patent, while a claim limited to a specific feature or combination would not be infringed unless that specific feature or combination were used.

It is a general rule that a claim to a combination of parts or elements or materials is not infringed unless each part, element, or material is used in substantially the same relation, and unless the thing in question comprises in combination substantially equivalent parts, elements or materials.

In the earlier cases, as in the later, the argument is that in an ordinary combination none of the parts are new and none are claimed as new; nor is any portion of the combination, less than the whole, claimed as new, or stated to produce any given result. The end in view is proposed to be accomplished by the union of all, arranged and combined together in the manner described. As held, for example, in Prouty v. Ruggles, 16 Pet. (U. S.) 336, 10 L. ed. 985:

"The use of any two of these parts only, or of two combined with a third, which is substantially different in form or in the manner of its arrangement and connection with the others, is therefore not the thing patented. It is not the same combination if it substantially differs from it in any of its parts."

From the general principle that each part, element or material recited in the combination is an essential of the claim. it follows that the patentee is estopped from showing the contrary. However, as with the application of the principle of equivalents generally, a change of size or form or an immaterial change of location or order in a construction or process which still embodies substantially the same combination does not avoid infringement.

It has been said that when there are new parts or elements in a combination and these parts or elements are taken and used in the same way so that the heart of the patented invention is used there is to that extent an infringement, but this statement

does not have the weight of authority excepting in the class of cases discussed under "Equivalents," where a particular statement in a claim was given a wider meaning than the too definite terms of the claims would, on their face, import.

There may be an infringement of a process only by the use of that process; for the selling or using of the article is not infringement of the process. It might appear that the converse would be true, that the making of an article would not be an infringement of a claim for the product, but in such cases it is generally apparent that the article is made for the purpose of selling or using and the making of it is merely the prelude to its use or sale, and may be enjoined.

The general rules which would apply to articles, machines and processes apply also to a composition. A composition will be infringed by an article having the same characteristics and composed of the same or equivalent ingredients. As in machine claims, all of the ingredients recited in the claim are regarded as essential and there will be no infringement if one of them be omitted. Infringement, however, is not avoided by the substitution of equivalents. That is, by the substitution of other ingredients which, in the same arrangement, perform substantially the same function, provided each ingredient substituted was well known as a substitute for the ingredient described in the specification, at the date of the patent.

As the omission of a part does not avoid infringement, so the addition of one or more parts, elements, or materials will not avoid infringement where it is simply an addition or accretion and does not change the nature or the function of the article or process.

Nor does the mere transposition, that is, the mere change of a part, element or material of a combination avoid infringement where the operation remains substantially the same. Except in pioneer inventions, however, a rearrangement of elements or materials, or reorganization of the parts of the machine or article producing different results is not infringement, especially when it amounts to invention.

The relative merit of articles or devices or processes is not in point, for, though an article be markedly superior or purposely inferior, it will not affect the question of whether or not one has substantially incorporated the invention set forth in the claims of the patent.

There has been some discussion in various cases as to the effect of the fact that the arts or articles of the defendant were improvements and the subjects of patents. It has, in fact, been said in a number of cases that, where the alleged infringer has

followed a subsequently granted patent, the presumption is against infringement.

There is little meaning or force in this assertion because the cases involved earlier patents with narrow claims where it seemed improbable that a later patent could have been granted except upon a specifically different device.

All improvements are subordinate to the primary or pioneer invention when they come within the terms of the idea of means or method set forth in the claims. For example, the use of a patented machine performing the process covered by a previous patent would be an infringement of the earlier patent, or the use of a patented process to produce an article covered by a previous patent would be an infringement of the earlier patent. And the principle maintains wherever the terms of a valid claim include the subject of a later patent.

Nonuse.—A patentee's right to exclude others from making, using or selling his invention is not affected by his failure to use it himself or his refusal to license others to use it. (See Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U. S. 405, 51 L. ed. 922, quoted hereinafter.)

Under substantially the same principle a "paper patent" may negative novelty; that is, it is not necessary that there should be anything further than a clear description of the same invention. The certainty of the disclosure may in many cases, be made more evident by actual use.

While an action may not be brought after the expiration of a patent (excepting for past damages) it is infringement to produce during the life of a patent for sale after the expiration of the patent, articles covered by the patent. It is not infringement to prepare for such manufacture or even to partially produce devices which, if completed, would be infringement.

Contributory Infringement.—There may be "contributory infringement" by concerting with others for the purpose of an invasion of the patentee's rights. For example, it is infringement, or contributory infringement, to make one part of a combination with the intent that it shall be combined by another with other parts so as to complete the whole. It is also infringement to sell parts which are intended for use in producing or using a patented invention in violation of a patent. It must appear, however, positively in each case that the part, element, or material was made or produced or sold with the purpose of being used to complete the act of infringement.

Under another heading the case of Henry v. Dick, 224 U. S. 1, 55 L. ed. 645, has been presented and a reference is made to the fact that the opinion reviews the relation between the class of cases in which the remedy is by a bill in a federal court

for the infringement of a patent and a suit on the contract in a state court. In that case Henry had induced Miss Skou to violate her contract with Dick by buying from Henry ink to be used on the patented machine which she had obtained from Dick upon condition that she purchase the supplies necessary to be used with the machine from Dick. The court held, in effect, that Dick not having parted with the full monopoly of the machine could restrict its use in any manner, and that when the machine was used with another ink Miss Skou become an infringer because of the unlawful use of the machine, and that Henry became a contributory infringer because of his act with the knowledge of the conditions of the sale or lease. The following statement of the respective remedies applies equally to the infringer and the contributory infringer:

"The remedy which the complainant seeks may often determine whether the suit is one arising under the patent law, and cognizable only in a court of the United States, or one upon a contract between the patentee and his assigns or licensees, and therefore cognizable only in a state court, unless there be diversity of citizenship. Thus, a bill to enforce a contract concerning the title to a patent, or an interest therein, or to declare a forfeiture of an assignment of an interest in a patent, or even a license, to make, sell, or use the patented thing, or an action to recover damages for a breach of a contract relating to a patent or a license thereunder, would not because of the character of remedy or relief sought, be a suit cognizable in a United States court, although the facts stated might have justified a suit for infringement in a United States court, if the complainant had elected that remedy. To sustain the contention that a breach of the implied agreement not to use the machine in question except in a particular way might have supported a suit to forfeit the license, or an action for damages upon the broken contract, counsel have cited and commented at great length upon the cases of Wilson v. Sandford, 10 How. (U. S.) 99, 13 L. ed. 344; Dale Tile Mfg. Co. v. Hyatt, 125 U. S. 46, 31 L. ed. 683, 8 Sup. Ct. 756; Albright v. Teas, 106 U. S. 613, 27 L. ed. 295, 1 Sup. Ct. 550; Hartell v. Tilghman, 99 U. S. 547, 25 L. ed. 357; Pratt v. Paris Gaslight & Coke Co., 168 U. S. 255, 42 L. ed. 458, 18 Sup. Ct. 62; Keeler v. Standard Folding Bed Co., 157 U. S. 659, 39 L. ed. 848, 15 Sup. Ct. 738; and E. Bement & Sons v. National Harrow Co., 186 U. S. 70, 46 L. ed. 1058, 22 Sup. Ct. 747; but an examination of these cases will disclose that while in some of them a suit for infringement might have been brought, the complainants had in fact brought suits to set aside or enforce contracts relating to patents, or licenses under patents. They were therefore not 'patent cases,' but cases deter-

minable upon principles of general law. In Excelsior Wooden Pipe Co. v. Pacific Bridge Co., 185 U. S. 282, 46 L. ed. 910, 22 Sup. Ct. 681, Mr. Justice Brown reviews the cases and shows so plainly why they were not patent cases that we shall only refer to that opinion."

The distinction between the jurisdiction in the federal courts of questions relating to the interpretation of a patent or the determination of the question of the infringement of a patent and, on the other hand, the jurisdiction of the state courts over various contracts relating to patented machines or articles is presented also in such early cases as Wilson v. Sanford, 10 How. (U. S.) 99, 13 L. ed. 344; Wilson v. Rosseau, 4 How. (U. S.) 688, 11 L. ed. 1160; Bloomer v. McQuewan, 14 How. (U. S.) 539, 14 L. ed. 532.

Repair.—The purchaser of a patented machine has the right to use it until it has worn out, and he may repair it and substitute new parts for the old so long as the identity of the machine is not destroyed. He may not, however, reconstruct or rebuild a worn-out machine or article. The owners of a patented machine have been permitted to replace teeth successively as they were out, to replace a single tube of a heater or to replace a broken cam or lever of a sewing machine and to improve the operation of a card-sorting machine by replacing a ratchet and pawl feeding mechanism by a more positive sprocket and chain, increasing the width of the machine, and changing the mode of operation to increase the speed of the machine. In that case the machine was improved before it was worn out, so that it did what it should have done at first. In all such cases the question is one of fact, whether the owner has merely made a repair or an improvement or whether he has reconstructed or rebuilt a worn-out machine.

Infringement by the United States.—The remedy for infringement of a patent by suit in the Court of Claims is presented hereinafter under the heading "Courts, Parties, Causes, Etc." Previous to the enactment of June 25, 1910, 36 U. S. Stat. at L. 851, the remedies of the owner of a patent in case of the use of a patented invention by officers of the United States were: 1. By a suit in a district court against the officer making use of the patented invention; 2. By a suit in the Court of Claims against the United States based upon contract; 3. By reference from Congress to the Court of Claims for information in the form of findings of fact. To these is now added by the statute of 1910; 4. Suit for infringement (with some exceptions) against the United States in the Court of Claims.

It is a general principle of equity that no suit for injunction can lie against the sovereign. On the other hand it has been ac-

cepted as a principle that the government of the United States when it grants letters patent for a new invention confers upon the patentee an exclusive property in the patented invention which can not be appropriated or used by the government itself, without just compensation. (James v. Campbell, 104 U. S. 35, 26 L. ed. 786.) The Supreme Court has, however, suggested in the cited case and, for example, in Hollister v. Benedict Mfg. Co., 113 U. S. 159, that such a suit should be against the United States and not against the officer.

In the Circuit Courts in a series of cases culminating in James v. Campbell, an accounting had been decreed and an injunction granted against the postmaster of New York City, as if he were a private defendant. In the Supreme Court the case was disposed of upon another ground, the patent being held to be void as for a reissue on a broader claim than that of the invention covered by the original patent. In Armstrong v. O'Neil (unreported), the Supreme Court, D. C., at law Nos. 43-173, 43-174, in a case tried before a jury in 1900, held the defendant an infringer and damages were awarded and paid, though the defendants were officers of the United States Navy.

In a suit against the United States, in re McKeever, 14 C. Cls. (U. S.) 396, affirmed 18 C. Cls. (U. S.) 757, and in a series of subsequent cases, recovery has been had whenever a patented invention has been used by the government, either under an expressed contract, or under circumstances which could be treated as constituting an implied contract.

In the case of Butler, 23 C. Cls. (U. S.) 325, such a contract was held to have been created solely from "a general usage by the War Department with regard to the adoption of improvements in firearms," by the use of the invention by the defendant without objection from the patentee.

Though the subject of much discussion and dissent in the Supreme Court, cases where no contract or implied contract could be shown have been held to be cases "sounding in tort," and therefore not within reach of any suit against the United States or an officer of the United States, prior to the 1910 statute. (See, for example, Schillinger v. United States, 155 U. S. 163, 39 L. ed. 108; Russell v. United States, 182 U. S. 516, 45 L. ed. 1210).

An officer of the United States may be personally liable under an action at law for his own infringement of a patent though his acts have been performed under orders of the government.

In F. Krupp v. Crozier, 32 App. D. C. 1, 137 O. G. 1238, it was held, enlarging upon the principle in Belknap v. Schild post, and other cases, that there can be no injunction granted against the use of an infringing article in the possession of the United

States, but that an injunction would be granted against the further manufacture of such articles by an officer of the United States.

While this case was pending before the Supreme Court of the United States the statute permitting suit for infringement to be brought against the United States in the Court of Claims was approved, so that in the opinion the Supreme Court did not pass upon the question presented upon the appeal.

Combination in Restraint of Trade.—Under various headings the distinction between the monopoly granted by a patent and a monopoly in restraint of trade has been presented.

It is not a defense to a suit upon a patent that the complainant has been a party to an illegal combination with others in restraint of trade.

The confusion upon this point has been in a measure cleared by the decisions of the Court of Appeals and the Supreme Court in the "Bathtub Case" (Standard Sanitary Mfg. Co. v. United States, 226 U. S. 20, 57 L. ed. —).

It was, in effect, decided that the question of the rights of the defendants under their patents were not involved in the determination of whether or not they had by their agreements combined to restrain trade.

And this principle was again affirmed in Virtue et al. v. The Creamery Package Mfg. Co., 187 O. G. 1115 (1913), 227 U. S. 8, 57 L. ed. —.

The court distinguished betwen a combination in restraint of trade falling under the Sherman Anti-trust Act and the rights conferred by law on the owners of patents who exercised those rights by warning infringers and bringing suit against them, and said that these rights exist whether in the hands of individuals or a combination of individuals. In such cases the sole question is whether or not the defendants are guilty of acts constituting an illegal combination in restraint of trade within the provision of the Sherman act.

It has been shown elsewhere that the "monopoly" granted by a patent is not a monopoly in restraint of trade because the trade arising from the patent had not existed prior to the patent, and the patentee takes nothing from the government or the public, but receives only the right to exclude others for a limited time from making, using or selling the invention which he has disclosed in consideration for his contract with the public.

Statute of Limitations.—R. S. U. S. section 4921 was amended March 3, 1897, 29 Stat. at L. 693, providing a Statute of Limitations of six years which applied January 1, 1898 to all existing causes of action and to actions at law as well as suits in equity. State Statutes of Limitations have no application since

the federal statute was enacted. Previous to that the rule of limitation was governed, under the statutes applying the principle of conformity and the application of State statutes and decisions (R. S. U. S. Sec. 721 and 914), by the Statutes of Limitations in the particular state in which the suit was brought. (Campbell v. Haverhill, 155 U. S. 610, 39 L. ed. 280.)

Threats.—It was formerly the view of the courts that no restraint could be imposed by equity upon one who was threatening the customers of others with suits for infringement, but the more recent cases have held that it is necessary that the notice shall be in good faith and not be merely for the purpose of injuring the trade of a rival. That is to say, the principle of unfair competition in business now practically governs in these cases.

Infringement as a Question of Law.—"When the question of infringement depends entirely upon the construction of a patent, either upon its face or in connection with facts of such a nature and effect as not to be reasonably disputed, the question is one of law for the Court." (Western Electric Co. v. Robertson (Second, 1905), 142 Fed. 471, 73 C. C. A. 587, citing De Loriea v. Whitney, 63 Fed. 611, 11 C. C. A. 355; Black Diamond Co. v. Excelsior Co., 156 U. S. 611, 39 L. ed. 553, 15 Sup. Ct. 482; Singer Company v. Cramer, 193 U. S. 265, 48 L. ed. 437, 24 Sup. Ct. 291.) In this case the lower court was reversed in refusing to direct a verdict for the defendant. (This case, by the way, is interesting in comparison with Le Roy v. Tatham, supra, because of the similar subject-matter.)

In some recent unreported cases brought under the new equity rules, the defendant presented with his answer specimens of articles made by him and interrogated the complainant to say whether the specimens were the infringements meant by the bill, etc. The complainant replying that certain of the specimens were the infringing articles the defendant then moved to dismiss the bill for want of infringement. The court, holding this a question of law, at once considered the matter and without hearing testimony held no infringement, dismissing the bill.

Notice by Marking.—It is a condition precedent to suits for infringement, under R. S. U. S. Section 200, that the owner of a patent must allege and prove either that the patented articles made and sold by him or the packages containing them were marked "patented" or that the complainant gave notice to the defendant of the patent and the infringement. In the event that notice is alleged and proved, damages and profits are recoverable only for the time subsequent to such notice. (Under various headings, "Actions at Law," "Actions in Equity," etc., the defenses which are available to a defendant are discussed.)

The Limitations Upon a Decree in an Infringement Suit.—A patent is granted to cover the whole of the United States but it requires a decree of nine Courts of Appeals to enforce the patent thereof in the same territory.

Kessler v. Eldred, 206 U. S. 285, 51 L. ed. 1065. This was a writ of certiorari based upon a contrariety of views expressed in the cases: Eldred v. Kessler (Seventh Circuit), 106 Fed. 509, 45 C. C. A. 454; Eldred v. Kirkland (Second Circuit) 130 Fed. 342, 64 C. C. A. 588; Eldred v. Breitweiser (C. C. W. D. N. Y.) 132 Fed. 251. The patent in suit was No. 592,913.

In the first cited case in the Seventh Circuit the defendant prevailed on the issue of noninfringement. In the second cited case in the Second Circuit, the Circuit Court of Appeals construed the patent broadly enough to find infringement, holding directly in conflict with the preceding case in the Seventh Circuit.

Eldred, the owner of the patent, then brought suit against Breitweiser, a user of a Kessler lighter, obtained a preliminary injunction and sent out threats of suit against Kessler's customers elsewhere. Kessler then filed a bill against Eldred in the district of his residence to enjoin him against bringing or prosecuting suits against Kessler's customers anywhere against the use of cigar-lighters covered by the decree in the original suit, on the ground that as between them the question of infringement of the Eldred patent by the Kessler lighters was res adjudicata under the decision of the Circuit Court of Appeals for the Seventh Circuit. The Supreme Court upheld this contention and held that Kessler was entitled to the injunction.

Therefore, it is apparent that any one buying a cigar-lighter from Kessler in the Seventh Circuit or any other circuit could use it anywhere, even in the Second Circuit where the patent had been held valid.

However, if a cigar-lighter of the same construction be bought from any other maker than Kessler then the purchaser could use it in the Seventh Circuit without infringing, but could not do so in the Second Circuit.

A similar situation and one which further illustrates the point arose in the Grant Tire Cases which finally reached the Supreme Court in Diamond Rubber Co. v. Consolidated Rubber Co., 220 U. S. 428, 55 L. ed. 527.

In obedience to the principle of Kessler v. Eldred in the circuit in which the tire patent had been held valid the courts were bound to enforce it against users of tires made in that circuit and to refuse to enforce it against users of tires made in the circuit in which it was held invalid. In fact, precisely this thing was done in Consolidated Rubber Tire Co. v. Firestone Tire &

Rubber Co. (Second), 151 Fed. 237, 80 C. C. A. 589, in which an injunction was granted against the defendant, with an exception as to rubber tires and rims manufactured by the Goodyear Tire & Rubber Co., because of the decision of the court in that case at 116 Fed. 363. The same point arose in Goodyear Rubber Co. v. Rubber Tire Wheel Co. (Ohio), 164 Fed. 869.

In the report of the committee on patent, trade-mark, and copyright law, "Reports of the American Bar Association," XXXV, 1910 at pages 550-590 this subject is discussed and several cases are cited showing the manner in which it was found necessary to file suits in many circuits to properly maintain a patent.

(See, for consideration of the rights of a purchaser for a specified territory to sell articles made in that territory in any other territory, discusion of Adams v. Burke and other cases under "Licenses, Contracts and Restrictions.")

* * *

Such are some of the general principles which govern the determination of infringement; but as infringement is the basis of nearly all patent suits it is important to consider the expressions of the courts and illustrations of the application of the principles, the defenses to a suit for infringement being treated under succeeding headings, and incidentally here and elsewhere, as under the topics dealing with assignments and licenses.

In Anderson v. Collins (Eighth), 122 Fed. 451, 58 C. C. A. 669, the court, speaking of the relation of the devices of the defendant to that of the patent in suit, said:

"Every essential element of this device is found in the combination used by the defendant. The latter accomplishes the same result by means which are obvious mechanical substitutes of those described by Collins, and hence, in the eyes of the law, are the same means which he used. The use of a different, but mechanical equivalent, method or material to construct some of the elements of a patented combination will not avoid infringment where the principle or mode of operation is adopted, and the elements, when completed, perform the functions by the same means as, or by mechanically equivalent means to, those described in the patent."

And this is the substance of various decisions quoted by the court in this case.

In Cimiotti Unhairing Co. v. American Fur Refining Co., 198 U. S. 399, 49 L. ed. 1100, a case referred to elsewhere as an example, the Court in presenting the substance of several well-known cases, said:

"In making his claim the inventor is at liberty to choose his

own form of expression, and while the courts may construe the same in view of the specifications and the state of the art, they may not add to or detract from the claim. And it is equally true that, as the inventor is required to enumerate the elements of his claim, no one is an infringer of a combination claim unless he uses all the elements thereof."

Crown Cork & Seal Co. v. Aluminum Stopper Co., 108 Fed. 845, 48 C. C. A. 72. The court said that infringement was not escaped by the "mere change of form, or renewal of parts, or reduction of dimensions, or the substitution of mechanical equivalents, or the studious avoidance of the literal definition of specifications and claims or the superadding of some improvement."

Citing several cases, they then discussed especially Consolidated Safety Valve Co. v. Crosby Valve Co., 113 U. S. 187, 28 L. ed. 939, saying:

"The improvements covered by the patent had been held by the court below to involve only mechanical modifications of the prior art, yet the Supreme Court regarded the Richardson invention as a 'pioneer invention,' and, although the defendant's valves departed widely from the terms of the claims in suit, it was held that they had secured under a change in form, and by the transposition from one member to another of certain functions, the substance of the complainant's invention, and the claim was construed to cover these modifications."

Speaking generally of the attitude toward infringement:

"The court will look through the disguises, however ingenious, to see whether the inventive idea of the original patentee has been appropriated, and whether the defendants' device contains the material features of the patent in suit, and will declare infringement even when those features have been supplemented and modified to such an extent that the defendant may be entitled to a patent for the improvement."

Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U. S. 405, 51 L. ed. 922, 28 Sup. Ct. 748.

"The next contention of the petitioner is that a court of equity has no jurisdiction to restrain the 'infringement of letters patent the invention covered by which has long and always and unreasonably been held in nonuse * * * instead of being made beneficial to the art to which it belongs.' It will be observed that it is not urged that nonuse merely of the patent takes jurisdiction from equity, but an unreasonable nonuse. And counsel concedes indulgence to a nonuse which is 'nonchargeable to the owner of the patent,' as lack of means, or lack of ability or opportunity to induce others to put the patent to use. In other words, a question is presented, not of the construction of

the law simply, but of the conduct of the patentee as contravening the supposed public policy of the law."

The court then proceeds to point out that the policy of the patent statute does not lie in mere matters of individual expediency nor have a purpose not expresed in words, but presents a right so explicitly given and so complete as to need no further explanation, and the court cites with approval its previous statement in United States v. American Bell Telephone Co., 167 U. S. 224, 249:

"Counsel seems to argue that one who has made an invention and thereupon applies for a patent therefor occupies, as it were, the position of a quasi-trustee for the public; that he is under a sort of moral obligation to see that the public acquires the right to the free use of that invention as soon as is conveniently possible. We dissent entirely from the thought thus urged. The inventor is one who has discovered something of value. It is his absolute property. He may withhold the knowledge of it from the public, and he may insist upon all the advantages and benefits which the statutes promise to him who discloses to the public his invention. He does not make the law. He does not determine the measure of his rights. The legislative body, representing the people, has declared what the public will give for the free use of that invention. He can not be heard in the courts to say that it is of such value that he is entitled to a larger and longer monopoly; that he is not fully compensated for the great benefit which his invention has bestowed by the pecuniary receipts during seventeen years. No representative of the public is at liberty to negotiate with him for a new and independent contract as to the terms and conditions upon which he will give up his invention."

Morley Sewing Machine Co. v. Lancaster, (1889) 129 U. S. 263, 32 L. ed. 715, 9 Sup. Ct. 299, elsewhere cited and discussed. quotes largely from the English case, Proctor v. Bennis, L. R. 36 Ch. Div. 740, and includes the following from that case:

"With regard to the additions and omissions, it is obvious that additions may be an improvement, and that omissions may be improvement; but the mere fact that there is an addition, or the mere fact that there is an omission, does not enable you to take the substance of the plaintiff's patent. The question is not whether the addition is material, or whether the omission is material, but whether what has been taken is the substance and essence of the invention. That seems to me to be the true test, as propounded by the House of Lords in Clark v. Adia, L. R. 2 App. Cas. 315, 320."

In Tilghman v. Proctor, (1880) 102 U. S. 708, 26 L. ed. 279,

the court in pointing out the difference in the defendant's process which did not avoid the claim of the patent in suit said:

"Or, if the mode of effecting the continued mixture adopted by the defendants should be deemed a new and useful improvement, they might perhaps have a patent for that peculiar device without being entitled to use Tilghman's process, on which it is but an improvement. * * * in either case the process of Tilghman, modified or unmodified by the supposed improvement, underlies the operation performed in the defendants' boilers. * * * Suppose this to be so, as before said, the introduction of an improvement gives no title to use the primary invention upon which the improvement is based."

American Fibre-Chamois Co. v. Port Huron Mfg. Co., (Sixth) 72 Fed. 516, 18 C. C. A. 670.

"The first claim is for moistening and pounding 'substantially as described.' The second is for moistening with a solution of gelatin, and pounding. The first claim includes moistening with any adhesive solution. The second is confined to a gelatin solution. As the defendant does not use gelatin, or any adhesive solution, it does not infringe. We have no hesitation in thus construing this patent strictly, both because it is necessary to sustain the patent at all, and also because we think the patent has little merit, in view of common knowledge and the prior art."

In Thompson-Houston Electric Co. v. Ohio Brass Co., 80 Fed. 712, 26 C. C. A. 107, Taft, Cir. J., speaking for the court of the Sixth Circuit, said:

"It is well settled that where one makes and sells one element of a combination covered by a patent with the intention and for the purpose of bringing about its use in such a combination he is guilty of contributory infringement and is equally liable to the patentee with him who in fact organizes the complete combination. The leading case on the subject is Wallace v. Holmes, 9 Blatchf. (U. S.) 65, 29 Fed. Cas. 79. It was cited with approval in Cotton-Tie Co. v. Simmons, 106 U. S. 89, 27 L. ed. 79, 1 Sup. Ct. 52, and the same doctrine was applied and extended by this court in Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co., 77 Fed. 288, to a case where the article sold was not even an element of the patented combination, but was an article the use of which in connection with patented combination was a violation of the conditions of a license, and destroyed the protection the license would otherwise have afforded. The cases in the circuit courts where the same general principle has been applied are legion. We cite a few of them: Bowker v. Dows, 3 Fed. Cas. 1070; Richardson v. Noyes, 20 Fed. Cas. 723; Travers v. Beyer, 26 Fed. 450; Willis v. McCullen, 29 Fed. 641; Alabastine Co. v. Payne, 27 Fed. 559; Celluloid Mfg. Co.

v. American Zylonite Co., 30 Fed. 437. The contention of the counsel for the defendant, if we understand it, is that the effect of the decision of the supreme court in the case of Morgan Envelope Co. v. Albany Perforated Wrapping Paper Co., 152 U. S. 425, 38 L. ed. 501, 14 Sup. Ct. 627, is to do away altogether with the doctrine of contributory infringement. If this is a proper reading of the judgment of the supreme court in that case it was a somewhat startling departure from previously understood principles in the law of torts. An infringement of a patent is a tort analogous to trespass or trespass on the case. From the earliest times, all who take part in a trespass, either by actual participation therein or by aiding and abetting it, have been held to be jointly and severally liable for the injury inflicted. There must be some concert of action between him who does the injury and him who is charged with aiding and abetting, before the latter can be held liable. When that is present, however, the joint liability of both the principal and the accomplice has been invariably enforced. If this healthful rule is not to apply to trespass upon patent property, then, indeed, the protection which is promised by the constitution and laws of the United States to inventors is a poor sham. Many of the most valuable patents are combinations of nonpatentable elements, and the only effective mode of preventing infringement is by suits against those who, by furnishing the parts which distinguish the combination, make it possible for others to assemble and use the combination, and who, by the advertisement of the sale of such parts and otherwise intentionally solicit and promote such invasions of the patentee's rights. The Morgan Envelope Company Case, so far from departing from the doctrine of contributory infringement, expressly recognizes it and the authorities in which it is announced and enforced. The court held, however, that the doctrine of contributory infringement could not apply in a case in which the claim of the patent embraces a machine and something to be treated thereby which is perishable in its nature, and the alleged infringer furnishes the latter element to be used with the machine and consumed. Whether this holding is really a limitation upon the doctrine of contributory infringement, or is to be regarded only as in effect deciding that such combinations are impossible in a patent, may admit of question."

Bullock Electric & Mfg. Co. v. Westinghouse Electric & Mfg. Co., (Sixth, 1904), 129 Fed. 105, 63 C. C. A. 607.

"While it is true that the monopoly of the plaintiff's patents did not extend beyond the limits of the United States, yet it would be no defense to say that the patented article had been made in the United States only for the purpose of being sold and

used in a country to which the protection of the laws of the United States did not extend. The patentee is entitled to monopolize the making of his device in the United States as well as a monopoly of their selling or using it." (Citing several cases.)

In Brown v. DuChesne, 60 U. S. 183, 15 L. ed. 595, it was held that the use of an article on a foreign vessel entering a port of the United States was not an infringement, the article having been placed on the vessel in a foreign port.

In Belknap v. Schild, 161 U. S. 10, 40 L. ed. 599, the court quoted from an English case, Vavasseur v. Krupp, 9 Ch. Div. 351, 358, 360:

"The property in articles which are made in violation of a patent is, notwithstanding the privilege of the patentee, in the infringer, if he would otherwise have the property in them. The court, in a suit to restrain the infringement of a patent, does not proceed on the footing that the defendant, proved to have infringed, has no property in the article; but, assuming the property to be in him, prevents the use of those articles."

Gill v. United States, 160 U. S. 426, 50 L. ed. 480.

"This case raises the question, which has been several times presented to this court, whether an employee paid by salary or wages, who devises an improved method of doing his work, using the property or labor of his employer to put his invention into practical form, and assenting to the use of such improvements by his employer, may, by taking out a patent upon such invention, recover a royalty or other compensation for such use. In a series of cases, to which fuller reference will be made hereafter, we have held that this could not be done."

"In this connection, too, it should be borne in mind that the fact upon which so much stress has been laid by both sides, that the patentee made use of the property and labor of the government in putting his conceptions into practical shape, is important only as furnishing an item of evidence tending to show that the patentee consented to and encouraged the government in making use of his devices. The ultimate fact to be proved is the estoppel, arising from the consent given by the patentee to the use of his inventions by the government without demand for compensation."

The court also cites largely from Solomons v. United States, 137 U. S. 346, 34 L. ed. 669.

Some Early Illustrations.—The later cases serve best in their adaptation to the modern arts, but in a general discussion the early cases supply many interesting examples in familiar subjects and a broader treatment.

In an early English case, Doville v. Moore, Dav. Pat. Cas.

361, 402, the court, discussing the presence of the same principle in two machines of different forms, said:

"I remember that was the expedient used by a man in Cornwall, who endeavored to pirate the steam-engine. He produced an engine which, on the first view of it, had not the least resemblance to Boulton and Watt's engine; where you looked for the head you found the feet, and where you looked for the feet you found the head; but it turned out that he had taken the principle of Boulton and Watt's; it acted as well one way as the other; but if you set it upright, it was exactly Boulton and Watt's engine. So here I make the same observation, because I observe it is stated that one acts upwards and the other downwards; one commences from the bottom and produces the lace by an upward operation, the other acts from above and produces it by an operation downwards; but that. if the principle be the same, must be considered as the same in point of invention."

In Electric Telegraph Co. v. Brett, 10 C. B. 838. the invention was for giving signals and sounding alarms in distant places, by means of electric currents transmitted through metallic circuits; and the defendant's plan was to use the earth as a return circuit It was held that this circuit would, if used in connection with machinery for signals be an improvement, but none the less an infringement. While this might have been an improvement and an additional discovery it embodied the principle at the base of the patent.

In Higgs v. Goodwin, 1 El., Bl. & El. 529, the plaintiff's invention was for "treating chemically the collected contents of sewers and drains in cities, towns and villages, so that the same may be applied to agricultural and other purposes," and for precipitating the animal and vegetable matter of sewage water by hydrate of lime. It was held that the Board of Health had not infringed the patent by applying the process to deodorized sewage water when the precipitate was not used as an article of value, but was rejected as an accidental product.

In Hills v. Liverpool Gas Co., 7 L. T. (N. S.) 537, the patent was for the purification of gas by means of precipitated oxides of iron, and also of a process by which the materials used could be revivified and again adapted for the same purifying process. The Lord Chancellor said that the right of the patentee was restricted to the use of the artificial precipitated oxides of iron, and the defendants using the natural product, bog ochre in its natural state, were not infringing, but that the defendant did infringe in using the process of revivification.

An interesting forerunner of Reece v. Button-Hole Co., supra, was Boville v. Keyworth, 7 El. & Bl. 725. The patent was for

the combination of blast and exhaust in ventilating the grinding surfaces of mill-stones. It was held that such a combination could be maintained though both blast and exhaust had been previously used separately. The patentee in his patent described the upper stone as fixed and the lower as revolving, and even pointed out some advantages arising from such an arrangement. It was held that even if he had thereby limited his claim to the case in which the lower stone revolved the use of the combination of blast and exhaust in a mill where the upper stone rotates would be an infringement.

In some of the charges to juries in the early cases in the United States practical expressions of the principles of equivalents and infringement are found. For example, in Blanchard v. Beers, 2 Blatchf. (U. S.) 418, Fed. Case No. 1506, Nelson, J., said:

"But the question is, whether (whatever may be the mechanical construction) the latter machine contains the means of combination found in the previous machine, whether, taking the structure as you find it, you see the new idea embodied in it. * * * No man can appropriate the benefit of the new ideas which another has originated and put into practical use, because he may have been enabled by superior mechanical skill to embody them in a form different in appearance or different in reality. * * * It will be proper, therefore, for you to look into these two machines and see whether or not the change in the organization of the defendant's machine from the plaintiff's might not have been the production of the skill of a mechanic examining and studying the Blanchard machine with a view to reorganize it and adapt it to the performance of one of its functions, namely, producing an axe-handle or a wagon-spoke."

An excellent illustration from the early cases, cited by Mr. Curtis, is Rich v. Close, 8 Blatchf. (U. S.) 41, Fed. Cas. No. 11,757. In that case Mr. Justice Woodruff says:

"But here the patentee claims to combine a wheel and a spiral conductor, neither of which he claims to have invented, with a tube (F) to carry off the water from the surface of the wheel. Now, if the defendant had substituted an equivalent device for the tube (F), he might be an infringer, but he was not, by his patent, prevented from using the other two without any such device. His using them in a location, in reference to the flume, which rendered the tube unnecessary and useless, was not substituting an equivalent device, but was only using them without any devise of any kind for the purpose indicated. The case fell, therefore, within the rule stated, namely, that when a combination of known elements or devices is patented, and the combination only, the use of any of the devices less than all is no in-

fringement. This rule is not to be construed so strictly as to conflict with the other rule above stated, and to permit the substitution of equivalent devices where the combination is substantially the same. But here the tube (F) is a distinct member of the combination for a specific useful purpose; and it can not be rejected in determining what is, in law and fact, the subject of the patent. If the wheel had been claimed, or the combination of the wheel and the spiral conductor, the defendant could not have protected himself by dispensing with the tube (F), although the plaintiff had also patented the three in combination; but, as the case stands, I see no alternative but to hold the ruling on the trial correct."

In Young v. Lippman, 9 Blatchf. (U. S.) 277, Fed. Cas. No. 18,160, where the patent was for an "improvement in springs for hoop-skirts," it was held to be an infringement to sell "an article of dress called a bustle," containing hoop-skirt wire made in substantially the same manner described in the patent, the bustle referred to being, "substantially a hoop-skirt of a diminished size."

The Goodyear patents offer numerous illsutrations. Charles Goodyear had discovered the process of preparing india rubber. Nelson Goodyear discovered the process of mixing this rubber with sulphur and subjecting the mixture to a heat not less than 260° to 275° Fahrenheit. Edward L. Simpson invented the process of practically removing the objectionable effects of sulphur and making the vulcanite "as tasteless and odorless as a metal plate." He did this by mixing benzoin gum with the sulphur and other ingredients in connection with boiled linseed or other vegetable oil. Notwithstanding that this was a marked improvement in the art it necessarily embodied the process of Goodyear and was therefore held an infringement in Goodyear v. Rust, 6 Blatchf. (U. S.) 229, Fed. Cas. No. 15,584, and other cases.

In Goodyear v. Central R. Co., 2 Wall. (U. S.) 356, Fed. Cas. No. 15,563, the Goodyear rubber patent was before the court. Under the patented process india rubber, sulphur and white lead were combined by the application of a high degree of heat, between 212° and 350° Fahrenheit. The court said that these ingredients might have been handed to a chemist with the request that he produce the article, without any result but with the process explained to him he might have given valuable hints. The court said:

"The chemist can now immediately suggest many changes in the process which may produce equivalent or better results. He could at once suggest that a carbonate of zinc or some other metallic oxide could probably perform the office of white lead:

that probably arsenic or magnesia or some other metal might be substituted for sulphur; that sulphur might perhaps be used better in a gaseous form; that the high degree of heat so necessary to the process could be as well or better applied by means of steam than dry heated air. Yet no one whose perceptions are not perverted can fail to see that all such changes, such interposition of chemical equivalents, though possibly improvements on the original process patented, have their foundation in the patentee's first discovery, and start by appropriating or pirating it."

Some Modern Illustrations.—Cimotti Unhairing Co. v. American Fur Refining Co., 198 U. S. 399, 49 L. ed. 1100. In this case it was held that no infringement of the combination claim in the Sutton patent, No. 383,258, for an improvement upon machines for plucking furs, results from the use of a machine which, in lieu of the "fixed stretcher bar" made a distinct feature of the claim, substitutes a movable one, operated by an entirely different mechanism, capable of accomplishing a much larger amount of work within a given time.

Heap v. Greene, (First) 91 Fed. 792, 34 C. C. A. 916, Patent No. 377,151. The suit turned practically on a concluding part of a claim reading as follows:

"Devices, substantially as described, for driving said belts with varying speeds and in different directions, as described, whereby the cards are rotated simultaneously, each about its own axis and about the axis of the drum, substantially as described."

The difference betwen the construction of the defendant's machine and the complainant's machine related to a substitution of pinions and a gear wheel in place of the pulleys and belt which drive the napping-rollers, to drive the napping-rollers at one end only, instead of at both ends; and the use of one cone pulley instead of two. In the construction the defendant crossed his belts. The defendants also introduced an awkward rope system instead of the belt, and a number of intervening pulleys, so that it required considerable manipulation to vary the speed of the napping-rollers. It was held that all these changes were within the meaning of the claim and that the fact that the machine was made more cumbersome did not render it any the less an infringement.

Colt's Patent Firearms Mfg. Co. v. New York Sporting Goods Co., (Second, 1911) 190 Fed. 553, 111 C. C. A. 405. The claim in this case read as folows:

"13. In a firearm, the combination with a frame and a barrel mounted on said frame, of a breech block or bolt carrier, comprising a breech-bolt and a forward semi-tubular extension

to cover the barrel, and having an opening forward of the breech-bolt to permit the ejection of the shell."

The court held that this claim was not for a generic invention and said:

"It is manifest, therefore, that though he is entitled to the rewards of his contribution to the art, and to a reasonable range of equivalents, he is not entitled to the fruits of the labor of others who have endeavored to reach the same result by improvements along different lines. Other inventors have the same right as Browning to improve the combination of the frame, barrel, and breech-slide, and, if the result be accomplished by elements differing from his to the extent that they can not be regarded as clear equivalents, these inventors can not be held as infringers. In other words, the claim can not be given a broad construction. It must be confined strictly to the elements as shown and described."

And concluded that infringement of the thirteenth claim was involved in doubt and therefore confirmed the decree of the lower court. In this cause the court, in discussing one phase of the case, said:

"The complainant advances the ingenious argument that the defendant's barrel is mounted upon the frame, because the breech-bolt carrier, upon which it is actually mounted, is slidingly mounted on the frame. In support of this contention it is asserted that 'the barrel is mounted upon the frame just as truly as a rider is mounted upon a horse, in spite of the use of a saddle.'

"Undoubtedly a rider is mounted upon a horse, even though he wears breeches and has a saddle under him; but the illustration, though specious, fails, we think, for lack of resemblance. We might suggest another and, perhaps, a more relevant simile. Would it be accurate to assert that the locomotive engineer seated in his cab is mounted on the rails, because his engine is so mounted?"

Bullock Electric Mfg. Co. v. General Electric Co., (Sixth) 149 Fed. 409, 79 C. C. A. 229, Patent No. 508,637. Examples of the claims of this case may be had in the following:

"(1) A laminated armature core built up in sections, and separators attached to the laminae between two consecutive sections, as and for the purpose described.

"(5) An armature core consisting of laminae arranged side by side and separators attached to certain of the laminae to form a ventilating space or spaces in the core.

"(8) In an armature a sheet or lamina having teeth or projections for the reception of the armature coils or armature conductors, and metal separators riveted or otherwise secured there-

to, said separators extending toward the points or free ends of said teeth or projections."

The court held this a mere carrying forward of the idea of prior devices by the use of the same means changed only in form or degree, not involving invention; and void also for insufficiency of description because, while the whole novelty lay in the dimensions or the material of the new thing, the specification referred to them merely as "thin" and of "metal."

In contrast to this case is Faultless Rubber Co. v. Star Rubber Co., (1913) 202 Fed. 927, 119 C. C. A. —, in which the following claim of patent No. 926,011 was held valid and infringed:

"1. A nursing nipple, embodying a mouthpiece, a neck, and an intermediate body portion flaring from said neck to receive the head of the bottle neck, the upper wall of said body portion projecting inwardly at an acute angle from its point of greatest width to form a substantially flat wall, the diameter of the opening from said body portion into the mouthpiece being relatively small in comparison with the diameter of said body portion."

The court said:

"The language of the claim presents a question not free from difficulty. Such language must be sufficiently intelligible to mark the boundaries of the monopoly; and we have held that a claim was invalid which, when fully construed, called for a 'thin' plate. Bullock Co. v. General Co., 149 Fed. 409, 79 C. C. A. 229. This case and its underlying principles suggests the serious question whether the requirement for a 'substantially flat wall' and a 'relatively small' mouthpiece opening are fatally vague, in the absence of any statement how far the wall may vary from a state of absolute flatness or what the proportions should be between the extreme body portion and the mouthpiece opening." As indicated, the court found the statement sufficient.

Lepper et al. v. Randall, (Third) 113 Fed. 627, 51 C. C. A. 337, Patent No. 624,839, wrappers for hams. The claim in suit read as follows:

"A wrapper of the character named, formed of a mat and lacing devices on the back thereof, between the corners and center thereof, in series at an angle to each other and to the sides of the mat."

Both the lower court and the appellate tribunal held that the straps and buckles used by the defendants were an equivalent of the complainant's cords and hooks, and that they came within the term "lacing devices."

In Elbs v. Rochester Egg-Carrier Co., 203 Fed. 705, 120 C. C. A. —, the following claims of patent No. 722,512 were involved:

"2. An egg-carrier consisting of a case provided with partitions forming egg-receiving pockets, a removable cover formed with a flange interposed between the walls of the case and ends of the upper portions of the partitions, and means adjustably connected to the case for engaging and releasing said cover as set forth."

"6. In an egg-carrier, the combination of a case provided with partitions having the upper portions of their end edges clear from the interior of the case, and a tray-shaped cover disposed inverted in the case and having its flanges passing across the clear portions of the ends of the partitions as set forth."

Notwithstanding differences of construction urged by the defendant, infringement was found, the court saying:

"The patentee has not made a generic invention but the record contains persuasive proof that he has made a distinct improvement upon the egg-carriers shown in the prior art. The persistent effort of the defendant, and those in cahoot with it, to use the Elbs carrier, or one embodying all its advantages, is inconsistent with the theory that the claims cover nothing of importance which is not found in the prior art."

Two cases which present interesting contrasts of the result of the application of general principles of infringement and equivalents are Lehigh Valley R. R. Co. v. Mellon, 104 U. S. 112, 26 L. ed. 639 and Devlin v. Paynter, (Third) 64 Fed. 398, 12 C. C. A. 188.

In Lehigh v. Mellon, patent No. 58,477 was for the familiar locomotive wheel. In his specification at the conclusion the inventor combined a "disclaimer" and a claim as follows:

"I am aware of the invention described in patent to N. Hodge, November 18, 1851, but I wish it to be understood that I do not claim the invention therein described, viz.: the angular flange upon the inner edge of the wheel and the flange upon the outer edge of the wheel, but I do claim as my invention the wheel with the curved flange upon the inner edge in combination with a tire with a rounded corner to fit said curved flange, as set forth."

The court in speaking of this said:

"The claim, so far from covering an angular flange upon the wheel, expressly excludes such a flange and claims only a flange with a curved or rounded corner."

The defendants, therefore, did not infringe.

In Devlin v. Paynter, claim 1 of Patent No. 367,725 read as follows:

"(1) A union for steam pipes, comprising a threaded ring or nut, a member having a seat of soft metal with a concave face,

and an opposing member with a rounded or convex end, substantially as shown and described."

The defendant reversed the arrangement of the patent putting a convex face on the head member and a concave face on the tail member. The defendant also made the convex face of soft metal, whereas in the patent the concave face was of soft metal.

The court held that this mere transposition did not avoid infringement and that the defendants had appropriated the gist of the invention, their changes not affecting either the principle of the operation or the result.

Clough v. Gilbert & Barker Mfg. Co., 16 U. S. 166, 27 L. ed. 134. The claims of patent No. 104,271 were held to be valid and infringed. They read as follows:

"(1) The bat-wing burner, perforated at the base, in combination with the surrounding tube, substantially as described.

(2) In combination with the bat-wing burner, perforated at the base, and surrounding tube, the tubular valve for regulating the supply of external gas to the burner, substantially as described."

After pointing out various differences of operation the court refers to a difference of construction in that the Clough patent "describes" (covers) the tubular valve inside the burner tube while the reverse arrangement was used by the defendant.

The court said:

"It is true that that patent describes the tubular valves as being inside of the burner-tube. But Clough was the first person who applied a valve regulation of any kind to the combination to which he applied it, and the first person who made such combination; and he is entitled, under decisions heretofore made by this court, to hold as infringements all valve regulations, applied to such a combination, which perform the same office in substantially the same way as, and were known equivalents for, his form of valve regulation."

The case has been hitherto placed within the class of Winans v. Denmead and Reece Button-Hole Co. in which an apparently specific term in a claim is given a wider meaning by the courts.

It is an interesting fact that when this patent came up before the court again in Clough v. Barker, 106 U. S. 178, 27 L. ed. 138, the position of the parties was reversed, suit being brought against Clough by the owners of the Barker patent, No. 105,678.

As an illustration of how Clough's broad patent might be infringed by Barker, and Barker's patent, on the other hand, infringed by Clough, see the following citation from the opinion of the court in the case.

"It has been held by this court, in the other suit between the

same parties, that a gas-burner made according to the description in the Barker patent infringes both of the claims of the Clough patent; the claim for the method of supplying the additional gas, and the claim for the application of a valve arrangement to regulate the supply. But, the point of the invention and patent of Barker is, that the surrounding shell or tube is so arranged that the screwing of such shell up or down causes it to act as a valve, on the outside of the pillar, to close or open the holes. As a consequence, the interior tubular valve of Clough is dispensed with, the burner is made in two pieces instead of three, is less expensive to make and, moreover, in regulating the supply of gas, the shell alone revolves and not the burner with it, as in Clough's burner, and so the flame always remains in one position. We think, from the evidence, that these modifications were new and useful, and sufficient in character to sustain a patent. The burner, in the form patented by Barker. appears to have superseded the burner in the form patented by Clough and, after Barker had introduced his burner into use, Clough commenced making, for market, burners in the same form patented by Barker." Held an infringement.

Union Match Co. v. Diamond Match Co., (Eighth) 162 Fed. 148, 89 C. C. A. 172. The court divided the claims of patent No. 538,525, into two groups. The following is an example of the first group:

"1. In a machine for boxing matches, in combination with a source of supply of the matches to be boxed, a support to hold the box in position to receive the matches from the source of supply, and means for giving the box a to and fro jarring motion, in a direction out of a vertical line, and substantially at right angles to the matches as they are to lie in the box, substantially as and for the purpose specified."

The court held that this claim was not void as covering merely the function of a machine, but that in view of the words "substantially as and for the purpose specified" the claims were limited to the means described in the specification. The court then proceeded to discuss and compare the respective mechanisms and to hold that the invention was not a primary one, etc., but in the conclusion, in effect, comes back to the claim, making a decision upon the first group, thus presenting another example of a rather circuitous mode of consideration. For the court said:

"We can not regard the method of operation by which the defendant's matches are agitated into position either as the same or as the mechanical equivalent of complainant's method of agitating the boxes themselves and thereby securing the desired parallel position of the matches inside. One is by directly

agitating, with the radial blades of an endless chain, the matches themselves when in the box; and the other is by agitating the trough and its inclosed boxes, thereby indirectly agitating the matches themselves and bringing them into a state of parallelism. The two are essentially different methods of operation. One, therefore, can not and does not infringe the monopoly of the other."

National Enameling Co. v. New England Enameling Co., (Second) 151 Fed. 19, 80 C. C. A. 485. Patent No. 527,361. The claims upon appeal read as follows:

"4. As a new article of manufacture, a metallic article having a coat of enamel of an intensely alkaline nature permeated by metallic oxides, substantially as described.

"5. As a new article of manufacture, a steel or homogenous iron article having a single coat of mottled enamel on a partly oxidized metallic surface, substantially as described.

"6. As a new article of manufacture, a metallic article having a mottled coat of alkaline enamel and within said enamel metallic oxides extending from the outer surface of the enamel inwardly, substantially as described.

"7. As a new article of manufacture, a steel or homogenous iron article having a mottled coat on a partly oxidized metallic surface and having metallic oxides extending from the outer surface of the enamel inwardly, substantially as described.

"8. An enamel for surfaces having therein a preponderance of alkaline constituents together with metallic oxides, substantially as described."

The lower court (apparently contrary to all precedent) had found, in effect, that the process claims of the patent and the broader article claims were not infringed by the defendant, but that inasmuch as the defendant produced an article similar to that of the complainant, it must have been produced by the use of an alkaline mix substantially of the character and using the ingredients set forth in the specification of the patent in suit. The circuit court of appeals said that the patent was not for the formula described in the patent, but for the process and article presented in the claims.

After showing that similar articles were made by processes old in the art and that some manufacturers did not at first know how to use those processes which had been applied to iron upon the newly produced type of steel, the court said:

"The evidence shows clearly that success or failure in the manufacture of enameled articles depends very largely not only upon the formula employed, but also upon the degree of heat used, the length of time of the exposure to the heat, and generally upon the skill and experience of the men who conduct the

operation. The mere application of a process for enameling iron to the enameling of steel involves no invention if the same result is obtained. In this case it must be borne in mind that the claims under consideration upon this appeal are not claims for a process or for an improved result. The claims are for a completed article of manufacture. If these claims are valid, they cover any article of manufacture which has the qualities described in the claims. It is of no consequence how they are produced if the articles have such qualities, and it is of no consequence whether, when produced, they are superior or inferior in quality."

And in conclusion of the concurring opinion Judge Wallace said:

"Courts lean towards reading into the claims of a patent such limitations as will save the real invention as disclosed by the specification and the prior state of the art. But when the claims are drawn in broad and nebulous terms, with the apparent purpose of enabling the patentee to monopolize an important industry, the courts should be slow in attempting to sustain their validity by narrowing them beyond the boundaries which are clearly warranted by the specification."

Durand v. Schulz, (Third, 1894) 61 Fed. 819, 10 C. C. A. 97. In patent No. 253,371 the claim read as follows:

"I claim the improvement in the manufacture of coloring matter, consisting in the production of violet coloring matters by the action of nitroso derivatives of the tertiary amines of tannin, or equivalent reaction, substantially as described."

The court quotes at length from Merrill v. Yeomans, Keystone Bridge Co. v. Phoenix Iron Co., Mahn v. Harwood, Burns v. Meyer, White v. Dunbar, et al., summing up as follows:

"The above extracts from adjudged cases show how closely a patentee is held to his claim in describing the invention for which he has sought and obtained his patent, and exhibit a marked unanimity of judicial opinions in relation to this provision of the patent law. In the apt words of Judge Dallas, in rendering the decree of the circuit court (60 Fed. 392), the law prescribes 'that the claim must be taken as defining precisely what the invention covered by the patent is, and, hence, the true question is, not what the patentee might have claimed, but what he has claimed; the latter, not the former, being made the measure of his rights.'"

The patent in suit was for a process and not for the product. The defendants were charged with importing, using and selling coloring material, and not with manufacturing. The court said:

"The claim is single, and is either for a process or a product; otherwise, if the claim is divisble, one part being for a process, and another for a product, it would be a double claim, and as

such in danger of being held void for ambiguity. The applicant for a patent may separately claim both a process and a product, but can not properly claim them in one claim. They are the proper subjects of separate and distinct claims."

(For similar illustrations see Welsbach Light Co. v. Union Incandescent Light Co., (Second) 101 Fed. 131, 41 C. C. A. 225.)

Blount v. Societe, Etc., (Sixth) 53 Fed. 98, 3 C. C. A. 455. The claim of patent No. 336,385, read as follows:

"A filtering compound formed of porcelain-earth baked and reduced to a powder, and pipe-clay combined in the proportions set forth, the said compound being baked, substantially as set forth."

The patentee in the specification stated that he did not limit himself to the above-named substances, "for the same result may be attained by using, for instance, silex, magnesia, or its equivalent, instead of porcelain-earth." It was held that the defendant was an infringer in using fine sand for the porcelain earth, and that there was nothing in the state of the art or the value of the invention to require a strict limitation to the words of the claim.

Hurlbut v. Schillinger, 103 U. S. 456, 32 L. ed. 1011, was upon reissue patent No. 4364, containing the following claims, of which the first was inserted by reissue:

"1. A concrete pavement laid in detached blocks or sections, substantially in the manner shown and described.

"2. The arrangement of tar-paper or its equivalent between adjoining blocks of concrete, substantially as and for the purpose set forth."

A disclaimer had been entered striking out from the specification a statement practically claiming the forming of blocks from plastic material by interposing anything between their joints while in the process of formation. The court held that the proper construction of the reissue patent was that the invention consisted in dividing the pavement into blocks, so that one block can be removed and the pavement repaired without injury to the rest of the pavement, the separation being achieved by either a permanent or a temporary interposition of something between the blocks.

The defendant used a trowel or cutting instruments to divide the upper course into blocks and the court held this to be "an equivalent of the tar-paper of the Schillinger patent, the cutting making a division which controls the cracking, and facilitates the taking up and relaying of the blocks," etc. This followed, however, a holding that the broad first claim was valid and had been infringed.

Matheson v. Campbell, (Second, 1897) 78 Fed. 910, 24 C. C. A. 384. The claim of patent No. 245,901, reads as follows:

"We claim, as a new product, the herein-described dye-stuff or coloring matter of a black color, and capable of dyeing shades of dark blue, as set forth."

In this case the court held that the translation of the chemical formula in the phrase "any sulpho-acid of any radical" is a broad statement, covering over one hundred, possibly as many as five hundred, different sulpho-acids. The court said that it had been proved and conceded that very many, in fact nearly all, of these, will not, when treated according to the patentee's process, produce the patentee's color. Continuing, the court upon this phase of the case said:

"In other words, having himself experimented only with three or four bodies out of a group of hundreds, he proposes to set himself in the pathway of future experimenters with any or all of the other bodies, and as the result of each new experiment is disclosed, will fire away at it, calculating to 'hit it if it is a deer, and miss if it is a cow.'"

It would appear at first blush that this case is in opposition to other chemical cases in which it has been held that one need not test all of the species of a family, but only a sufficient number to demonstrate the rule. But the court in this case found that the patentee had not distinguished his chemical invention by the differentiations customary in such cases. In fact, the court said that in this case the product under investigation failed to respond to the tests which the patentee had himself selected, and that he could not insist, therefore, that it was identical with his patented product.

The opinion then points out various imperfections in the patent, blunders in chemical statement, which the court could not overlook, saying that "there must be some limit to a court's function in rewriting patents."

In conclusion it was said that the case presents an instance of six tests being prescribed in a patent and an alleged infringing body responding to five of them, but failing to respond to the sixth; and the patentee having failed to show that the difference was immaterial the court was obliged to find that the defendant did not infringe. On rehearing, the court said that the inventors profess to disclose that all mono-sulpho acids, and all di-sulpho acids treated in a certain way will give a specific result, while the fact is that, so far as it appears, no mono-sulpho acid thus treated will give such result.

The case as a whole supplies an example of the difficulties surrounding many chemical cases and of the necessity of clearly differentiating between tests and characteristics which have been

fully developed and those which are merely the subject of theory and speculation.

In Fullerton v. Anderson, 166 Fed. 443, 92 C. C. A. 295, the patent before the court was for a process for bleaching nuts, in which a weak acid was specified as an ingredient. The court said:

"But it is said that the term 'weak acid' is indefinite, and that the appellant, which used diluted sulphuric acid, was not precluded from such use, since sulphuric acid is not a weak acid, and no standard of acidity is fixed by the term 'weak acid.' But by specifically referring to the use of vinegar, the patentee has made known the standard of acidity of the acid wliich will operate successfully with the solution. He declares in his specifications that he has found that, while many acids might produce the result of liberating the gas, a safe acid for the purpose is acetic acid or vinegar. In his claim he confines himself to no specific acid. The appellant has found that by the use of diluted sulphuric acid the bleaching process can be as effectually accomplished as by the use of vinegar. But it does not thereby avoid infringement. It uses a weak acid within the terms of the claims. * * * Obviously he was not required to experiment with all kinds of acids, and to state in his specifications what acids would and what would not be suitable for the purpose, and we think it does not extend the patent beyond its proper scope to say that it covers the use of any acid which, by chemical reaction, will release the chlorin in the bleaching solution. A strong acid would cause a violent and sudden evolution of chlorin, which would almost instantaneously be dissipated. A weak acid releases the chlorin gradually and continuously. There doubtless are acids known to chemistry which will not accomplish the reaction incident to the release of the chlorin, but the acids commonly known, such as acetic, sulphuric, muriatic, oxalic, and nitric acids, when diluted to the acidity of vinegar, may, it is shown, be successfully used in the process.

In the case of Welsbach v. Sunlight, (N. Y.) 87 Fed. 221, where the claim was drawn to cover "paraffin, or other suitable material, substantially as set forth," the court said:

"While collodion is not chemically an equivalent of a hydrocarbon resin gum, and is not paraffin or shellac, it performs the same functions, in the same manner and with the same result. A patentee is not obliged, in his specification, to state all the known equivalents of the materials used by him. It is the patent as finally issued which the court is to construe, and upon which the patentee must stand. In this case the patentees have claimed 'paraffin, or other suitable material, substantially as set forth.' They have set forth that 'other materials may be em-

ployed, as long as they set hard at ordinary temperatures, and burn away without mechanical destruction to the mantle.' The defendant uses a suitable material, known at the date of the invention to have all these properties and characteristics, and has thereby appropriated complainants' product."

Union Typewriter Co. v. Smith, (Third) 181 Fed. 966, 104 C. C. A. 430.

This case illustrates a practical application of the rule that there may not be two patents to the same inventor for the same invention, a rule announced in Suffolk v. Hayden, and elaborately discussed in Miller v. Eagle, Thompson v. Ohio, and other decisions. In this case patent No. 481,477 was involved and included the following claims:

"37. In a typewriter, the combination, with a series of individual pivoted type-bars carrying two or more type, of a vertically shifting frame for sustaining said bars and suitable means for shifting said frame to bring either of the type in proper position to make an impression."

"38. In a typewriter, the combination, with a series of type-bars provided with two or more type, of a vertically shifting frame for sustaining said type-bars concentrically, a series of key levers connected with said type-bars, and a series of keys for operating said levers."

The patentee had two preceding patents, namely, No. 457,258, and No. 470,990. In the divisional application which eventuated in patent No. 457,258, the inventor had disclaimed a pivot shifting-frame carrying the type-bars, saying that such a claim was the subject-matter of the application which subsequently eventuated in patent No. 470,990.

In the patent No. 470,990 there were claims which included such a pivot shifting-frame though the claims 37 and 38 were omitted therefrom.

The application upon which the patent in suit No. 481,447, was based when first filed declared that the pivoted type-bar shifting-frame therein mentioned was fully described and shown in patents Nos. 457,258, and 470,990, and that the type-bars and key-levers therein mentioned were substantially of the same construction as those of the cited patents, and that the type-bars and key-levers formed no part of the invention set forth in the later application.

Finally after the application for patent No. 481,447 was first filed and after the patent No. 470,990 had been allowed the application for patent No. 481,447, was amended to include what had not been before claimed therein by changing the specification and by adding claims 37 and 38.

The owner of the patent in suit admitted that all the elements

of the two claims 37 and 38 were found in the patent No. 470,990. It was, therefore, held that a device falling within the broad principle of claims 37 and 38 was not an infringement because the claim differed only in scope from the narrower claims of the earlier patents and were therefore invalid. It may be observed in passing that the court, in its opinion, introduces a suggestion which might be misleading to the effect that the inventor had himself recognized these claims as not within the scope of his application "for otherwise he would not have accompanied it with a supplemental oath." The meaning of the court undoubtedly was that the inventor recognized that he had not before claimed that subject-matter in his application, for it is the province of a supplemental oath to support subject-matter not within the scope of the original claims of an application, but which was described and might have been claimed.

American Specialty Stamping Co. v. New England Stamping Co., (Second) 176 Fed. 557, 100 C. C. A. 193.

The books abound in cases where the examination in the Patent Office has clarified the claims; and there are numberless instances in which litigation has been prevented by the excellent work of the Examiners and the other tribunals of the Office. As "Homer nods," so there must be unfortunate cases in the Office and in the courts.

Few cases better illustrate this and how litigation and expense may result from an inaccurate patent or one in which the real feature of invention does not plainly appear in the claims, and from inattention by a court to the fundamental principles of a suit for infringement. The invention consisted (as developed by the Court of Appeals) in a hooked handle on one side of a kettle which when seized and lifted to tip the kettle would engage an incline on the cover so as to draw back the cover slightly to allow the escape of water and steam from the spout and at the same time hold the cover in place. Similar handles for locking or binding the cover were old and common in the art.

In the Obermann patent in suit, No. 507,281, for a cooking utensil, the patentee had recited five of his prior patents. He had then presented an elaborate statement of invention with five clauses. On examination his claims were limited to one-half of one of these clauses, but the patent went out with the contradictory broad statement of invention and specification and the narrow claims, in the face of a recitation of the prior patents in the specification. During the examination one sheet of the drawings had been required to be canceled, but the subject-matter remained disclosed in a figure of the remaining drawing which appeared to have been overlooked. In a laudable en-

deavor to have the patentable novelty properly stated the Examiner suggested claim 3, containing the phrase "locking handle," not found in the specification and contrary to the real purpose of the handle as developed in this case.

The defendants had at one time made an infringing article but upon notification had ceased making the article and had manufactured a different vessel without the infringing features. That is, they manufactured one which had a handle which merely bound the cover or held it when the vessel was tipped, but did not draw it back. They had, with the object of avoiding suit for the first infringement, agreed in writing not to further infringe, and admitted the validity of the patent. About a year before the patent expired the defendants brought suit charging infringement in the manufacture of this second kettle. When the matter came up before the district judge he declined to go into the scope of the patent or infringement, because the defendants had admitted the validity of the patent, and granted, forthwith a preliminary injunction. He was reversed by the Circuit Court of Appeals which held that the defendant, in such a case, may show that he is not an infringer.

In discussing the various actions in the Patent Office upon the application the court referred to the sliding action given the cover by the operation of the so-called "locking handle," of the Examiner's suggested claim. The Examiner was unable to see how the operating handle drew the cover from over the spout. The court said:

"The Examiner's investigation of the application must have been very superficial, because the drawings quite clearly show just how the operating handle draws the cover from over the spout."

The applicant made a brief amendment again stating the operation, to which the Examiner objected, holding the operation to be "far from a reasonable one." He objected, however, thereafter to the claims because "drawn to cover merely the capabilities of the device." He drew claim 3 which he stated covered all the patentable novelty in the case. The court in caustic criticism of this, pointing out that the one prominent feature of the case was the sliding movement, said:

"It can not be supposed that even the Examiner could then suppose that the 'real point' which applicant was 'seeking to cover' was a locking handle which merely held the cover in its place without operating at all to shift its position."

The court said: "The applicant accepted the awkwardly drawn claim which the Examiner offered him," but then refers also to his securing the other claims from which he had canceled the statement that the parts effect "a backward move-

ment of the cover" leaving, however, a combination which could mean nothing but that.

Notwithstanding the attitude of the Patent Office the court held that the claims could not be construed so broadly or to cover anything but an operating handle, which shifted the cover and also held it.

Columbia Motor Car Co. et al. v. Duerr & Co. et al., (Second) 184 Fed. 893, 107 C. C. A. 215. This case involved the Selden patent No. 549,160, for a road engine, a case in which the record was so extended that it apparently had much to do with the movement to amend the equity rules with the object of limiting the record in a suit.

The patent was applied for in 1879 and granted in 1895. While the application was pending the automobile art had grown to a great commercial success, leaving far behind the structure disclosed by the patent. The court said:

"For the monopoly granted by his patent he had nothing to offer in return. The public gained absolutely nothing from his invention, whatever it was. From the view of public interest it were even better if the patent had never been granted."

Nevertheless, the court held that the patentee had acted within his rights and that the delay was not an unlawful one. It was apparent, however, and indicated by the court that they were disposed to be very careful in discussing the patent. The claim of the patent reads as follows:

"The combination with a road locomotive, provided with suitable running gear including a propelling wheel and steering mechanism, of a liquid hydro-carbon gas engine of the compression type, comprising one or more power cylinders, a suitable liquid-fuel receptacle, a power shaft connected with and arranged to run faster than the propelling wheel, an intermediate clutch or disconnecting device, and a suitable carriage body adapted to the conveyance of persons or goods, substantially as described."

The court in substance held that as this claim included in combination a "liquid hydro-carbon engine of the compression type" it referred to a type of engine in use when the application was filed and answering that definition, known as the Brayton engine, and did not cover or include the more modern engine in use by the defendants, known as the Otto. The court held that the first type of engine was the "constant pressure," while the second was the "constant volume." The court held that the claim could not be broadly new in view of the prior art, but was limited to certain adaptations, and the application of the Brayton engine, and was valid but not infringed by the modern automobile using the Otto engine. In short, the court held that the

patentee had chosen the wrong type of engine to include in his claim; and that his claim could not be broadly construed.

Diamond Rubber Co. v. Consolidated Rubber Tire Co., 220 U. S. 428, 55 L. ed. 527, 31 Sup. Ct. 444, Patent No. 554,675. The claims in suit were as follows:

"1. A vehicle wheel having a metallic rim with angularly propelling flanges to form a channel or groove with tapered or inclined sides, a rubber tire, the inner portion of which is adapted to fit in said groove or channel, and the outer portion having sides at an angle to the inner portion, the angle or corner between the outer and inner portions being located within the outer periphery of the flanges, and independent retaining wires passing entirely through the inner porions of said tire and also within the outer peripheries of the flanges, substantially as described.

2. A vehicle wheel having a metallic rim with outwardly projecting flanges at an angle to the plane of said wheel, so as to form a channel or groove having tapered or inclined sides, a rubber tire, the inner portion of which is adapted to fit in said tapered groove or channel, and the outer or exposed portions formed at an angle thereto, the angle or corner between the said portions being placed within the outer periphery of said flanges, openings extending entirely through the unexposed portion of said tire, and independent retaining wires in said openings, and a reinforcing strip of fibrous material placed at the bottom of said tire and wholly within said flanges, substantially as specified."

These are examples of specific claims directed to the precise feature of invention, a form of claim well adapted to cover an invention, which, while apparently narrow in scope is, in fact, in the language of the court in Washburn v. Moen, the "Barbed-Wire Fence" case, the "last step that wins." Of this the court said:

"And a right to equivalents is disclaimed. Indeed, a certain merit is made of this as exhibiting at once the simplicity and perfection of the invention and the tribute paid to its excellence by respondent by exactly imitating it, instead of attempting to evade it. It is pointed out that the coaction of the p· ts is so dependent upon their shape and relation that any alternation destroys their co-operation and the utility of the tire. There is strength in the contention, as we shall presently see."

The court incidentally accepts as favorable to the patent that the claims had the approval of the Patent Office.

Speaking of the suggestion that the invention was obvious that it might readily have been seen by skilful attention, the court said:

"But the law has other tests of the invention than subtle conjectures of what might have been seen and yet was not. It re-

gards a change as evidence of novelty, the acceptance and utility of change as a further evidence, even as demonstration. And it recognizes degrees of change, dividing inventions into primary and secondary, and as they are, one or the other, gives a proportionate dominion to its patent grant. In other words, the invention may be broadly new, subjecting all that comes after it to tribute (Chicago & N. W. R. Co. v. Sayles, 97 U. S. 554, 556, 24 L. ed. 1053, 1054); it may be the successor, in a sense, of all that went before, a step only in the march of improvements, and limited, therefore, to its precise form and elements, as the patent in suit is conceded to be. In its narrow and humble form it may not excite our wonder as may the broader or pretentious form, but it has as firm a right to protection. Nor does it detract from its merit that it is the result of experiment and not the instant and perfect product of inventive power. A patentee may be badly empirical, seeing nothing beyond his experiments and the result; yet if he has added a new and valuable article to the world's utilities, he is entitled to the rank and protection of an inventor. And how can it take from his merit that he may not know all the forces which he has brought into operation? It is certainly not necessary that he understand or be able to state the scientific principles underlying his invention, and it is immaterial whether he can stand a successful examination as to the speculative ideas involved."

As to the requirements upon the inventor and patentee the court said:

"He must not put forth a puzzle for invention or experiment to solve, but the description is sufficient if those skilled in the art can understand it. This satisfies the law, which only requires as a condition of its protection that the world be given something new and that the world be taught how to use it. It is no concern of the world whether the principle upon which the new construction acts be obvious or obscure, so that it inheres in the new construction."

The court came to the conclusion, however, that, in this case, the prosecution of the application indicated a thorough knowledge of the principles involved. Again turning to the limited character of the invention and that it was copied by the defendant:

"It is conceded, as we have said, that his invention is a narrow one—a step beyond the prior art—built upon it, it may be, and only an improvement upon it. Its legal evasion may be the easier (Chicago & N. W. R. Co. v. Sayles, 97 U. S. 554, 556, 24 L. et. 1053, 1054), and hence we see the strength of the concession to its advance beyond the prior art and of its novelty and utility by the rubber company's imitation of it. The prior art was open

to the rubber company. That 'art was crowded,' it says, 'with numerous prototypes and predecessors' of the Grant tire, and they, it is insisted, possessed all the qualities which the dreams of experts attributed to the Grant tire. And yet the rubber company uses the Grant tire. It gives the tribute of its praise to the prior art; it gives the Grant tire the tribute of its imitation, as others have done. And yet the narrowness of the claims seemed to make legal evasion easy. Why, then, was there not evasion by a variation of the details of the patented arrangement? Business interests urged to it as much as to infringement. We can find no answer except that given by the tire company: 'The patented organization must be one that is essential. Its use in the precise form described and shown in the patent must be inevitably necessary.'"

The defendants had urged that the success of the Grant tire was due to certain mechanical and commercial conditions and to its being pushed on the market by advertisers. The court said:

"Here, again, in our discussion, a comparison is suggested between it and other tires, and the inquiry occurs why capital has selected it to invest in and advertise, and not one of the tires of the prior art, if it be not better than they? But the effect of advertising is mere speculation; to the utility and use of an article the law assigns a definite presumption of its character, as we have seen, and which we are impelled by the facts of this record to follow."

And again, pursuing this line, the court said:

"And we may say, in passing, the elements of a combination may be all old. In making a combination the inventor has the whole field of mechanics to draw from,"

Primary or Pioneer Inventions.—The general rule of the statute requiring that an inventor shall particularly point out that part, improvement, or combination which he claims as his invention, is liberally interpreted in favor of primary or pioneer inventions, as hitherto stated.

The rule is stated by the Supreme Court in Morley Machine Co. v. Lancaster, 139 U. S. 263, 32 L. ed. 715:

"Where an invention is one of primary character, and the mechanical functions performed by the machine as a whole are entirely new, all subsequent machines which employ substantially the same means to accomplish the same result are infringing, although the subsequent machine may contain improvements in the separate mechanisms which go to make up the machine."

The claims were:

"1. The combination, in a machine for sewing shank-buttons to fabrics, of button-feeding mechanism, appliances for passing a thread through the eye of the buttons and locking the loop

to the fabric, and feeding mechanism, substantially as set forth. 13. The combination, with button-sewing appliances, of a trough, appliances for carrying the buttons successively from the trough to the sewing devices, and mechanism for operating said appliances and sewing devices, as set forth."

In this leading case the invention was held to be a "pioneer invention," and therefore, though the claims are phrased in the broadest terms and do not define the specific "mechanism," they were held to sufficiently define the real invention and were sustained.

The Circuit Court of Appeals for the Sixth Circuit has elaborated this in McCormick Harvesting Machine Co. v. Aultman, 69 Fed. 341, 16 C. C. A. 259, in the following statement by Taft, Cir. J.:

"With respect to such a patent, the well-settled rule is that the patentee who has, by the success of his patent, pointed out the combination of functions needed to reach the new result, and has claimed the combination of mechanical parts performing those functions, may enjoin the use of another machine producing the same result where the second machine differs from the first only in a substitution, for parts or elements in the patented device, of parts or elements which, though different in form and kind, perform the same functions in substantially the same way. It may be that the substituted parts are well known equivalents of those shown in the patent for the performance of the functions to which they are respectively applied, in which case there is manifestly no inventive faculty shown in the change; or it may be that, being shown by the successful operation of the patent the exact nature of the functions to be performed by a part of the patented device, the infringer, by the use of his inventive faculty, hits upon something as a substitute which will perform the same functions more completely and satisfactorily. In the latter case, he is a tributary inventor; but he is none the less an infringer if he uses the whole machine, with his substituted part to accomplish the same new result. The rule as to infringements of pioneer inventions which point the way to new products or result is analogous to that applied in cases of infringements of process patents, in which the discoverer is only required to point out one practical method of using his process, and is permitted to claim tribute from all who thereafter use the process, whether with his apparatus or with a different or improved means."

(Citing Morley Machine Co., supra, and Consolidated Valve Co. v. Crosby Valve Co., 113 U. S. 157, 28 L. ed. 939; Royer v. Schultz Belting Co., 135 U. S. 319, 34 L. ed. 2114; Machine Co. v. Murphy, 97 U. S. 120, 24 L. ed. 935; Sessions v. Romadka, 145 U. S. 29, 36 L. ed. 609; Clough v. Barker, 106 U. S. 166, 27 L.

ed. 134; Winans v. Denmead, 15 How. (U. S.) 330, 14 L. ed. 717; McCormick v. Talcott, 20 How. (U. S.) 402, 405, 15 L. ed. 930; Railway Co. v. Sayles, 97 U. S. 554, 556, 24 L. ed. 1053.)

In this case the Gorham binder was the first one in the history of the art which successfully bound grain in the field with twine automatically. The patent describes mechanism for selecting the grain wisp by wisp, compressing the bundle at the waist by the action of two feeding segments, which have the function, though not so specifically stated, of pressing and packing the bundle at the waist, through guides into a bundle receptacle, against a sturdy resistant arm, in which a flexible strap finally compresses the bundle and then trips a lever, which operates an old binding mechanism, which finally ties the twine about the compressed waist of the bundle and delivers the bundle. The claims, 3, 10, and 11, were sustained as sufficiently defining a primary invention notwithstanding the fact that certain parts had to be read into the claims to complete the full combination of parts requisite to the operation, and that reference letters were employed to designate the location and arrangement of the parts. Claims: (3) "The reciprocating segments, C4, having the feed piece C6, in combination with the guides D, as and for the purpose specified." (10) "The flexible strap, g, arranged in the receptacle G to operate trip lever H, in the manner substantially as and for the purposes described. (11) "The combination of the binding strap and cord go with the bundle receptacle G and two feeding segments C4, substantially as and for the purposes described."

The case of Westinghouse v. Boyden, 172 U. S. 537, 42 L. ed. 1136, has been considered.

The effect of this decision may be better appreciated, perhaps, by considering the decision of the Circuit Court of Appeals in the fourth circuit, Boyden v. Westinghouse, 70 Fed. 816, 17 C. C. A. 430, in which the court in most direct and unmistakable terms, announced the views afterward endorsed by the Supreme Court. The syllabi of the report of the case under discussion present the subject clearly, and are, it seems, impossible to reconcile with the long line of holdings in cases involving primary or pioneer inventions.

Claims 1, 2, and 4 of Letters Patent to George Westinghouse, Jr., No. 360,070, for fluid-pressure automatic-brake mechanism, issued March 29, 1887, though drawn to cover an invention of the highest value to the public—a pioneer in the art of quick-action air-brakes—are not infringed by a brake which does not employ the specific means described and illustrated by the complainant's patent.

Claim 2 of Letters Patent to George Westinghouse, Jr., No.

360,070, for fluid-pressure automatic-brake mechanism issued March 29, 1887, drawn to cover an invention of the highest value to the public—a pioneer in the art of quick-action air-brakes—as it "in its language describing the action of that device failed to describe any means by which the extreme reverse of the piston produced it, declaring merely that the piston 'by a further traverse admits air directly from the main air pipe to the brake-cylinder,' it was fatally defective, claiming only a result, which is public property, and not identifying the specific means (his own property) by which the result is achieved."

"The distinction suggested by the circuit court between inventions employing cranks and levers visible to the senses and those employing compressed air, which operates by modes not visible to the senses, as to which latter devices the circuit court held that 'in judging of an infringement we are to direct our attention rather to functional equivalents than to mechanical equivalents,' we do not think well taken, even in favor of pioneer inventions."

The fact that a patent was granted for a specific means for operating quick-action air-brakes after the grant of a pioneer patent describing and illustrating a different means is, in effect, a ruling by the Patent Office that the subsequent patent does not infringe the pioneer patent, and such a decision, while not conclusive, is entitled to great respect.

(The fourth heading is a peculiarly mistaken statement of the the position of the Patent Office, which may grant a tributary as well as a dominating patent.)

The case of Expanded Metal Co. v. Bradford, 214 U. S. 365, 53 L. ed. 135, has, as hitherto shown, developed the original views of the courts, so that the mere presence of a functional clause clearly setting forth the new idea is not a reason for holding the claim invalid or limiting the patent to the specific construction illustrated and described, and the case of Hobbs v. Beach, 180 U. S. 380, 45 L. ed. 587, amongst others confirm the doctrine of the Morley v. Lancaster case.

The rule then in the words of the court in these cases and Chicago v. Railway, 97 U. S. 554, 24 L. ed. 1053; Penfield v. Chambers, 92 Fed. 630, 34 C. C. A. 579, is:

"Where an invention is one of a primary character and the mechanical functions performed by the machine are, as a whole, entirely new, all subsequent machines which employ substantially the same means to accomplish the same result are infringements, although the subsequent machine may contain improvements in separate mechanisms which go to make up the machine." "If one inventor precedes all the rest, and strikes out

something which includes and underlies all that they produce, he acquires a monopoly, and subjects them to tribute."

"The more meritorious the invention, the greater the step in the art, the less the suggestion of the improvement in the prior art, the more liberal are the courts in applying in favor of the patentee the doctrine of equivalents. The narrower the line between the faculty exercised in inventing a device and mechanical skill, the stricter are the courts in rejecting the claim of equivalents by the patentee in respect of alleging infringements."

It should again be observed that the rule of equivalents has its starting point with primary or pioneer inventions, but may not be required where the claim expresses an invention in broad terms. For in such cases the infringing device or process will usually fall within the sweeping definition of the claim, rendering unnecessary any interpretation of the claim or the application of the doctrine of equivalents.

The application of the rule of equivalents comes upon the question of whether or not a given structure or process is, in fact, described by the claim of the patent in suit, and whether or not a statement in a claim may be held to embrace or intend a principle or step of the defendant's similar structure or process.

Unpatented and Secret Inventions.—An inventor has no property right in an unpatented invention which he can enforce against others. On the other hand, it has been held that "a secret in trade is fully recognized as property in equity, the disclosure of which will be restrained by injunction." (Champlin v. Stoddart, 30 Hun, (N. Y.) 300, 302.)

In Peabody v. Norfolk, 98 Mass. 452; Yowatt v. Winyard, Jac. & W. 394; Bryson v. Whitehead, 1 S. & S. 74; Morison v. Moat, 9 Hare 241; and Weston v. Huermons, 2 Vict. L. R. Eq. 121, relief by injunction was granted against former employees and others similarly situated, from practicing or disclosing various trade secrets such as process of manufacturing cloth, receipts for veterinary medicines, the mode of dyeing, and a medical recipe.

(See also, Benton v. Ward, 59 Fed. 411, 413.)

R. S. U. S. Sec. 4908 exempts from punishment for contempt a witness who refuses to disclose any secret invention or discovery made or owned by himself.

The advantage of secrecy is manifest. The monopoly may be preserved as long as there is secrecy. It may, however, be lost either by an independent discovery or invention by another or by the discovery of the secret from the inventor or his assigns, provided such discovery is not effected by fraudulent means.

Against this hazardous monopoly which, however, may be

of indefinite duration, the patent laws provide for securing to the inventor the exclusive right to his invention, for a limited term in consideration of a full disclosure of the invention which shall inure to the benefit of the public upon the expiration of the patent.

It must be apparent that there is a further advantage to the public in having the disclosure made because of the incentive to additional inventions by reason of specifications which are open to the public. Furthermore, there is a large class of inventions which it is impracticable to preserve in secrecy. But for the patent law there would be no inducement to make such inventions.

In S. S. White Dental Mfg. Co. v. Mitchell, (C. C., E. D. N. Y. 1911) 188 Fed. 1017, the complainants were endeavoring to obtain a preliminary injunction against a former employee who had agreed not to disclose a trade secret consisting of specific methods or secret processes for the manufacture of commercial oxygen. The employee had gone to another concern not in the same jurisdiction, but maintained that he had not disclosed and did not intend to disclose any of the trade-secrets, whereupon the court denied the motion. The court, however, said, in disposing of other points made by the defendant, that it was no objection to the issuance of an injunction that plaintiff failed to point out any specific methods or secret processes which it was proposed to enjoin defendant from disclosing, and the court also held that it was no defense that the manufacture, by the plaintiff, of the article of commerce to which the secrets related, was ultra vires, that is, that the plaintiff was not entitled under its charter to manufacture oxygen for commercial purposes outside of the dental trade.

Upon the point that an inventor has no property right in an unpatented invention which he can enforce against others, see Schouler on Personal Property, Vol. 1, Sec. 63, citing Bristol v. Equitable Soc. 132 N. Y. 264; Morison v. Moat (supra.), and Chadwick v. Covell.

"But one who has ideas, trade secrets, or systems of his own which can not be used or sold without disclosure, must guard his own property, if he has no patent or copyright to protect him, for if he discloses the idea or secret to another even in confidence, without contract to guard it or an agreement for recompense, such a party is entitled to use it for his own benefit without rewarding him."

Again at Vol. 1, Sec. 518, citing Dable v. Flint, 137 U. S. 41, 34 L. ed. 618:

"For neither an inventor nor an author, here or abroad, has any exclusive right of property in his invention or writing after

publishing it, except under and by virtue of the statutes, foreign or domestic, securing it to him, and in accordance with the regulations and restrictions of such statutes."

In Gayler v. Wilder, 10 How. (U. S.) 477; 13 L. ed. 504, the majority opinion said:

"* * * no suit can be maintained by the inventor against any one for using it before the patent is issued."

The common-law rule is cited in the dissenting opinion of Mr. Justice Daniel in that cause.

To the same intent is the view of the court in Brown v. Duchesne, 60 U. S. 195, 15 L. ed. 594, and Marsh v. Nichols, 128 U. S. 605, 32 L. ed. 538, in which latter case it may be noted, the court held that a patent signed by Assistant Secretary of the Interior instead of Secretary of Interior, was void.

In Dable Grain Shovel Co. v. Flint, 137 U. S. 41, 34 L. ed. 518, the defendant maintained that the statute providing that the user of a device sold to him prior to the grant of a patent may continue to use that device after the grant of a patent was unconstitutional. But the court held that the act was constitutional and said, in the course of the decision, that:

"The patentee has no exclusive right of property in his invention, except under and by virtue of the statutes securing it to him, and according to the regulations and restrictions of those statutes."

(See also, for further discussion, Kirk v. United States, 173 U. S. 49, 41 L. ed. 66; American Hide and Leather Splitting & Dressing Machine Company v. American Tool and Machine Co., 4 Fish. Pat. Cas. 284, Fed. Cas. No. 302; Morton v. New York Eye Infirmary, 2 Fish. P. C. 320, 5 Blatchf. (U. S.) 116, 17 Fed. Cas. No. 9,865; and Brill v. St. Louis Car Co., [Mo.] 80 Fed. 909. In this matter, however, attention should be paid to the principles of cases of unfair competition in trade.

In Rein v. Clayton (Mich.), 37 Fed. 354, a bill to enjoin the use of an invention while an application for a patent was pending was dismissed. This case contains a full discussion of the right or property in an invention at common law and cites various authorities, and was itself cited with approval by the Supreme Court in Kirk v. United States.

In Chadwick v. Covell, 151 Mass. 190, the court said:

"So far as the right to manufacture and sell the medicine goes, the plaintiff's case may be disposed of in a few words. Dr. Spencer has no exclusive right to the use of his formulae. His only right was to prevent any one from obtaining or using them through a breach of trust or contract. Any one who came honestly to the knowledge of them could use them, without Dr. Spencer's permission and against his will. (Peabody v. Norfolk,

98 Mass. 452; Morison v. Moal, 9 Hare, 241; Williams v. Williams, 3 Meriv. 157.)"

In Kipling v. G. P. Putnam's Sons (Second), 120 Fed. 631, 57 C. C. A. 295:

"The placing of a design on cover of book without registering as trade-mark or giving notice that it is claimed as such does not protect the mark from use by others."

XI. AMENDING, CORRECTING OR REPEALING PATENT.

Reissue.—The principal provision for amending a patent is that of section 4916 R. S. U. S.

This section in the opening clause provides that:

"Whenever any patent is inoperative or invalid, by reason of a defective or insufficient specification, or by reason of the patentee claiming as his own invention or discovery more than he had a right to claim as new, if the error has arisen by inadvertence, accident or mistake, and without any fraudulent or deceptive intention, the Commissioner shall, on the surrender of such patent and the payment of the duty required by law, cause a new patent for the same invention, and in accordance with the corrected specification, to be issued to the patentee, or, in case of his death or of an assignment of the whole or any undivided part of the original patent, then to his executors, administrators, or assigns, for the unexpired part of the term of the original patent. Such surrender shall take effect upon the issue of the amended patent."

The statute also provides that the reissued patent may issue in divisions, that the specification and the claims shall be subject to revision and restriction in the same manner as original applications are, and that from the date of the grant the reissued patent shall have the same force and effect as if originally filed in the corrected form.

The section specifically prohibits the introduction of "new matter" into the specification and requires that, in case of a machine patent, the model or drawing shall be amended only each by the other; but when there is neither model or drawing amendments may be made upon proof satisfactory to the Commissioner that the new matter or amendment was a part of the original invention, and was omitted from the specification by inadvertence, accident, or mistake.

A reissued patent is an amended patent. Therefore, it runs for the remainder of the term of the original patent and must be based upon the original disclosure—must be for the same invention.

A reissue may be granted to correct defects or insufficiencies in the description or in the claims of the patent. The purpose of a reissue being to correctly present the original invention, it may either claim less than was originally claimed or more than was originally claimed. When the purpose is to claim less there is seldom any question which can arise either against the granting of the reissued patent or in any subsequent litigation of the patent, but when the claims have been enlarged or broadened then it must be clear that they have not been extended beyond the original invention or beyond what it was the applicant's intention to secure by his patent.

The error in the original patent must have arisen by "**inadvertence, accident or mistake.**" The courts and the Patent Office have varied in their interpretation of these words principally because each case has been required to be judged upon its merits.

In many cases "**intervening rights**" have been discussed. That is to say, the question has arisen whether or not another has proceeded in good faith upon the apparent dedication to the public by a failure to claim some part of the invention in the original patent and has, therefore, created an estoppel against the reissue applicant. In the cases of authority, intervening rights have been treated, generally, rather as evidence of dedication or a lack of diligence on the part of the reissue applicant, than as a bar per se.

It is thought that the customary summary of the "law" of intervening rights requires an emphasis of the qualifying words. For example, in Skinner v. Carpenter, 36 App. D. C. 178, 166 O. G. 1281, the court said as an obiter (see Forest v. Chase, 37 App. D. C. 179, 169 O. G. 945):

"It is well-settled law that to warrant the valid reissue of a patent there must not only have been a mistake by the patentee, with no want of reasonable diligence in its discovery, but also that no third person has in the meantime acquired the right to manufacture and sell what the patentee had failed to claim. (Coon v. Wilson, 113 U. S. 268, 28 L. ed. 963; Farmers' Friend Co. v. Challenge Co., 128 U. S. 506, 32 L. ed. 529; Topliff v. Topliff, 145 U. S. 156, 36 L. ed. 658.)"

Stress should be placed upon the phrase "acquired the right to manufacture," the cited cases not resting upon the bald fact of intervention.

No individual of the public can have any right that is not general, open to all. The patentee may lose his right to reissue by his failure to claim.

He may, however, rebut the presumption of dedication. He may, by a clear showing of error arising through inadvertence, accident or mistake, establish his right to a different or broader claim for the invention he disclosed and intended claiming; and

the fact that another has taken advantage of the apparent failure to claim may not of itself defeat the right to reissue or render void the claim added by reissue, especially if there should appear an element of unfairness in the action of the party putting to service the unclaimed feature, as was evidenced, for example, in Howe Mach. Co. v. Coffeld Motor Washer Co., (Fourth), 197 Fed. 541, 546, 117 C. C. A. 37; and Bertels v. Trethaway, (Pa.) 175 Fed. 971, 973.

And in a case where little use by others had been made of the unclaimed invention in the interval a reissue was sustained. (Weber v. Automobile & Co., [Md.] 190 Fed. 189.)

On the other hand in various instances parties who have manufactured devices which clearly did not infringe the original patent, but did, prima facie, infringe the reissued patent have been held not liable, and this holding necessarily opened the field to the general public. See, for example, Franklin & Co. v. Illinois Moulding Co. et al., 128 Fed. 48, affd. (Seventh), 138 Fed. 58, 70 C. C. A. 484. (And see in principle, Casein Co. v. Collins [Third] 174 Fed. 341, 344, 98 C. C. A. 213.)

Much of the varying discussion of reissues in the cases has turned upon the queston of identity, that is, whether or not the reissue patent is for the **"same invention"** as the original patent. It does not alter the patent to state new uses, nor to claim the elements where a combination only has been claimed in the original, nor to add to the description for the purpose of more precisely defining the invention. A reissued patent, however, is not valid for everything that might have been claimed in the original patent nor does its validity depend wholly upon the fact that the new features attempted to be secured thereby were suggested in the models, drawings or specification of the original patent. Therefore, it will present a doubtful question if one having in the original claimed certain parts of the machine claims other separate and distinct parts not previously embraced in the claims of the original patent.

The requirement that the reissue patent shall be for the same invention as the original is followed by the provision forbidding the introduction of **"new matter,"** that is, new substantive matter, such as would have the effect of changing the invention or introducing what might be the subject of another application for a patent. It has been held that it is new matter to introduce a process into an apparatus case, that a process is not the same invention as the apparatus for performing the process. Process patents, however, have been reissued to include the product of a process where it is clearly described in the original patent.

Diligence is required of the applicant for reissue. There is no fixed rule of laches excepting that it should not in any case ex-

ceed two years, that period being taken by analogy from the period set by Sec. 4886, R. S. U. S., with reference to public use.

The apparent divergence in the decisions of the courts may be explained generally by the circumstances of the different cases. Where there has been produced a valuable invention which has been successful or where the circumstances have made it apparently unjust to limit the patent to what was originally claimed the courts have given a wide latitude in the definition of "inadvertence, accident or mistake." Formerly the rigid rule obtained that no mistake of judgment fell within this category, but that rule has been much relaxed where it has been apparent that the "equities" of the situation were with the reissue applicant.

It is apparent that the term "same invention" makes a text upon which either the rigors of the law may be based or the beneficence of construction rested. Beginning with the more cordial views, the courts were led to the harsher application by abuses, and have finally, it is thought, fairly looked upon the statute as a remedial one, for in many cases a reissue may state in clear terms what the patent might be interpreted to mean, thus fairly informing the public of the real meaning.

Miller v. Bridgeport Brass Co. (1881), 104 U. S. 350, 26 L. ed. 783, is typical of the cases strongly applying the requirements of the statute that the error must have arisen by inadvertence, accident, or mistake and that the reissued patent must be for the same invention as the original patent.

The original patent was for a lamp having a double dome without a chimney, a peculiarity of the supposed invention being the use of the double dome as a means of dispensing with the chimney. The reissued patent was for a single dome with a chimney. The court said: "It is not only obviously a different thing but it is the very thing which the patentee proposed to avoid and dispense with."

Furthermore, the court said: "The suggestion of inadvertence and mistake in the specification was a mere pretense; or if not a pretense, the mistake was so obvious as to be instantly discernible on opening the letters-patent, and the right to have it corrected was abandoned and lost by unreasonable delay. The only mistake suggested is, that the claim was not as broad as it might have been. This mistake, if it was a mistake, was apparent upon the first inspection of the patent, and if any correction was desired, it should have been applied for immediately."

These afterthoughts, developed by the subsequent course of improvement, and intended, by an expansion of claims, to sweep into one net all the appliances necessary to monopolize a profitable manufacture, are obnoxious to grave animadversion."

In the same term of the court and immediately following the

reports was the case of James v. Campbell (1881), 104 U. S. 356, 26 L. ed. 786, in which was also sharply criticised the reissuing of patents for the purpose of expanding and generalizing the claim so as to make it embrace an invention not described and specified in the original. The opinion then proceeds to quote the case of Burr v. Duryee, 1 Wall. (U. S.) 531, 17 L. ed. 650, which in a sense may be termed a leading case on reissue.

The opposite type of cases "liberally" construing reissue patents is illustrated by Topliff v. Topliff (1892), 145 U. S. 156, 36 L. ed. 658, 12 Sup. Ct. 825. In this case the application for reissue was made within four months of the date of the original patent, the specification was largely reframed, the drawings changed in form, though apparently not in substance, and a slight change made in the claims, to correct a clear mistake. In the claims of the original patent relating to springs for vehicles, the connecting rod and springs had been said to be affixed to the front axle, a provision which would render it impossible to turn the vehicle and contrary to what was shown in the drawing. This case elaborately reviews various decisions and affirms the power of the Commissioner of Patents to grant a reissue for an enlarged claim upon proper conditions.

The Court of Appeals of the District of Columbia in two cases has given a practical direction to the Patent Office in sustaining applications for reissue where in the original patent the inventor has secured the claims he desired and made, but which appeared afterward to have been entirely incommensurate with the invention. (In re Heroult, (1907), 29 App. Cas. D. C. 42, 127 O. G. 3217; In re Briede (1906), 27 App. D. C. 298, 123 O. G. 322.)

In the Briede case the application was made seven months and four days after the original grant, and omitted a feature of the original claim and embodied an element not included in the original claim, and recited a specific operation of the device.

In the Heroult case the reissue application was filed something more than two years after the original grant, and several process claims were added where only the apparatus had been claimed in the original, though the novel and valuable process was described.

The sole right to surrender a patent and ask for a reissue is given (1) to the patentee if he be living and has not made any assignment of the original patent; (2) to his executor or administrator where there has been no assignment; (3) to the assignee of the original patent; (4) to the assignee of an undivided part and the patentee, who should join in the surrender.

The law requires that the application be made and the corrected specification sworn to by the inventor. When there are assignees, the petition must be accompanied by the written as-

sent of such assignees. A grantee, however, need not unite in an application for reissue, nor a mere licensee.

The effect of surrender of the original patent does not obtain until the reissue is granted. If it be granted then the original patent is cancelled; but if it be not granted the original patent is returned without change or amendment.

Disclaimers.—Section 4917, R. S. U. S. specifically provides for amending a patent by a disclaimer in the following language:

"Whenever, through inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, a patentee has claimed more than that of which he was the original or first inventor or discoverer, his patent shall be valid for all that part which is truly and justly his own, provided the same is a material or substantial part of the thing patented; and any such patentee, his heirs or assigns, whether of the whole or any sectional interest therein, may, on payment of the fee required by law, make disclaimer of such parts of the thing patented as he shall not choose to claim or to hold by virtue of the patent or assignment, stating therein the extent of his interest in such patent. Such disclaimer shall be in writing, attested by one or more witnesses, and recorded in the Patent Office; and it shall thereafter be considered as part of the original specification to the extent of the interest possessed by the claimant and by those claiming under him after the record thereof. But no such disclaimer shall affect any action pending at the time of its being filed, except so far as may relate to the question of unreasonable neglect or delay in filing it."

Section 973 provides that costs shall not be recoverable in certain suits for an infringement of a patent unless a proper disclaimer has been entered in the Patent Office before the suit was brought.

Again Section 4922, in effect, repeats this provision by providing that a suit for infringement may be brought where the specification is too broad and a disclaimer filed when it is ascertained that the specifications embrace more than that of which the patentee was the first inventor or discoverer. The section concludes with the significant clauses:

"But in every such case in which a judgment or decree shall be rendered for the plaintiff, no costs shall be recovered unless the proper disclaimer has been entered at the Patent Office before the commencement of the suit. But no patentee shall be entitled to the benefits of this section if he has unreasonably neglected or delayed to enter a disclaimer."

It is important to observe that the terms of the concluding clause of section 4922 might, under certain circumstances, en-

tirely preclude a patentee from securing any judgment or decree in a suit for infringement.

Corrections.—Rule 170 of the Rules of Practice provides for the correction of mistakes incurred through the fault of the Office, by reissue without charge where the mistake constitutes a sufficient legal ground for reissue, or by an indorsement upon the patent without charge an entry in the record and a printed copy attached to each copy of the specification and drawing. The legality of such a correction without reissue is sustained in principle in Woodworth et al. v. Hall, 1 Woodbury & Minot 248, and 389, 2 Robb. (U. S.) 495, 517 May Term 1846, Fed. Cas. Nos. 18,016 and 18,017; N. W. Fire Extinguisher Co. v. Philadelphia Fire Extinguisher Co., 1 B. & A. 177, Fed. Cas. No. 10,337; Reed v. Street, 34 O. G. 339; Marsh v. Nichols, 128 U. S. 605, 32 L. ed. 538.

The authority of the Commisioner to correct in certain respects has been denied in Edison Electric Light Co. v. United States Electric Lighting Co., 52 Fed. 300, 3 C. C. A. 83; Edison Electric Light Co. v. Buckeye Electric Company, 59 Fed. 691; Edison Electric Light Co. v. Bloomingdale, 65 Fed. 212. In these cases, however, the principle was in effect sustained by holding that the acceptance of the correction by the patentee and the consequent notice to the public made the correction, in fact, a part of the patent, especially where it had been acted upon by the public.

In Reed v. Street, Supra, and in Herman v. Youngstown Car Mfg. Co. (Sixth), 191 Fed. 579, 112 C. C. A. 185, and cases therein cited, it has been held that a court may ignore typographic and minor errors and read the patent as if corrected.

In Railway Register Mfg. Co. v. North Hudson C. R. Co., (N. J.), 23 Fed. 593, the patentee had refused to receive a patent different from the one for which he had petitioned and a second patent given in exchange for the first was sustained. This precedent has been frequently followed in the Patent Office, especially where the error has been of a sort difficult or impossible to state in an ordinary certificate of correction.

Repeal.—A patent can be repealed only by a suit brought by the United States. Such suit must be based upon allegation of fraud and the proof of fraud must be clear, convincing, and satisfactory, and not a bare preponderance of evidence which leaves the issue in doubt. The judgment of the Patent Office that a patent issued by it does not cover the same invention as that covered by the subsequent patent can not be reviewed in a suit to set aside the subsequent patent.

When the government brings such a suit to help an individual and has no proprietary or pecuniary interest in the result and is

not seeking to discharge its obligations to the public, the government is subject to the rules governing like suits between private litigants. In such suits the invalidity of the patent can not be urged on the ground that the invention is covered by a prior patent, nor can a mere error of judgment on the part of the patent officials in granting a patent be advanced to set aside the patent. United States v. American Bell Tel. Co. et al., 167 U. S. 224, 42 L. ed. 144.

XII. TITLE, GRANT, INHERITANCE, ASSIGNMENT.

As in personal property, generally, title to a patent or an interest therein may be legal or equitable. The distinctive character of patent property has been pointed out in many cases. For example, in Western Electric Co. v. Sperry (Seventh) 59 Fed. 295, 8 C. C. A. 129, the court said:

"The analogy between letters-patent for inventions and grants of ordinary rights, privileges, or estates is not perfect, and fails, we think, at the turning point of the present question. By an ordinary grant there is a transfer of title or estate or ownership from one to another and the grantor, having parted with what he had, can give nothing by a second deed. The second deed is therefore necessarily ineffective, at law at least, until the first has been set aside; and the holder of the first deed, having the legal if not the equitable title, can not be a trespasser. But, by granting letters-patent for an invention, the government makes no transfer to the patentee of a right, privelege, or estate theretofore vested in itself. The essential right is in the inventor before he obtains a patent. By making one grant, therefore, the government does not lose power to make another. The letters constitute, under the law, simply prima facie evidence of the patentee's right to the invention described, as being his own discovery; but whether or not he was in fact the first inventor is left an open question between the patentee and other persons, whether they have patents for the same invention or not."

When a patent is granted to the inventor, that is, when the inventor is the patentee, he, of course, holds the legal title. But the patentee may be another because the inventor may have the patent granted directly to an assignee. Or he may dispose of a part of the patent by assignment or grant and have others joined with him in the grant. There may be thus, or as the result of subsequent conveyance, two or more joint patentees or joint owners.

Joint owners of a patent have been considered to be tenants in common and not joint tenants. No such tenant in common is responsible to any of the other owners of the patent.

However small the "undivided" interest in a patent, the owner of that interest may make, use and sell the invention or grant to others the right to do so; and he can not be held accountable in any part of the profits. His rights may be limited by contract, a customary precaution in such cases.

In suits for infringement, however, the right of action against the infringement is common to all owners and it may be required that all be joined as complainants where damages are sought in the suit, for no one of them can release a defendant.

While a patent or an interest in a patent is classed as personal property it may not be transferred except by or through the actual owner of the patent or interest in the patent. Congress has not provided any general provisions for involuntary alienation; and a patent or a patent right can not be seized and sold in execution like a personal chattel, nor does it vest in a receiver or trustee in insolvency by virtue of a judicial decree of the court as do incorporeal rights generally.

A contract of sale requires delivery of the patent as in case of any personal chattel. Paine v. Parkhurst, 205 Fed. 740, C. C. A. (Sixth, 1913).

There must be the presumed or actual transfer by the owner.

The title of a patentee or an owner of a patent may be alienated by the customary procedure in equity under a creditor's bill, by the direct operation of the bankruptcy laws of the United States (Act of July 1, 1898, 31 Stat. at L. 565), or the indirect operation of proceedings against an insolvent under the State laws.

While the title to a patent does not pass by creditor's bill when judgment is rendered against the patentee and execution is issued and returned nulla bona, the court may then appoint a trustee or master to execute an assignment.

Such a suit, however, is not a patent cause arising under the patent laws so as to confer jurisdiction upon a Federal court. The proceedings are the same in kind as in a creditor's bill when endeavoring to reach any other species of personal property.

Under the bankruptcy laws of the United States the title to a patent may be acquired, subject, however, to the election of the asignee in bankruptcy to refuse to accept it if, in his opinion, it be worthless or could not be utilized by him. When the proceedings are under State laws they do not have the operation of the bankruptcy laws of the United States because they do not confer upon the assignee in insolvency the legal title to the patent. A state court, however, may compel the insolvent to execute an assignment, it being within the power of a state to subject the patent rights of a solvent citizen to the payment of his debts.

Upon the death of the owner of a patent, title vests in the ad-

ministrator or executor and not in the heirs. It may be remarked incidentally that a valid patent may be granted to a dead man, that is, in the name of a dead man, because the title vests by the operation of law in the legal representatives (De La Vergne v. Featherstone, 147 U. S. 209, 37 L. ed. 138, 13 S. Ct. 283).

Equitable titles arise in various ways by which an interest in a patent may be created otherwise than directly by assignment, grant, or mortgage. For example, in the assignee, where a patent has been granted upon an improvement subsequent to an assignment of a patent or an invention including any such improvement. Such a title may also arise where a partnership is formed or corporations are consolidated, or where an employee makes an invention for his employer, and, broadly, through facts constituting a constructive or resulting trust.

The statute, Sec. 4898, R. S. U. S. provides that every patent or any interest therein shall be assignable in law by an instrument in writing, and that a patentee, his assigns, or legal representatives may in like manner grant and convey an exclusive right under the patent for the whole or for any specified part of the United States.

The statute does not make an assignment a public document or require that it shall be recorded. It does, however, provide that an assignment, grant, or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent Office within three months from its date.

The inventor has an inchoate right in his invention, and he may assign this invention either before or after he makes an application for a patent, and such assignment in either case will convey the title to the letters-patent for the invention.

If an assignment filed for record under the statute request the issue of an application to the assignee, the Commissioner of Patents may so issue. The statute is, however, permissive and not mandatory. If, therefore, the request be not specific the Commissioner of Patents is not obliged (nor has he the legal machinery) to determine any doubtful assignment and may refuse to follow such a request. The statute is also merely directory for the protection of bona fide purchasers without notice. An assignment need not be recorded as a prerequisite to validity, and between the parties and as against every one excepting a subsequent purchaser without notice an unrecorded assignment will be good.

The statutory provision requiring recording, it has been held, does not apply to any assignment executed prior to the granting of letters-patent unless the assignment be one requesting that a patent issue to the assignee (Wright v. Randel, 8 Fed. 591, 599; New York Bag Co. v. Union, 32 Fed. 783, 788; Eastern Dynamite Co. v. Keystone Powder Mfg. Co., [Pa.] 164 Fed. 47, 50.)

The notice necessary to protect a prior unrecorded assignment against a subsequent assignment for valuable consideration may be actual or constructive.

By the act of March 3, 1897 (29 Stat. 692), an acknowledgment before a notary public or other officer is prima facie evidence of execution.

This act, however, has no larger scope than its apparent terms, ordinarily, and though Sec. 892 R. S. U. S. provides that written or printed copies of any records, books, papers, or drawings belonging to the Patent Office, and of letters-patent authenticated by the seal and certified by the Commissioner or Acting Commissioner thereof, shall be evidence in all cases wherein the originals could be evidence, this does not do away with the necessity, upon demand, for the production of the original document, but merely provides that the acknowledgment before a notary public or other officer shall be prima facie evidence of its execution.

This subject is discussed broadly in Paine v. Trask (First), 56 Fed. 233, 5 C. C. A. 497, and cases there cited; in Mayor of New York City v. American Railway Co. (Second), 9 C. C. A. 336, 60 Fed. 1016, denying the evidential force of a record of an assignment and thus reversing the rule of Brooks v. Jenkins, 3 McLean (U. S.) 432 and other cases discussed; and in Standard Elevator Co. v. Crane (Seventh), 76 Fed. 767, 22 C. C. A. 549, in opposition to the New York case just cited and adopting the rule of Brooks v. Jenkins.

The preceding summary is thought to fairly state the situation, especially in view of Eastern Dynamite Co. v. Keystone (Pa.), 164 Fed. 47, holding that a certified copy of the record of an assignment of a patent with the acknowledgment thereto although made evidence where the original could be evidence by R. S. U. S., Sec. 892, does not prove the genuineness or due execution of the original assignment, nor is it given such effect by the Act of March 3, 1897, noted.

The presumption of law is that he to whom the patent is issued holds the legal title, unless the contrary be shown. An assignee, however, will in any case hold the equitable title to the letters-patent which he may convert into a legal title, and, upon occasion, he may be recognized forthwith by a court as holding a title sufficient to support his right to bring suit upon the patent.

An assignment is a deed or an instrument in writing which assigns, grants, and conveys one of the following estates: (1) the whole patent comprising the right to exclude others from making, using or vending the invention throughout the United States; (2) an undivided part of such exclusive right, that is, any fraction of such whole exclusive right; (3) the exclusive right under the patent within and throughout a specified part of the

United States, conveniently termed a "grant," or "territorial grant." A transfer of any such interest is an assignment and vests in the assignee a title to the whole or a part of the patent. In the first and third cases the assignee may sue infringers in his own name. In the second case he may sue infringers jointly with the assignor.

Any transfer of any interest less than one of these is a mere license, giving the licensee no title in the patent and no right to sue in his own name for an infringement, excepting that in a suit in equity to prevent an absolute failure of justice, as where the patentee is an infringer and can not sue himself, the licensee may enforce his rights through or in the name of the owner of the patent and may even, upon occasion, join himself with the patentee as a plaintiff.

In short, the distinction which makes an instrument an assignment is that, however the right may be limited it excludes all other persons, even the patentee, from making, using or vending any like articles or machines or practicing any like process within the specified district.

Any qualification or limitation of any one of the group of three rights granted by the patent, that is, to exclude others from making, using or selling the invention covered by the patent, makes the agreement simply a license.

Property in letters-patent is, therefore, divisible only with reference to territory. The territory may be specified indirectly, as, for example, a limitation of territory may be expressed by an exclusion of other territory either named in the same instrument or another instrument.

An assignment may be absolute or it may be conditioned as by way of mortgage, because, in accordance with the principles of the law of personal property, both at law and in equity, the whole title is transferred to the mortgagee as security for the debt, subject only to be defeated by the performance of the conditions or by redemption on bill in equity within a reasonable time, and the right of possession, when there is no explicit stipulation to the contrary, goes with the right of property. A patent, being incorporeal property, the recording of a mortgage thereon in the Patent Office in accordance with the act of Congress is equivalent to a delivery of possession.

(For broad discussions see Gayler et al. v. Wilder, 10 How. (U. S.) 477, 13 L. ed. 504; Littlefield v. Perry, 21 Wall, (U. S.) 205, 22 L. ed. 577; Waterman v. Mackenzie, 138 U. S. 252, 34 L. ed. 923, 11 Sup. Ct. 334; Waterman v. Shipman (Second), 55 Fed. 982, 5 C. C. A. 371.)

An assignment conveys only the invention specifically described, but where it relates to an application broadly it will

cover all the devices claimed to be patentable in the application, not merely such as may be covered by the patent issued. An assignment of an improvement of a machine already patented does not convey an interest in the original patent. It does, however, include a reissue of the patent; and the law, therefore, requires that the assignee shall consent to or ratify a reissue application. In the absence of specific provision an assignment of letters-patent does not carry an interest in an extension of a patent.

Rights of action for past infringement of a patent are conveyed only when expressly included in the assignment or separately assigned.

An agreement to assign, whether oral or written, is an executory contract which may be enforced in a court of equity by requiring the execution of an assignment to convey the legal title. Though there has been some question of the extent to which an assignment may cover future inventions, such assignments are commonly made upon reasonable terms, and have been held not contrary to public policy. (Reece Button Hole Co. v. Globe Button-Hole Co. [First] 61 Fed. 958, 10 C. C. A. 194.)

The assignment of a patent creates an implied warranty of title in the assignor, but does not warrant that the patent is valid or that the invention set forth does not infringe prior patents.

An assignor, as against his assignee, may not dispute the validity of the patent; but he is not estopped to deny infringement or to define the scope of a patent.

On the other hand, an assignee may not dispute the valadity of a patent to avoid carrying out the conditions of sale.

XIII. LICENSES, CONTRACTS AND RESTIRCTIONS.

A license is a permission to make, use or sell a patented invention, generally under conditions or limitations, as of time, or place or manner of making, selling or using, and always without the grant of any interest in the patent. A license does not convey an interest in the patent, but a right under the patent. It is, it has been said, a right not to be sued for infringement by the owner of the patent.

A license may be either oral or written, and, as the basis of all licenses lies in contractual relations between the parties, a license is interpreted by the rules which govern the construction of contracts in general, including the rules governing a failure or a partial failure of consideration, specific performance, and cancelation or rescission of contracts.

A license may be limited or it may be exclusive. When it is exclusive, though it grant the exclusive right to make, use and sell the invention, it is not an assignment because it does not

grant an interest in the patent—a refinement which in such cases is ordinarily of little practical importance. The reservation of title in the patent is of advantage, however, in case of forfeiture of the license, or death of the licensee. As in assignments, so in licenses, the name given the paper does not classify it. For example, an instrument granting the sole and exclusive license to sell or use a patented article, but reserving to the inventor the exclusive right to manufacture, sell and use certain specific apparatus only for certain purposes, although called a license, was held, in legal effect, an assignment with reservations of license to the inventor (Sirocco Engineering Co. et al. v. Monarch Ventilator Co., 184 Fed. 84, citing Littlefield v. Perry, 88 U. S. 205, 22 L. ed. 577; Frankfort v. Pepper, 26 Fed. 336 [C. C. A.]; Pope v. Clark, 46 Fed. 792 [C. C. A.].)

As in other contractual relations, an implied license may arise through the acts of the owner of the patent or invention, or as a result of the terms or circumstances of the employment of the inventor. In any situation even mere acquiescence for a valuable consideration is sufficient to create a license. The terms and circumstances between an employer and an employee may entitle the employer to the ownership of the patent, to a license to make, use and sell the invention, or to a more limited license sometimes defined as "shop-right," indicating, generally, a right of the employer to use the invention in his factory, but not to make or sell the invention.

As elsewhere stated, in effect, if one has conceived an idea, he may have it developed or perfected by another. No condition of license is involved in such relations,—the invention is that of the employer. If, however, the employee invent a new idea of means or method which is not simply a development of the idea of the employer then the invention is that of the employee.

Where the proof shows an employment by one to assist in giving practical effect to the idea of the employer the presumption is that the employer is the inventor and the burden is upon the employee to show that the invention is, in fact, a distinct idea of means or method and is of his own invention. The burden of proof may be otherwise if the employee receives his employment because of his inventive skill.

Striking instances of these implied licenses are found in the cases of government employees. When employed to produce a certain invention they have no claim against the government but the government, on the other hand, would have no title to the patent unless by express agreement. By statute, R. S. U. S. Sec. 480, employees of the Patent Office may not take out or own a patent except by inheritance or bequest. They may, however,

after the term of employment ceases secure a patent upon an invention made during their employment.

In Barber v. National Carbon Co. (Sixth, 1904), 129 Fed. 370, 64 C. C. A. 40, the court discusses at some length the difference between the right to a use of an invention in its business by a corporation and title to an invention made by a workman in its employ. The contract was that Barber was to give his "skill, attention and inventive ability to the service of said company in and about cheapening the processes in the manufacture of carbons." The court held the effect to be a license to use by the corporation, and that it did not give title to the invention or patent.

Examples of irrevocable license to the employer by the terms of the employment are found in Solomons v. United States, 137 U. S. 342, 346, 34 L. ed. 667; Lane & Bodley v. Locke, 150 U. S. 193, 37 L. ed. 1049; Gill v. United States, 160 U. S. 426, 40 L. ed. 480, and cases cited in those cases and in the above quoted cases of Barber v. National. In all cases the duration and scope of the license must depend upon the nature of the invention and the circumstances out of which the implied license is presumed must rest upon the intention of the parties. Such an intention generally means either a license limited to the time of the employment of the inventor or a license continuing through the life of a patent or while the employer continues the business.

In Pressed Steel Car Co. v. Hansen (Third), 137 Fed. 403, 71 C. C. A. 207, it was held that in the absence of an express contract or agreement therefore, the relation of employer and employee under whatever circumstances, at least short of a specific employment to make an invention, does not vest the employer with the entire property right in the invention of an employee, or with anything more than a "shop-right" or an irrevocable license to use the invention.

It is a general rule that the unconditioned or the unrestricted sale of a patented article conveys to the purchaser the right to use the article anywhere and to sell it to others. That is to say, the article so sold is released from the patent monopoly and is subject as property only to the laws of the State.

This idea is found in the Revised Statutes, Sec. 4899, which provides that persons purchasing of the inventor before application may use or sell the thing purchased. Under this statute it has been held that a previously purchased machine can be no infringement during an extension of the term. (Paper Bag Machine Cases, 105 U. S. 766, 26 L. ed. 959.) Such licenses or contracts respecting the use of inventions or discoveries are, like all other contracts, subject to the limitations imposed by definite principles of public policy.

Under another heading it will be seen that the patentee, a pat-

ented machine, and a license to use a patented machine or invention can not be exempted from the liabilities and regulations which in the public interest attach to all persons and property under the general law of the land; and that the right to make, sell or use a patented invention is subject to the restraints imposed by the police powers of the states. That is to say, prohibited acts and prohibited occupations or business are not protected by the patent laws of the United States because conducted through instrumentalities which are the subject of patent rights.

The owner of a patented invention, however, as he may restrict a license to make, use or sell with reference to time, place or manner, may also condition a lease or sale and restrict the subsequent use of the patented article. He may, for example, make it a condition that certain materials be used with the patented article, because, not having parted with the full monopoly of the machine he may restrict the use of the article in any manner which may seem proper to him.

This principle was carried a step further in the leading case of Heaton Peninsular Button Fastener Co. v. Eureka Specialty Co. (Sixth, 1896), 77 Fed. 288, 25 C. C. A. 35, a case in which Judge (now Justice) Lurton and Judge (Ex-President) Taft and Judge Hammond exhaustively reviewed the law upon the subject and held that not only was he who made the contract with reference to the restricted use of the machine liable for infringement, but, further, that one who sold to the licensee unpatented staples, intended to be used with the patented machine, thereby knowingly assisting in the breach of the contract was a contributory infringer.

These questions were elaborately reviewed in the case of Henry v. Dick, 224 U. S. 1, 56 L. ed. 645. Probably no case has occasioned more discussion at the bar, in the press, and before the Congressional committee than this case. In the minority opinion the Chief Justice expressed a fear that the views of the majority would be the basis for an invasion of the rights of the states by the Federal courts, and that an application of the principle in business would lead to overwhelming and disastrous consequences to the public.

These prophecies and forebodings are answered in the majority of opinion which reviews the whole subject-matter at length.

Under the following heading "Infringement" this case is quoted upon the question of whether the remedy should be pursued under the contract or by a bill in the federal court charging infringement.

Upon the effect of a license the court in Henry v. Dick, says:

"The property right to a patented machine may pass to a

purchaser with the right of use, or with no right of use, or with only the right to use in a specified way, or at a specified place, or for a specified purpose. The unlimited right of exclusive use which is possessed by and guaranteed to the patentee will be granted if the sale be unconditioned. But if the right of use be confined by specific restriction, the use not permitted is necessarily reserved to the patentee. If that reserved control of use of the machine be violated, the patent is thereby invaded. This right to sever ownership and use is deducible from the nature of a patent monopoly and is recognized in the cases."

Then in summing up on that point the court said:

"The conclusion we reach is that there is no difference, in principle, between a sale subject to specific restrictions as to the time, place or purpose of use and restrictions requiring a use only with other things necessary to the use of the patented article purchased from the patentee. If the violation of the one kind is an infringement, the other is also."

In concluding the opinion the court presses forward the necessity of a notice of a purpose and intent that the article sold should be used with the machine known to have been subject to a restriced license.

The weight of authority in the federal courts applied the same principle in case of price restriction. (See for example, Automatic Pencil Sharpener Co. v. Goldsmith Bros. [1911], 190 Fed. 205, and cases cited therein; Lovell-McConnell Mfg. Co. et al. v. International Automobile League (Second, 1913), 202 Fed. 219 (C. C. A.); Edison v. Smith Mercantile Co. (1911), 188 Fed. 925. Winchester R. Arms Co. v. Olmstead, 203 Fed. 493, C. C. A. (Seventh, 1913). An opposite view, however, is expressed in Waltham Watch Co. v. Keene, (D. C., S. D. N. Y., 1913), 202 Fed. 225, an opinion rendered subsequent to the conclusion of the Circuit Court of Appeals for the circuit in the above cited case, and it has finally been held by a divided court that the principle of Henry v. Dick does not apply in case of price restrictions, but that, as in the copyright case of Bobbs-Merrill v. Straus, 210 U. S. 339, 59 L. ed. 122, the remedy in such a case may not be an infringement suit in a federal court. Bauer v. O'Donnell, 227 U. S. —, 57 L. ed. —.)

A license to use a patented device in a specific territory or in a specific establishment or on a specified machine is binding upon the licensee and its use elsewhere is an infringement and unlawful, but a license to use and sell a machine within a specified territory authorizes the licensee to sell the product of the machine at any place outside of that territory.

The decisions of the courts, especially in Adams v. Burks, 17 Wall. (U. S.) 453, 21 L. ed. 700; Hobbie v. Jennison, 149 U. S. 355, 37 L. ed. 766; and Keeler v. Standard Folding Bed Co., 157 U. S. 659, 39 L. ed. 848, have settled the rule that the sale of a

patented article by one authorized to sell it conveys to the purchaser the right to sell the patented article even in territory otherwise assigned or covered by license.

In Keeler v. Standard Folding Bed Co., 157 U. S. 569, 39 L. ed. 848, the court concluded, after discussing many cases including those cited above:

"Upon the doctrine of these cases we think it follows that one who buys patented articles of manufacture from one authorized to sell them becomes possessed of an absolute property in such articles, unrestricted in time or place. Whether a patentee may protect himself and his assignees by special contracts brought home to the purchasers is not a question before us, and upon which we express no opinion. It is, however, obvious that such a question would arise as a question of contract, and not as one under the inherent meaning and effect of the patent laws."

The concluding sentence can not, of course, be meant as broadly as it is worded in view of Henry v. Dick, supra.

(See as closely allied the discussion of Kessler v. Eldred, under the preceding heading, "Infringement.")

While a license may be limited to one or more of the divisions of rights under the patent, the licensee has the right to the full enjoyment of his license as, for example, to make a machine which he has been licensed to use, to add improvements, and, under the conditions noted hereinbefore in discussing "Infringement," to repair.

A license not expressly limited in duration continues until the patent expires or the license is forfeited through some act of the licensee, if not previously terminated by mutual consent.

A license may embody an express power of revocation by the owner; otherwise, it can not be cancelled by him without the consent of the licensee, except by an action at law for the breach of a contract, a bill in equity for the redemption of the license, or by the practical procedure of granting a license to another in the same district.

A breach of a covenant or a condition does not necessarily work a forfeiture of a license.

Generally, a license is personal to the licensee and is not transferable. It may be transferred, however, if the license contains express words to that effect and an assignable quality may be conferred by facts or circumstances, or the acts of the parties during the continuance of the license.

"It is settled law that a license to use a patent is a personal privilege, which terminates with the life of the individual licensee to which it is granted, unless the grant contains words expressly conferring the power to sell or assign. In the absence of such power, if the licensee be a natural person and dies or an artificial

person or partnership and ceases to exist, the license expires equally in either case." (Haffcke v. Clark, (Fourth, 1892) 50 Fed. 531, 1 C .C. A. 570.)

A licensor, as has been shown, may sue, as upon any contract, for breach of the agreement, or he may sue the licensee for infringement. On the other hand, the licensor can not invade the licensee's rights and the licensee may maintain a suit against him for infringement within the specified territory.

It is a general rule that a licensee or a grantee may not dispute the validity of the patent unless it has been pronounced invalid by a court of last resort; and that a licensee may not dispute the validity of a patent to avoid carrying out conditions of a license.

The estoppel operates only during the existence of the license and its subsequent effect is merely that of a circumstance of having once admitted the validity of a patent.

In Babcock v. Clarkson, 63 Fed. 607, 11 C. C. A. 351, for example, the court speaks of the nature of a species of estoppel as being, in effect, "that, when one has parted with a thing of valuable consideration, he shall not, so long as he retains the consideration, set up his own fraud, falsehood, error, or mistake to impair the value of what he has thus parted with."

The general rule of the relations of the licensor and the licensee under contract as hereinbefore set forth finds an example and is stated in St. Paul Plow Works v. Starling, 140 U. S. 184, 35 L. ed. 404, 408.

Some federal courts have, however, taken the view that these relations might be modified, that if the licensee should give due notice he might consider the license at an end and defend a suit for infringement. (See, for example, Holmes et al. v. McGill, [Second] 108 Fed. 238, 244, 47 C. C. A. 296, and cases there cited.) In an English case of importance, Haynes v. Maltby, 3 Dunford & East 438, it was held that if a licensee paid his accrued royalties and gave due notice he might from that time defend as a naked infringer.

The law does not require that licenses be recorded in the Patent Office. They may, however, be recorded.

It is the duty of the purchaser of any license right to inform himself of the nature of the licensee's ownership.

The rental due under a license is generally termed a royalty.

Royalties may be collected by an action at law or an action for accounting may be joined with a demand for equitabe relief by forfeiture of the license.

As with any other contracts, state courts have jurisdiction of an action to recover royalties. If, however, any question of the validity of the patent is involved that question must usually be

decided in a federal court. This is true also with reference to the enforcement of assignments and agreements to assign or license.

There are State Court cases holding that State Courts may consider and determine questions of validity and infringement where they arise as collateral to a contract, vide:

(Page v. Dickerson, 28 Wis. 694; David v. Park, 103 Mass. 501; Rice v. Garnhart, 34 Wis. 453; Wright v. Wilson, 11 Rich. L. (S. C.) 144; Williams v. Star Stand Co., 35 Fed. 369; Creighton v. Staggarty, (N. J.) 50 Sup. Ct. 9.)

(Upon this point see the quotation from Henry v. Dick under the topic "Infringement.")

XIV. REGULATIONS OF DEALINGS IN PATENT RIGHTS AND PATENTED ARTICLES.

Under the heading "Infringement," and especially in the quotation from Henry v. Dick, the distinction between the rights and remedies under a patent franchise and the regulation of articles or machines produced in pursuance of a patent has been indicated. The distinction is well illustrated in two cases which were before the Supreme Court, respectively, in 1852 and 1854. In Stephens v. Cady, 14 How. (U. S.) 528, 14 L. ed. 529, the plaintiff was the owner of a copyright for a map of Rhode Island. Judgment was recovered against him in the state court in Massachusetts, execution issued, and the copper plate engraving of the map was seized and sold and bought by the defendant. The defendant used the plate to produce copies of the map. Injunction was denied by the lower court, but this decision was reversed on appeal.

The same point arose later in Stevens v. Gladding, 17 How. (U. S.) 477, 15 L. ed. 155, in which the court said:

"And upon this question of the annexation of the copyright to the plate, it is to be observed first, that there is no necessary connection between them. They are distinct subjects of property, each capable of existing, and being owned and transferred, independent of the other."

And again:

"But the right in question is not parcel of the plate levied on, nor a right merely appendant or appurtenant thereto; but a distinct and independent property, subsisting in grant from the government of the United States, not annexed to any other thing, either by the act of its owner or by operation of law."

It is the general rule that machines or products involving patented inventions are subject to sale under execution as is any other personal property, but that the patent may not be so sold under execution at common law.

It is the view of the law that the patent right is not a tangible property, but incorporeal, securing an exclusive right to the patentee.

In Webber v. Virginia, (1888) 103 U. S. 344, 26 L. ed. 565, and in various other cases, it has been held that the state may tax articles which embody a patented invention, but may not tax the patent right.

The application of this is well illustrated by a case decided by the Supreme Court of Kentucky, Commonwealth v. Petty, (1895) 96 Ky. 452, which held unconstitutional a statute providing that "all itinerant persons vending lightning rods, patent rights or territory for the sale, use or manufacture of patent rights, * * * shall be deemed pedlars," followed by a section requiring that the owners of the patent rights or territory for the sale of the patent rights or articles should pay double the amount of the ordinary license fee.

Under this principle a general assignment for the benefit of creditors under state laws will transfer to the assigned, machines and products embodying a patented invention, but will not transfer the patent right. This is in accordance with the principles set forth under the preceding heading, "Title—Grant, Inheritance, Assignment."

It is also within the principle that the police powers of a state may even suppress the sale or use of a machine or product dangerous to the general welfare, provided there be no discrimination, but may not suppress a condition annexed to a grant under a patent.

In two striking cases (as in others), Patterson v. Kentucky, 97 U. S. 501. 24 L. ed. 1115 and Allen v. Riley, 203 U. S. 347, 51 L. ed. 216, the subject is discussed. In the first case the owner of a patent right for an improved burning oil was convicted of the violation of a Kentucky statute prohibiting the use of any oil which did not come up to a set standard. The conviction was upheld and the right of the state to regulate such domestic affairs was affirmed, there being no distinction because of a patent right. In Allen v. Riley (two of the justices dissenting), it was held that the state of Kansas was within the proper exercise of state powers in requiring and compelling the filing of copies of the patent and affidavits respecting assignments in the various counties of the state in which the owner of any patent rights desired to deal in them.

In the federal courts the question of the regulation of patent rights and patent property has arisen in cases where combinations or corporations have joined their forces and have entered into agreements for the handling of patent property. Striking illustrations are found in Bement v. National Harrow Co., 186

U. S. 70, 46 L. ed. 1058; Standard Sanitary Co. v. United States, (1912) 226 U. S. 20, 57 L. ed., — and Virtue v. Creamery.

Under the heading "Letters Patent, Their Construction and Scope," it is shown that the two matters are distinct, that it is no defense to a suit for infringement to assert that the patent is owned by a combination; and that there is no relation between the monopoly in restraint of trade and the limited monopoly granted the inventor in exchange for the disclosure of his invention.

Under the heading "Licenses, Contracts and Restrictions" has been discussed the allied topic of the relations of the owner, the purchaser and the public, where conditions are attached to sales and leases of patented articles.

XV. COURTS, CAUSES, PARTIES AND TRIALS.

Prior to the act against monopolies (21 Jac. I., c. 3) infringements of patent rights were cognizable in the Star Chamber only, under its general jurisdiction over all offences not covered by the common or the statute law (3 Inst. 183; Godson, 175 Coryton, 262), an exclusive jurisdiction which evidenced rather the unwillingness of the courts of common law to protect the owners of monopolies than their inability to extend relief. (For, see two cases in which monopolies were defeated at trial before Kings' Bench, the validity of all monopolies being denied except those for a new trade or a new invention, Darcy vs. Allein (1602), Noy, 173; Clothworkers of Ipswich (1615), Godbolt, 252). By the act, however, redress at common law was provided and, infringement being a tort involving consequential damage only to the patentee, the form of action applicable to it was then, and is today, trespass on the case.

This action at law, providing for an award of damages for past infringements, was soon found to be inadequate, for, in common with all such continuing wrongs, no single action can give complete redress, the injured party being put to successive actions as the new grounds of action arise. For many years under the provisions of the Statute, Jac. I. however, and the interpretation of its terms by Lord Coke, 3 Inst., 181, in confining jurisdiction to the courts of common law, the aid of equity was not invoked, and then only when the patentee had already established his right in an action at law (Blanchard vs. Hill (1742) 2 Atk. 484). The first reported case of relief at equity without a previous trial was Hicks v. Ravcock, (1783), 1 Abb. P. C. 23; 2 Dick. 647, (and see Coryton 319, 320; Godson, 183).

The Equity Courts first intervened to prevent a continuance of the wrong by injunction, to compel the alleged infringer to

disclose the character and extent of his infringement and to bestow such other special relief as might be necessary. The practice, at length, permitted original proceedings to be commenced in chancery by a petition for an injunction or discovery, and under the jurisdiction so obtained complete redress was given, the aid of a court of law being sought only where issues of fact required the verdict of a jury. Technicalities and complications unfit for disposition by a common-law tribunal soon destroyed this last connection and the equity courts assumed control of all actions brought by bill. There were thus provided these two distinct methods of redress—an action at law upon the case for damages, and bill in equity for an injunction, discovery, account, or any other relief to which the patentee might be entitled.

The judicial initiative was followed in 1854 by an act of Parliament (17 and 18 Vict. chap. 125) giving equity powers in such cases to courts of law.

In the United States the earlier statutes provided for an action at law only, but, as in England, the courts of equity soon began to grant auxiliary relief, until in 1819 a statute was enacted conferring original jurisdiction both at law and in equity upon the Federal Courts in all patent cases.

The principal practical differences between the two remedies are such as flow from their modes of procedure and the distinct rules under which a plaintiff is awarded compensation for an injury.

Jurisdiction.—Section 629 R. S. U. S. gave to the Circuit Court of the United States original jurisdiction of all suits at law or in equity arising under the patent laws of the United States, and Section 711 R. S. U. S. made this jurisdiction exclusive of the courts of the several states, in all cases arising under the patent laws of the United States.

These provisions of the Statutes are embodied in sections 24 and 256, respectively, of the Act of March 3, 1911, the "Judicial Code."

Section 24, of the Code, gives to the District Courts of the United States original jurisdiction of all suits at law or in equity arising in the patent, copyright and trademark laws.

While that section gives the District Courts original jurisdiction, their jurisdiction as Federal Courts is made exclusive by section 256, which provides that in all cases arising under the patent-right or copyright laws of the United States the jurisdiction vested in the courts of the United States shall be exclusive of the courts of the several states.

The same jurisdiction is conferred upon the District Courts of the several territories by section 1910 of the Revised Statutes,

and upon the Supreme Court of the District of Columbia by sections 760-764 of the Revised Statutes relating to the District of Columbia, Code, section 61.

While these sections, by their language, give jurisdiction to the Federal Courts in all patent cases, similar language in section 711, of the Revised Statutes, has been held without question to apply to such patent cases only as involve a federal question, or the existence, maintenance, or breach of a privilege granted by the patent laws of the United States.

A distinction between cases arising under the patent laws and those which involve the interpretation of contracts or matters incidental only to patents has been closely observed by the courts. It has been held that bills to subject letters-patent to an execution, to enforce or rescind licensing contracts, for breach between assignor and assignee, for the collection of royalties, for the cancelation of alleged fradulent or forged assignment of a patent, for setting aside a contract licensing the use of a patented machine, for the specific performance or rescission of a contract for the use or sale of a patent, do not arise under the patent laws of the United States.

Where, however, the decision of the question of infringement requires the construction of a contract the case is still one involving infringement and therefore arising under the patent laws of the United States. (See also under "Infringement.")

Jurisdiction—Court of Claims.—It has been held in a long line of decisions of the courts that the government can not technically commit infringement or be reached by process, but that it may be sued in the Court of Claims for compensation as provided in the statutes and especially in R. S. U. S. 1059, providing that "all claims founded upon any law of Congress, or upon any regulation of an Executive Department, or upon any contract, expressed or implied, with the government of the United States," and in addition to that act, the so-called Tucker Act of 1887, section 1, first paragraph, 24 Stat. L. 505, giving jurisdiction to that court of "all claims founded upon the Constitution of the United States."

Provisions have also been made for reference by Congress to the Court of Claims for findings of fact.

The first of these statutes is the first section of the Act of 1883, commonly known as the Bowman Act, 22 Stat. L. 485, by which the facts found by the court were to be reported to the Committee or to the House of Congress, by which the case was transmitted for consideration.

The other statute giving a similar jurisdiction is the fourteenth section of the Tucker Act, 24 Stat. L. 505. In this case,

however, the reference must be by one House of Congress of a bill pending therein "providing for the payment of a claim."

The Tucker Act was amended in 1910, 36 Stat. L. 837, 838 to provide that the court is to "report to such House the facts in the case and the amount, where the same can be liquidated, including any facts bearing upon the question whether there has been delay or laches in presenting such claim, or applying for such grant, gift, or bounty, and any facts bearing upon the question whether the bar of any statute of limitation should be removed, or which shall be claimed to excuse the claimant for not having resorted to any established legal remedy, together with such conclusions as shall be sufficient to inform Congress of the nature and character of the demand, either as a claim, legal or equitable, or as a gratuity, against the United States and the amount if any legally or equitably due from the United States to the claimant."

There may be a reference by Congress to the Court of Claims for findings of fact even where no suit would lie under the general jurisdiction of the court or on which no judgment of the court could be rendered. Forehand vs. United States, 23 C. Cls. 477.

In addition to these provisions for suit against the United States under the statutes named suit might also be brought against an officer of the government but with no prospect, under the decisions, of enjoining the officer against the future use of property in the possession of the government or requiring him to account for a past infringement for the benefit of the government.

However, by an Act approved June 25, 1910, 36 Stat. at L. 851 suit may now be brought in the Court of Claims to cover reasonable compensation for infringement of a patent in the United States providing the owner of the patent or one who would be the beneficiary of such a suit be not in the employment of the government of the United States, or his assignee, and providing that the device was not discovered or invented by any such employe during the time of his employment or service.

Jurisdiction of Parties and Service—The question of locality is of paramount importance in the determination of jurisdiction. An action at law is transitory in its nature and formerly could be brought in any district in which the defendant was an inhabitant or could be found.

The jurisdiction and the manner of service in suits for patent infringement are governed by the act of March 3, 1887, 27 Stat. at L. 695 as now substantially repeated in the Judicial Code, Chap. 4, sec. 48, which reads as follows:

"In suits brought for the infringement of letters-patent the

District Courts of the United States shall have jurisdiction, in law or in equity, in the district of which the defendant is an inhabitant, or in any district in which the defendant, whether a person, partnership, or corporation, shall have committed acts of infringement and have a regular and established place of business. If such suit is brought in a district of which the defendant is not an inhabitant, but in which such defendant has a regular and established place of business, service of process, summons, or subpoena upon defendant may be made by service upon the agent or agents engaged in conducting such business in the district in which suit is brought."

In accordance with the customary practice, if the defendant appears or waives the privilege a suit may proceed in any district. Service on an agency is determined by the fact of whether or not that agency constitutes a regular and established place of business.

Ordinarily a foreign corporation may be served through its agency or regular and established place of business only where the infringement has been in that district. The fact that the agent merely receives orders or advertises within the district has been held not to give the court jurisdiction. If, however, the sale is consummated in the district by the agent then he may be there served.

The question of sufficiency of service under the act may be raised by motion to set aside the service, and where proof is necessary to establish the facts in an action at law, by plea to the jurisdiction, or by special answer. It may not be raised by demurrer and requires a special appearance, as general appearance is a waiver of the point.

It will be later seen in discussing actions in equity that by the new equity rules demurrers and pleas have been abolished and for them has been substituted the more elastic motion to dismiss or presentation by answer.

The provisions for suit in states containing more than one district and districts containing more than one division embodied in various chapters of 20 and 21, stat. at L., are covered by sections 52 and 53 of the Judicial Code, providing, in substance in section 52, that when a state contains more than one district, every suit not of a local nature, in the District Court thereof, against a single defendant, a habitant of such state, must be brought in the district where he resides; but if there are two or more defendants residing in different districts of the state, it may be brought in either district, and a duplicate writ issued; in sec. 53, when the district contains more than one division, every suit not of a local nature against a single defendant must be brought in the division where he resides; but if there are two or more

defendants residing in different divisions of the district it may be brought in either division.

Parties.—The plaintiff in actions at law must be the legal owner of the patent at the date of the infringement; except where suit is brought upon an assignment which couples with the ownership of the patent a right of action for past infringements (Gamewell Fire-Alarm Telegraph Co. vs. City of Brooklyn, (1882), 14 Fed. 255). Licensees and those who, under contract with the legal owners, have acquired an equitable interest in the patent can not become plaintiffs in an action at law. And this is true of the licensee however he may be guaranteed (Birdsell vs. Shaliol (1884). 112 U. S. 485, 28 L. ed. 768); but it is a part of the implied agreement between a licensor and a licensee that the former will protect the latter against these wrongful invasions of his rights by instituting such proceedings as may become necessary for that purpose, and if the legal owner of the monopoly refuse to perform this duty, or is inaccessible, the licensee may sue at law for damages in his name. Though the nominal plaintiff may claim indemnity against the costs and expenses of the suit, he can not compromise with the defendant.

The privilege of action does not extend to the personal representative of the licensee, for a license expires at the death of the licensee. The equitable owners of patents or interests therein may obtain relief in equity, but must join the legal owners.

The patentee, while owner, must sue in his own name and alone, for acts of infringement committed during his ownership. If joint owners, suit must be joint. An assignee must sue alone, whether his title be acquired before or after issue, provided the legal title be whole and complete. So with the grantee.

In case of the death of the owner of a patent it has been observed the title vests in his personal representative and not in the heirs or devisees, who though beneficially entitled to the proceeds of his suit are, with reference to the patent property, mere cestuis qui trust. They can not, therefore, be plaintiffs in an action at law and such a suit must be brought by the personal representatives for acts of infringement subsequent to the death of the owner. Such a suit may also include acts committed prior to the death of the owner where they have not been the subject of disposition in a preceding suit.

Inasmuch as an administrator or executor is, under the act of Congress, a trustee in relation to the patented invention or property, he may sue in any district without qualifying in the Probate Court of the state in which the district is comprised (Goodyear vs. Hullihen, 2 Hughes, 1 U. S. 492, Fed. Cas. 573).

It has been shown elsewhere that there may be an assignment of the right of action for past infringement; but such as-

signment must be express and does not follow from the assignment of the patent. (See also Part XI.)

It is a general rule that objections of nonjoinder or misjoinder of plaintiffs in actions at law are not favored by the courts; and where there is a clear title of record must be made in due season to be regarded.

The defendant in actions at law must be the person guilty of the act of infringement; and all infringers are liable as defendants, no exceptions being made on the ground of infancy, lunacy or coveture.

As in all actions for torts the nonjoinder or misjoinder of defendants is immaterial unless the act be such as was inseparable and could not have been performed by the record defendants alone. And in accordance with the doctrine of this country the plaintiff can have no more than full compensation and can not further pursue the defendants not joined. The death or bankruptcy of a defendant does not abate the action, nor does the marriage of a feme sole defendant affect the suit, except to introduce new parties to the record.

Trial and Pleadings.—It is intended here to briefly state general principles applied to an action at law—and the basis of an action in equity because both of these proceedings are hereinafter separately treated.

An ordinary declaration on the case is sufficient. It must, of course, contain all the averments necessary to support the evidence of the plaintiff's right and its violation. That is, he must aver (1) The invention of the patentable subject-matter by the patentee or his assignees; (2) The grant of letters-patent covering the invention; (3) The legal title of the plaintiff; (4) The infringement by the defendant; (5) The resulting damage to the plaintiff.

These averments must, of course, be certain. Under the first the inventive act must be alleged to be such as to answer the requirements of patentable novelty as recited in the familar section R. S. U. S. 4886, 4887, 4888. The art or article may be described by the title given in the patent; and though customary it is not essential to allege citizenship of the patentee.

Under the second the allowance and issue by the Patent Office must be alleged and profert made of the patent, which should be indicated by the date and number, and if reissued its history should be traced.

Under the third the averment of title must be made certain upon the records of the Patent Office.

Under the fourth the making, using or selling must be stated broadly as a violation of the right claimed in the patent.

It is common, but not essential, to state the acquiescense of

all others in the patentee's right, and the great worth and value of the patent.

The fifth averment is necessary, but purely formal.

All that is required of a declaration is that it must put the defendant in possession of the facts upon which the plaintiff's claim is based, and must leave open to the defendant every legal defense which he has a right to make. In some cases, as, for example, where the same person owns the original invention and inprovements thereon, the one act of infiringement may violate all, and consequently the declaration may refer in its averments to all the patents collectively.

The pleadings of the defendant in an action for infringement are either in abatement, by demurer, or in bar. Dilatory pleas are not favored by the modern court, and, the pleas must be formal and seasonable; demurrers, when general, go to the substance and are not sustained if the five essential averments include all material points. The liberality of the courts toward defects of form leaves little room for special demurrers.

A plea in bar in actions for infringement assumes the form of the general issue, with notice of special matters, or of a special plea.

Defenses.—The various defenses which may be employed in a patent suit are not separately detailed in the statutes. Following a custom which has obtained heretofore it is found helpful to arrange these defenses in twenty-nine separate clauses. All of these are applicable to either an action at law or a suit in equity excepting the last two which are peculiar to a suit in equity.

These defenses all arise upon those statutes which define the statutory clauses of invention, the statutory bars, the requirements of an application, the mode of determining the prior inventor, the limitation of patent rights, etc., which have been heretofore discussed and on sec. 4920 R. S. U. S. which specifically defines certain special matters which may be pleaded and proved on trial on the condition that the plaintiff has been given thirty days notice in writing.

The collated defenses have been somewhat variously stated by different writers, though taken as they are from the statutes, all must agree in the general application.

It should be observed that any or all of these defenses may be applied in any cause where they are applicable.

1. That the subject-matter of the letters-patent is not embraced within the classes of invention as recited in sec. 4886, R. S. U. S.

Examples of these are found in the familiar jail, house and business methods cases, where the courts held that the subject-matter of patents of that nature are not contemplated by the

classification of the statutes. This classification has many apparent exceptions, as in a recent case involving a roof. Reter-Conley Mfg. Co. v. Aiken (Third), 203 Fed. 699, C. C. A. There have been many patents granted on parts of house structure and similar inventions.

2. Want of invention.

This is a defense which pervades a suit at law, or in equity and may be applied in two ways. First, that the patent did not involve the exercise of invention or of the inventive faculty. Second, that the difference between the patent and the prior state of the art does not amount to invention but involved merely mechanical skill or the exercise of ordinary judgment to those skilled in the art.

It is this defense which has the widest application and in which have most frequently occurred under the former practice instances of demurrer to the bill of complaint and judicial notice. As stated by various courts and as specifically defined by Judge Townsend in Brickill vs. City of Hartford, 57 Fed 216, 217:

"Want of invention appearing on the face of the patent may be taken advantage of under the general issue without notice, or under any other plea, or without any plea."

Again in Hunt Bros. Packing Co. vs. Cassidy, 3 C. C. A. 252, 53 Fed. 257, 259, it was said:

"The question as to whether, considering the previous state of the art, no invention was made by the patentee, may be raised without notice."

It was observed in the same clause, however, that the question of anticipation could not be raised without notice specifying the anticipating invention.

3. Want of patentable novelty.

This defense includes the essential statutory bars recited in 4886, that is, anticipation of the invention by a prior knowledge or a use of the invention, a prior patent or publication, or because of want of invention as indicated by the "prior state of the art."

Section 892, R. S. U. S., provides that certified copies of papers, record, books or drawings may be issued by the Patent Office. Sec. 894, R. S. U. S., provides for the introduction in evidence of printed copies of specification and drawings of patents. These may be certified though it is customary to stipulate that they be used without certification.

Under section 893, R. S. U. S., foreign letters-patents may be proved by certified copies, certified by the Commissioner of Patents. In accordance with the usual rules of evidence a publication is strictly required to be introduced in whole. However, an extract from such a book certified by the Commissioners of Patents to be a true copy from a book in the library of the

Patent Office received on a certain day may be admitted in defense. Travers vs. American Cordage Co., 64 Fed. 771.

4. Prior foreign patent on application filed more than twelve months before the domestic application for the same invention. In designs four months Section 4887, R. S. U. S.

5. Want of utility.

This matter has been hitherto discussed under an appropriate heading and the defense is one which must be clearly proved to avoid a patent.

6. Abandonment of the invention to the public. This also is a defense which must be clearly proved.

7. That delay in filing an application for a patent for an invention disclosed to the public by a rival has created equitable estoppel or constructive abandonment of the invention.

8. That the claims of the patent in suit are for new matter not embraced in the original disclosure of the application.

9. That the patentee was not the first inventor of the invention claimed.

10. That the patentee surreptitiously or unjustly obtained the patent for that which was in fact the invention of another, who was using reasonable diligence in adapting and perfecting the same.

11. That, where the application was made by one as the sole inventor, it was in fact the joint invention of the sole applicant and one or more others.

12. That, where the application was made by joint inventors, it was, in fact, the sole invention of one of them.

13. That for the purpose of deceiving the public, the description and specification filed in the Patent Office was made to cover less than the whole truth relevant to the invention, or was made to cover more than was necessary to produce the desired effect.

14. That the description of the invention in the specification is not in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound and use the same.

15. That the patent does not particularly point out and distinctly claim the invention.

16. That the invention claimed is substantially identical with an invention claimed in a prior patent to the same inventor.

17. In case of a reissued patent, that the reissue was improvidently granted, and was not granted in accordance with the statute 4896, R. S. U. S.

18. Unreasonable neglect or delay in filing a necessary disclaimer.

19. That the patent has been repealed.

20. Expiration of the patent before the right of action accrued.
21. That the patentee made or sold machines or articles embracing the invention without marking them "patented" or without notifying the defendant of the infringement.
22. That the complainant has no title or that his title is not sufficient to enable him to maintain the suit.
23. Co-ownership or license under the patent.
24. A release from or for the complainant discharging the defendant of liability in whole or in part.
25. Non infringement.
26. Estoppel.
27. Statute of Limitation.
28. Res adjudicata.
29. Lack of jurisdiction, in equity causes.
30. Laches—in equity causes.

Appeal and Error.—The final judgment at law in a patent suit may be reviewed by the appropriate Circuit Court of Appeals on writ of error.

The judgment of the Circuit Court of Appeals in an appeal in equity is final in patent matters and may not be reviewed by the Supreme Court of the United States, except upon certification of a question by the court of appeals or upon a writ of certiorari from the Supreme Court.

In equity, the appeal must be taken within six months after the entery of the decree.

If from an interlocutory decree, the order granting or continuing or refusing to dissolve an injunction under the seventh section of the Act of March 3, 1891, the appeal must be taken within thirty days, and is given precedence in the appellate court.

Writs of certiorari have been seldom granted in patent causes by the Supreme Court, which appears to rest its reasons for granting the writ not upon the mere fact of different opinions in different circuits, but rather upon the character and importance of the question presented.

XVI. ACTIONS AT LAW.

Much of the preceding topic applies directly to actions at law, the consideration of the peculiar distinctions of suits in equity being reserved for a subsequent section.

An action at law was, prior to 1819, as heretofore stated, the remedy for wrongs to patentees. In recent years actions at law in patent causes have been the exception; but lately there has been in some circuits a tendency to turn to this legal remedy, upon which from the beginning our system of jurisprudence has been founded.

These considerations appear to make desirable a discussion

of some features of this topic upon principle, and to excuse the presentation of the topic more in extenso tahn the relative number of recently reported patent law cases would at first blush seem to require.

Statutory Basis.—The statutory provision for an action at law in patent causes began with section 4 of the law of 1790 and was followed by section 5 of 1793, section 3 of 1800, section 14 of 1836, and section 55 of 1870.

The law as it now stands is found in section 4919, R. S. U. S., which reads as follows:

"Damages for the infringement of any patent may be recovered by action on the case, in the name of the party interested, either as patentee, assignee, or grantee. And whenever in any such action a verdict is rendered for the plaintiff, the court may enter judgment thereon for any sum above the amount found by the verdict as the actual damages sustained, according to the circumstances of the case, not exceeding three times the amount of such verdict, together with the costs."

In passing it may be observed that section 723, R. S. U. S., provides that if the remedy at law is plain, adequate and complete the Equity Courts of the United States shall not take jurisdiction, being in this declaratory of the general principles governing the distinction between jurisdiction at law and in equity.

Damages.—Inasmuch as this specific statute relates to damages that topic will be treated before proceeding with a general discussion of Trial by Jury, Practice and Procedure, etc.

Under heading XIX the relation of profits and damages with especial reference to accounting in equity is treated. Preceding that some phases of the principle of assessing damages in patent suits fall within this topic.

There are certain general principles peculiar to actions at law which have been presented in typical cases. For example, in Birdsall vs. Coolidge, 93 U. S. A. 64, 23 L. ed. 802, Mr. Justice Clifford said:

"'Juries, in an action at law for the infringement of a patent, are required to find the actual damages sustained by the plaintiff in consequence of the unlawful acts of the defendant. Power is given to the court, in such a case, to enter judgment for any sum above the amount of the verdict, not exceeding three times the amount of the same, together with costs; but the jury are strictly limited in their finding to the actual damages which the plaintiff has sustained by the infringement. 16 Stat. at L. 207, 5 Stat. at L. 123; R. S., sec. 4919, p. 960.

"'Damages are given as a compensation, recompense or satisfaction to the plaintiff, for an injury actually received by him from the defendant. Compensatory damages and actual damages

mean the same thing; that is, that the damages shall be the result of the injury alleged and proved, and that the amount awarded shall be precisely commensurate with the injury suffered, neither more nor less, whether the injury be to the person or estate of the complaining party. 2 Greenl. Ev. (10th ed.), sec. 253. * * *

"Where the suit is at law, the measure of damages remains unchanged to the present time, the rule still being, that the verdict of the jury must be for the actual damages sustained by the plaintiff, subject to the right of the court to enter judgment thereon for any sum above the verdict, not exceeding three times that amount, together with costs. 16 Stat. at L. 207.

"Damages of a compensatory character may also be allowed to the complainant suing in equity, in certain cases, where the gains and profits made by the respondent are clearly not sufficient to compensate the complainant for the injury sustained by the unlawful violation of the exclusive right secured to him by the patent. Gains and profits are still the proper measure of damages in equity suits, except in cases where the injury sustained by the infringement is plainly greater than the aggregate of what was made by the respondent; in which event the provision is, that the complainant 'shall be entitled to recover, in addition to the profits to be accounted for by the respondent, the damages he has sustained thereby.' * * *

Evidence of an established royalty will undoubtedly furnish the true measure of damages in an action at law, where the unlawful acts consist in making and selling the patented improvement, or in the extensive and protracted use of the same, without palliation or excuse; but where the use is a limited one and for a brief period, as in the case before the court, it is error to apply that rule arbitrarily and without any qualification. Packet Co. vs. Sickles, 19 Wall. (U. S.) 617, 22 L. ed. 204; Wall. (U. S.) 320, 18 L. ed. 78."

In Burdell vs. Denig, 92 U. S. 716, 23 L. ed. 764, Mr. Justice Miller speaking for the court said in noting the objections to the prayer:

First. In cases where profits are the proper measure, it is the profits which the infringer makes, or ought to make, which govern, and not the profits which plaintiff can show that he might have made.

Second. Profits are not the primary or true criterion of damages for infringement in an action at law. That rule applies eminently and mainly to cases in equity, and is based upon the idea that the infringer shall be converted into a trustee, as to those profits, for the owner of the patent which he infringes, a principle which it is very difficult to apply in a trial before a

jury, but quite appropriate on a reference to a master, who can examine defendant's books and papers, and examine him on oath, as well as all his clerks and employes.

"On the other hand, we have repeatedly held that sales of licenses of machines, or of a royalty established, constitute the primary and true criterion of damages in the action at law.

"No doubt, in the absence of satisfactory evidence of either class in the forum to which it is most appropriate, the other may be resorted to as one of the elements on which the damages or the compensation may be ascertained; but it can not be admitted, as the prayer which was refused implies, that in an action at law the profits which the other party might have made is the primary or controlling measure of damages. Packet Company vs. Sickles, 19 Wall. (U. S.) 617, 22 L. ed. 204."

In Seymour vs. McCormick, 16 How. (U. S.) 480, 14 L. ed. 1024, the court said:

"Experience had shown the very great injustice of a horizontal rule equally affecting all cases, without regard to their peculiar merits. The defendant who acted in ignorance or good faith, claiming under a junior patent, was made liable to the same penalty with the wanton and malicious pirate. This rule was manifestly unjust. For there is no good reason why taking a man's property in an invention should be trebly punished, while the measure of damages as to other property is single and actual damages. It is true, where the injury is wanton or malicious, a jury may inflict vindictive or exemplary damages, not to recompense the plaintiff, but to punish the defendant.

"In order to obviate this injustice, the patent act of 1836 confines the jury to the assessment of 'actual damages.' The power to inflict vindictive or punitive damages is committed to the discretion and judgment of the court within the limit of trebling the actual damages found by the jury.

"It must be apparent to the most superficial observer of the immense variety of patents issued every day, that there can not, in the nature of the thing, be any one rule of damages which will equally apply to all cases. The mode of ascertaining actual damages must necessarily depend on the peculiar nature of the monopoly granted. * * *

We think, therefore, that it is a very grave error to instruct a jury 'that as to the measure of damages the same rule is to govern, whether the patent covers an entire machine or an improvement on a machine.'"

In brief, a verdict for damages in an action at law may be only for the actual damages sustained because of the infringement and during the infringement charged, and not for exemplary damages.

The damages are measured by the actual loss to the plaintiff and this loss may be measured in any way, as by license fees, and even by the profits derived by the infringer where no other method is at hand. The test, however, is what the plaintiff lost and not what the defendant has profited.

The expenses of litigation are not included in the damages and interest runs only from the time of liquidation. That is, from the time of ascertainment of the amount of damages.

It has been indicated that the court under the statute may enter judgment for any sum above the verdict, not exceeding three times the amount of the verdict; and the court may take into account the aggravated features of infringement and the expense of the litigation.

Trial by Jury.—The seventh article of the amendments to the constitution reads as follows:

"In suits at common law where the value in controversy shall exceed $20, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise examined in any court of the United States than according to the rules of common law."

(See notes in Paschal's Annotated Constitution, Third Edition, pages 266, 267, and 476.)

The spirit of this amendment rather than the wording gave great concern to the courts in their early interpretation of the practice and the general conduct of a trial by jury in a civil cause in the Federal Courts.

In Parsons vs. Bedford, 3 Pet. (U. S.) 433, 7 L. ed. 732, 737, the court had before it a case in which no bill of exceptions had been tendered to the court and no points of law brought under review. There was an application to record the evidence with the obvious purpose of establishing an error of the verdict in matters of fact. The Supreme Court said that even if such a construction of the language of the Act of 1824 following the 7th Article of Amendment of the Constitution had been given to the Act of Congress the court entertained serious doubt of its constitutionality. The court then said:

"The terms of the present act may well be satisfied by limiting its operation to modes of practice and proceeding in the court below, without changing the effect or conclusiveness of the verdict of the jury upon the facts litigated at the trial. Nor is there any inconvenience from this construction; for the party has still his remedy, by bill of exceptions, to bring the facts in review before the Appellate Court, so far as those facts bear upon any question of law arising at the trial; and if there be any mistake of the facts, the court below is competent to redress it by granting a new trial."

In Justices vs. United States, 76 U. S. 274, 19 L. ed. 658, 661, 662, the court discussed the 7th Article of Amendment holding that it applied to a trial of a cause by a jury in a state court and that the Act of Congress of March 3, 1863, relating to habeas corpus was not in pursuance of the Constitution in providing for a removal of a judgment in a state court in which a case was tried by a jury to a Circuit Court of the United States for a retrial on the facts and law. The court quotes from the 81st number of the Federalist where Mr. Hamilton first suggested that the courts had full power to provide that on appeal to the Supreme Court there should be no reexamination of the facts where the cause had been tried by a jury according to the common-law mode of proceeding.

In Hodges vs. Easton, 106 U. S. 408, 27 L. ed. 169, 171, the court reverses the lower court for practically splitting a verdict. That is, the Supreme Court held that the lower court could not submit a part of the facts to the jury and itself determine the remainder without a waiver by the defendant of a verdict by the jury.

This view of the obvious purpose of the 7th Article of Amendment of the Constitution is again stated by the Supreme Court in Bayliss vs. Travelers Ins. Co., 113 U. S. 316, 28 L. ed. 989, 991. But in this case the court concluded with a loose illustration, saying:

"This constitutional right this court has always guarded with jealousy."

Then citing Hodges vs. Easton, supra, and three cases in which the court had held that an involuntary nonsuit could not be granted against the acquiescence of the plaintiff. As is shown under another heading the Supreme Court has thrice at least since that time expressly stated that an involuntary nonsuit without the acquiescence of the plaintiff is not an invasion of the constitutional right of a trial by jury and in Coughran vs. Bigelow, post, even went so far as to say that that had never been the reason for the practice as stated in Elmore vs. Grymes, post, and other cases denying the right of an involuntary nonsuit without the acquiescence of the plaintiff.

So in Kennon vs. Gilmer, 131 U. S. 22, 33 L. ed. 110, 113, the court after referring to the 7th Article of Amendment to the Constitution and its applicability to Montana and other territories, said:

"But this court has no authority to pass upon any question of fact involved in the consideration of the motion for a new trial. And, in a case in which damages for a tort have been assessed by a jury at an entire sum, no court of law, upon a motion for new trial for excessive damages and for insufficiency of the evi-

dence to support the verdict, is authorized, according to its own estimate of the amount of damages which the plaintiff ought to have recovered, to enter an absolute judgment for any other sum than that assessed by the jury."

These cases and this discussion are pertinent because they properly state the real distinction to be observed in contradistinction to cases such as Elmore vs. Grymes, 1 Pet. (U. S.) 741, 7 L. ed 224. That is to say, so long as a court does not re-examine the facts or balance the evidence there is no infringement of the constitutional right to a trial by jury. It would seem then reasonable for a Federal Court to nonsuit a plaintiff, to direct a verdict, or to grant a judgment non obstante veredicto, because in none of these cases is there any re-examination of the facts by the court. However, as to the latter the Supreme Court (four justices dissenting) has held against the great weight of authority in the Federal Courts that a judgment non obstante veredicto may not be rendered in a Federal Court.

Practice and Procedure. (See herein under "Judgment Non Obstante Veredicto.") **State Laws and Decisions.—**

The act of September 24, 1789, chap. 20, 1 Stat L. 92, now section 721, R. S. U. S., provides that,—

"The laws of the several states, except where the Constitution, treaties or statutes of the United States otherwise require or provide, shall be regarded as rules of decision in trials at common law, in the courts of the United States, in cases where they apply."

This section is incidentally discussed to a sufficient extent in the following consideration of the Conformity Act.

The Conformity Act.—Section 914 (act of 1872, R. S. U. S.), reads as follows:

"The practice, pleadings, and forms and modes of proceeding in civil cases, other than equity and admiralty causes, in the circuit and district courts, shall conform, as near as may be, to the practice, pleadings, and forms and modes of proceeding existing at the time in like causes in the courts of record of the State within which such circuit or district courts are held, any rule of court to the contrary notwithstanding."

This act is the successor of the temporary process act of 1789, chap. 21, which was continued by act of May 2, 1790, and made permanent by act of May 8, 1792, chap. 137.

The temporary act requires that,—"until farther provisions shall be made, and except where by this act, or other statutes of the United States, it is otherwise provided, the forms of writs and executions, except their style, and modes of process, in the circuit and district courts in suits at common law, shall be the

same in each State, respectively, as are now used in the Supreme Courts of the same."

The permanent act of 1792 substituted for the words "and modes of process," the words "and the forms and modes of proceeding," and added a proviso making the adoption of the state law "subject, however, to such alterations and additions as the said courts respectively shall, in their discretion, deem expedient, or to such regulations as the Supreme Court of the United States shall think proper, from time to time, by rule to prescribe to any circuit or district court concerning the same."

This addition or proviso gave wide discretion to the circuit and district courts and delegated also to the Supreme Court a large measure of legislative power.

Subsequent legislation was required to cover states subsequently admitted to the Union. There was a special act of 1824, chap. 181, applying to the state of Louisiana, (see Parsons vs. Bedford, 3 Pet. 444, 7 L. ed. 732), and a general act of May 19, 1826, § 1, Chap. 68, 4 Stat. 278, applied to all states admitted to the Union after 1789, and which adopted the practice of the states as existing in 1828, with power in the Supreme and Circuit and District Courts to vary the same by rule.

This law of 1828 was re-enacted August 1, 1842, 5 Stat. 499. (See Beers vs. Haughton, 9 Pet. 361, 9 L. ed. 145.)

The law of 1842 made no prospective provision for states subsequently to be admitted; but a provision in a later admission act that "all the laws of the United States which are not locally inapplicable, shall have the same force and effect" within the new state as in the old one, was declared effective to adopt this process act in Smith vs. Cockrill, 6 Wall, 756, 18 L. ed. 973, 974.

The law of 1872, the Conformity Act, Sec. 914, R. S. U. S., above quoted, was the first to require federal procedure to conform "as near as may be" to the state procedure "existing at the time in like causes in the courts of record of the state."

Under the previous conformity acts changes in state laws were not in force unless adopted by rule of court. Under the law of 1872 where they are applicable they are at once operative in the Federal Courts "any rule of court to the contrary notwithstanding." Rosenbach vs. Dreyfuss, 2 Fed. 23; Hudson vs. Parker, 156 U. S. 281, 39 L. ed. 424; Osborne vs. Detroit, 28 Fed. 385.

In Rose's Code of Federal Procedure, page 834, it is said,—

"In the main R. S. 914 is obligatory and peremptory. Its manifest purpose was to secure a stricter conformity; and it was especially effective to that end in the older states where the Federal Courts had often resisted the innovations of the reformed procedure and thus compelled practitioners to study

two distinct systems of remedial law," citing Indianapolis R. R. vs. Horst, 93 U. S. 300, 23 L. ed. 898; Amy vs. Watertown, 130 U. S. 304, 32 L. ed. 946; Nudd vs. Burrows, 91 U. S. 441, 442, 23 L. ed. 289, 290; Baltimore & O. R. R. vs. Hamilton, 16 Fed. 181; Carlisle vs. Cooper, 64 Fed. 475, 12 C. C. A. 235; Republic Ins. Co. vs. Williams, 3 Bliss. 370, Cas. No. 11,707.

These decisions and, for example, the striking case of Shepard vs. Adams, 168 U. S. 618, 42 L. ed. 602, alone, indicate, however, that while Section 924 is in the main obligatory and peremptory it is so clearly only in matters of pleading, practice and modes of procedure which can be accepted to institute a case and present it to the jury, and that it does not extend in all cases to the relation of the judge to the jury, nor the conduct of the judge in the administration of the trial, nor to any matter affecting jurisdiction or in any degree impairing the power of the Federal Court as conferred by Congress, nor to the rules of procedure subject to federal statutes; and, furthermore, the statute is not clear in its application to such features of a trial as a nonsuit, a direction of a verdict, and judgment non obstante veredicto. (See Rose's Code of Federal Procedure, page 834 (b) 835, and pages 837-839, (e) (f)[1].

[Note.—It would be impracticable within the scope of this heading to review the many authorities which either directly support this conclusion or tend toward it. Inasmuch as these authorities have not been collected heretofore it seems advisable to cite them here. In addition to Nudd vs. Burrows, Amy vs. Watertown, Indianapolis vs. Horst, and other cases cited immediately above, see also Ex parte Chateaugay Ore & Iron Co., 128 U. S. 544, 32 L. ed. 508, 511, 512; Roberts vs. Lewis, 144 U. S. 653, 657, 36 L. ed 582; Mexican Central Railway Company Limited vs Pickney, 149 U. S. 192-194, 37 L. ed. 699; Liverpool & L. & G. Ins. Co. vs. N. & M. Friedman Co., (C. C. A. 6th Circuit, 1904) 133 Fed. Rep. 713, 716; Parker vs. Ogdensburgh & L. C. R. Co., (25 C. C. A. 205, 2d Circuit) 79 Fed. Rep. 817; Western Union Tel. Co. vs. Burgess, (47 C. C. A. 168, 6th Circuit), 108 Fed. Rep. 26; Detroit United Ry. vs. Nichols, (C. C. A. 6th Circuit, 1908) 165 Fed. Rep. 289, 294; Consumers' Cotton-Oil Co. vs. Ashburn, (C. C. A. 5th Circuit, 1897) 81 Fed Rep. 331; Patting vs. Spring Valley Coal Co., (C. C. Ill. 1899), 93 Fed. Rep. 98; Chicago M. & St. P. Ry. Co. vs. Metalstaff et al. (41 C. C. A. 669, 8th Circuit, 1900). 101 Fed. Rep. 769; Wall vs. Chesapeake & O. Ry. Co., (37 C. C. A. 129, 7th Circuit, 1899), 95 Fed. Rep. 398, 402; Van Dorcn vs. Pennsylvania R. Co. (35 C. C. A. 282, 3d Circuit, 1899), 93 Fed. Rep. 260, 268-270; City of Manning vs. German Ins. Co., (46 C. C. A. 144, 8th Circuit, 1901), 107 Fed Rep. 52, 57; Chappell vs. United States, 26 C. C. A. 660, 4th Circuit, 81 Fed Rep. 764 767; City of St. Charles vs. Stookey, (C. C. A., 8th Circuit, 1907), 154 Fed. 772, 778; Toledo, St. L. & W. R. Co. v. Reardon (C. C. A., 6th Circuit, 1908), 159 Fed. 366, 368; Chicago & N. W. Ry. Co. vs. Kendall (C. C. A., 8th Circuit, 1909), 167 Fed. 62; Laurel Oil & Gas Co. vs. Galbreath Oil & Gas Co. (C. C. A., 8th Circuit, 1908), 165 Fed. 162; May vs. County of Mercer (C. C. Kentucky, 1887), 30 Fed. 246; Secretary of Treasury of United States (C. C. New York, 1891), 45 Fed. 396; Booth vs. Denike (C. C. Texas, 1894), 65 Fed. 46, 47; Lowry vs. Mt. Adams & Eden

Park Incline Plane Ry. Co. (C. C. Ohio, 1895), 68 Fed. 827, 829; Sherry vs. Occanic Steam Nav. Co. (C. C. New York, 1895), 72 Fed. 565, 566; Ewing vs. Burnham (C. C. Vermont, 1896), 74 Fed. 384; Hughey vs. Sullivan (C. C. Ohio, 1897), 80 Fed. 72; New York Continental Jewell Filtration Co. vs. City of Sullivan (C. C. Indiana, October 4, 1911), 111 Fed. 179, 181; Hein vs. Westinghouse Air Brake Co. (C. C. Illinois, 1908), 164 Fed. 79; DeValle DaCosta vs. Southern Pac. Co. (C. C. Mass., 1909), 167 Fed. 654, and the authorities cited in Slocum vs. N. Y. Life Ins. Co. (U. S.), 33 Sup. Ct. 523.

Many of these cases take as their text the words as near as "may be," generally presenting the view that this phrase is clearly one permitting a discretion in the application of the State practice under the Conformity Act.]

Patent Causes, "Like Causes."—The question has arisen whether or not patents, trademarks, and copyrights are "like causes" within the meaning of Section 914, R. S. U. S., as to which the State practice is to be applied.

This point seems now to be concluded by the pronouncement of the Supreme Court in Campbell vs. Haverhill, 155 U. S. 610, 614, 616; 39 L. ed. 280, 282 (1895). The court in this case was discussing especially R. S., Section 721. In Section 721 the general phrase is "in cases where they apply." It was argued that the causes of actions created by Congressional legislation and enforcible only in the federal courts were not covered by this section so as to make the laws of the state applicable to a suit cognizable only in the federal courts. In one place the court said,—

"Perhaps under the final words of section 721, 'in cases where they apply,' the court may have a certain discretion with respect to the enforcement of state statutes such as was exercised by this court in several cases arising under § 914, respecting pleadings and forms and modes of proceeding."

The discussion of the court was as follows:

"It is insisted, however, that, by the express terms of section 721, the laws of the several states should be enforced only 'in cases where they apply,' and that they have no application to causes of action created by Congressional legislation and enforcible only in the federal courts. The argument is, that the law of the forum can only apply to matters within the jurisdiction of the state courts, and that the recognition given by Congress to the laws of the several states does not make such laws applicable to suits over which the state courts have no jurisdiction, because for want of jurisdiction over the subject-matter of the suit the tribunals of the state are powerless to enforce the state statutes with respect to it; in other words, that the states, having no power to limit such remedy or to legislate in any manner with respect to the subject-matter. But this is rather to assert a distinction than to point out a difference. Doubtless

such an argument would apply with peculiar emphasis to statutes, if any such existed, discriminating against causes of action enforcible only in the federal courts; as if they should apply a limitation of a year to actions for the infringement of patents, while the ordinary limitation of six years was applied to all other actions of tort. In such case it might be plausibly argued that it could never have been intended by Congress that section 721 should apply to statutes passed in manifest hostility to federal rights of jurisdiction, but only to such as were uniform in their operation upon state and federal rights and upon state and federal courts."

"Recurring then to the main proposition above stated, it may be well questioned whether there is any sound distinction in principle between cases where the jurisdiction is concurrent and those where it is exclusive in the federal courts. The section itself neither contains nor suggests such a distinction. The language of the section is general, that the laws of the several states shall be regarded as rules of decision in every case to which they apply, and it is at least incumbent upon the plaintiff to show that, for some special reason in the nature of the action itself, the section does not apply. But why should the plaintiff in an action for the infringement of a patent be entitled to a privilege denied to plaintiffs in other actions of tort? If states can not discriminate against such plaintiffs, why should Congress by its silence be assumed to have discriminated in their favor? Why, too, should the fact that Congress has created the right, limit the defences to which the defendant would otherwise be entitled? Is it not more reasonable to presume that Congress, in authorizing an action for infringement, intended to subject such action to the general laws of the state applicable to actions of a similar nature? In creating a new right and providing a court for the enforcement of such right, must we not presume that Congress intended that the remedy should be enforced in the manner common to like actions within the same jurisdiction?"

The view of the Supreme Court in this case reaches the conformity act in principle and was accepted as a rule of practice in an interstate commerce cause in the circuit court for Iowa, Edmunds v. Illinois Cent. R. Co. (1887), 80 Fed. 78.

In Coffey vs. United States, 117 U. S. 233, 29 L. ed. 890, 891 (1896), the Supreme Court placed all causes in personam under the conformity act.

Not only are patent, trademark and copyright causes included under the classification in personam, but patent causes (the most distinctive) are technically so placed by R. S. Section

4919, "Damages for the infringement of any patent may be recovered by action on the case."

Prior to Coffey vs. United States, an action to recover a penalty under United States statutes had been held (1879) to be a "like cause" in United States vs. Elliott, 1879, 25 Int. Rev. 319, Fed. Cas. No. 15,043; and so of an action in ejectment McArthur vs. Williamson (1891), 45 Fed. 155.

In the first case the action was in the form of an information in the nature of an action of debt which the court regarded as an action in tort.

In the second case it was held that ejectment is not merely a personal action in Ohio, but involves also question of title; and though such action, pending in a Federal Court in that state, when abated by the death of a party, can not be revived under the provisions of the Code of Civil Procedure of Ohio by virtue of Rev. Stat. U. S. Section 914.

In two circuit court cases prior to Campbell vs. Haverhill and Coffey vs. United States, viz.: Meyers vs. Cuningham (C. C. Ohio, 1890), 44 Fed. 346, 349, and Marvin vs. Aultman & Co. (C. C. Ohio, 1891), 46 Fed. 338, Judge Ricks and Judge Jackson agreed that patent causes are not "like causes." The opinions, however, are not well considered, and rely largely upon a citation from Walker on Patents (3d edition), which was not based upon authority and was modified in the 4th edition.

These two cases are clearly over-balanced by Cottier et al. vs. Stimson (C. C. Oregon), 18 Fed. 689; May vs. County of Mercer (C. C. Kentucky, 1887), 30 Fed. 246, and Celluloid Mfg. Co. vs. American Zylonite Co. (C. C. N. Y., 1888), 34 Fed. 744, all patent causes.

It has been thought that it is this last named case to which Judge Ricks refers in Myers vs. Cunningham, but, if so, certainly the reasons of Judge Lacombe were not properly measured by Judge Ricks, for nothing can be clearer than the holding of Judge Lacombe construing sections 4919 and 914 R. S. together and holding that the action on the case must be that of the New York procedure and not the archaic common-law action in the case.

Additional weight is given the Celluloid case by the fact that in Johnston vs. Klopsch, 88 Fed. 692, a copyright case, Judge Lacombe, in 1898, held that R. S. Section 914 applied and cited Celluloid vs. Zylonite as authority.

Inasmuch as the federal trade-mark statutes are not essentially substantive law, but only declaratory, probably nothing can be gained from an investigation of trade-mark cases. There would, in short, be no argument even such as was advanced in Myers vs. Cunningham, against the practically self-evident

classification of trade-mark causes as "like causes" under the conformity act.

Copyright causes are brought under specific provisions of the Revised Statutes, especially sections 4952, 4963-4970, which are discussed at length in Globe Newspaper Company vs. Walker, 210 U. S. 356.

There are specific forfeiture or penalty clauses in the copyright statutes and a civil action at common-law for money damages can not be maintained against infringers.

It has been shown, however, that penalty and forfeiture causes, excepting those in rem have been held to come within the provision of R. S., Section 914. An instance of this is Johnston vs. Klopsch, 88 Fed. 692 (C. C. N. Y., 1898), in which a patent case was cited as authority, thus coupling copyright and patent causes, both cognizable in the federal courts only, as "like causes" within the meaning of R. S., Section 914.

Granted the proper inclusion of copyright causes, the inclusion of patent causes is strengthened by the specific character of R. S. Section 4919, making provision for recovery of damages for infringement of patent by action on the case.

This section has been concurrent with all the conformity acts. It was coupled in the same revision with R. S., Section 914, and the two must be construed together.

It said, in effect, that whatever might be the character of an equity patent cause, damages for the infringement of a patent should be tried by a familiar cause of action, one of the most familiar of the causes of common-law and of the civil causes of the several states. Such a case, in so far as the practice, pleading and forms or modes of proceeding are concerned, not only was to resemble but was, in fact, to be an action on the case.

The only plausible argument against the application of R. S., Section 914, would be that answered in the Celluloid case, herein cited. That is to say, that the terms of section 4919, R. S., require the adoption of the archaic form or procedure of the common-law action on a case, modified only by the rule of a given circuit in force before the passage of the Act of 1872.

Even in the absence of the authorities cited, it seems that the mere statement of this proposition refutes it. There is no rule which binds federal courts to the common-law procedure and this interpretation would not be a reasonable construction of the statutes.

On the other hand, it is not only reasonable but logical and in accordance with accepted principles that, reading the two statutes in pari materia, the "action on the case" of Section 4919, R. S., should be construed to mean an action on the case

as would be if the cause were being tried in a court of record of the state within which the circuit or district court is held.

If on the other hand, it be argued that it is not a "like cause" because the substantive law is different, because there is no similar cause in the state courts, and if Section 4919, R. S., be ignored, it merely is an argument giving unlimited power to the federal courts to follow any mode or practice not forbidden by Congress or rule of the Supreme Court.

Briefly, if there could be any doubt in the matter it would operate merely to add to the power of the federal courts in granting nonsuits or judgments non obstante veredicto to the defendant or directing a verdict, provided such case were not prohibited by an order or decision of the Supreme Court of the United States.

Nonsuits.—But for the argument in the majority opinion in Slocum vs. New York Life Insurance Co., 228 U. S. 364, (1913) it would appear that there could be no question that the cases of Oscanyan v. W. R. Arms Co., 103 U. S. 261, 26 L. ed. 539; Central Transportation Co. v. Pullman's Palace Car Co., 139 U. S. 24, 35 L. ed. 55, 61; Meehan vs. Valentine, 145 U. S. 611, 36 L. ed 839; and Coughran vs. Bigelow, 164 U. S. 301, 307, 08, expressly and completely abandoned the previous rulings of the Supreme Court of the United States and now not only affirm but require the practice of granting nonsuits to the defendants against the will of the plaintiff in a proper cause.

This (Judge Lacombe and Judge Hough say) has been the accepted practice in the 2d circuit without question since the Central Transportation Company case.

How readily this change of practice was accepted in the 2d circuit may be evidenced by a reference to Gunther vs. Liverpool & London & Globe Ins. Co., 34 Fed. 501. Whether Judge Lacombe in this case really had in mind a judgment notwithstanding the verdict or a judgment of nonsuit is immaterial. He referred to Oscanyan vs. W. R. Arms Co., 103 U. S. 261, 26 L. ed. 539, 541, with an impatience against the rigid unreasoned previous rule even stronger than that expressed by the Supreme Court in the Oscanyan case, classing the former practice, excluding nonsuits, as "sticking in the bark of mere verbal 'dialectics'."

It has been expressly and strongly endorsed, for example, in two cases in the fourth circuit. namely, People's Bank vs. Aetna Ins. Co., 20 C. C. A. 630 (1896), 74 Fed. 507, 511; and Sloss Iron & Steel Co. vs. South Carolina & G. R. Co., 29 C. C. A. 50 (1898), 85 Fed. 133, 138.

In the first, after citing the quotation from Oscanyan case in Central Transportation Company vs. Pullman's Palace Car Co., the court said:

"Even if the contention of the plaintiff in error be correct, which we do not find, that, under the 'practice and mode of proceding' in the courts of South Carolina, a nonsuit was not authorized in this case, nevertheless, it is submitted that it was not the intention of the legislation now known as Section 914 of the Revised Statutes, which requires the courts of the United States to conform 'as near as may be' to the practice existing in the courts of the state within which the trial is held, to change the now universal rule of procedure in the federal courts, to which we have alluded, and which has been commended by the Supreme Court, since the passage of the enactment mentioned."

Judge Goff went on then to apply the general statement which had reference to directing a verdict in the much quoted opinion of Justice Miller in Pleasants vs. Fant, 22 Wall. (U. S.) 116, 122.

In the second case, Sloss Iron & Steel Co., Judge Purnell, who was sitting with Circuit Judge Goff, said:

"If the court is satisfied that, conceding all the inferences which the jury could justifiably draw from the testimony, the evidence is insufficint to warrant a verdict for the plaintiff, the court should say so to the jury. Pleasants vs. Fant, 22 Wall. (U. S.) 122; People's Bank vs. Aetna Ins. Co., 74 Fed. 507, 20 C. C. A. 630. This is a well-established rule in the Federal Court. It is essentially different from the rule in the courts of many of the states, but is uniform in the courts of the United States; and it has been decided by this court that Section 914, Rev. Stat., does not require the federal courts to change this rule of procedure so as to conform to the practice existing in the courts of the states. The action of the circuit judge, who presided at the trial of this case, in ordering that the defendant have judgment of nonsuit, was in conformity with the decisions of the Supreme Court of the United States and the decisions of this court."

This case also plainly shows that in the fourth circuit the court not only accepted the ruling of the Supreme Court readily but could see no distinction in theory between the reasonings governing a direction of a verdict and those suggesting a judgment of nonsuit for the defendant.

The reasons for the present rule were, in fact, stated in the first case establishing the old rule, Elmore vs. Grymes, (1 Pet. (U. S.) 471, 7 L. ed 224, 226) in the dissenting opinion of Mr. Justice Johnson.

Much the same idea was expressed in the Oscanyan vs. W. Arms Co., 103 U. S. 261, 26 L. ed. 539, 541. In that case also was plainly shown the effect of the reasons advanced in cases discussing more generally trial by jury with reference, for ex-

ample, to directing a verdict, as in Merchant's Bank vs. State Bank, 77 U. S. 637, 19 L. ed. 1015, and Pleasants vs. Fant, 89 U. S. 122, 22 L. ed. 780, 782, 783.

It should be again observed, however, that while not so decided, it appears to be the view of the Supreme Court as now constituted that nonsuits are not permissible in federal courts. Slocum v. N. Y. Life Ins. Co., 228 U. S. 364.

Directing a Verdict.—It is a well-settled practice for the court in proper cases, to direct the jury to render a verdict for the defendant in patent causes, as well as in other civil causes in the federal courts.

In patent causes the courts have exercised this prerogative in matters of invention, anticipation, novelty and infringement.

See for example: Market Street Cable Railway Company vs. Rowley, 155 U. S. 621, 625, 39 L. ed. 284, and cases there cited; Roberts vs. Bennett, 136 Fed. 193, 195, 69 C. C. A. 533 (second), and cases cited; Western Electric Co. vs. Robertson et al., 142 Fed. 471, 478, 73 C. C. A. 587 (second), and cases cited, especially Singer Company vs. Cramer, 192 U. S. 256, 47 L. ed. 437; Connors vs. Ormsby, 148 Fed. 13-14, 78 C. C. A. 181 (first), and cases cited.

For convenience of classification it may be said that on the bald question of Invention this practice has been followed in Fond du Lac County vs. May, 137 U. S. 395, 34 L. ed. 714; Anticipation, in Market Street Railway vs. Rowley, 155 U. S. 621, 39 L. ed. 284; and Infringement, in Black Diamond Coal Co. vs. Excelsior Coal Co., 156 U. S. 261, 39 L. ed. 413; Overweight C. Elevator Co. vs. Improved Order Red Men's Hall, 94 Fed. 155, 36 C. C. A. 125.

It may be of advantage to consider the discussions of the court in sustaining and applying the rule that the federal courts may, in civil causes, direct a verdict for the defendant.

In Parks vs. Ross, 11 How. (U. S.) 362, 13 L. ed. 730, 736, Mr. Justice Grier said that a jury has no right to assume the truth of any material fact, without some evidence legally sufficient to establish it. He then proceeded to say:

"Hence the practice of granting an instruction like the present, which makes it imperative upon the jury to find a verdict for the defendant, and which has in many states superseded the ancient practice of a demurrer to evidence. It answers the same purpose, and should be tested by the same rules. A demurrer to evidence admits not only the facts stated therein, but also every conclusion which a jury might fairly or reasonably infer therefrom."

In Improvement & R. R. Co. vs. Munson, 81 U. S. 442, 20 L. ed. 867, 872, the Supreme Court established a point of prac-

tice which has been growing. The court said through Mr. Justice Clifford:

"Formerly it was held that if there was what is called a scintilla of evidence in support of a case the judge was bound to leave it to the jury, but recent decisions of high authority have established a more reasonable rule; that in every case, before the evidence is left to the jury, there is a preliminary question for the judge, not whether there is literally no evidence, but whether there is any upon which a jury can properly proceed to find a verdict for the party producing it, upon whom the onus of proof is imposed. Jewell vs. Parr, 13 C. B. 916; Toomey vs. L. & B. R. R. Co., 3 C. B. N. S. 150; Wheelton vs. Hardesty, 8 Ell. & Bl., 266; Schuchardt vs. Allen, 1 Wall. (U. S.) 368, 17 L. ed. 646."

In Pleasant vs. Fant, 89 U. S. 116, 22 L. ed. 780, 782, a much quoted case, the opinion was rendered by Mr. Justice Miller.

In discussing the duty of courts to protect parties from unjust verdicts by instructing juries in the rule of law by which evidence was to be examined and applied, and when necessary by setting aside a verdict which is unsupported by evidence or contrary to law, Mr. Justice Miller said:

"In the discharge of this duty it is the province of the court, either before or after the verdict, to decide whether the plaintiff has given evidence sufficient to support or justify a verdict in his favor. Not whether on all the evidence the preponderating weight is in his favor; that is the business of the jury; but conceding to all the evidence offered the greatest probative force which according to the law of evidence it is fairly entitled to, is it sufficient to justify a verdict? If it does not, then it is the duty of the court after a verdict to set it aside and grant a new trial. Must the court go through the idle ceremony in such a case of submitting to the jury the testimony on which plaintiff relies, when it is clear to the judicial mind that if the jury should find a verdict in favor of the plaintiff that verdict would be set aside and a new trial had? Such a proposition is absurd, and accordingly we hold the true principle to be that if the court is satisfied that, conceding all the inferences which the jury could justifiably draw from the testimony, the evidence is insufficient to warrant a verdict for the plaintiff, the court should say so to the jury. In such case the party can submit to a nonsuit and try his case again if he can strengthen it, except where the local law forbids a nonsuit at that stage of the trial, or if he has done his best he must abide the judgment of the court, subject to a right of review, whether he has made such a case as ought to be submitted to the jury; such a case as a jury might justifiably find for him a verdict.

Tested by these principles we are of opinion the circuit

court ruled well. If plaintiff had secured a verdict on the testimony before us, we think that court ought to have set it aside as not being warranted by the evidence."

This case is also cited as having announced the doctrine of Improvement Co. vs. Munson.

In Herbert vs. Butler, 97 U. S. 319, 24 L. ed. 958, the Supreme Court, through Mr. Justice Bradley, cited Improvement Co. vs. Munson and Pleasants vs. Fant, affirmed the right of a judge to direct a verdict for the defendant.

In Bowditch vs. Boston, 101 U. S. 16, 25 L. ed. 980, 981, court said through Mr. Justice Swayne:

"It is now a settled rule in the courts of the United States that whenever, in the trial of a civil case, it is clear that the state of the evidence is such as not to warrant a verdict for a party, and that if such a verdict were rendered the other party would be entitled to a new trial, it is the right and duty of the judge to direct the jury to find according to the views of the court. Such is the constant practice and it is a convenient one. It saves time and expense. It gives scientific certainty to the law in its application to the facts and promotes the ends of justice. Merchant's Nat. Bank vs. State Nat. Bank, 10 Wall. (U. S.) 604, 19 L. ed. 1008; Improvement Co. vs. Munson, 14 Wall. (U. S.) 442, 20 L. ed. 867; Pleasants vs. Fant, 22 Wall. (U. S.) 116, 22 L. ed. 780.

The rule in the English courts is substantially the same. Ryder vs. Wombwell, L. R. 4 Exch. 32; Giblin vs. McMullen, L. R. 2 P. C. 335. In the latter case it was said, 'In every case, before the evidence is left to the jury, there is a preliminary question for the judge, not whether there is literally no evidence, but whether there is any upon which a jury can properly proceed to find a verdict for the party introducing it, upon whom the onus of proof is imposed.'"

Independently of the reasons, this is, of course, as previously indicated, an accepted doctrine in the federal courts. See Blount vs. Grand Trunk Ry. Co. (9 C. C. A. 526, 61 Fed. 375, 379 (sixth), and cases cited. Taft, Judge.

In Franklin Brass Co. vs. Phoenix Assur. Co., 65 Fed. Rep. 773, 13 C. C. A. 124, the principle is stated with numerous decisions.

Judgment Non-Obstante Veredicto.—In many cases the federal courts had sanctioned judgment non-obstante veredicto, especially when in conformity with state practice. See for example: B. & O. R. R. vs. McCune, 174 Fed. 991, C. C. A. (Third, 1909); Casey vs. Pa. Asphalt Paving Co., 109 Fed. 744; Shumaker vs. Security Life & Annuity Co., 159 Fed. 112; Keiper vs. Equitable Life Assurance Society, 159 Fed. 206; German Insurance vs. Frederick, 58 Fed. 144, 7 C. C. A. 122; City of

Fort Scott vs. W. G. Eads Brokerage Company, 117 Fed. 51, 54 C. C. A. 437.

The Supreme Court of the United States, however, in Slocum vs. N. Y. Life Insurance Company, 228 U. S. 364, 57 L. ed. (1913), held that a Circuit Court of Appeals, when reversing a judgment of a circuit court, entered on a general verdict in favor of plaintiff, because of error in refusing to instruct the jury that the evidence was insufficient to sustain a verdict for plaintiff, can not direct, although in accordance with a state practice as defined in Pennsylvania Laws 1905, Chap. 198, that judgment on the evidence be entered notwithstanding the verdict, but must award a new trial, in order to conform to the provision of the seventh amendment of the Constitution of the United States (heretofore quoted). This opinion elaborately discusses trial by jury in federal courts, four of the justices dissenting. Few cases better illustrate the narrow margin between the differences of opinion in this tribunal upon the principles of trials.

The point has been reaffirmed in Pederson vs. D., L. & W. R. R. Company (U. S. ——), (33 Sup. Ct. 648, May 26, 1913), reported July 1, 1913.

It therefore appears that a federal court may set aside a verdict and grant a new trial, and may direct a verdict, but may not grant a judgment notwithstanding the verdict, this distinction being intended to maintain the seventh amendment of the Constitution and preserve the right of trial by jury.

New Trials.—Motions for new trials in the courts of the United States, it is well established, are not subject to state statute or practice (Duke vs. St. Louis Co., 172 Fed. 684; Missouri Pacific Railroad Company vs. Chicago and Alton Railroad Company, 132 U. S. 191; Fishburn vs. Chicago, Milwaukee & St. Paul Railway Company, 137 U. S. 60), and are addressed to the sound discretion of the court.

In Usher vs. Scranton Railway Company, 132 Fed. 405, a case arising in the Circuit Court for the Middle District of Pennsylvania, the court said as to a motion for a new trial:

"But the appeal is to the discretion of the court, to which it is difficult to set bounds, the controlling consideration being what is just and right. * * * It (the reason for a new trial) may have been informally presented, but if wanting in form, it was not in substance, which is the main thing."

Trial by Judge.—Section 649, R. S. U. S., provides that issues of fact in civil cases in any circuit court may be tried and determined by the court without the intervention of a jury, whenever the parties to the suit or their attorneys of record shall file with the clerk a stipulation in writing waiving a jury.

Section 700, R. S. U. S., provides that if any issue of fact is thus tried and determined by the court without the intervention of a jury, the exceptions made to the rulings of the court upon the trial and duly presented by bill of exceptions may be reviewed by the appellate court on error or appeal; and that when the finding is special the review may extend to the sufficiency of the facts which are found to support the verdict. Under Section 649 the finding of the court upon the facts may be general or special, and has the same effect as the verdict of a jury.

Prior to the present Judicial Code the district courts were restricted by Section 566, R. S. U. S., so that they could try issues of fact only by a jury, except in equity, admiralty, and maritime causes, and as specifically provided in the bankruptcy laws. Under the new code, however, the jurisdiction of the circuit courts having been given to the district courts the provision of trial by judge and the other provisions of a similar nature apply to the district courts, excepting in cases in which the district courts had original jurisdiction prior to the application of the new judicial code.

It is not within the province of this discussion to further elaborate the extent of review in cases tried by a judge or the relations of the judge to such causes, those being special topics within the province of other treatises.

Trial by Referee or Auditor.—Where all the parties consent it has been held, for example, in Ramsey, 158 Fed. 488, and Newcomb vs. Wood, 97 U. S. 581, 24 L. ed., 1085, that a judge may refer either the facts of a case or both the facts and law to a referee or auditor, whose findings will be treated as the findings of a jury. The judge may refuse to confirm the report, leaving the case for a jury trial, but he may not decline to accept the findings, or himself find the facts and enter judgment thereupon.

Evidence.—The authority for the presentation of evidence has been heretofore presented, but it may be noted that special federal statutes in a large measure control the presentation of evidence, admission of documents, restoring records and judgment, citation of laws, etc., as in R. S. U. S., Secs. 883-896, 899-901, 905-908.

Bill of Exceptions.—As hereinbefore indicated, it is a familiar principle of a trial at law that a review upon the admission or rejection of evidence or objections to a charge, or of objections to the proceedings may be had by bill of exceptions, preserving for review the exceptions to the rulings of the trial court taken at the time of the trial.

Conclusion.—It is not within the province of this topic to further discuss the practices with respect to bill of exceptions,

or the charge to the jury, of the verdict or granting or refusing, or remittitur or judgment, attachments, removal of causes, appellate proceedings, etc., what is discussed being intended to present essentially those points of proceedings and practices which peculiarly distinguish a federal action at law, especially in such causes as patent causes.

XVII. ACTIONS IN EQUITY.

The single purpose of actions at law in patent causes is to recover damages for past infringements. The basis of actions in equity in patent causes is to secure an injunction of future infringements.

Incidental to the injunctive relief is the power of the court to order an accounting of the defendant's profits and an assessment of damages sustained by the complainant by reason of the infringement, and, even without the element of a prayer for injunction, equity has such jurisdiction where some impediment prevents a resort to legal remedies, or where special circumstances render a legal remedy difficult, inadequate or incomplete. An equity court may ascertain both the profits of the defendant and the damages to the complainant, or having ascertained the profits to be in excess of the damages may proceed no further in assessing the damages but may, where no profits are shown, decree damages, and where damages only are ascertained, and where they exceed the profits, may grant a decree for the amount of the damages or for any sum not exceeding three times that amount (R. S., Sec. 4921, 4919; Root vs. Lake Shore & Michigan Southern R. Co., 105 U. S. 189, 26 L. ed. 975).

The rule of law requiring that all co-owners should join in a suit in an action at law is applicable also in an action in equity for the infringement of a patent. Where the legal title is in one person and the equitable title in another ordinarily both should join, but the owner of the equitable title alone may proceed if in such case a decree against him would operate also against the holder of the legal title. Conversely, the owner of the equitable title need not join if his interest be confined to a share of the proceeds of the patent or if he has given appropriate written authority to the holder of the legal title. The defendant may demand either that the equitable owner or that the legal owner join, if necessary for the protection of the rights of the defendant. Any such co-complainant thus brought in may upon motion remove himself from the case by disclaiming all interest in the subject of litigation.

The defenses which apply to matters at law for infringement of a patent apply in the same matters in actions in equity.

There are two defenses, however, which are peculiar to equity. They are nonjurisdiction and laches. Nonjurisdiction is always available but should be preferably pleaded, or made the subject of a motion, and is especially applicable where the patent has expired before the bill was filed or where the complainant had no title when the bill was filed. However, if these affirmative conditions exist, the expiration of the patent before the hearing, or the sale of the patent by the complainant before the hearing, or the intervention of some principle of public policy, or delay by the complainant in proceeding, while preventing the granting of an injunction does not remove the jurisdiction of the court over the case if the bill properly states a case for an injunction and contains a proper prayer for relief. If, on the other hand, a bill does not state a proper case for an injunction though containing a prayer for such a writ, equity jurisdiction will not attach and the bill will be dismissed whenever the lack of jurisdiction is brought to the attention of the court.

When a bill is filed just before the expiration of a patent so that a motion for an injunction may not be duly noticed and heard by the court until after the patent has expired, the court will dismiss the bill of complaint; and where it is apparent that no permanent injunction can possibly be obtained in the case by reason of the expiration of the patent the bill may be dismissed in pursuance of a proper motion It is only when the bill shows that it was filed after the patent had expired that the court will dismiss the bill without reference to any pleading. Otherwise lack of jurisdiction must be presented by motion or answer. It was customary under the former practice to present the defense by a demurrer because then the bill might be dismissed with costs, and the same result should now be reached by motion.

The defense of laches is one of circumstances and within the discretion of the court, and the essence of the matter is that it must apear upon the whole that it would be inequitable to permit the plaintiff to assert his rights in the face of a flagrant lack of diligence by him or his assignor. Mere delay in filing suit is not necessarily laches. It may not have harmed the defendant and it may have been without fault on the part of the complainant, or because he was testing the matter in some other suit, or it may have occurred with the constant knowledge of the defendant that he was liable to such a suit. As one writer says, "it is neglect and not patience that constitutes laches." The defense of laches may be presented by motion or answer, or at the hearing without any pleading to support it, because the proofs produced in the case may be in themselves sufficient to raise the defense.

In any case where a bill is filed at a late date it should contain excuses for the delay, and these excuses should be embodied in the proofs to serve in the case point is raised at the hearing.

One of the devices commonly employed in the early days, both in England and the United States, was that of having questions of fact tried in a court of law and of giving full equity relief only after the validity of the patent, the rights of the plaintiff, and the infringement had been established by the action at law. See, for example, Ogle vs. Ege, 18 Fed. Cases 619, Case No. 10, 462, (1826); Woodworth vs. Edwards, 2 Robb. 610, (1847); Wilson vs. Barnum, 30 Fed. Cas. 101, Case No. 17,786.

In the case of Cochrane vs. Deener, 94 U. S. 780, 24 L. ed. 139, the Supreme Court having held that the powers of the Supreme Court of the District of Columbia are in patent causes the same as those of the circuit courts (or what would now be the district courts) held also that whether a patent case shall be decided by a court of equity upon its merits, or tried as in a court of law, is a matter of discretion and not of jurisdiction, and that the action of the court below in assuming jurisdiction did not furnish a ground for appeal. All these matters were elaborately discussed in the case of Root vs. Lake Shore & Michigan Southern Railway, 105 U. S. 189, 26 L. ed. 975 (1882), which held that a court of equity having jurisdiction for the purpose of administering the equitable relief sought by the patentee may determine directly and for itself, in the same proceeding, all questions incidental to the exercise of its jurisdiction, notwithstanding they may be questions affecting legal right and legal titles. This matter is well stated by Judge Thayer in Wise vs. Grand Avenue Ry. Co., 33 Fed. 277. In overruling a demurrer the court said:

"A patentee is not compelled to sue at law and establish the validity of his patent in the forum as a condition precedent to obtaining equitable relief, although the chancellor may in his discretion require a suit at law to be brought and tried, before awarding an injunction, if he doubts the validity of the patent. But, as a matter of practice, courts of equity rarely, if ever, require a suit at law to be brought to establish the validity of a patent, preferring usually to hear and determine for themselves all questions that may arise affecting the validity of the same. These questions have all been so well settled that a reference to the authorities is all that is deemed necessary on these points of the demurrer. Root vs. Lake Shore & Michigan Southern R. Co., 105 U. S. 189, 26 L. ed. 975; Cochrane vs. Deener, 94 U. S. 780, 24 L. ed. 139; Goodyear vs. Day, 2 Wall. Jr. 296; Sickles vs. Gloucester Co., 3 Wall. Jr. 186."

Another device of the ancient practice was a feigned issue.

While this was exceptional and in some cases refused in a patent cause, it was allowed in the well-known case of Foote vs. Silsby, 9 Fed. Cas. 384, Case No. 4,919, (1850). Under the present practice, though rarely employed, a jury may be impaneled to pass upon questions of fact arising in a cause in equity. This is under the provisions of the Act of February 16, 1875, providing for a jury of not less than five and not more than twelve persons (18 Stat. at l. 315, chap. 77, sec. 1, 1 U. S. Comp. Stats., 526).

This, however, is a matter of discretion with the court. Keyes vs. Pueblo Smelting & Refining Co., 31 Fed. 560; International Tooth Crown Co. vs. Hank Dental Association, 111 Fed. 916.

It must be observed, however, that equity will not interpose in any case in which there is remedy at law. This is in accordance with the general principles of equity and has also been the law from the beginning in the United States and is now the law in the provisions of Section 723 of the Revised Statutes, reenacted in Section 256 of the Judicial Code.

The former equity practice required a knowledge of the application of various pleadings under the equity rules.

These rules were abolished November 4, 1912, and the new equity rules became operative February 1, 1913.

The announced purpose of the new equity rules was to simplify the practice and to expedite suits in equity and lessen their cost. They put an equity cause within the control of the court at every stage, provide that, as a rule, the court shall actually hear the cause and, especially, direct the examination of witnesses in open court. The rules have abolished technical pleadings, as demurrers and pleas, and have substituted for these the more elastic motion. The rules as now operative present a framework of practice more clearly resembling that of common-law practice than did the system established by the old rules.

Rules 1 and 2 provide that the district court is always open for certain purposes, and for orders at chambers, and that the clerk's office shall be practically always open. By rule 3 the clerk is required to keep an "Equity Docket," an "Order Book" and an "Equity Journal," whose purposes are fairly indicated by their titles.

By rule 4 the old provision of noting an order in the Equity Docket or Order Book is abolished, and, if orders be filed without prior notice to or in the presence of the parties to be bound then the clerk is to give notice by mailing a copy of such order to the parties interested and note the mailing in the Equity Docket.

Rule 5 is substantially, with verbal changes, the preceding rule 5 with reference to motions granted of course by the clerk.

By rule 6 a motion day is to be established at regular times

and places not less than once each month, with latitude, however, for the court to make additional provisions.

Rule 7 defines process, mesne and final, being substantially the former rule but having its meaning modified by other rules hereinafter considered.

Rule 8 is substantially a former rule, relating to enforcement of final decrees with some additions of familiar equity practice.

Rule 9 provides for a writ of assistance, Rule 10 for a decree for deficiency in foreclosure, etc., and Rule 11 for process in behalf of and against persons not parties.

Rule 12 covers issue of subpoena and time for answer. It provides that "at the bottom of the subpoena shall be placed a memorandum, that the defendant is required to file his answer or other defense in the clerk's office on or before the twentieth day after service, excluding the day thereof; otherwise the bill may be taken pro confesso."

This and similar provisions of the rules are evidently impracticable in many patent causes, for validity searches often require more time than that of the rule, and the frequently difficult investigations of statutory bars require additional time for proper defense. The complainant may have been preparing for many months or even years and it will be essential that sufficient time shall be allowed for such examination by the defendant. It is to be presumed that under the authority given by the rules the judges of the courts will permit the proper extension of time. However, in all cases under the equity rules it is required that the leave be obtained in advance and it will at least be expected that prompt application be made for any extension.

Rule 13 defines the manner of serving subpoena.. Rule 14 provides for an alias subpoena, and Rule 15 covers the serving of the process, these three rules being the preceding equity rules having the same numbers.

Rule 16 requires the defendant to answer promptly on penalty, in case of default, of a decree pro confesso as substantialy indicated in the preceding rules 7 and 12. Rule 17 is the old equity rule 19, providing that a decree pro confesso is to be followed by a final decree, and for setting aside a default upon proper motion.

The effect of this rule is, however, different in view of the Judicial Code which abolishes the original jurisdiction of circuit courts and fixes the term of the district courts. This rule, therefore, requires the careful attention of the solicitor to causes in various districts because of the different terms in the several districts, these terms necessarily varying by reason of the different volume of work.

Rule 18 reads as follows: "Unless otherwise prescribed by

statute or these rules the technical forms of pleadings in equity are abolished."

The only pleadings named in the present rules are the bill and answer and motions. The qualification in rule 18, referring to provisions of the statutes, is declaratory of the principles of Sections 913 and 917, R. S. U. S. These sections read as follows:

"The forms of mesne process and the forms and modes of proceeding in suits of equity and of admiralty and maritime jurisdiction in the circuit and district courts shall be according to the principles, rules, and usages which belong to courts of equity and of admiralty, respectively, except when it is otherwise provided by statute or by rules of court made in pursuance thereof; but the same shall be subject to alteration and addition by the same courts, respectively, and to regulation by the Supreme Court, by rules prescribed, from time to time, to any circuit or district court, not inconsistent with the laws of the United States."

"The Supreme Court shall have power to prescribe, from time to time, and in any maner not inconsistent with any law of the United States, the forms of writs and other process, the modes of forming and filing proceedings and pleadings, of taking and obtaining discovery, of proceeding to obtain relief, of drawing up, entering, and enrolling decrees, and of proceeding before trustees appointed by the court, and generally to regulate the whole practice, to be used, in suits in equity or admiralty, by the circuit and district courts.

By rule 19 the judge may permit amendments at any stage of the proceedings and in any manner which in his opinion does not effect the substantial rights of the parties.

By rule 20 the judge on motion or of his own motion may order a complete revision of the proceedings and may require a further and particular statement in the pleadings.

By rule 21 the former exceptions for scandal or impertinence are to be taken care of by means of motion or upon the initiative of the court.

Rule 22 provides that if an action at law be erroneously begun as a suit in equity it shall be forthwith transferred to the law side and be there proceeded with, only such alterations in the proceedings as shall be essential.

Following this is rule 23, making it imperative upon the court that matters ordinarily determinable at law when arising in a suit at equity are to be disposed of in the equity cause.

Rule 24 provides that the signature of counsel, that is, the individual signature shall be appended to every pleading in the cause. The individual signature indicates that the solicitor has read the pleading signed by him, that he believes there is good

ground for the pleading, that there is no scandalous matter, and that it is not interposed for delay.

Under rule 25 the contents of a bill of complaint are set forth and while this rule practically recites what has hitherto been good practice it may be quoted as an authoritative definition of what a bill shall be:

"Hereafter it shall be sufficient that a bill in equity shall contain, in addition to the usual caption:

First, the full name, when known, of each plaintiff and defendant, and the citizenship and residence of each party. If any party be under any disability that fact shall be stated.

Second, a short and plain statement of the grounds upon which the court's jurisdiction depends.

Third, a short and simple statement of the ultimate facts upon which the plaintiff asks relief, omitting any mere statement of evidence.

Fourth, if there are persons other than those named as defendants who appear to be proper parties, the bill should state why they are not made parties—as that they are not within the jurisdiction of the court, or can not be made parties without ousting the jurisdiction.

Fifth, a statement of and prayer for any special relief pending the suit on final hearing, which may be stated and sought in alternative forms. If special relief pending the suit be desired the bill should be verified by the oath of the plaintiff, or someone having knowledge of the facts upon which such relief is asked.

Rule 26 covers joinder of causes of action, and permits a wide latitude.

It has been customary in patent suits to join mechanical patents capable of conjoint use, and even mechanical and design patents; and, where the single act of infringement permitted the charge, to allege infringement of a patent and a trade-mark, or infringement of a patent and unfair competition. It may be assumed that the new rule looks to a joinder of causes which are germane.

Rule 27 is substantially the old rule 94 relating to a stockholders bill.

Rule 28 provides for amendment of bill as a matter of course and for an amendment after pleading by consent of defendant by leave of the court.

Rule 29 relates to the presentation of defenses and reads as follows:

"Demurrers and pleas are abolished. Every defense in point of law arising upon the face of the bill, whether for misjoinder, nonjoinder, or insufficiency of fact to constitute a valid cause of action in equity, which might heretofore have been made by de-

murrer or plea, shall be made by motion to dismiss or in the answer; and every such point of law going to the whole or a material part of the cause or causes of action stated in the bill may be called up and disposed of before final hearing at the discretion of the court. Every defense heretofore presentable by plea in bar or abatement shall be made in the answer and may be separately heard and disposed of before the trial of the principal case in the discretion of the court. If the defendant move to dismiss the bill or any part thereof, the motion may be set down for hearing by either party upon five days' notice, and, if it be denied, answer shall be filed within five days thereafter or a decree pro confesso entered.

Rule 30 defines the contents of an answer and the presenting of counter-claims. It may be for convenience quoted in paragraphs as follows:

1. "The defendant in his answer shall in short and simple terms set out his defense to each claim asserted by the bill, omitting any mere statement of evidence and avoiding any general denial of the averments of the bill,"

2. "but specifically admitting or denying or explaining the facts upon which the plaintiff relies,"

3 "unless the defendant is without knowledge, in which case he shall so state, such statement operating as a denial."

4. "Averments other than of value or amount of damage, if not denied, shall be deemed confessed, except as against an infant, lunatic or other person non compos and not under guardianship,"

5. "but the answer may be amended, by leave of the court or judge, upon reasonable notice, so as to put any averment in issue, when justice requires it."

6. "The answer may state as many defenses, in the alternative, regardless of consistency, as the defendant deems essential to his defense."

7. "The answer must state in short and simple form any counter-claim arising out of the transaction which is the subject-matter of the suit,"

8. "and may, without cross-bill, set out any set-off or counter-claim against the plaintiff which might be the subject of an independent suit in equity against him,"

9. "and such set-off or counter-claim, so set up, shall have the same effect as a cross-suit,"

10. "so as to enable the court to pronounce a final judgment in the same suit both on the original and cross-claims."

Rule 31 abolishes replications and puts the cause at issue ordinarily upon the filing of the answer. In case of set-offs or counter-claims requires a reply within ten days after the filing

of the answer unless a longer time be allowed by the court. And provides for other defendants affected, and for a decree pro confesso on the counter-claim, in case of default thereon.

Rule 32 provides for a new or supplementary answer within ten days.

Rule 33 applies a motion to test sufficiency of defense as follows:

"Exceptions for insufficiency of an answer are abolished. But if an answer set up an affirmative defense, set-off or counter-claim, the plaintiff may, upon five days' notice, or such further time as the court may allow, test the sufficiency of the same by motion to strike out. If found insufficient but amendable the court may allow an amendment upon terms, or strike out the matter."

Rule 34 provides that either party may, with the permission of the court, file a suitable supplementary pleading upon reasonable notice to allege material facts occuring subsequent to the former pleading or of which the pleader was ignorant.

Rule 35 is the preceding rule 58 relating to the form of bills of revivor and supplementary bills.

Rule 36 recites, in accordance with the present practice, the officers by whom pleadings may be verified.

Rule 37 requires every action to be prosecuted in the name of the real party in interest, with appropriate provisions for executor, administrator, guardian, trustee, etc., and provides for intervention as follows:

"Every action shall be prosecuted in the name of the real party in interest, but an executor, administrator, guardian, trustee of an express trust, a party with whom or in whose name a contract has been made for the benefit of another, or a party expressly authorized by statute, may sue in his own name without joining with him the party for whose benefit the action is brought. All persons having an interest in the subject of the action and in obtaining the relief demanded may join as plaintiffs, and any person may be made a defendant who has or claims an interest adverse to the plaintiff. Any person may at any time be made a party if his presence is necessary or proper to a complete determination of the cause. Persons having a united interest must be joined on the same side as plaintiffs or defendants, but when any one refuses to join, he may for such reason be made a defendant."

Any one claiming an interest in the litigation may at any time be permitted to assert his right by intervention, but the intervention shall be in subordination to, and in recognition of, the propriety of the main proceeding.

Rule 38 provides for suit by representatives of a class.

Rule 39 for proceeding with a cause under certain circumstances in the absence of the persons who would be proper parties.

Rules 40, 41, and 42 are the familiar provisions relating to nominal parties, suits to execute trusts or wills or to make the heir a party and joint and several demands.

Rule 43 provides for meeting an objection of defect of parties, and rule 44 for a decree saving the rights of the absent parties in case of a tardy objection by the defendant.

Rule 45, with reference to revivor in case of the death of a party, reads as follows:

"In the event of the death of either party the court may, in a proper case, upon motion, order the suit to be revived by the substitution of the proper parties. If the successors or representatives of the deceased party fail to make such application within a reasonable time, then any other party may, on motion, apply for such relief, and the court, upon any such motion, may make the necessary orders for notice to the parties to be substituted and for the filing of such pleadings or amendments as may be necessary."

Rules 46 to 56 inclusive relate to the manner of taking testimony.

Rule 46 provides that testimony shall usually be taken in open court and reads as follows:

"In all trials in equity the testimony of witnesses shall be taken orally in open court, except as otherwise provided by statute or these rules. The court shall pass upon the admissibility of all evidence offered as in actions at law. When evidence is offered and excluded and the party against whom the ruling is made excepts thereto at the time, the court shall take and report so much thereof, or make such a statement respecting it, as will clearly show the character of the evidence, the form in which it was offered, the objection made, the ruling, and the exception. If the appellate court shall be of opinion that the evidence should have been admitted, it shall not reverse the decree unless it be clearly of opinion that material prejudice will result from an affirmance, in which event it shall direct such further steps as justice may require."

Rule 47 relates to depositions in exceptional instances and reads as follows:

"The court, upon application of either party, when allowed by statute, or for good and exceptional cause for departing from the general rule, to be shown by affidavit, may permit the deposition of named witnesses, to be used before the court or upon a reference to a master, to be taken before an examiner or other named officer, upon the notice and terms specified in the order.

All deposition taken under a statute, or under any such order of the court, shall be taken and filed as follows, unless otherwise ordered by the court or judge for good cause shown: Those of the plaintiff within sixty days from the time the cause is at issue; those of the defendant within thirty days from the expiration of the time for the filing of plaintiff's depositions; and rebutting depositions by either party within twenty days after the time for taking original depositions expires."

The reference in this rule to the statute means, of course, that class of statutes in which no discretion is left to the court. The statutes on this subject run from R. S. U. S. Sec. 862 to 891, inclusive.

Sec. 862 gives to the Supreme Court the power of prescribing the mode of proof in equity causes, except as provided by statute.

Sec. 863, commonly known as the de bene esse statute, provides for the deposition of witnesses living at a greater distance than one hundred miles from the place of the trial. Permission of the court is not required under the statute and the deposition may be taken before the clerk of the district court or any notary public not disqualified by being counsel or attorney of either of the parties or interested in the event of the cause. It has been for years good practice under this statute to give reasonable notice of the time and place of meetings. the names of the witnesses to be examined, and the notary public before whom they are to be examined. Upon occasion, as for example, where there is difficulty in giving notice the court may direct the time and may also require the occurrence of witnesses.

By sec. 864 the testimony is to be reduced to writing or typewriting, or taken stenographically and then written out by the notary public or by some person under his supervision.

Sec. 865 prescribes the method of transmitting testimony by the officer. Sec. 866 empowers notaries public to take depositions, etc.

The Act 27 Stat. l. 7, provides that in addition to the mode prescribed by the above cited statutes, it shall be lawful to take depositions or testimony of witnesses in the mode prescribed by the laws of the state in which the court is held.

It is obvious that if this statute be followed the state statute must determine to what extent the leave of the court must be obtained.

Sec. 866 R. S. U. S. puts under the direction of the court the taking of testimony dedimus potestatem and in perpetuam. Sec. 867 relates to depositions taken by leave of the court in **perpetuan rei memorian.** Sec. 868 prescribes the mode of taking depositions under **dedimus potestatem.** Sec. 869 relates to **subpoena duces decum**; Sec. 870 that the witnesses shall be required

to attend, and the fee to be tendered. Sec. 871, for taking the testimony of a witness found within the District of Columbia to be used in a suit pending in any state or territory or foreign court; Sections 872 and 873 pertain to the taking of testimony in the District of Columbia; and Sec. 874 to witness fees therein.

Sec. 875 relates to letters rogatory which are, of course, within the direction of the court.

Sec. 876 provides, in effect, that even if a witness lives more than one hundred miles from the place of trial he may still be subpoenaed to attend the trial if he lives within the district.

However, under the terms of Sec. 863 a witness may be examined **de bene esse** if he resides more than one hundred miles from the place of trial whether he resides within the district or not.

While the statutes do not expressly empower the court to permit the depositions of named witnesses to be taken before an examiner or other officer that part of rule 47 is not in contravention of the statute and is clearly within the latitude given the Supreme court by Sec. 872, R. S. U. S.

The rule seems to be somewhat vague in its concluding clause providing for rebutting depositions of either party within twenty days.

Rule 48 relating to the testimony of expert witnesses in patent and trade-mark cases reads as follows:

"In a case involving the validity or scope of a patent or trademark, the district court may, upon petition, order that the testimony in chief of expert witnesses, whose testimony is directed to matters of opinion, be set forth in affidavits and filed as follows: Those of the plaintiff within forty days after the cause is at issue; those of the defendant within twenty days after plaintiff's time has expired; and rebutting affidavits within fifteen days after the expiration of the time for filing original affidavits. Should the opposite party desire the production of any affiant for cross-examination, the court or judge shall, on motion, direct that said cross-examination and any re-examination take place before the court upon the trial, and unless the affiant is produced and submits to cross-examination in compliance with such direction, his affidavit shall not be used as evidence in the cause."

It has not yet been determined whether or not an expert living more than one hundred miles from the place of trial may testify under the provision of the debene esse statute. Sec. 863 R. S. U. S.

Rule 49 provides that all evidence offered before an examiner or like officer together with any objections shall be saved and returned to the court, and provides that the depositions shall be upon questions and answers or in the form of a narrative. The

opening clause of this rule affirms the practice which has existed under Blease v. Garlington, 92 U. S. 1, 23 L. ed. 521.

Rule 50 provides for the appointment and the fees of a stenographer to which, however, it would seem section 864 R. S. U. S. governing the mode of taking testimony **de bene esse** must be an exception.

Rule 51 is substantially paragraph 3 of the amendments to old rule 67. Inasmuch as it details the manner of taking testimony it may be repeated:

"Objections to the evidence, before an examiner or like officer, shall be in short form, stating the grounds of objection relied upon, but no transcript filed by such officer shall include argument or debate. The testimony of each witness, after being reduced to writing, shall be read over to or by him, and shall be signed by him in the presence of the officer; provided, that if the witness shall refuse to sign his deposition so taken, the officer shall sign the same, stating upon the record the reasons, if any, assigned by the witness for such refusal. Objection to any question or questions shall be noted by the officer upon the deposition, but he shall not have power to decide on the competency or materiality or relevancy of the questions. The court shall have power, and it shall be its duty, to deal with the costs of incompetent and immaterial or irrelevant depositions, or parts of them, as may be just."

Rule 52 relates to the attendance of witnesses before a commissioner, master, or examiner, upon the lines of old equity rule 78. The essential difference is that the rule now is founded upon the general purpose that testimony of witnesses shall be taken in open court, and the rule makes an exceptional case one in which the testimony is taken out of court.

Rule 53 provides for notice of taking testimony in accordance with rule 47 where the testimony is taken before an examiner or other named officer under order of court. Rule 54 provides for cross-examination orally before the court or before an examiner or like officer, or for a new deposition with notice in case no notice has been given. The rule also declares the law in providing that depositions may be taken under sections of the revised statutes 863-865-866-867.

Rule 55 provides that the deposition shall be deemed published when filed.

Rule 56 provides that on the expiration of time for taking and filing depositions the case goes on the trial calendar, which, in effect, would mean that in the absence of extensions the case shall be placed on the trial calendar ninety days from the filing of the answer, a feat impossible of execution in many patent causes.

Rule 57 is another of the rules which may be drastic in operation. It relates to continuance and provides that a case may be taken from the trial calendar by consent of both parties and may be reinstated upon application of either party at any time within a year.

Rule 58 is a modification of the old equity rules 41-42-43. It relates to discovery, interrogatories, instruction, production of documents and admission of genuiness. The rule has a new provision in that it permits interrogatories in behalf of either the complainant or the defendant and for a sworn answer to each interrogatory with no provision for waiving oath. How far these provisions will be of moment in patent causes can only be determined by considerable experimentation.

Rule 59 provides for reference to a master, making that reference exceptional, not usual, and providing that it shall be presented to the master for hearing within twenty days succeeding the time at which the reference was made, unless a longer time be granted.

Rule 60 details the proceedings before a master, being a repetition of the old rule 75.

Rule 61 repeats the old rule 76 relating to a master's report and that documents shall be identified but not set forth.

Rule 62 is, with slight modification, the previous equity rule 77 and defines the powers of a master in regulating proceedings before him.

Rule 63 is, with slight alteration, the previous equity rule 79 and defines the form of accounts before a master.

Rules 64 and 65, respectively, relating to the use before a master of former depositions and the examination before a master of claimants, repeat the old equity rules 80-82.

Rule 66 provides for the return of the master's report, exceptions, and hearing thereon, a period of twenty days being allowed, being thus, in slight particulars, an amendment of the old equity rule 83.

Rule 67 qualifies the old equity rule 84 by fixing the costs on exceptions to a master's report at five (5) dollars on every exception allowed. Rule 63 is, with slight modifications, old equity rule 82 relating to appointment and compensation of masters.

Rule 69 is substantially the old equity rule 88 providing for a petition for rehearing. As before it requires that no rehearing shall be granted after the term at which the final decree shall have been entered and recorded, if an appeal lies to the Circuit Court of Appeals or the Supreme Court; otherwise, in the discretion of the court at any time before the end of the next term.

Rules 70-71-72 providing for suits by and against incompetents, form of decree, and correction of clerical mistakes in orders and decrees, are the old equity rules 87-86-85.

Rule 73 is substituted for the old rule 55 and reads as follows:

"No preliminary injunction shall be granted without notice to the opposite party. Nor shall any temporary restraining order be granted without notice to the opposite party, unless it shall clearly appear from specific facts, shown by affidavit or by the verified bill, that immediate and irreparable loss or damage will result to the applicant before the matter can be heard on notice. In case a temporary restraining order shall be granted without notice, in the contingency specified, the matter shall be made returnable at the earliest possible time, and in no event later than ten days from the date of the order, and shall take precedence of all matters, except older matters of the same character. When the matter comes up for hearing the party who obtained the temporary restraining order shall proceed with his application for a preliminary injunction, and if he does not do so the court shall dissolve his temporary restraining order. Upon two days notice to the party obtaining such temporary restraining order, the opposite party may appear and move the dissolution or modification of the order, and in that event the court or judge shall proceed to hear and determine the motion as expeditiously as the ends of justice may require. Every temporary restraining order shall be forthwith filed in the clerk's office."

Rule 74 provides for modifying, restoring, or suspending an injunction during the pendency of the appeal, and is the same as the old equity rule 93.

One of the most striking provisions of the new rules is rule 75 with reference to a record on appeal which reads as follows:

In case of appeal:

"(a) It shall be the duty of the appellant or his solicitor to file with the clerk of the court from which the appeal is prosecuted, together with proof or acknowledgment of service of a copy on the appellee or his solicitor, a præcipe which shall indicate the portions of the record to be incorporated into the transcript on such appeal. Should the appellee or his solicitor desire additional portions of the record incorporated into the transcript, he shall file with the clerk of the court his præcipe also within ten days thereafter, unless the time shall be enlarged by the court or a judge thereof, indicating such additional portions of the record desired by him.

"(b) The evidence to be included in the record shall not be set forth in full, but shall be stated in simple and condensed form, all parts not essential to the decision of the questions presented by the appeal being omitted and the testimony of witnesses being stated only in narrative form, save that if either party desires it, and the court or judge so directs, any part of the testimony shall be reproduced in the exact words of the witness. The duty of so condensing and stating the evidence shall rest

primarily on the appellant, who shall prepare his statement thereof and lodge the same in the clerk's office for the examination of the other parties at or before the time of filing his prœcipe under paragraph a of this rule. He shall also notify the other parties or their solicitors of such lodgment and shall name a time and place when he will ask the court or judge to approve the statement, the time so named to be at least ten days after such notice. At the expiration of the time named or such further time as the court or judge may allow, the statement, together with any objections made or amendments proposed by any party, shall be presented to the court or the judge, and if the statement be true, complete and properly prepared, it shall be approved by the court or judge, and if it be not true, complete or properly prepared, it shall be made so under the direction of the court or judge and shall then be approved. When approved, it shall be filed in the clerk's office and become a part of the record for the purposes of the appeal.

"(c) If any difference arise between the parties concerning directions as to the general contents of the record to be prepared on the appeal, such difference shall be submitted to the court or judge in conformity with the provisions of paragraph b of this rule and shall be covered by the directions which the court or judge may give on the subject.

It has in the second paragraph, especially, a provision which is certain to be exceedingly difficult in many patent causes.

Rule 76 is also a new rule with reference to record on appeal, reduction and preparation, costs, correction of omissions, and is especially interesting as imposing costs on the solicitor where redundant or immaterial matters are included in the transcript. It reads as follows:

"In preparing the transcript on an appeal, especial care shall be taken to avoid the inclusion of more than one copy of the same paper and to exclude the formal and immaterial parts of all exhibits, documents and other papers included therein; and for any infraction of this or any kindred rule the appellate court may withhold or impose costs as the circumstances of the case and the discouragement of like infractions in the future may require. Cost for such an infraction may be imposed upon offending solicitors as well as parties.

If, in the transcript, anything material to either party be omitted by accident or error, the appellate court, on a proper suggestion or its own motion, may direct that the omission be corrected by a supplemental transcript.

Rule 77 puts into a rule what has been a familiar practice in equity causes, that is, of substituting for a record on appeal an agreed statement.

Rule 78 provides for affirmation in lieu of oath following old equity rule 71.

Rule 79 provides that additional rules may be adopted by the district court, being substantially old equity rule 80.

Rule 80 provides that when the time expires on a Sunday or legal holiday, such time shall extend to and include the next succeeding day that is not a Sunday or a legal holiday.

Rule 81 abrogates the old rules and makes these rules effective for all cases pending or thereafter brought, from February 1, 1913.

XVIII. INJUNCTIONS.

The general principles applicable to a consideration of other property rights apply to injunctions in patent cases.

Injunctions may not be granted until the patent is issued. (See Part XIV—Secret Inventions.)

In the application for preliminary injunction it must be made to clearly appear that the patent is valid and is infringed.

The customary basis of application for preliminary injunction, is that the patent has been adjudicated and held valid after a trial and a final hearing, or that its validity has been recognized by that part of the public directly interested.

While there are exceptions in which the circumstances may make the infringement appear to be flagrant and such as should be at once restrained, the customary rule requires in the absence of a prior adjudication a long continued acquiescence in the claims of patentee, under circumstances where it would be in the interest of a part of the public not to admit the monopoly of the patent.

It follows that a preliminary injunction will ordinarily be refused where a prior adjudication has been against the patent and especially where there has been a final adjudication against the patent after a full hearing upon substantially the same ground.

A preliminary injunction is customarily denied where there has been laches on the part of the plaintiff; where the defendant is bona fide working under a similar patent; where the patent is about to expire; or where the granting of the injunction would work a great injury to the defendant and its refusal would injure the plaintiff in a less degree. It is customary in many cases to either substitute for injunction an indemnity bond from the defendant conditioned for the payment of all damages awarded; or to grant a preliminary injunction conditioned that the complainant shall give bond to indemnify the defendant in case the suit fails.

As has been heretofore shown, validity and infringement are different considerations. The mere fact that a patent has been

held valid does not, of course, in any event, lead to the conclusion that the defendant is necessarily infringing.

In any case, the granting or refusal, or the modifying or dissolving of an injunction rests in the sound discretion of the court.

An application for a preliminary injunction is based upon a motion and accompanying affidavits referring to and supplementing the bill of complaint. The defendant may file answering affidavits and it is customary for the complainant, when he desires, to then file reply affidavits.

In the consideration of a motion for a preliminary injunction there is strong reason for refusing to grant an injunction when the dispute involves a difficult question of law or fact, when the character and credibility of witnesses must be measured, and when on the whole the motion presents a question impracticable to settle upon the basis of mere affidavits.

The customary provisions for the punishment or violation of a writ or mandate granting an injunction obtained as in other matters and is further considered in Part XX herein.

The following quotations from some leading opinions of the courts sum up the relations of injunctions to patent causes.

Blount v. Societe, etc., 53 Fed. 98, 3 C. C. A. 455. In this case the court quotes from an English case as follows:

"That there are two points on which the court must satisfy itself. First, it must satisfy itself, not that the plaintiff has certainly a right, but that he has a fair question to raise as to the existence of such a right. The other is whether 'interim' interference, on a balance of convenience or inconvenience to the one party and to the other, is or is not expedient."

And from a case of a Circuit Court of the United States as follows:

"In order to support a motion for an injunction, the bill should set forth a case of probable right, and a probable danger that the right would be defeated without the special interposition of the court."

Then presenting the topic the court says:

"In such suits the plaintiff's application for a provisional or pendente lite injunction should present a title to the patent sued on, the probable validity of such patent, and infringement thereof by the defendant."

Passing then to the province of the Circuit Court of Appeals, the court said:

"But while this court, on appeals like the present, may not properly pass upon the merits of the controversies involved in the litigation, it may incidentally consider the questions relating to the validity and infringement of the patent, as well as all other

facts bearing upon the propriety of sustaining or dissolving the injunction awarded."

And again on the general topic:

"Where all persons, other than the owner of the patent, have for several years refrained from making, using, or selling the patented article, for the reason that it is patented, when it would be for their interest to adopt it, such acquiescence raises a fair presumption of its validity, sufficient to warrant the issuance of a preliminary injunction to restrain its infringement. So, too, if the patentee has long licensed the use of his invention, which no one has, for periods varying from two to eight years, assumed to use or sell without such license, there is such acquiescence as lays the foundation for a preliminary injunction.

* * * * * *

"An interlocutory decree granting an injunction in another case is a good foundation on which to base an application for a preliminary injunction in any other court."

In Electric Mfg. Co. v. Edison, 61 Fed. 334, 10 C. C. A. 106, the court said:

"We have held in Standard Elevator Co. v. Crane Elevator Co., 9 U. S. App. 556, 6 C. C. A. 100, and 56 Fed. 718, that, in the absence of prior adjudication or public acquiescence, a preliminary injunction should not be granted unless the rights of the patentee be clear, and the infringement be without reasonable doubt."

* * * * * *

"Where, however, the patent has been strenuously contested, and its validity determined by a competent tribunal, we think a strong presumption arises in favor of the patent which imposes upon the contestant the burden of attack. Of course such prior adjudication does not conclude the question of right, even as to the defenses passed upon, except as between parties and privies. Such a judgment is not within the principles of res judicata. It is effective, however, to impress upon the patent such additional presumption of validity that demands of a contestant a quantum and force of evidence beyond that passed upon in the prior adjudication, sufficient to convince the court of the probability that, had such further evidence been presented and considered upon the former hearing, a different result would have been reached.

* * * * * *

"It may be difficult to formulate a rule that will comprehend all the conditions which could be presented, but we think it safe to say that in general, where the validity of a patent has been sustained by prior adjudication upon final hearing, and after bona fide and strenuous contest, the matter of its validity upon motion for preliminary injunction is no longer at issue, all de-

fenses, except that of infringement, being reserved to the final hearing; subject, however, to the single exception that, where a new defense is interposed, the evidence to support it must be so cogent and persuasive as to impress the court with the conviction that, if it had been presented and considered in the former case, it would probably have availed to a contrary conclusion. In the consideration of such new defense of anticipation, regard should be had to the rule that such a defense is an affirmative one; that the burden of proof is upon him who asserts it; and that the grant of letters patent is prima facie evidence that the patentee is the first inventor of the device described therein, and of its novelty."

In Wilson v. Consolidated Store Service Co., 88 Fed. 286, 31 C. C. A. 533, the court quotes from its decision in Davis Electric Works v. Edison Electric Light Co., 60 Fed. 276, 282, 8 C. C. A. 615, 621.

"The fundamental basis of jurisdiction in equity in relation to patent rights and trade-marks is the necessity of protecting established enterprises from the great uncertainty caused by infringements, and by the difficulty of measuring the direct and indirect losses if infringements continue."

An excellent summary of reasons which may obtain for refusing a preliminary injunction is given in Hall Signal Co. v. General Ry., 153 Fed. 907, 82 C. C. A. 653.

"First. The five patents in suit relate to a difficult, complex and abstruse subject, namely, the transmission of signals on railways by electricity. Because of its complicated character and the innumerable details involved it is peculiarly a case where the court should have the benefit of the opinions of those skilled in the art tested and clarified by cross-examination.

"Second. The patents have never been adjudicated or judicially construed.

"Third. The defendants assert that the patents are invalid for lack of novelty and invention and that the claims of three of the patents are not infringed.

"The answer sets up twenty-one American and eight prior English patents and alleges four instances of prior use. It is also contended that if the patents are sustained the prior art renders a broad construction of the claims impossible.

"We do not intend to pass upon these defenses further than to say that we can not consider them as wholly devoid of merit. On the contrary we have examined the prior art sufficiently to be convinced that it is quite possible that at final hearing the court may feel constrained to limit the claims to a much narrower construction than is now asserted by the complainants. It is enough to say that the patents may emerge from the supreme

test of the trial with some of the claims invalidated and others so limited as to avoid infringement.

"Fourth. We think the complainants have failed to prove a case of acquiescence which may be regarded as a substitute for an adjudication. There has been no general long continued public acquiescence.

"The railroads are the complainants' only customers and for many years The Hall Company's only competitor was the Union Switch & Signal Company. In a technical sense, therefore, there was no public. It is not the case of a patented device going into long continued general use in circumstances which compel the conviction that infringements would have occurred were it not for a settled conviction on the part of those who might profit by infringing that the patent is valid.

"It is true that the general policy of the Union Company was not to infringe, but we are not at all convinced that this course was adopted through fear of the Wilson patents.

"The Union Company and the Hall Company were active rivals in business, the former advocating and installing the so-called normal safety system and the latter the normal danger system. Every consideration, not only of honesty in competition but of self-interest also, would induce the Union Company to exploit its own system, which it thoroughly understood and in the efficiency of which it had implicit confidence. To assert that its course, which was the natural one for honorable men to adopt, was due solely to the Wilson patents, is, we think, carrying the doctrine of acquiescence beyond the limits set by former adjudications.

"Fifth. We are not convinced that the complainants will suffer irreparable damage if the cause be allowed to take the usual course. That the defendants are amply responsible is conceded and if the complainants' contention is sustained and the patents construed to cover broadly the "normal danger system" there should be no difficulty in recovering the full amount of profits and damages.

"Sixth. The attitude of the court may be stated in a single sentence: We think the record presents too many elements of doubt to warrant the issuing of a preliminary injunction."

Acme Acetylene Appliance Co. v. Commercial Acetylene Co., 192 Fed. 321, 112 C. C. A. 573.

The court quotes from Judge Severens in Interurban Ry. & T. Co. v. Westinghouse E. & Mfg. Co., 186 Fed. 170, 108 C. C. A. 302, as follows:

"And when there has been a prior adjudication sustaining a patent and the infringement thereof in the same or another circuit, where the validity of the patent has been contested upon

full proofs, the circuit court should, upon a motion for preliminary injunction, sustain the patent, and leave the determination of the question of its validity to be determined upon the final hearing."

In Grand Rapids v. Warren, 196 Fed. 892, C. C. A. the court quotes Judge Taft in Societe Anonyme du Filtre v. Allen, 90 Fed. 815, 33 C. C. A. 282, as follows:

"We are not prepared to say that, even in the absence of any direct evidence at all as to the infringement, a court might not, on a motion for a preliminary injunction, infer infringement from the disingenuousness of defendant's witnesses and their reluctance to disclose all the facts. * * * The question for the court upon this hearing is whether the court below exceeded the limits of a sound judicial discretion in refusing an injunction to the complainant. We may answer this question in the affirmative, without deciding that, had the court entered an order for the injunction, that order should be reversed. The function of the court of appeals, in hearings like this, is such that it may properly affirm an order refusing a preliminary injunction in one case and an order granting it in another on substantially the same evidence, because it is easy to conceive a case presenting upon a preliminary hearing such an evenly balanced controversy that the court above would affirm the action of the court below, whether one way or the other, when that action involves the exercise, not of exact judicial judgment, but merely judicial discretion."

* * * * * *

Upon the question of infringement on the general situation of the case, the court said:

"As regards the evidence on the question of infringement, there was presented to the trial court a question of fact, substantial, serious, doubtful, and of great importance to the appellee, whose decision in its favor would entitle it to ultimate relief. That it would not ultimately succeed was not reasonably clear. The situation was such that the trial court might properly conclude that injury certain, great, and irreparable would result to the appellee through interference with, and impairment of, appellee's business and a multiplicity of suits and their attendant expense, if its motion were denied and the final decision should be in its favor, while the inconvenience and loss to the appellants, should the injunction be allowed to go, would be comparatively small and insignificant, for they could be abundantly indemnified by a proper bond. The court, under such circumstances, could rightly maintain the status quo pending the suit by granting a provisional injunction, or by exacting a proper bond from the appellants to protect the appellee from loss.

And in determination of the matter:

"We have concluded to remand, with direction that the injunction be dissolved upon the execution of a bond by the defendants below, with satisfactory security, in such sum as shall be determined by the court below, conditioned to account for and pay all damages resulting from the manufacture or sale of the alleged infringing device after the dissolution and prior to a final decree sustaining the patent and finding infringement. But, if the appellant declines to give such bond, the injunction will be dissolved unless the complainant shall execute a bond in a sum to be settled by the court below, with good security, conditioned to pay all damages which shall result from the wrongful suing out of the injunction."

Appeals.—Section 7 of the Act of March 3, 1891 (26 Stat. L. 826), as twice amended, provides for an appeal from an injunction granting or continuing an interlocutory order or decree, but the appeal is to be had only by the party enjoined. Ex parte National Enameling Co., 201 U. S. 156, 50 L. ed. 707.

XIX. ACCOUNTING, PROFITS AND DAMAGES.

The broad principles governing the assessing of damages and the measuring of profits have been heretofore presented.

While in an action at law damages may be obtained, in equity the complainant may recover the amount of the gains and profits of the defendant and, in addition may have assessed the damages sustained. It has been specifically held that in measuring profits the proper expenses of making and marketing are to be deducted from the selling price, but no losses, insurance, and interest upon capital invested in the plant, nor compensation for personal services.

For many years the attitude of the courts in many cases made it generally impossible to obtain an adequate money remedy in a patent cause. The requirements upon the plaintiff were more exacting than in any ordinary cause, and the practice offered a premium to defendants who confused in a mass of details the gains and profits derived.

Recently, however, the courts have broadened the rules so that a fairer accounting may be possible.

In Wales v. Waterbury Mfg. Co., 101 Fed. 126, 41 C. C. A. 250, the court said:

"The master found that the patented buckle was "the best and only known buckle that could have sold pencil-holders, and no part of the profits would have been made except for it."

* * * * * * *

"In disallowing the profits upon the combined buckle and

lever he did so apparently in deference to the rule that where the articles which have been made and sold by the infringer contain not the patented invention alone, but other inventions or improvements, the profits for which he is to account are not the total profits, but those only which are attributable to the presence of the patented invention. This has always been the rule, and it is manifestly a just one upon principle; but it is often difficult of practical application, and the courts have sometimes applied it so that it has not produced an equitable result. In many cases where it is obvious that the patented invention has contributed a great part of the profits realized from selling the infringing article or apparatus embodying unpatented features it is practically impossible for the complainant to establish affirmatively the proportionate part."

* * * * * *

"An infringer is a trustee ex maleficio for the owner of the exclusive rights protected by the patent, and a trustee who has confused the profits made by the use of the trust property with those made from his own property and commingled them so that they can not be segregated must account for the whole. (Lupton v. White, 15 Ves. 432; Hart v. Ten Eyck, 2 Johns. Ch. 108; Central Nat. Bank v. Connecticut Mut. Life Ins. Co., 104 U. S. 54, 26 L. ed. 693.) On the other hand, such a rule would work unjustly in many cases, as where the patented feature is of an insignificant part of the machine or article, and it is probably because of its manifest inequity in such cases that the courts have placed upon the complainant the burden of proof. Thus in Garretson v. Clark, 111 U. S. 120, 4 Sup. Ct. 291, 28 L. ed. 371, where the patent was for an improvement in a mop-head and the defendant sold mops which contained the patented improvement, but otherwise were the common unpatented article, it would have been unreasonable to permit the complainant to recover the profits on the entire mops, and because he had not given evidence to apportion the profits between the patented features and the other features of the mop the court decided that he had not established any basis for the recovery of profits. The court in that case quoted with approval the proposition stated in the following terms:

"The patentee must in every case give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented features and the unpatented features, and such evidence must be reliable and tangible, and not conjectural and speculative; or he must show by equally reliable and satisfactory evidence that the profits and damages are to be calculated on the whole machine, for the reason that the entire

value of the whole machine as a marketable article is properly and legally attributable to the patented feature."

* * * * * * *

"If the improvement is required to adapt the machine to a particular use, and there is no other way open to the public to supply the demand for that use, then it is clear that the infringer has, by his infringement, secured the advantage of a market he would not otherwise have had, and that the fruits of this advantage are the entire profits he has made in that market." Sessions v. Romadka, 145 U. S. 29, 36 L. ed. 609.

"It seems the defendants did not manufacture these fasteners for sale, but did manufacture them for use on the trunks made and sold by them. Obviously, their profits upon the entire trunk would not be a proper measure of damages, since the fasteners were only an inconsiderable part of the trunk, and profits upon the entire article are only allowable where such article is wholly the invention of the patentee, or where its entire value is properly and legally attributable to the patented feature. Seymour v. McCormick, 16 How. 480; Mowry v. Whitney, 14 Wall. 620; Littlefield v. Perry, 21 Wall. 205; Garretson v. Clark, 111 U. S. 120, 4 Sup. Ct. 291. This court has, however, repeatedly held that, in estimating damages in the absence of a royalty, it is proper to consider the savings of the defendant in the use of the patented device over what was known and in general use for the same purpose anterior to the date of the patent."

"We see no reason why this measure of damages should not be applied to this case. The only argument to the contrary is that the instances in which this court has applied this rule are confined to those wherein the defendant has made use of the complainant's invention in the operation and conduct of his business, and that it ought not to be extended to cases in which the defendant manufactures and sells the devices. Without questioning at this time the soundness of this contention, we think this case falls within the former rather than within the latter category."

* * * * * * *

"In such a case it makes no difference whether their general business has been conducted at a profit or loss, or whether they have derived an additional profit from the sale of trunks equipped with this device over those not so equipped, although the presumption would be, from the saving made by them in the use of this device, that an additional profit upon the sale of the trunks was made, unless it were shown that the use of this device in some way resulted in a diminution of profits upon the entire manufacture."

Rude v. Westcott, 130 U. S.. 152, 32 L. ed. 888.

"It is undoubtedly true that where there has been such a number of sales by a patentee of license to make, use and sell his patents as to establish a regular price for a license, that price may be taken as a measure of damages against infringers. That rule was established in Seymour v. McCormick, 16 How. 480, and affirmed in Corporation v. Ransom, 23 How. 487; Packet Co. v. Sickles, 19 Wall. 611, 617; Birdsall v. Coolidge, 93 U. S. 64; and Root v. Railway Co., 105 U. S. 189, 197. Sales of licenses, made at periods years apart, will not establish any rule on the subject and determine the value of the patent. Like sales of ordinary goods, they must be common, that is, of frequent occurrence, to establish such a market-price for the article that it may be assumed to express, with reference to all similar articles, their salable value at the place designated. In order that a royalty may be accepted as a measure of damages against an infringer, who is a stranger to the license establishing it, it must be paid or secured before the infringement complained of; it must be paid by such a number of persons as to indicate a general acquiescence in its reasonableness by those who have occasion to use the invention; and it must be uniform at the places where the licenses are issued."

Yesbera v. Hardesty Mfg. Co., 166 Fed. 1201, 92 C. C. A. 46 (Sixth).

"And if the books had not been lost or destroyed, in proof of which there was nothing but the vague suggestions of these witnesses, no one who reads this record could fail to agree with the master in his final conclusion. The master's report of the proceeding before him fills 230 or more pages of the printed record, and shows a long but unavailing endeavor to elicit from the defendant the proof which would have made it easily possible for the master to make a right and just report upon the subject of the reference. It may be that more stringent measures might have been taken to enforce the order of the court, if, as the master believed, the defendant had the control of the missing books and records. But the defendant can not complain of that. His failure or refusal to produce the most satisfactory evidence leaves his case exposed to the presumption that if produced it would tell against him, and compels the court to rely on the less definite and certain evidence which the record may supply. This is a rule by which the courts are governed. If they fail to observe it, the rights of parties may utterly fail of protection."

* * * * * *

"Then as to the subject of damages. The master found that none were proved. The foundation of the claim in that regard is that the complainant's selling price was $2 for each stool of the common size, and about $2.25 for the larger. To the extent of a

price of $1.70, the complainant has already been compensated in profits. It might probably be conceded that the plaintiff could have made and sold the stools which the defendant made and sold. But it does not follow that it could have sold them at the price of $2 and $2.25."

* * * * * * *

"The law certainly does not permit the duplicating the same elements of damages (we use that term in its generic sense) upon both grounds for recovery, and, when they have been allowed upon one ground, the court should be careful to see that they are not given upon the other."

* * * * * * *

"In the present case the infringer's conduct has been such as to preclude the belief that it has derived no advantage from the use of the plaintiff's invention, as the master well said. In these circumstances, upon whom is the burden of loss to fall? We think the law answers this question by declaring that it shall rest upon the wrongdoer, who has so confused his own with that of another that neither can be distinguished."

Westinghouse et al v. N. Y. Brake Co., 140 Fed. 545, 72 C. C. A. 61 (Second.)

The general rule governing recoveries in infringement cases is stated, quoting Judge Blatchford, 15 Blatch. 70, Fed. Cas. No. 5,248, in Garretson v. Clark, 111 U. S. 120, 4 Sup. Ct. 291, 28 L. ed. 371, in the following language:

"The patentee must in every case give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented features and the unpatented features, and such evidence must be reliable and tangible, and not conjectural and speculative; or he must show by equally reliable and satisfactory evidence that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine as a marketable article is properly and legally attributable to the patented feature."

The court then points to the substantial modification of the rule in Wales v. Waterbury (supra) and gives examples under the second part of the rule, applying the principle as follows:

"Inasmuch as the complainants did not attempt to separate or apportion the defendant's profits and their own damages between the patented and the unpatented features of the quick-action triple valve, it was incumbent upon them to prove that the entire value of the defendant's quick-action valve as a marketable article was properly and legally attributable to the patented features. What they did prove, and all they proved, was that purchasers of triple valves generally demanded some

form of quick-action valves, and that, except to a very limited extent, purchasers could not be found for valves without these features. This falls short of proof that only the patented form could supply the demand, and does not meet the requirements of the second branch of the rule."

In Westinghouse Electric Co. v. Wager, 225 U. S. 604, 56 L. ed. 1222 (1912) the Supreme Court, perceiving the chaotic condition caused by the varying application of conflicting "rules" did much to advance the application of the law to its apparent end.

The position of the court is evidenced by the following:

"The statute makes the decision of the circuit court of appeals final in patent cases, and the plaintiff's petition for the writ of certiorari herein was not granted for the purpose of reexamining the court's ruling that defendant's Type M transformer was not an infringement of claim 4 of the Westinghouse patent. The writ was issued in view of the holding that, though the master found that the defendant had made a profit of $132,000 from the sale of infringing transformers, the plaintiff could yet only recover one dollar because it failed to separate the profits made by its patent from those made by the defendant's addition.

"1. The question as to who has the burden of proof, in cases like this, is one of great practical importance and constantly arises in patent cases. There has been much controversy on the subject and a conflict in the decisions. The authorities cited in the briefs of the two litigants, and others bearing on the subject, have been examined, but we shall not undertake to separately review them, for they disagree not so much as to the rule as to its application. It will be sufficient for the present purposes to say that—

"(a) Where the infringer has sold or used a patented article, the plaintiff is entitled to recover all of the profits.

"(b) Where a patent, though using old elements, gives the entire value to the combination, the plaintiff is entitled to recover all the profits. (Hurlbut v. Schillinger, 130 U. S. 472.)

"(c) Where profits are made by the use of an article patented as an entirety, the infringer is liable for all the profits—

"unless he can show—and the burden is on him to show—that a portion of them is the result of some other thing used by him. (Elizabeth v. Paving Company, 97 U. S. 127.)"

"(d) But there are many cases in which the plaintiff's patent is only a part of the machine and creates only a part of the profits. His invention may have been used in combination with valuable improvements made, or other patents appropriated by the infringer, and each may have jointly, but unequally, contributed to the profits. In such case, if plaintiff's patent only

created a part of the profits, he is only entitled to recover that part of the net gains. He must, therefore—

"give evidence tending to separate or apportion the defendant's profits and the patentee's damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature. (Garretson v. Clark, 111 U. S. 121.)"

The real controversy arises in applying this principle to those cases where it is impossible to separate the single profit into its component parts.

"4. Having, by books and other data, proved to the satisfaction of the master the existence of profits, the plaintiff had carried the burden imposed by law, and established every element necessary to entitle it to a decree, except one. As to that, the act of the defendant had made it not merely difficult but impossible to carry the burden of apportionment. But plaintiff offered evidence tending to establish a legal equivalent. It had proved the existence of a fact which, whether treated as a rule of evidence or as a matter of substantive law, would entitle it to a decree for all the profits. The method was different from that mentioned in the second branch of the rule in the Garretson Case, 111 U. S. 121, but the plaintiff had now presented proof to demonstrate its right to the whole of the fund because of the fact that the defendant had inextricably commingled and confused the parts composing it. This result would not be in conflict with the principle which in the first instance imposed the burden of proof on the plaintiff, but merely gave legal effect to a new fact which as a matter of law entitled the patentee to a particular judgment. It presented a case where the court was called on to determine the liability of a trustee ex maleficio, who had confused his own gains with those which belonged to the plaintiff. One party or the other must suffer. The inseparable profit must be given to the patentee or infringer. The loss had to fall on the innocent or the guilty. In such an alternative the law places the loss on the wrongdoer.

"5. It is said, however, that the rule does not apply to patent cases. Why it should be limited does not appear."

* * * * * * *

"6. But when a case of confusion does appear—when it is impossible to make a mathematical or approximate apportionment—then from the very necessity of the case one party or the other must secure the entire fund. It must be kept by the infringer,

or it must be awarded, by law, to the patentee. On established principles of equity, and on the plainest principles of justice, the guilty trustee cannot take advantage of his own wrong. The fact that he may lose something of his own is a misfortune which he has brought upon himself; and if, as argued, the fund may have been made by the use of other patents also, for which he may be liable in another case, it is again a misfortune which he has brought upon himself and an instance of a double wrong causing double liability. He can not appeal to a court of conscience to cast the loss upon an innocent patentee and by judicial decree repeal the provision of Revised Statutes 4921, which declares that in case of infringement the complainant shall be entitled to recover the "profits to be accounted for by the defendant."

"This conclusion is said to be in conflict with the Garretson and other decisions which, it is claimed, justify the conclusion that the defendant is entitled to retain all of the profits even where the patentee is unable to make an apportionment. (Warren v. Keep, 155 U. S. 265.) An analysis of the fact of those cases will show that they do not sustain so extreme a doctrine. For they deal with instances where the plaintiff apparently relied on the theory that the burden was on the defendant, and for that, or other reasons, made no attempt whatever to separate the profits. None of the cases cited discuss the rights of the patentee who has exhausted all available means of apportionment, who has resorted to the books and employes of the defendant, and by them, or expert testimony proved, that it was impossible to make a separation of the profits. This distinction, between difficulty and impossibility, is involved in the ruling by the Circuit Court of Appeals of the Sixth Circuit in Brennan v. Dowagiac, 162 Fed. 476, where the Garretson Case was distinguished."

XXI. COSTS, CONTEMPT AND FINES.

Costs.—The ordinary rules governing the taxation of costs at law and in equity prevail in a patent cause, except as modified by delay in filing disclaimer under the provisions of the statute (supra). Costs do not include copies of patents, records, drawings and exhibit models, except in some cases plaintiff's model of the patent in suit.

Contempt.—Actual service of an order of injunction upon the person enjoined is not requisite. Actual notice is sufficient to lay a foundation of a proceeding for contempt.

It is the duty of an enjoined defendant to see that his employés do not violate the injunction; and a continuance of an

injunction by a reorganized company or one who knowingly assists in violating the injunction presents a case of contempt.

In various cases the courts have held in contempt those who violate the spirit of the injunction, though not the letter. It is a violation of an injunction to sell an enjoined article outside of the jurisdiction of the court granting the injunction. In brief, no excuses will ordinarily be accepted by the court which amount merely to an evasion of the injunction or a reargument of the cause. As a matter, of course, the injunction lives only through the life of the patent.

On the hearing of a charge of contempt, substantially the same questions of identity are presented as would be involved in determining infringement.

It is a general rule that the fine assessed for the violation of an injunction is within the discretion of the court. The fine may be distributed, that is, a part or all may go to the complainant as compensation for his time and outlay in prosecuting the motion.

Although, the contempt consists in the violation of an injunction granted by a court of equity, the proceeding for its punishment is "a new and distinct proceeding, and is quite independent of the equities of the case in which the decree is founded," so that an appeal is not an appropriate remedy for obtaining a review.

Inasmuch as a proceeding to punish for contempt is in its nature a criminal proceeding, it may be classified as a misdemeanor and may be reviewed by writ of error. Recently the courts in interpreting the decision in the Gompers case, 221 U. S. 492, have held that where a man is ordered to do something the court, on application to punish for contempt, may imprison him until he obeys the order. However, if the court orders one not to do something and he disobeys, the court can not imprison him nor punish him by fine for the benefit of the United States.

It has been held and practiced, especially in the second circuit, that the utmost measure of the fine the court may impose is the exact amount of money the complainant can show he has lost by the specific act of which he complains.

This still leaves open an opportunity where there has been flagrant contempt of the court for the District Attorney to institute a criminal action.

To all intents and purposes, this view of the law puts such a burden upon the complainant as to in a great measure destroy the value of the proceeding to the successful complainant in a suit in equity.

CASES ON PATENTS.

PART I.

ORIGIN AND NATURE OF PATENTS.

Monopolies in England—Commor. Law—Statute of Monopolies—Constitutional Provision—Early Patent Laws of United States—Distinguishing Principles of That Law—Secret Inventions—Statutory Basis of Patent Contract—Patent Monopoly Not One in Restraint of Trade—Grant of Exclusion in Exchange for a Disclosure.

1. SOME PATENTS, LICENSES, CHARTERS AND PRIVILEGES GRANTED IN QUEEN ELIZABETH'S REIGN.

(From notes by Lord Treasurer Burghley, as given in *Murdin's Cecil* or *Burghley Papers*, 99, 747, ff. 1.)

Dec. 1, 1565. The Queen's Majesty granted a license to the Duke of Norfolk for carrying of wool out of Norfolk.

August, 1585. A privilege granted to Thomas Wilkes, clerk of the council, to bring in white salt within the ports of Lynn and Boston.

January, 1586. The grant to Sir Thomas Wilkes renewed, with including of Hull, with proviso, that if he shall not make sufficient provision thereof, it shall be lawful for any other to bring in salt.

April, 1587. A privilege granted to Richard Young of London for making starch only upon bran of wheat, paying £40 yearly.

Nov. 17th, 1588. A license to Bevis Bulmer for twelve years for the use of an instrument for cutting of iron into small rods.

December, 1588. A license to William Stubbes for transporting out of Ireland one thousand packs of linen yarn.

January, 1589. A license to John Spillman to buy linen rags for making of white paper.

May, 1589. A license to Lord Hunsdon to transport 20,000 broadcloths for the space of six years, paying the custom after six months' shipping.

September, 1589. A license to Thomas Proctor and William Peterson to make iron and lead, with sea-coal and turf.

September, 1589. A prohibition for the execution of the exemplification of her Majesty's grant of the penalty for sowing flax and hemp.

December, 1592. A grant to Dr. Lopaz for bringing in anise-seed and sumach.

May, 1593. A gift of her Majesty of £800 to Sir John Pakington without account.

March, 1594. A grant to Edw. Darcy of the Privy Chamber for searching and sealing all kinds of buffs.

March, 1596. A joint patentship to Thomas Windebank and Thomas Lake for writing letters patents.

November, 1596. A grant to William Carre, Esq., for brewing and selling beer for the space of seven years within the cities of London and Westminster, and the counties of Suffolk, Essex, Kent, Middlesex, Surrey and Sussex.

2. SOME ITEMS OF "A NOTE OF MONOPOLIES, 1603."

(By Lodge: Illustrations of British History, 1791, vol. iii, pp. 159 ff.)

"Monopolies."

33 Eliz. A grant to Reybold Hopton only, and no other, to make flasks, touch-boxes, powder-boxes, and bullet-boxes, for 15 years.

40 Eliz. A grant to Ede Schetts, and his assignees only, and no other, to buy and transport ashes and old shoes for seven years.

41 Eliz. A grant that Brigham and Wimmes shall only have the pre-emption of tin. Etc., etc.

"Other Monopolies for One Man Only and No Other."

To register all writings and assurances between merchants, called policies.

To print the *Psalms of David.*

To print the law.

That one man and no other shall make writs of subpoena in Chancery. Sir Thomas George. Etc., etc.

Licenses and Dispensations to One Man Only, of the Whole Penalty of Penal Laws, and Power Given to License Others.

[18] Eliz. A license to Sir Edward Dyer, to pardon and dispense with tanning of leather, contrary to the statute of 5 Eliz., and to license any man to be a tanner.

36 Eliz. A license to Roger Bineon, and others, to take the whole forfeiture of the statute of 5th and 6th of Edw. VI, for pulling down gig-mills. Etc., etc.

Impositions.

41 Eliz. A grant to Bevis Bulmer to have an imposition of sea-coal, paying £6,200 rent for 21 years.

41 Eliz. A license to trade the Levant seas with currants only, paying £4,000 per annum.

New Inventions.

Only and no Other, so as They Were Never Used in England Before.

To inn and drain [ ] grounds.
To take water fowl.
To make devices of safe-keeping of corn.
To make a device for soldiers to carry necessary provisions.

3. LISTS OF PATENTS GRANTED BETWEEN THE PARLIAMENTS OF 1597 AND 1601.

(As given by Townshend, p. 239.)

Currants, Iron, Powder, Cards, Horns, Ox shin-bones, Train Oil, Lists of cloth, Ashes, Bottles, Glasses, Bags, Shreds of gloves, Anise-seed, Vinegar, Sea-coals, Steel, Aqua vitae, Brushes, Pots, Salt, Saltpeter, Lead, Accedence, Oil, Transportation of leather, Calamine-stone, Oil of blubber, Fumothoes, or dried pilchards in the smoke, And divers others.

4. BACON'S SPEECH, NOVEMBER 20, 1601.

(Townshend, pp. 231-2.)

For the prerogative Royal of the prince: For my part, I ever allowed of it; and it is such as I hope I shall never see discussed. The queen, as she is our sovereign, hath both an enlarging and restraining liberty in her prerogative; that is, she hath power by her patents, to set at liberty things restrained by statute-law or otherwise: And by her prerogative, she may restrain things that are at liberty.

For the first: She may grant *non-obstantes,* contrary to the penal laws; which truly, in my own conscience, are as hateful to the subject as monopolies. For the second: If any man out of his own wit, industry, or endeavor, find out anything beneficial for the commonwealth, or bring any new invention, which

every subject of this realm may use; yet in regard of his pains, travail, and charge therein, her Majesty is pleased (perhaps) to grant him a privilege to use the same only by himself, or his deputies, for a certain time: This is one kind of monopoly. Sometimes there is a glut of things, when they be in excessive quantities, as of corn; and perhaps, her Majesty gives license to one man of transportation. This is another kind of monopoly. Sometimes there is a scarcity or small quantity; and the like is granted also.

These, and divers of this nature, have been in trial, both in the Common-Pleas, upon actions of trespass, where if the judges do find the privilege good for the commonwealth, they will allow it, otherwise disallow it. And also, I know, that her Majesty herself, hath given command to her attorney-general, to bring divers of them (since the last Parliament) to trial in the Exchequer. Since which, fifteen or sixteen to my knowledge, have been repealed: Some upon her Majesty's own express command, upon complaint made unto her by petition; and some by *quo warranto,* in the Exchequer.

But, Mr. Speaker (said he pointing to the bill), this is no stranger in this place; but a stranger in this vestment. The use hath been ever, by petition to humble ourselves to her Majesty, and by petition to desire to have our grievances redressed; especially, when the remedy toucheth her so nigh in prerogative. All can not be done at once, neither was it possible, since the last Parliament, to repeal all. If her Majesty makes a patent, or a monopoly, to any of her servants; that we must go and cry out against: But if she grants it to a number of burgesses, or corporation, that must stand; and that, forsooth, is no monopoly.

I say, and I say again, that we ought not to deal, or meddle with, or judge of her Majesty's prerogative. I wish every man, therefore, to be careful in this point. And humbly pray this House to testify with me, that I have discharged my duty, in respect of my place, in speaking on her Majesty's behalf; and do protest, I have delivered my conscience, in saying what I have said.

5. (FROM LETTER OF ELIZABETH'S SECRETARY, CECIL, FORWARDING TO PARLIAMENT HER PROCLAMATION OF NOVEMBER 28, 1601.

"I dare assure you from henseforth there shall be no more granted, they shall all be revoked. And because you may eat your meat more savoury than you have done, every man shall have salt as good and cheap as he can buy it or make it without

danger of that patent which shall presently be revoked. The like benefit shall they have who have cold stomachs both for *aqua vitae* and *aqua composita*, and the like; and they that have weak stomachs, for their satisfaction, shall have vinegar and alegar, and the like, set at liberty. Train oil shall go the same way, oil of blubber shall march in equal rank; brushes and bottles endure the like judgment. The patent for pouldavy (sail cloth) if it be not called in, it shall be. Woade, which as I take it, is not restrained either by law or statute, but only by proclamation (I mean from the former sowing) though for the saving thereof it might receive good disputation, yet for your satisfaction the Queen's pleasure is to revoke that proclamation; only she prayeth thus much, that when she cometh on progress to see you in your counties, she be not driven out of your towns by suffering it to infect the air too near them. They that desire to go sprucely in their ruffs may, at less charge than accustomed, obtain their wish. The patent for starch which hath been so prosecuted shall now be repealed."

(Quoted by Coryton, pp. 28, 29.)

6. ELIZABETH'S PROCLAMATION CONCERNING MONOPOLIES NOVEMBER 28, 1601.

(Brit. Mus. Proc. Coll., G. 6463-388.)

BY THE QUEEN:

A proclamation for the reformation of many abuses and misdemeanors committed by patentees of certain privileges and licenses, to the general good of all her Majesty's loving subjects.

Whereas her most excellent Majesty having granted divers privileges and licenses (upon many suggestions unto her Highness, that the same should tend to the common good and profit of her subjects), hath since the time of those grants received divers informations of sundry grievances lighting upon many of the poorer sort of her people (by force thereof) contrary to her Majesty's expectation at the time of those grants: All which being duly examined, by such as her Majesty hath directed to consider and report the state of such complaints as have been made in that behalf, it doth appear that some of the said grants were not only made upon false and untrue suggestions contained in her letters patents, but have been also notoriously abused, to the great loss and grievance of her loving subjects (whose public good she tendereth more than any worldly riches):

And whereas also upon like false suggestions, there have been obtained of the lords of her Highnesss Privy Council divers letters of assistance, for the due execution of divers of the

said grants, according to her Highness's gracious intention and meaning.

Forasmuch as her most excellent Majesty (whose care and providence never ceaseth to preserve her people in continual peace and plenty) doth discern that these particular grants ensuing; namely, of or in any wise concerning salt, salt upon salt, vinegar, acqua vitae, or aqua composita, or any liquor concerning the same, salting and packing of fish, train oil, blubbers or livers of fish, poldavies and mildernix, pots, brushes and bottles, and starch, have been found in consequence so far differing from those main grounds and reasons which have been mentioned in the grants and have also in the execution of the said letters patent been extremely abused, contrary to her Highness's intention, and meaning therein expressed: She is now pleased of her mere grace and favor to all her loving subjects, and by her regal power and authority to publish and declare (by virtue hereof) all the said grants above mentioned and every clause, article, and sentence (in the letters patents thereof contained) to be void. And doth further expressly charge and command all the said patentees, and all and every person and persons claiming by, from, or under them, or any of them, that they or any of them do not at any time hereafter presume or attempt to put in use, or execution, anything therein contained, upon pain of her Highness's indignation, and to be punished as contemners and breakers of her royal and princely commandment.

And whereas her Majesty hath also granted divers other privileges and licenses, some for the better furnishing of the realm with such warlike provisions as are necessary for the defense thereof (as namely that concerning saltpeter), and some of other kinds to particular persons which have sustained losses and hindrances by service at sea and land, or such as have been her Majesty's ancient domestical servitors, or for some other like considerations, as namely, new drapery, Irish yarn, calf-skins, pelts, cards, glasses, searching and sealing of leather, and steel, and such like. In which grants also her Highness hath been credibly informed that there hath been abuse in the execution of them, to the hurt and prejudice of her loving subjects (whereof she meaneth also that due punishment shall follow upon such as shall be found to have particularly offended) her Majesty doth by these presents likewise publish, notify, and declare her gracious will and pleasure to be, that all and every her Highness's loving subjects, that at any time hereafter shall find themselves grieved, injured, or wronged by reason of any of the said grants, or any clause, article, or sentence therein contained, may be at his or their liberty to take their ordinary remedy by her Highness's laws of this realm, any matter or thing in any of the said grants to the contrary notwithstanding.

And forasmuch as her Majesty (with the advice of her Privy

Council) is now resolved that no letters from henceforth shall be written from them to assist these grants, seeing they have served for pretexts to those that have had them, to terrify and oppress her people (merely contrary to the purpose and meaning of the same), her Majesty doth straightly charge and command, that no letters of assistance that have been granted by her Council for execution of these grants, shall at any time hereafter be put in execution, or any of her loving subjects be thereby enforced to do or perform anything therein contained. And that no pursuivant, messenger of her Highness's Chamber, or other officer whatsoever do or at any time hereafter presume or attempt anything against any of her loving subjects, by pretext or color of any such letters of assistance for execution or putting in use of any of those aforesaid grants, or anything therein contained.

And as her Majesty doth greatly commend the duty and obedience that her loving subjects have yielded in conforming themselves to the said grants, being under the great seal of England: So her Majesty doth notify and signify by these presents that if any of her subjects shall seditiously or contemptuously presume to call in question the power or validity of her prerogative royal, annexed to her imperial crown, in such cases all such persons so offending, shall receive severe punishment, according to their demerits.

And whereas she hath also been informed that divers of her subjects are desirous to be set at liberty for the sowing of woad, restrained by a proclamation in the fortieth and two year of her reign, at which time it was thought by many men of good experience that such restraint would be a mean to prevent sundry inconveniences, forasmuch as her Majesty had never other purpose by that restraint than to do that which might be for the greatest and most general benefit of her subjects: Her Highness is also pleased (and so she doth) by this proclamation set at liberty all such persons as shall think it for their good to employ their grounds to the use of sowing of woad, notwithstanding any such prohibition in any former proclamation. Provided always, that it shall not be lawful for any person or persons whatsoever to convert any ground that shall be within three miles of the city of London, or near any of her Majesty's houses of access, or so near to any other great city or town corporate, whereby any offense may grow from the noisome savor of the same.

Given at our palace at Westminster the 28th day of November, in the fortieth and four year of her Majesty's most prosperous reign.

God save the Queen.

Imprinted at London by Robert Barker, printer to the queen's most excellent Majesty.

7. THE "GOLDEN SPEECH" OF QUEEN ELIZABETH TO HER LAST PARLIAMENT, NOVEMBER THE 30TH, A. D. 1601.

(Somers, Tracts, i, 244-246.)

Her Majesty being set under state in the Council Chamber at Whitehall, the speaker, accompanied with privy councilors, besides knights and burgesses of the lower House to the number of eight-score, presenting themselves at her Majesty's feet, for that so graciously and speedily she has heard and yielded to her subjects' desires, and proclaimed the same in their hearing as followeth:

MR. SPEAKER:

We perceive your coming is to present thanks unto us. Know I accept them with no less joy than your loves can have desire to offer such a present, and do more esteem it than any treasure or riches; for those we know how to prize, but loyalty, love, and thanks, I account them invaluable; and though God hath raised me high, yet this I account the glory of my crown, that I have reigned with your loves. This makes that I do not so much rejoice that God hath made me to be queen, as to be queen over so thankful a people, and to be the means under God to conserve you in safety, and preserve you from danger, yea to be the instrument to deliver you from dishonor, from shame, and from infamy, to keep you out of servitude, and from slavery under our enemies, and cruel tyranny, and vile oppression intended against us; for the better withstanding whereof we take very acceptable your intended helps, and chiefly in that it manifesteth your loves, and largeness of hearts to your sovereign. Of myself, I must say this, I never was any greedy scraping grasper, nor a strict fast-holding prince, nor yet a waster; my heart was never set upon any worldly goods, but only for my subjects' good. What you do bestow on me I will not hoard up, but receive it to bestow on you again; yea mine own properties I account yours to be expended for your good, and your eyes shall see the bestowing of it for your welfare.

Mr. Speaker, I would wish you and the rest to stand up, for I fear I shall yet trouble you with longer speech.

Mr. Speaker, You give me thanks, but I am more to thank you, and charge you to thank them of the Lower House from me; for had I not received knowledge from you, I might have fallen into the lapse of an error, only for want of true information.

Since I was queen, yet did I never put my pen to any grant but upon pretext and semblance made me, that it was for the good and avail of my subjects generally, though a private profit to some of my ancient servants, who have deserved well; but that my grants shall be made grievances to my people, and oppressions, to be

privileged under color of our patents, our princely dignity shall not suffer it.

When I heard it, I could give no rest unto my thoughts until I had reformed it, and those varlets, lewd persons, abusers of my bounty, shall know I will not suffer it. And, Mr. Speaker, tell the House for me, I take it exceeding grateful, that the knowledge of these things are come unto me from them. And tho' amongst them principal members are such as are not touched in private, and therefore need not speak from any feeling of grief, yet we have heard that other gentlemen also of the House, who stand as free, have spoken as freely in it; which gives us to know, that no respects or interests have moved them other than the minds they bear to suffer no diminution of our honor and our subjects' love unto us. The zeal of which affection tending to ease my people, and knit their hearts unto us, I embrace with a princely care far above all earthly treasures. I esteem my people's love, more than which I desire not to merit: and God that gave me here to sit, and placed me over you, knows, that I never respected myself, but as your good was conserved in me; yet what dangers, what practices, and what perils I have passed, some, if not all of you know; but none of these things do move me, or ever made me fear, but it's God that hath delivered me.

And in my governing this land, I have ever set the last judgment day before mine eyes, and so to rule as I shall be judged and answer before a higher Judge, to whose judgment seat I do appeal: in that never thought was cherished in my heart that tended not to my people's good.

And if my princely bounty have been abused, and my grants turned to the hurt of my people contrary to my will and meaning, or if any in authority under me have neglected, or converted what I have committed unto them, I hope God will not lay their culps to my charge.

To be a king, and wear a crown, is a thing more glorious to them that see it than it's pleasant to them that bear it; for myself, I never was so much enticed with the glorious name of a king, or the royal authority of a queen, as delighted that God hath made me his instrument to maintain his truth and glory, and to defend this kingdom from dishonor, damage, tyranny, and oppression. But should I ascribe any of these things to myself or my sexly weakness, I were not worthy to live, and of all most unworthy of the mercies I have received at God's hands, but to God only and wholly all is given and ascribed.

The cares and troubles of a crown I can not more fitly resemble than to the drugs of a learned physician, perfumed with some aromatical savor, or to bitter pills gilded over, by which they are made more acceptable or less offensive, which indeed are bitter and

unpleasant to take; and for my own part, were it not for conscience sake to discharge the duty that God hath laid upon me, and to maintain his glory, and keep you in safety, in mine own disposition I should be willing to resign the place I hold to any other, and glad to be freed of the glory with the labors, for it is not my desire to live nor to reign longer than my life and reign shall be for your good. And though you have had and may have many mightier and wiser princes sitting in this seat, yet you never had nor shall have any that will love you better.

Thus, Mr. Speaker, I commend me to your loyal loves, and yours to my best care and your further counsels, and I pray you, Mr. Controller and Mr. Secretary, and you of my Council, that before these gentlemen depart into their countries, you bring them all to kiss my hand.

[The Queen's bench soon had an opportunity to pass upon the principle in the following leading case.]

8. DARCY v. ALLEIN, 11 Coke, 84 b. Abridged, 1 Brodix Patent Cases, 1.

(See also Darcy v. Allin, 1 Web. P. C.) [1603].

[The arguments of counsel in that case as given in Noy, 173.]

Now, therefore, I will show you how the judges have heretofore allowed of monopoly—patents—which is that when any man by his own charge and industry, or by his own wit or invention doth bring any new trade into the realm, or any engine tending to the furtherance of a trade that never was used before; and that for the good of the realm; that in such cases the king may grant to him a monopoly-patent for some reasonable time, until the subjects may learn the same, in consideration of the good that he doth bring by his invention to the commonwealth, otherwise not.

9. PROCLAMATION OF JAMES I SUSPENDING MONOPOLIES.

(Soc. Aut. Proc. Coll. May 7, 1603.)

[Preamble praising the devotion and loyalty of the people:]

The consideration whereof hath moved us to think of such ways as for the present did occur to us, wherein we might make manifest to our people, how willing we are now, and will be ready hereafter, to be forward in requitting their love, as they have been in expressing it.

On which consideration, whilst we were busy, we were informed that the Queen our sister, deceased, finding, some few years before her death, that some things had passed her hands, at the importunity of her servants, whom she was willing to reward with little burden to her estate (otherwise by necessary occasion exhausted), which, though they had and might have foundation in princely prerogative,

yet either by too large extending thereof, or for the most part in respect that they were of such nature as could hardly be put in use without hindrance to multitudes of people, or else committed to inferior persons, who in the execution thereof did so exceedingly abuse the same, as they became intolerable, had purposed to revoke all grants of that nature, and did begin with some which were heard most unjust; putting the rest to the examination of her laws, to stand or fall, as in construction of law they might consist or not.

[All grants and charters of monopoly suspended, together with all licenses to dispense with penal laws, except grants to corporations and companies of arts or "misteries" and for enlarging trade until examination can be had of them by the king with the advice of his Council.

Protections, and assignments of debts abolished.

Saltpetermen and purveyors exhorted to have especial care.

Subjects to petition privately in an orderly manner, not publicly.]

[And see Proclamation of James I Touching Grievances—Soc. Aut. Proc. Coll., July 10, 1621, Brit. Mus. Proc. Coll., 506 h. 12 (87).]

10. STATUTE OF MONOPOLIES.

(21 Jac. I, cap. 3 A. D. 1623-24.)

[An Act concerning Monopolies and dispensations with penal laws and the forfeitures thereof.]

Forasmuch as your most excellent Majesty, in your royal judgment and of your blessed disposition to the weal and quiet of your subjects, did, in the year of our Lord God one thousand six hundred and ten, publish in print to the whole realm and to all posterity, that all grants of monopolies and of the benefit of any penal laws, or of power to dispense with the law, or to compound for the forfeiture, are contrary to your Majesty's laws, which your Majesty's declaration is truly consonant and agreeable to the ancient and fundamental laws of this your realm; and whereas your Majesty was further graciously pleased expressly to command that no suitor should presume to move your Majesty for matters of that nature; yet nevertheless upon misinformations and untrue pretenses of public good, many such grants have been unduly obtained and unlawfully put in execution, to the great grievance and inconvenience of your Majesty's subjects, contrary to the laws of this your realm, and contrary to your Majesty's royal and blessed intention so published as aforesaid; For avoiding whereof and preventing of all the like in time to come: May it please your Majesty at the humble suit of the Lords spiritual and temporal and the Commons in this present Parliament, that all monopolies and all commissions, grants, licenses, charters, and letters patent heretofore made or granted, or hereto-

fore to be made or granted to any person or persons, bodies politic or corporate whatsoever, of or for the sole buying, selling, making, working, or using of anything within this realm or the dominion of Wales, or of any other monopolies or of power, liberty, or faculty to dispense with any others, or to give license or toleration to do, use, or exercise anything against the tenor or purport of any law or statute, or to give or make any warrant for any such dispensation, license, or toleration to be had or made, or to agree or compound with any others for any penalty or forfeitures limited by any statute, or of any grant or promise of the benefit, profit, or commodity of any forfeiture, penalty, or sum of money that is or shall be due by any statute before judgment thereupon had, and all proclamations, inhibitions, restraints, warrants of assistance, and all other matters and things whatsoever any way tending to the instituting, erecting, strengthening, furthering, or countenancing of the same or any of them, are altogether contrary to the laws of this realm, and so are and shall be utterly void and of none effect, and in no wise to be put in use or execution.

II. And be it further declared and enacted by the authority aforesaid that all monopolies and all such commissions, grants, licenses, charters, letters patent, proclamations, inhibitions, restraints, warrants of assistance, and all other matters and things tending as aforesaid, and the force and validity of them and every of them ought to be, and shall be forever hereafter examined, heard, tried, and determined by and according to the common law of this realm and not otherwise.

III. And be it further enacted by the authority aforesaid that all person and persons, bodies politic and corporate whatsoever, which now are or hereafter shall be, shall stand and be disabled and incapable to have, use, exercise, or put in use any monopoly or any such commission, grant, license, charters, letters-patents, proclamations, inhibition, restraint, warrant of assistance, or other matter or thing tending as aforesaid or any liberty, power, or faculty grounded or pretended to be grounded upon them or any of them.

IV. And be it further enacted by the authority aforesaid that if any person or persons at any time after the end of forty days next after the end of this present session of Parliament shall be hindered, grieved, disturbed, or disquieted, or his or their goods or chattels any way seized, attached, distrained, taken, carried away, or detained by occasion or pretext of any monopoly, or of any such commission, grant, license, power, liberty, faculty, letters-patents, proclamations, inhibition, restraint, warrant of assistance, or other matter or thing tending as aforesaid, and will sue to be relieved in or for any of the premises, that then and in every such case the same person and persons shall and may have his and their remedy for the same at the common law, by any action or

actions to be grounded upon this statute, the same action and actions to be heard and determined in the court of King's Bench, Common Pleas, and Exchequer, or in any of them.

* * * * * * * * * * *

V. Provided nevertheless, and be it declared and enacted that any declaration before mentioned shall not extend to any letters-patents, and grants of privilege, for the term of one and twenty years or under, heretofore made of the sole working or making of any manner of new manufacture within this realm, to the first and true inventor or inventors of such manufactures which others at the time of making of such letters-patents and grants did not use, so they be not contrary to the law nor mischievous to the state, by raising of the prices of commodities at home, or hurt of trade, or generally inconvenient, but that the same shall be of such force as they were or should be if this act had not been made, and of none other: and if the same were made for more than one and twenty years, that then the same for the term of one and twenty years only, to be accounted from the date of the first letters-patents and grants thereof made, shall be of such force as they were or should have been if the same had been made but for the term of one and twenty years only, and as if this act had never been had or made, and on none other.

VI. Provided also and be it declared and enacted, that any declaration before mentioned shall not extend to any letters-patent and grants of privilege for the term of fourteen years or under, hereafter to be made, of the sole making or working of any manner of new manufactures within this realm, to the true and first inventor or inventors of such manufactures, which others, at the time of making such letters-patent shall not use, so also they be not contrary to law or mischievous to the state, by raising prices of commodities at home, or hurt to trade, or generally inconvenient; the said fourteen years to be accounted from the date of the first letters-patent or grant of such privilege hereafter to be made; but that the same shall be of such force as they should be, if this act had never been made, and of none other.

11. PROCLAMATION OF CHARLES I REVOKING CERTAIN PATENTS AND COMMISSIONS.

(Soc. Ant. Proc. Coll., April 9, 1639.)

Whereas divers grants, licenses, privileges, and commissions have been procured from his Majesty, some under his great seal of England and some under his privy seal, signet, or sign manual, upon pretences that the same would tend to the common good and profit of his subjects, which since upon experience hath been found

prejudicial and inconvenient to his people, contrary to his Majesty's gracious intention in granting the same; And whereas also upon like suggestions, there hath been obtained from his Majesty, the lords, and others of his Privy Council divers warrants and letters of assistance for the execution of those grants, licenses, privileges, and commissions according to his Majesty's good intention and meaning therein.

Forasmuch as his most excellent Majesty (whose royal ear and providence is ever intent on the public good of his people) doth now discern that the particular grants, licenses, and commissions hereafter expressed, have been found in consequence far from those grounds and reasons wherefore they were founded, and in their execution have been notoriously abused, he is now pleased of his mere grace and favor to all his loving subjects (with the advice of his Privy Council) by his regal power to publish and declare the several commissions and licenses hereafter following, whether the same have passed his great seal, privy seal, signet, and sign manual, or any of them, to be from hence utterly void, revoked, and hereby determined.

That is to say:

A commission for cottages and inmates.
A commission touching scrivenors and brokers.
A commission for compounding with offenders touching tobacco.
A commission for compounding with offenders touching butter.
A commission for compounding with offenders touching log-wood.

A commission for compounding with offenders for destruction of woods for iron-works.

A commission for concealments and encroachments within twenty miles of London.

A license to transport sheep and lambskins.

A commission to take men bound to dress no venison, pheasants, or partridges in inns, alehouses, ordinaries, and taverns.

A commission touching licensing of wine-casks.

A commission for licensing of brewers.

A license for sole transporting of lamperns and all proclamations, warrants, or letters of assistance for putting in execution of the said commissions or licenses be from henceforth declared void, determined, and hereby revoked to all intents and purposes.

And his Majesty in like favor and ease to his subjects is further pleased to declare his royal will and pleasure to be that the particular grants hereafter mentioned (upon feigned suggestions, obtained from him, to public damage) whereby the same have passed his Majesty's great seal, privy seal, signet, or sign manual or any of them, shall not hereafter be put in execution, viz.:

A grant for weighing of hay and straw in London and Westminster and three miles compass.

An office to register to the commission for bankrupts in divers counties of the realm.

An office or grant for gauging of red herrings.

An office or grant for the marking of iron made within the realm.

An office or grant for sealing of bone lace.

A grant for making and gauging of butter-casks.

A grant of privilege touching kelp and seaweed.

A grant for sealing of linen rags.

A grant for gathering of rags.

An office or grant of factor for Scottish merchants.

An office or grant for searching and sealing of foreign hops.

A grant for sealing of buttons.

All grants of fines, penalties, and forfeitures before judgment granted, or mentioned to be granted, by letters-patent, privy seals, signets, sign manual, or otherwise.

All patents for new inventions not put in public practice within three years next after the date of the said grants.

And the several grants of incorporation made unto:

Hatband-makers.

Gutstring-makers.

Spectacle-makers.

Comb-makers.

Tobacco-pipe-makers.

Butchers and horners.

And his Majesty doth further require and command that there shall be a proceeding against the said patentees by *quo warranto* or *scire facias* to recall the said grants and patents, unless they will voluntarily surrender and yield up the same: and also all proclamations, warrants, or letters of assistance obtained from his Majesty or the lords and others of his Privy Council for execution thereof, and are hereby absolutely revoked and recalled.

And his Majesty doth further expressly charge and command, all and singular the patentees, grantees, or others any ways interested or claiming under the aforenamed grants, licenses, or commissions, or any of them and their deputies, that they or any of them do not at any time hereafter presume to put in use or execution any of the said grants, commissions, or licenses, or anything therein contained, or any proclamations, warrants, or letters of assistance obtained in that behalf, upon pain of his Majesty's indignation, and to be proceeded against as contemners of his Majesty's royal commands, whereof he will require a strict account.

Given at our Manor of York the 9th of April in the fifteenth year of our reign, 1639.

See for other lists and essay, *"The English Patents of Monopoly."* *Price-Houghton Mifflin & Co., Boston,* 1906.

12. FIRST PATENT IN AMERICA.

(From the Records of the General Court of Massachusetts.)

At a generall Courte at Boston
the 6th of the 3th m' 1646.

The Co't consid'inge ye necessity of raising such manifactures of engins of mils to go by water for speedy dispatch of much worke wth few hands, & being sufficiently informed of ye ability of ye petition' to pforme such workes grant his petition (ye no oth' pson shall set up, or use any such new invention, or trade for fourteen yeares w'hout ye license of him ye said Joseph Jenkes) so farr as concernes any such new invention, & so as it shalbe alwayes in ye pow' of this Co'te to restrain ye exportation of such manifactures, & ye prizes of them to moderation if occasion so require.

[Note the limitation to the *new invention.*]

13. CONSTITUTION OF THE UNITED STATES.

Section 8. The Congress shall have power * * * * * *

To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.

* * * * * *

14. PATENT ACT OF 1790.

(1 Statutes At Large, 109.)

An act to promote the progress of useful arts.

Section 1. That upon the petition of any person or persons to the Secretary of State, the Secretary for the Department of War and the Attorney-General of the United States, setting forth that he, she, or they hath or have invented or discovered any useful art, manufacture, engine, machine, or device, or any improvement therein not before known or used, and praying that a patent may be granted therefor, it shall and may be lawful to and for the said Secretary of State, the Secretary for the Department of War, and the Attorney-General, or any two of them, if they shall deem the invention or discovery sufficiently useful and important, to cause letters-patent to be made out in the name of the United States, to bear teste by the President of the United States, reciting the allegations and suggestions of the said petition, and describing the said invention or discov-

ery, clearly, truly, and fully, and thereupon granting to such petitioner or petitioners, his, her, or their heirs, administrators, or assigns, for any term not exceeding fourteen years, the sole and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention or discovery; which letters-patent shall be delivered to the Attorney-General of the United States to be examined, who shall, within fifteen days next after the delivery to him, if he shall find the same conformable to this act, certify it to be so at the foot thereof, and present the letters-patent so certified to the President, who shall cause the seal of the United States to be thereto affixed, and the same shall be good and available to the grantee or grantees by force of this act, to all and every intent and purpose herein contained, and shall be recorded in a book to be kept for that purpose in the office of the Secretary of State, and delivered to the patentee or his agent, and the delivery thereof shall be entered on the record and indorsed on the patent by the said Secretary at the time of granting the same.

Sec. 2. That the grantee or grantees of each patent shall, at the time of granting the same, deliver to the Secretary of State a specification in writing, containing a description, accompanied with drafts or models, and explanations and models (if the nature of the invention or discovery will admit of a model), of the thing or things by him or them invented or discovered, and described as aforesaid, in the said patents; which specification shall be so particular, and said models so exact, as not only to distinguish the invention or discovery from other things before known and used, but also to enable a workman or other person skilled in the art of manufacture, whereof it is a branch, or wherewith it may be nearest connected, to make, construct, or use the same, to the end that the public may have the full benefit thereof, after the expiration of the patent term; which specifications shall be filed in the office of the said Secretary, and certified copies thereof shall be competent evidence in all courts and before all jurisdictions, where any matter or thing, touching or concerning such patent, right, or privilege shall come in question.

Sec. 3. That upon the application of any person to the Secretary of State, for a copy of any such specification, and for permission to have similar model or models made, it shall be the duty of the Secretary to give such a copy, and to permit the person so applying for a similar model or models, to take, or make, or cause the same to be taken or made, at the expense of such applicant.

Sec. 4. That if any person or persons shall devise, make, construct, use, employ, or vend, within these United States, any

art, manufacture, engine, machine, or device, or any invention or improvement upon, or in any art, manufacture, engine, machine, or device, the sole and exclusive right of which shall be so as aforesaid granted by patent to any person or persons, by virtue and in pursuance of this act, without the consent of the patentee or patentees, their executors, administrators, or assigns, first had and obtained in writing, every person so offending shall forfeit and pay to the said patentee or patentees, his, her, or their executors, administrators, or assigns, such damages as shall be assessed by a jury, and moreover shall forfeit to the person aggrieved, the thing or things so devised, made, constructed, used, employed, or vended, contrary to the true intent of this act, which may be recovered in an action on the case founded on this act.

Sec. 5. That upon oath or affirmation made before the judge of the district court where the defendant resides, that any patent which shall be issued in pursuance of this act, was obtained surreptitiously by, or upon false suggestion, and motion made to the said court, within one year after issuing the said patent, but not afterwards, it shall and may be lawful to and for the judge of the said district court, if the matter alleged shall appear to him to be sufficient, to grant a rule that the patentee or patentees, his, her, or their executors, administrators, or assigns, show cause why process shall not issue against him, her, or them, to repeal such patents; and if sufficient cause shall not be shown to the contrary, the rule shall be made absolute, and thereupon the said judge shall order process to be issued as aforesaid, against such patentee or patentees, his, her, or their executors, administrators, or assigns. And in case no sufficient cause shall be shown to the contrary, or if it shall appear that the patentee was not the first and true inventor or discoverer, judgment shall be rendered by such court for the repeal of such patent or patents; and if the party at whose complaint the process issued, shall have judgment given against him, he shall pay all costs as the defendant shall be put to in defending the suit, to be taxed by the court, and recovered in such manner as costs expended by defendants, shall be recovered in due course of law.

Sec. 6. That in all actions to be brought by such patentee or patentees, his, her, or their executors, administrators, or assigns, for any penalty incurred by virtue of this act, the said patents or specifications shall be *prima facie* evidence that the said patentee or patentees was or were the first and true inventor or inventors, discoverer or discoverers, of the things so specified, and that the same is truly specified; but that nevertheless the defendant or defendants may plead the general issue, and give this act, and any special matter whereof notice in writing shall have been given to the plaintiff, or his attorney, thirty

days before the trial, in evidence tending to prove that the specification filed by the plaintiff does not contain the whole of the truth concerning his invention or discovery; or that it contains more than is necessary to produce the effect described; and if the concealment of part, or the addition of more than is necessary, shall appear to have been intended to mislead, or shall actually mislead the public, so as the effect described can not be produced by the means specified, then, and in such cases, the verdict and judgment shall be for the defendant.

Sec. 7. That such patentee as aforesaid shall, before he receives his patent, pay the following fees to the several officers employed in making out and perfecting the same, to-wit: For receiving and filing the petition, fifty cents; for filing specifications, per copy-sheet containing one hundred words, ten cents; for making out patent, two dollars; for affixing great seal, one dollar; for indorsing the day of delivering the same to the patentee, including all intermediate services, twenty cents.

Approved April 10, 1790.

Repealed February 21, 1793. 1 Statutes at Large, Chap. 11, Section 12, p. 323.

15. PATENT ACT OF 1793.

(1 Statutes At Large, 318.)

An Act to promote the progress of useful arts; and to repeal the act heretofore made for that purpose.

Section 1. That when any person or persons, being a citizen or citizens of the United States, shall allege that he or they have invented any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement on any art, machine, manufacture, or composition of matter, not known or used before the application, and shall present a petition to the Secretary of State, signifying a desire of obtaining an exclusive property in the same, and praying that a patent may be granted therefor, it shall and may be lawful for the said Secretary of State to cause letters-patent to be made out in the name of the United States, bearing teste by the President of the United States, reciting the allegations and suggestions of the said petition, and giving a short description of the said invention or discovery, and thereupon granting to such petitioner or petitioners, his, her, or their heirs, administrators, or assigns, for a term not exceeding fourteen years, the full and exclusive right and liberty of making, constructing, using and vending to others to be used, the said invention or discovery, which letters-patent shall be delivered to the Attorney-General of the United States, to be examined: who, within fifteen days after such delivery, if he finds the same conformable to this act, shall cer-

tify accordingly, at the foot thereof, and return the same to the Secretary of State, who shall present the letters-patent, thus certified, to be signed, and shall cause the seal of the United States to be thereto affixed; and the same shall be good and available to the grantee or grantees, by force of this act, and shall be recorded in a book, to be kept for that purpose, in the office of the Secretary of State, and delivered to the patentee or his order.

Sec. 2. That any person who shall have discovered an improvement in the principle of any machine, or in the process of any composition of matter, which shall have been patented, and shall have obtained a patent for such improvement, he shall not be at liberty to make, use, or vend the original discovery, nor shall the first inventor be at liberty to use the improvement. And it is hereby enacted and declared, that simply changing the form or the proportions of any machine, or composition of matter, in any degree, shall not be deemed a discovery.

Sec. 3. That every inventor before he can receive a patent, shall swear or affirm, that he does verily believe that he is the true inventor or discoverer of the art, machine, or improvement for which he solicits a patent, which oath or affirmation may be made before any person authorized to administer oaths, and shall deliver a written description of his invention, and of the manner of using, or process of compounding the same, in such full, clear and exact terms, as to distinguish the same from all other things before known, and to enable any person skilled in the art or science of which it is a branch, or with which it is most nearly connected, to make, compound, and use the same. And in the case of any machine, he shall fully explain the principle, and the several modes in which he has contemplated the application of the principle or character, by which it may be distinguished from other inventions; and he shall accompany the whole with drawings and written references where the nature of the case admits of drawings, or with specimens of the ingredients, and of the composition of matter, sufficient in quantity for the purpose of experiment, where the invention is of a composition of matter; which description, signed by himself, and attested by two witnesses, shall be filed in the office of the Secretary of State, and certified copies thereof shall be competent evidence in all courts, where any matter or thing, touching such patent right shall come in question. And such inventor shall, moreover, deliver a model of his machine, provided the Secretary shall deem such model to be necessary.

Sec. 4. That it shall be lawful for any inventor, his executor or administrator, to assign the title and interest in the said invention, at any time, and the assignee, having recorded the said assignment in the office of the Secretary of State, shall

thereafter stand in the place of the original inventor, both as to right and responsibility, and so the assignees or assigns, to any degree.

Sec. 5. That is any person shall make, devise, and use, or sell the thing so invented, the exclusive right of which shall, as aforesaid, have been secured to any person by patent, without the consent of the patentee, his executors, administrators, or assigns, first obtained in writing, every person so offending shall forfeit and pay to the patentee a sum that shall be at least equal to three times the price for which the patentee has usually sold or licensed, to other persons, the use of the said invention, which may be recovered in an action on the case founded on this act, in the circuit court of the United States, or any other court having competent jurisdiction.

Sec. 6. That the defendant in such action shall be permitted to plead the general issue, and give this act, and any special matter, of which notice in writing may have been given to the plaintiff or his attorney, thirty days before trial, in evidence, tending to prove that the specification filed by the plaintiff does not contain the whole truth relative to his discovery, or that it contains more than is necessary to produce the described effect, which concealment or addition shall fully appear to have been made for the purpose of deceiving the public, or that the thing thus secured by patent was not originally discovered by the patentee, but had been in use, or had been described in some public work anterior to the supposed discovery of the patentee, or that he had surreptitiously obtained a patent for the discovery of another person; in either of which cases judgment shall be rendered for the defendant, with costs, and the patent shall be declared void.

Sec. 7. That where any State, before its adoption of the present form of government, shall have granted an exclusive right to any invention, the party claiming that right shall not be capable of obtaining an exclusive right under this act, but on relinquishing his right under such particular State, and of such relinquishment, his obtaining an exclusive right under this act shall be sufficient evidence.

Sec. 8. That the persons whose applications for patents were, at the time of passing this act, depending before the Secretary of State, Secretary of War and Attorney-General, according to the act passed the second session of the first Congress, entitled "An act to promote the progress of useful arts," on complying with the conditions of this act, and paying the fees herein required, may pursue their respective claims to a patent under the same.

Sec. 9. That in case of interfering applications, the same shall be submitted to the arbitration of three persons, one of whom shall be chosen by each of the applicants, and the third person shall be

appointed by the Secretary of State; and the decision or award of such arbitrators, delivered to the Secretary of State in writing, and subscribed by them, or any two of them, shall be final, as far as respects the granting of the patent. And if either of the applicants shall refuse or fail to chuse an arbitrator, the patent shall issue to the opposite party. And where there shall be more than two interfering applications, and the parties applying shall not all unite in appointing three arbitrators, it shall be in the power of the Secretary of State to appoint three arbitrators for the purpose.

Sec. 10. That upon oath or affirmation being made before the judge of the district court where the patentee, his executors, administrators, or assigns, reside, that any patent, which shall be issued in pursuance of this act, was obtained surreptitiously, or upon false suggestion, and motion made to the said court, within three years after issuing the said patent, but not afterward, it shall and may be lawful for the judge of the said district court, if the matter alleged shall appear to him to be sufficient, to grant a rule, that the patentee, or his executor, administrator, or assign show cause why process should not issue against him to repeal such patent. And if sufficient cause shall not be shown to the contrary, the rule shall be made absolute, and thereupon the said judge shall order process to be issued against such patentee, or his executors, administrators, or assigns, with costs of suit. And in case no sufficient cause shall be shown to the contrary, or if it shall appear that the patentee was not the true inventor or discoverer, judgment shall be rendered by such court for the repeal of such patent; and if the party, at whose complaint the process issued, shall have judgment given against him, he shall pay all such costs as the defendant shall be put to in defending the suit, to be taxed by the court, and recovered in due course of law.

Sec. 11. That every inventor, before he presents his petition to the Secretary of State, signifying his desire of obtaining a patent, shall pay into the treasury thirty dollars, for which he shall take duplicate receipts, one of which receipts he shall deliver to the Secretary of State, when he presents his petition; and the money thus paid shall be in full for the sundry services to be performed in the office of the Secretary of State, consequent on such petition, and shall pass to the account of clerk-hire in that office: *Provided, nevertheless,* That for every copy, which may be required at the said office, of any paper respecting any patent that has been granted, the person obtaining such copy shall pay, at the rate of twenty cents, for every copy-sheet of one hundred words, and for every copy of a drawing, the party obtaining the same, shall pay two dollars, of which payments an account shall be rendered, annually, to the treasury of the United States, and they shall also pass to the account of clerk-hire in the office of the Secretary of State.

Sec. 12. That the act passed the tenth day of April, in the year one thousand seven hundred and ninety, entitled "An act to promote the progress of useful arts," be, and the same is hereby repealed: *Provided always,* That nothing contained in this act shall be construed to invalidate any patent that may have been granted under the authority of the said act; and all patentees under the said act, their executors, administrators, and assigns, shall be considered within the purview of this act, in respect to the violation of their rights; provided such violations shall be committed after the passing of this act.

Approved February 21, 1793.

Repealed July 4, 1836, 5 Statutes at Large, Chap. 357. Section 21 p. 125.

[Note.—The law has been amended and revised in many particulars by Acts of 1800, 1819, 1832, 1836, 1837, 1848, 1861, 1870, 1875, 1879, 1903, 1910 and other minor acts. The most important of these was that of 1836, which established a patent office and provided for an examination of inventions upon distinctly defined lines. The revisions of 1870 and 1875 are the basis of the law now governing with important single changes in the statutory bars, limitation by foreign patents, appeals in case of an injunction, and the repeal of the caveat provision. These statutes and the supplementary rules of practice and procedure will appear hereafter under the proper headings.]

16. PENNOCK v. DIALOGUE, 2 Pet. (U. S.) 1 (1829), 7 L. ed. 327.

STORY, J., delivered the opinion of the court.

This a writ of error to the circuit court of Pennsylvania. The original action was brought by the plaintiffs in error, for an asserted violation of a patent, granted to them on the 6th of July, 1818, for a new and useful improvement in the art of making leather tubes or hose, for conveying air, water, and other fluids. The cause was tried upon the general issue, and a verdict was found for the defendant, upon which judgment passed in his favor; and the correctness of that judgment is now in controversy before this court.

At the trial, a bill of exceptions was taken to an opinion delivered by the court, in the charge to the jury, as follows, namely: "That the law arising upon the case was, that if an inventor makes his discovery public, looks on and permits others freely to use it, without objection or assertion of claim to the invention, of which the public might take notice; he abandons the inchoate right to the exclusive use of the invention, to which a patent would have entitled him, had it been applied for before such use. And, that it makes no difference in the principle, that the article so publicly used, and afterwards patented, was made by a particular individual, who did so by the private permission of the inventor. And thereupon, did charge the jury, that if the evidence brings the case within the principle which had been stated, the court were of opinion that the plaintiffs were not entitled to a verdict." * * *

The single question then is, whether the charge of the court was correct in point of law. It has not been, and indeed cannot be denied, that an inventor may abandon his invention, and surrender or dedicate it to the public. This inchoate right, thus once gone, cannot afterwards be resumed at his pleasure; for, where gifts are once made to the public in this way, they become absolute. Thus, if a man dedicates a way or other easement to the public, it is supposed to carry with it a permanent right of user. The question which generally arises at trials, is a question of fact rather than of law; whether the acts or acquiescence of the party furnish in the given case, satisfactory proof of an abandonment or dedication of the invention to the public. But when all the facts are given, there does not seem any reason why the court may not state the legal conclusion deducible from them. In this view of the matter, the only question would be, whether, upon general principles, the facts stated by the court would justify the conclusion.

In the case at bar, it is unnecessary to consider whether the facts stated in the charge of the court would, upon general principles, warrant the conclusion drawn by the court, independently of any statutory provisions; because, we are of opinion, that the proper answer depends upon the true exposition of the act of congress under which the present patent was obtained. The constitution of the United States has declared, that congress shall have power "to promote the progress of science and useful arts, by securing for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries." It contemplates, therefore, that this exclusive right shall exist but for a limited period, and that the period shall be subject to the discretion of congress. The patent act, of the 21st of February, 1793, c. 11, prescribes the terms and condition and manner of obtaining patents for inventions: and proof of a strict compliance with them lies at the foundation of the title acquired by the patentee. * * *

It is obvious to the careful inquirer, that many of the provisions of our patent act are derived from the principles and practice which have prevailed in the construction of that of England. It is doubtless true, as has been suggested at the bar, that where English statutes, such for instance as the statute of frauds and the statute of limitations, have been adopted into our own legislation, the known and settled construction of those statutes by courts of law has been considered as silently incorporated into the acts, or has been received with all the weight of authority. Strictly speaking, that is not the case in respect to the English statute of monopolies, which contains an exception on which the grants of patents for inventions have issued in that country. The language of that clause of the statute is not, as we shall presently see, identical with ours, but the

construction of it adopted by the English courts, and the principles and practice which have long regulated the grants of their patents, as they must have been known and are tacitly referred to in some of the provisions of our own statute, afford materials to illustrate it.

By the very terms of the first section of our statute, the secretary of state is authorized to grant a patent to any citizen applying for the same, who shall allege that he has invented a new and useful art, machine, &c., &c., "not known or used before the application." The authority is a limited one, and the party must bring himself within the terms before he can derive any title to demand or to hold a patent. What then is the true meaning of the words "not known or used before the application?" They cannot mean that the thing invented was not known or used before the application by the inventor himself, for that would be to prohibit him from the only means of obtaining a patent. The use as well as the knowledge of his invention, must be indispensable, to enable him to ascertain its competency to the end proposed, as well as to perfect its component parts. The words, then, to have any rational interpretation, must mean, not known or used by others, before the application. But how known or used? If it were necessary, as it well might be, to employ others to assist in the original structure or use by the inventor himself, or, if, before his application for a patent, his invention should be pirated by another, or used without his consent, it can scarcely be supposed that the legislature had within its contemplation such knowledge or use.

We think, then, the true meaning must be, not known or used by the public before the application. And thus construed, there is much reason for the limitation thus imposed by the act. While one great object was, by holding out a reasonable reward to inventors and giving them an exclusive right to their inventions for a limited period, to stimulate the efforts of genius, the main object was "to promote the progress of science and useful arts;" and this could be done best by giving the public at large a right to make, construct, use, and vend the thing invented, at as early a period as possible, having a due regard to the rights of the inventor. If an inventor should be permitted to hold back from the knowledge of the public the secrets of his invention; if he should, for a long period of years, retain the monopoly, and make and sell his invention publicly, and thus gather the whole profits of it, relying upon his superior skill and knowledge of the structure, and then, and then only, when the danger of competition should force him to secure the exclusive right, he should be allowed to take out a patent, and thus exclude the public from any further use than what should be derived under it during his fourteen years; it would materially retard the progress of science and the useful arts, and give a premium to those who should be least prompt to communicate their discoveries.

A provision, therefore, that should withhold from an inventor the privilege of an exclusive right, unless he should, as early as he should allow the public use, put the public in possession of his secret, and commence the running of the period that should limit that right, would not be deemed unreasonable. It might be expected to find a place in a wise prospective legislation on such a subject. If it was already found in the jurisprudence of the mother country, and had not been considered inconvenient there, it would not be unnatural that it should find a place in our own.

Now, in point of fact, the statute of 21 Jac. ch. 3, commonly called the statute of monopolies, does contain exactly such a provision. That act, after prohibiting monopolies generally, contains, in the sixth section, an exception in favor of "letters patent and grants of privileges for fourteen years or under, of the sole working or making of any manner of new manufactures within this realm, to the true and first inventor and inventors of such manufacturers, which others, at the time of making such letters-patent and grants, shall not use." Lord Coke, in his commentary upon this clause or proviso, (3 Inst. 184,) says that the letters-patent "must be of such manufactures which any other, at the time of making such letters-patent, did not use; for albeit it were newly invented, yet if any other did use it at the making of the letters-patent, or grant of the privilege, it is declared and enacted to be void by this act." The use here referred to has always been understood to be a public use, and not a private or surreptitious use in fraud of the inventor.

In the case of Wood v. Zimmer, 1 Holt's N. P. Rep. 58, this doctrine was fully recognized by Lord Chief Justice Gibbs. There, the inventor had suffered the thing invented to be sold, and go into public use for four months before the grant of his patent; and it was held by the court that on this account the patent was utterly void. Lord Chief Justice Gibbs said: "To entitle a man to a patent, the invention must be new to the world. The public sale of that which is afterwards made the subject of a patent, though sold by the inventor only, makes the patent void." By "invention," the learned judge undoubtedly meant, as the context abundantly shows, not the abstract discovery, but the thing invented; not the new secret principle, but the manufacture resulting from it.

The words of our statute are not identical with those of the statute of James, but it can scarcely admit of doubt that they must have been within the contemplation of those by whom it was framed, as well as the construction which had been put upon them by Lord Coke. But if there were no such illustrative comment, it is difficult to conceive how any other interpretation could fairly be put upon these words. We are not at liberty to reject words which are sensible in the place where they occur, merely because they may be thought, in some cases, to import a hardship or tie up beneficial

rights within very close limits. If an invention is used by the public, with the consent of the inventor, at the time of his application for a patent, how can the court say that his case is, nevertheless, such as the act was intended to protect? If such a public use is not a use within the meaning of the statute, what other use is? If it be a use within the meaning of the statute, how can the court extract the case from its operation and support a patent where the suggestions of the patentee are not true, and the conditions on which alone the grant was authorized to be made, do not exist? In such a case, if the court could perceive no reason for the restrictions, the will of the legislature must still be obeyed. It cannot and ought not to be disregarded where it plainly applies to the case. But if the restriction may be perceived to have a foundation in sound policy, and be an effectual means of accomplishing the legislative objects, by bringing inventions early into public and unrestricted use, and above all, if such policy has been avowed and acted upon in like cases in laws having similar objects, there is very urgent reason to suppose that the act in those terms embodies the real legislative intent, and ought to receive that construction. It is not wholly insignificant, in this point of view, that the first patent act passed by congress on this subject, (act of 1790, c. 7,) (1 Stats. at Large, 109), which the present act repeals, uses the words, "not known or used before," without adding the words, "the application;" and, in connection with the structure of the sentence in which they stand, might have been referred either to the time of the invention or of the application. The addition of the latter words in the patent act of 1793, must, therefore, have been introduced, *ex industria,* and with the cautious intention to clear away a doubt and fix the original and deliberate meaning of the legislature.

The act of the 17th of April, 1800, c. 25, (2 Stats. at Large, 37,) which extends the privileges of the act of 1793 to inventors who are aliens, contains a proviso, declaring "that every patent which shall be obtained pursuant to the act, for any invention, art, or discovery which it shall afterwards appear had been known or used previous to such application for a patent, shall be void." This proviso certainly certifies the construction of the act of 1793, already asserted; for, there is not any reason to suppose that the legislature intended to confer on aliens privileges essentially different from those belonging to citizens. On the contrary, the enacting clause of the act of 1800 purports to put both on the same footing, and the proviso seems added as a gloss or explanation of the original act.

The only real doubt which has arisen upon this exposition of the statute, has been created by the words of the sixth section already quoted. That section admits the party sued to give in his defence as a bar, that "the thing thus secured by patent was not originally discovered by the patentee, but had been in use anterior to the sup-

posed discovery of the patentee." It has been asked if the legislature intended to bar the party from a patent in consequence of a mere prior use, although he was the inventor, why were not the words, "anterior to the application," substituted, instead of "anterior to the supposed discovery?" If a mere use of the thing invented before the application were sufficient to bar the right, then, although the party may have been the first and true inventor, if another person, either innocently as a second inventor, or piratically, were to use it, without the knowledge of the first inventor, his right would be gone. In respect to a use by piracy, it is not clear that any such fraudulent use is within the intent of the statute, and upon general principles it might well be held excluded. In respect to the case of a second invention, it is questionable at least, whether, if my such second invention a public use was already acquired, it could be deemed a case within the protection of the act. If the public were already in possession and common use of an invention fairly and without fraud, there might be sound reason for presuming that the legislature did not intend to grant an exclusive right to any one to monopolize that which was already common. There would be no *quid pro quo*, no price for the exclusive right or monopoly conferred upon the inventor for fourteen years.

Be this as it may, it is certain that the sixth section is not necessarily repugnant to the construction which the words of the first section require and justify. The sixth section certainly does not enumerate all the defences which a party may make in a suit brought against him for violating a patent. One obvious omission is, where he uses it under a license or grant from the inventor. The sixth section in the clause under consideration may well be deemed merely affirmative of what would be the result from the general principles of law applicable to other parts of the statute. It gives the right to the first and true inventor, and to him only; if known or used before his supposed discovery, he is not the first, although he may be a true inventor; and that is the case to which the clause looks. But it is not inconsistent with this doctrine that, although he is the first as well as the true inventor, yet, if he shall put it into public use or sell it for public use before he applies for a patent, that this should furnish another bar to his claim. In this view, an interpretation is given to every clause of the statute, without introducing any inconsistency or interfering with the ordinary meaning of its language. No public policy is overlooked; and no injury can ordinarily occur to the first inventor, which is not in some sort the result of his own laches or voluntary inaction.

It is admitted that the subject is not wholly free from difficulties; but, upon most deliberate consideration, we are all of opinion that the true construction of the act is, that the first inventor cannot acquire a good title to a patent, if he suffers the thing invented to

go into public use or to be publicly sold for use before he makes application for a patent. His voluntary act or acquiescence in the public sale and use is an abandonment of his right, or rather creates a disability to comply with the terms and conditions on which alone the secretary of state is authorized to grant him a patent.

The opinion of the circuit court was, therefore, perfectly correct; and the judgment is affirmed, with costs.

17. HOGG v. EMERSON, 11 How. (U. S.) 587, 13 L. ed. 824 (1847).

WOODBURY, J. * * *

We are apt to be misled, in this country, by the laws and forms bearing on this point in England being so different in some respects from what exist here.

There the patent is first issued, and contains no reference to the specification, except a stipulation that one shall, in the required time be filed, giving a more minute description of the matter patented. Webster on Pat. 5, 88; Godson on Pat. 6, App. It need not be filed under two to four months, in the discretion of the proper officer. Godson on Pat. 176. (Compare present law.)

Under these circumstances, it will be seen that the patent, going out alone there, must in its title or heading be fuller than here, where it goes out with the minute specification. But even there it may afterwards be aided, and its matter be made more clear, by what the specification contains. They are, says Godson on Pat. 108, "connected together," and "one may be looked at to understand the other." See also 2 Hen. Bl. 478; 1 Webst. Pat. 117; 8 D. & E. 95.

There however, it will not answer to allow the specification, filed separately and long after, to be resorted to for supplying any entire omission in the patent; else something may be thus inserted afterwards which had never been previously examined by the proper officers, and which, if it had been submitted to them in the patent and examined, might have prevented the allowance of it, and which the world is not aware of, seeing only the letters-patent without the specification, and without any reference whatever to its contents. 3 Brod. & Bingh. 5.

The whole facts and law, however, are different here. This patent issued March 8, 1834, and is therefore to be tested by the act of congress then in force, which passed February 21, 1793. 1 Statutes at Large, 318.

In the 3d section of that act it is expressly provided, "that every inventor, before he can receive a patent," "shall deliver a written description of his invention," &c.; thus giving priority very properly to the specification rather than the patent.

This change from the English practice existed in the first patent law, passed April 10, 1790, 1 Statutes at Large, 109, and is retained

in the last act of congress on this subject, passed July 4, 1836, 5 Statutes at Large, 111.

It was wisely introduced, in order that the officers of the government might at the outset have before them full means to examine and understand the claim to an invention better, and decide more judiciously whether to grant a patent or not, and might be able to give to the world fuller, more accurate and early descriptions of it than would be possible under the laws and practice in England.

In this country, then, the specification being required to be prepared and filed before the patent issues, it can well be referred to therein *in extenso,* as containing the whole subject-matter of the claim or petition for a patent, and then not only be recorded for information, as the laws both in England and here require, but beyond what is practicable there, be united and go out with the letters-patent themselves, so as to be sure that these last thus contain the substance of what is designed to be regarded as a portion of the petition, and thus exhibit with accuracy all the claim by the inventor.

But before inquiring more particularly into the effect of this change, it may be useful to see if it is a compliance with the laws in respect to a petition which existed when this patent issued, but were altered in terms shortly after.

A petition always was, and still is, required to be presented by an inventor when he asks for a patent, and one is recited in this patent to have been presented here. It was also highly important in England, that the contents of the petition as to the description of the invention should be full, in order to include the material parts of them in the patent, no specification being so soon filed there, as here, to obtain such description from, or to be treated as a portion of the petition, and the whole of it sent out with the patent, and thus complying with the spirit of the law, and giving fuller and more accurate information as to the invention than any abstract of it could.

In this view, and under such laws and practice here, it will be seen that the contents of the petition, as well as the petition itself, became a very unimportant form, except as construed to adopt the specification, and the contents of the latter to be considered substantially as the contents of the former.

Accordingly, it is not a little curious, that though the act of 1793, which is to govern this case, required, like that of 1790, a petition to be presented, and the patent when issued, as in the English form, to recite the "allegations and suggestions of the petition," 1 Statutes at Large, 321, § 1 and 111, § 3; yet, on careful inquiry at the proper office, so far as its records are restored, it appears that, after the first act of 1790 passed, the petitions standing alone seldom contained any thing as to the patent beyond a mere title; sometimes fuller, and again very imperfect and general, with no other allegations or sug-

gestions, or descriptions whatever, except those in the schedule or specification. The only exception found is the case of Evans v. Chambers, 2 Wash. C. C. 125, in a petition filed December 18, 1790.

Though the records of the patent-office before 1836, were consumed in that year, many have been restored, and one as far back as August 10, 1791, where the petition standing alone speaks of having invented only "an easy method of propelling boats and other vessels through the water by the power of horses and cattle." All the rest is left to the schedule. Other petitions, standing alone, are still more meagre; one for instance, in 1804, asks a patent only of a "new and useful improvement, being a composition or tablets to write or draw on;" another, only "a new and useful improvement in the foot-stove;" and another, only "a new and useful improvement for shoe-making;" and so through the great mass of them for nearly half a century. But the specification being filed at the same time, and often on the same paper, it seems to have been regarded, whether specially named in the petition or not, as a part of it, and as giving the particulars desired in it; and hence, to avoid mistakes as to the extent of the inventor's claim, and to comply with the law, by inserting in the patent at least the substance of the petition, the officers inserted, by express reference, the whole descriptive portion of it as contained in the schedule. This may have grown out of the decision of Evans v. Chambers, in order to remedy one difficulty there. Cases have been found as early as 1804, and with great uniformity since explicity making the schedule annexed a part of the letters-patent. Proofs of this exist, also in our reports, as early as 1821, in Grant *et al.* v. Raymond, 6 Pet. 222; and one, 1st Oct., 1825, in Gray *et al.* v. James *et al.*, Pet. C. C. 394; and 27th Dec., 1828, Wilson v. Rousseau, 4 How. 649.

Indeed, it is the only form of a patent here known at the patent-office, and the only one given in American treatises on patents. Phillips on Pat. 523. Doubtless this use of the schedule was adopted, because it contained, according to common understanding and practice, matter accompanying the petition as a part of its substance, and all the description of the invention ever desired either in England or here in the petition. Hence it is apparent, if the schedule itself was made a part of the patent, and sent out to the world with it, all and even more was contained in it than could be in any abstract or digest of a petition, as in the English form.

We regard this mode and usage on this subject, adopted so early here and practised so long, as not proper to be overruled now, to the destruction of every patent, probably, from 1791 to 1836; and this too, when the spirit of all our systems was thus more fully carried out than it could have been in any other way.

As this course, however, sometimes was misunderstood and led to misconstructions, the revising act as to patents, in July 4, 1836,

changed the phraseology of the law in this respect, in order to conform to this long usage and construction under the act of 1793, and required not in terms any abstract of the petition in the patent, but rather "a short description" or title of the invention or discovery, "correctly indicating its nature and design," and "referring to the specification for the particulars thereof, a copy of which shall be annexed to the patent." And it is that—the specification or schedule —which is fully to specify "what the patentee claims as his invention or discovery." Sec. 5. 5 Statutes at Large, 119.

It was therefore, from this long construction, in such various ways established or ratified, that, in the present patent, the schedule, or in other words, the specification, was incorporated expressly and at length into the letters themselves,—not by merely annexing them with wafer or tape, as is argued, but describing the invention as an "improvement, a description whereof is given in the words of the said John B. Emerson himself, in the schedule hereto annexed, and is made a part of these presents." Hence too, wherever this form has been adopted, either before or since the act of 1836, it is as much to be considered with the letters,—*literae patentes,*—in construing them as any paper referred to in a deed or other contract. Most descriptions of lands are to be ascertained only by the other deeds and records expressly specified or referred to for guides; and so of schedules of personal property, annexed to bills of sale. Foxcroft v. Mallett, 4 How. 378; 21 Maine, 69; 20 Pick. 122; Phil. on Pat. 228; Earle v. Sawyer, 4 Mason, C. C. 9; *Ex parte* Fox, 1 Ves. & Beames, 67. The schedule, therefore, is in such case to be regarded as a component part of the patent. Pet. C. C. 394, and Davis v. Palmer *et al.* 2 Brockenbrough, 301. The oath of Emerson, too, that he was inventor of the improvement, must thus be considered as extending to all described in the schedule, no less than the title; and this is peculiarly proper, when the specification is his own account of the improvement, and the patent is usually only the account of it by another, an officer of the government. Taking then, the specification and letters together, as the patent-office and the inventor have manifestly in this instance intended that they should be, and they include what has long been deemed a part and the substance of the petition; and the patent described in them is quite broad enough to embrace what is alleged in the writ to have been taken out as a patent by the plaintiff, and to have been violated by the defendants. They are almost *ipsissimis verbis.* And when we are called upon to decide the meaning of the patent included in these letters, it seems our duty not only to look for aid to the specification as a specification, which is customary, 1 Gall. 437; 2 Story 621; 1 Mason, C. C. 477, but as a schedule, made here an integral portion of the letters themselves, and going out with them to the world, at first, as a part and

parcel of them, and for this purpose united together forever as identical.

It will thus be seen that the effect of these changes in our patent laws, and the long usage and construction under them, is entirely to remove the objection, that the patent in this case was not as broad as the claim in the writ, and did not comply substantially with the requirements connected with the petition.

From want of full attention to the differences between the English laws and ours, on patents, the views thrown out in some of the early cases in this country, do not entirely accord with those now offered. Paine, C. C. 441; Pennock *et al.* v. Dialogue, 2 Pet. 1. Some other diversity exists at times, in consequence of the act of 1793, and the usages under it in the patent-office, not being in all respects as the act of 1836. But it is not important, in this case, to go further into these considerations.

The next objection is, that this description in the letters thus considered, covers more than one patent, and is, therefore, void.

There seems to have been no good reason at first, unless it be a fiscal one on the part of the government when issuing patents, why more than one in favor of the same inventor should not be embraced in one instrument, like more than one tract of land in one deed, or patent for land. Phillips on Pat. 217.

Each could be set out in separate articles or paragraphs, as different counts for different matters in libels in admiralty, or declarations at common law, and the specifications could be made distinct for each, and equally clear.

But to obtain more revenue, the public officers have generally declined to issue letters for more than one patent described in them. Renouard, 293; Phillips on Pat. 218. The courts have been disposed to acquiesce in the practice, as conducive to clearness and certainty. And if letters issue otherwise inadvertently, to hold them, as a general rule, null. But it is a well-established exception that patents may be united, if two or more, included in one set of letters, relate to a like subject, or are in their nature or operation connected together. Phil. on Pat. 218, 219; Barrett v. Hall, 1 Mason, C. C. 447; Moody v. Fiske, 2 Mason, C. C. 112; Wyeth *et al.* v. Stone *et al.* 1 Story, 273.

Those here are of that character, being all connected with the use of the improvements in the steam-engine, as applied to propel carriages or vessels, and may, therefore, be united in one instrument.

Another objection is, that these letters, even when thus connected with the specification, are not sufficiently clear and certain in their description of the inventions.

This involves a question of law only in part, or so far as regards the construction of the written words used. Reutgen v. Kanowrs *et al.* 1 Wash. C. C. 168; Davis v. Palmer *et al.* 2 Brockenbrough, C.

C. 303; Wood v. Underhill, 5 How. 1. The degree of clearness and freedom from ambiguity required in such cases, is, by the patent act itself of 1793, to be sufficient "to distinguish the same from all other things before known, and to enable any person skilled in the art or science of which it is a branch, or with which it is most nearly connected, to make, compound, and use the same." 1 Statutes at Large, 321. See also on this, Godson on Pat. 153, 154; 2 Hen. Bl. 489; Wood v. Underhill, 5 How. 1; Davoll *et al.* v. Brown, 1 Woodb. & Min. 57; Pet. C. C. 301; Sullivan v. Redfield, Paine, C. C. 441.

There are some further and laudable objects in having exactness to this extent, so as, when the specification is presented, to enable the commissioner of patents to judge correctly whether the matter claimed is new, or too broad. 3 Wheat. 454; 3 Brod. & Bingh. 5; 1 Starkie, N. P. 192. So, also, to enable courts, when it is contested afterwards before them, to form a like judgment. 1 Starkie, N. P. 192. And so that the public, while the term continues, may be able to understand what the patent is, and refrain from its use, unless licensed. Webster on Pat. 86; 11 East, 105; 3 Merivale, 161; Evans v. Eaton, 3 Wash. C. C. 453; 4 Wash. C. C. 9; Bovill v. Moore, Davies's Patent Cas. 361; Lowell v. Lewis, 1 Mason, C. C. 182-189.

In the present instance, yielding to the force of such reasons in favor of a due and rational degree of certainty in describing any improvements claimed as new, there still seems to us, though without the aid of experts and machinists, no difficulty in ascertaining, from the language used here, the new movement intended to be given to the steam-engine, by substituting a continued rotary motion for a crank motion, and the new form of the spiral wheel, when the engine is used in vessels, by changing the form of the paddles, and placing them near the ends of the arms; and the new connection of the power with the capstan of such vessels, by inserting the upper end of the shaft into the capstan. It is obvious, also, that the inventor claims as his improvement, not the whole of the engine, nor the whole of the wheel, but both merely in the new and superior form which he particularly sets out. He, therefore, does not claim too much, which might be bad. Hill v. Thompson *et al.* 2 J. Moore, 435; 4 Wash. C. C. 68; Godson on Patents 189; Kay v. Marshall, 1 Mylne & Cr. 373; 1 Story, 273; 2 Mason, C. C. 112; 4 Barn. & Ald. 541; Bovill v. Moore, 2 Marsh. Com. P. Rep. 211.

The novelty in each he describes clearly, as he should; and it is not necessary he should go further. 1 Story, 286; Webster on Pat. 86, note; McFarlane v. Price, 1 Starkie, 199; and King v. Cutler, ibid. 354; 3 Car. & Payne, 611; 2 Mason, C. C. 112; Kingsby & Pirsson on Pat. 61; Godson on Pat. 154; Isaacs v. Cooper *et al.* 4 Wash. C. C. 259.

He need not describe particularly, and disclaim all the old parts. 7 Wheat. 435; Phil. on Pat. 270, and cases cited.

And the more especially is that unnecessary, when such disclaimer is manifestly, in substance, the result of his claiming as new only the portions which he does describe specially. All which is required on principle in order to be exact, and not ambiguous, thus becomes so.

It is to be recollected, likewise, that the models and drawings were a part of this case below, and are proper to be resorted to for clearer information. Earle v. Sawyer, 4 Mason, C. C. 9. With them, and such explanatory testimony as experts and machinists could furnish, the court below were in a condition to understand better all the details, and to decide more correctly on the clearness of the description; but from all we have seen on the record alone, we do not hesitate to concur in the views on this point as expressed in that court.

In conclusion, on the other objections to the proof, as to the drawings, and to the charge below in relation to the effect of them, and to the destruction of them by fire, we likewise approve the directions given to the jury.

The destruction by fire was no fault of the inventor; and his rights had all become previously perfected. This is too plain to need further illustration. We cannot consent to be over astute in sustaining objections to patents. 4 East, 135; Crosley v. Beverly, 3 Car. & Payne, 513, 514. The true rule of construction in respect to patents and specifications, and the doings generally of inventors, is to apply to them plain and ordinary principles, as we have endeavored to on this occasion, and not, in this most metaphysical branch of modern law, to yield to subtleties and technicalities, unsuited to the subject, and not in keeping with the liberal spirit of the age, and likely to prove ruinous to a class of the community so inconsiderate and unskilled in business, as men of genius and inventors usually are.

Indeed, the English letters-patent themselves, now, however different may have been once their form, or the practice under them, declare that "they are to be construed" "in the most favorable and beneficial sense, for the best advantage" of the patentee. Godson on Pat. 24, App. 7; Kingsby & Pirsson on Patents, 35. See also, on this rule, Grant v. Raymond, 6 Pet. 218; Ames v. Howard, 1 Sumner, 482-485; Wyeth v. Stone, 1 Story, 273, 287; Blanchard v. Sprague, 2 Story, 164; 2 Brockenbrough, C. C. 303; 2 Barn. & Ald. 345, in The King v. Wheeler; 4 How. 646, in Wilson v. Rousseau et al.; 1 Crompt. Mees. & Ros. 864, 876, in Russell v. Cowly.

The judgment below is affirmed.

18. SHAW v. COOPER, 7 Pet. (U. S.) 292, 8 L. ed. 689 (1833).

McLEAN, J.: * * *

The policy of granting exclusive privileges in certain cases was deemed of so much importance, in a national point of view, that power was given to congress in the federal constitution, "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

This power was exercised by congress in the passage of the acts which have been referred to. And from an examination of their various provisions, it clearly appears that it was the intention of the legislature, by a compliance with the requisites of the law, to vest the exclusive right in the inventor only; and that on condition that his invention was neither known nor used by the public before his application for a patent. If such use or knowledge shall be proved to have existed, prior to the application for the patent, the Act of 1793 declares the patent void; and as has been already stated, the right of an alien is vacated in the same manner, by proving a foreign use or knowledge of his invention. That knowledge or use which would be fatal to the patent right of a citizen, would be equally so to the right of an alien.

* * *

The patent law was designed for the public benefit as well as for the benefit of inventors. For a valuable invention, the public, on the inventor's complying with certain conditions, give him for a limited period the profits arising from the sale of the thing invented. This holds out an inducement for the exercise of genius and skill in making discoveries which may be useful to society, and profitable to the discoverer. But it was not the intention of this law to take from the public that of which they were fairly in possession.

In the progress of society, the range of discoveries in the mechanic arts, in science, and in all things which promote the public convenience, as a matter of course, will be enlarged. This results from the aggregation of mind, and the diversity of talents and pursuits, which exist in every intelligent community. And it would be extremely impolitic to retard or embarrass this advance, by withdrawing from the public any useful invention or art, and making it a subject of private monopoly. Against this consequence the legislature have carefully guarded in the laws they have passed on the subject.

It is undoubtedly just that every discoverer should realize the benefits resulting from his discovery, for the period contemplated by law. But these can only be secured by a substantial compliance with every legal requisite. His exclusive right does not rest alone upon his discovery, but also upon the legal sanctions which have been given to it, and the forms of law with which it has been clothed.

19. KENDALL v. WINSOR, 62 U. S. 322, 16 L. ed. 165 (1858).

DANIEL, J.: * * *

The first ground of defense assumed under the notice from the defendant in the court below—viz.: a license from the patentee—may at once be disposed of by the remark that no evidence was offered on the trial, bearing directly or remotely upon the fact of an actual license from the patentee, either to the defendant or to any person whomsoever. The defense then must depend exclusively upon the proper construction of the section of the law above cited, and the application of that section to the conduct of the parties, as shown by the bill of exceptions.

It is undeniably true, that the limited and temporary monopoly granted to inventors was never designed for their exclusive profit or advantage; the benefit to the public or community at large was another and doubtless the primary object in granting and securing that monopoly. This was at once the equivalent given by the public *for benefits bestowed by the genius and meditations and skill of individuals*, and the incentive to further efforts for the same important objects. The true policy and ends of the patent laws enacted under this government are disclosed in that article of the constitution, the source of all these laws, viz: "to promote the progress of science and the useful arts," contemplating and necessarily implying their extension, and increasing adaptation to the uses of society. (*Vide* Constitution of the United States, art. 1, sec. 8, clause 9.) By correct induction from these truths, it follows, that the inventor who designedly, and with the view of applying it indefinitely and exclusively for his own profit, withholds his invention from the public, comes not within the policy or objects of the constitution or acts of congress. He does not promote, and, if aided in his design, would impede, the progress of science and the useful arts. And with a very bad grace could he appeal for favor or protection to that society which, if he had not injured, he certainly had neither benefited nor intended to benefit. Hence, if, during such a concealment, an invention similar to or identical with his own should be made and patented, or brought into use without a patent, the latter could not be inhibited or restricted, upon proof of its identity with a machine previously invented and withheld and concealed by the inventor from the public. The rights and interests, whether of the public or of individuals, can never be made to yield to schemes of selfishness or cupidity; moreover, that which is once given to or is invested in the public, cannot be recalled nor taken from them.

But the relation borne to the public by inventors, and the obligations they are bound to fulfill in order to secure from the former protection, and the right to remuneration, by no means forbid a delay requisite for completing an invention, or for a test of its value or success by a series of sufficient and practical experiments; nor do

they forbid a discreet and reasonable forbearance to proclaim the theory or operation of a discovery during its progress to completion, and preceding an application for protection in that discovery. The former may be highly advantageous, as tending to the perfecting the invention; the latter may be indispensable, in order to prevent a piracy of the rights of the true inventor.

It is the unquestionable right of every inventor to confer gratuitously the benefits of his ingenuity upon the public, and this he may do either by express declaration or by conduct equally significant with language—such, for instance, as an acquiescence with full knowledge in the use of his invention by others; or he may forfeit his rights as an inventor by a willful or negligent postponement of his claims or by an attempt to withhold the benefit of his improvement from the public until a similar or the same improvement should have been made and introduced by others. Whilst the remuneration of genius and useful ingenuity is a duty incumbent upon the public, the rights and welfare of the community must be fairly dealt with and effectually guarded. Considerations of individual emolument can never be permitted to operate to the injury of these. But, whilst inventors are bound to diligence and fairness in their dealings with the public, with reference to their discoveries on the other hand, they are by obligations equally strong entitled to protection against frauds or wrongs practiced to pirate from them the results of thought and labor, in which nearly a lifetime may have been exhausted; the fruits of more than the *viginti annorum lucubrationes*, which fruits the public are ultimately to gather. The shield of this protection has been constantly interposed between the inventor and fraudulent spoliator by the courts in England, and most signally and effectually has this been done by this court, as is seen in the cases of Pennock & Sellers v. Dialogue (2 Peters, 1) and of Shaw v. Cooper (7 Peters 292). These may be regarded as leading cases upon the questions of the abrogation or relinquishment of patent privileges as resulting from avowed intention, from abandonment or neglect, or from use known and assented to.

20. **In LIVINGSTON v. VAN INGEN, Fed. Cas. No. 8,420.**

It was held (1811) that congress having then provided only for an action at law on patents the circuit court could not entertain a bill in equity; and that the circuit courts had jurisdiction only in cases between citizens of different states. Therefore dismissed suit asking for an injunction against citizen of New York based upon United States patents and laws of the state. Subsequently the chancellor of the state refused an injunction against the defendants (for using steam boats on the Hudson River) but this was overruled by the court of errrors, 9 Johns. 507. The law of 1819 provided for trial of patent causes by bill in equity.]

21. BROWN v. DUCHESNE, 19 How. (U. S.) 193-199, 15 L. ed. 595 (1856).

MR. CHIEF JUSTICE TANEY delivered the opinion of the court.

* * *

The plaintiff, by his demurrer, admits that the Alcyon was a foreign vessel, lawfully in a port of the United States for the purposes of commerce, and that the improvement in question was placed on her in a foreign port to fit her for sea, and was authorized by the laws of the country to which she belonged. The question, therefore, presented by the first plea is simply this: whether any improvement in the construction or equipment of a foreign vessel, for which a patent has been obtained in the United States, can be used by such vessel within the jurisdiction of the United States, while she is temporarily there for the purposes of commerce, without the consent of the patentee?

This question depends on the construction of the patent laws. For undoubtedly every person who is found within the limits of a government, whether for temporary purposes, or as a resident, is bound by its laws. The doctrine upon this subject is correctly stated by Mr. Justice Story, in his "Commentaries on the Conflict of Laws," (chap. 14, sec. 541,) and the writers on public law to whom he refers. A difficulty may sometimes arise, in determining whether a particular law applies to the citizen of a foreign country, and intended to subject him to its provisions. But if the law applies to him, and embraces his case, it is unquestionably binding upon him when he is within the jurisdiction of the United States.

The general words used in the clause of the patent laws granting the exclusive right to the patentee to use the improvement, taken by themselves, and literally construed, without regard to the object in view, would seem to sanction the claim of the plaintiff. But this mode of expounding a statute has never been adopted by any enlightened tribunal—because it is evident that in many cases it would defeat the object which the legislature intended to accomplish. And it is well settled that, in interpreting a statute, the court will not look merely to a particular clause in which general words may be used, but will take in connection with it the whole statute (or statutes on the same subject) and the objects and policy of the law, as indicated by its various provisions, and give to it such a construction as will carry into execution the will of the legislature, as thus ascertained, according to its true intent and meaning.

Neither will the court, in expounding a statute, give to it a construction which would in any degree disarm the government of a power which has been confided to it to be used for the general good —or which would enable individuals to embarrass it, in the discharge of the high duties it owes to the community—unless plain and express words indicated that such was the intention of the legislature.

The patent laws are authorized by that article in the constitution which provides that congress shall have power to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries. The power thus granted is domestic in its character, and necessarily confined within the limits of the United States. It confers no power on congress to regulate commerce, or the vehicles of commerce, which belong to a foreign nation, and occasionally visit our ports in their commercial pursuits. That power and the treaty-making power of the general government are separate and distinct powers from the one of which we are now speaking, and are granted by separate and different clauses, and are in no degree connected with it. And when congress are legislating to protect authors and inventors, their attention is necessarily attracted to the authority under which they are acting, and it ought not lightly to be presumed that they intended to go beyond it, and exercise another and distinct power, conferred on them for a different purpose.

Nor is there anything in the patent laws that should lead to a different conclusion. They are all manifestly intended to carry into execution this particular power. They secure to the inventor a just remuneration from those who derive a profit or advantage, within the United States, from his genius and mental labors.

But the right of property which a patentee has in his invention, and his right to its exclusive use, is derived altogether from these statutory provisions; and this court have always held that an inventor has no right of property in his invention, upon which he can maintain a suit, unless he obtains a patent for it, according to the acts of congress; and that his rights are to be regulated and measured by these laws, and cannot go beyond them.

But these acts of congress do not, and were not intended to, operate beyond the limits of the United States; and as the patentee's right of property and exclusive use is derived from them, they cannot extend beyond the limits to which the law itself is confined. And the use of it outside of the jurisdiction of the United States is not an infringement of his rights, and he has no claim to any compensation for the profit or advantage the party may derive from it.

The chief and almost only advantage which the defendant derived from the use of this improvement was on the high seas, and in other places out of the jurisdiction of the United States. The plea avers that it was placed on her to fit her for sea. If it had been manufactured on her deck while she was lying in the port of Boston, or if the captain had sold it there, he would undoubtedly have trespassed upon the rights of the plaintiff, and would have been justly answerable for the profit and advantage he thereby obtained. For, by coming in competition with the plaintiff, where the plaintiff was

entitled to the exclusive use, he thereby diminished the value of his property. Justice, therefore, as well as the act of congress, would require that he should compensate the patentee for the injury he sustained, and the benefit and advantage which he (the defendant) derived from the invention.

But, so far as the mere use is concerned, the vessel could hardly be said to use it while she was at anchor in the port, or lay at the wharf. It was certainly of no value to her while she was in the harbor; and the only use made of it, which can be supposed to interfere with the rights of the plaintiff, was in navigating the vessel into and out of the harbor, when she arrived or was about to depart, and while she was within the jurisdiction of the United States. Now, it is obvious that the plaintiff sustained no damage, and the defendant derived no material advantage, from the use of an improvement of this kind by a foreign vessel in a single voyage to the United States, or from occasional voyages in the ordinary pursuits of commerce; or if any damage is sustained on the one side, or any profit or advantage gained on the other, it is so minute that it is incapable of any appreciable value.

But it seems to be supposed, that this user of the improvement was, by legal intendment, a trespass upon the rights of the plaintiff; and that although no real damage was sustained by the plaintiff, and no profit or advantage gained by the defendant, the law presumes a damage, and that the action may be maintained on that ground. In other words that there is a technical damage, in the eye of the law, although none has really been sustained.

This view of the subject, however, presupposes that the patent laws embrace improvements on foreign ships, lawfully made in their own country, which have been patented here. But that is the question in controversy. And the court is of opinion that cases of that kind were not in the contemplation of congress in enacting the patent laws, and cannot, upon any sound construction, be regarded as embraced in them. For such a construction would be inconsistent with the principles that lie at the foundation of these laws; and instead of conferring legal rights on the inventor, in order to do equal justice between him and those who profit by his invention, they would confer a power to exact damages where no real damage had been sustained, and would moreover seriously embarrass the commerce of the country with foreign nations. We think these laws ought to be construed in the spirit in which they were made—that is, as founded in justice—and should not be strained by technical constructions to reach cases which congress evidently could not have contemplated, without departing from the principle upon which they were legislating, and going far beyond the object they intended to accomplish.

The construction claimed by the plaintiff would confer on patentees not only rights of property, but also political power, and enable them to embarrass the treaty-making power in its negotiations with foreign nations, and also to interfere with the legislation of congress when exercising its constitutional power to regulate commerce. And if a treaty should be negotiated with a foreign nation, by which the vessels of each party were to be freely admitted into the ports of the other, upon equal terms with its own, upon the payment of the ordinary port charges, and the foreign government faithfully carried it into execution, yet the government of the United States would find itself unable to fulfill its obligations if the foreign ship had about her, in her construction or equipment, anything for which a patent had been granted. And after paying the port and other charges to which she was subject by the treaty, the master would be met with a further demand, the amount of which was not even regulated by law, but depended upon the will of a private individual.

And it will be remembered that the demand, if well founded in the patent laws, could not be controlled or put aside by the treaty. For, by the laws of the United States, the rights of a party under a patent are his private property; and by the constitution of the United States, private property cannot be taken for public use without just compensation. And in the case I have stated, the government would be unable to carry into effect its treaty stipulations without the consent of the patentee, unless it resorted to its right of eminent domain, and went through the tedious and expensive process of condemning so much of the right of property of the patentee as related to foreign vessels, and paying him such a compensation therefor as should be awarded to him by the proper tribunal. The same difficulty would exist in executing a law of congress in relation to foreign ships and vessels trading to this country. And it is impossible to suppose that congress in passing these laws could have intended to confer on the patentee a right of private property, which would in effect enable him to exercise political power, and which the government would be obliged to regain by purchase, or by the power of its eminent domain, before it could fully and freely exercise the great power of regulating commerce, in which the whole nation has an interest. The patent laws were passed to accomplish a different purpose, and with an eye to a different object; and the right to interfere in foreign intercourse, or with foreign ships visiting our ports, was evidently not in the mind of the legislature, nor intended to be granted to the patentee.

Congress may unquestionably, under its power to regulate commerce, prohibit any foreign ship from entering our ports, which, in its construction or equipment, uses any improvement patented in this country, or may prescribe the terms and regulations upon which such

vessels shall be allowed to enter. Yet it may perhaps be doubted whether congress could by law confer on an individual, or individuals, a right which would in any degree impair the constitutional powers of the legislative or executive departments of the government, or which might put it in their power to embarrass our commerce and intercourse with foreign nations, or endanger our amicable relations. But however, that may be, we are satisfied that no sound rule of interpretation would justify the court in giving to the general words used in the patent laws the extended construction claimed by the plaintiff, in a case like this, where public rights and the interests of the whole community are concerned.

The case of Caldwell v. Vlissengen, (9 Hare, 416, 9 Eng. L. and Eq. Rep. 51,) and the statute passed by the British parliament in consequence of that decision, have been referred to and relied on in the argument. The reasoning of the vice chancellor is certainly entitled to much respect, and it is not for this court to question the correctness of the decision, or the construction given to the statute of Henry VIII.

But we must interpret our patent laws with reference to our own constitution and laws and judicial decisions. And the court are of opinion that the rights of property and exclusive use granted to a patentee does not extend to a foreign vessel lawfully entering one of our ports; and that the use of such improvement, in the construction, fitting out, or equipment of such vessel, while she is coming into or going out of a port of the United States, is not an infringement of the rights of an American patentee, provided it was placed upon her in a foreign port, and authorized by the laws of the country to which she belongs. In this view of the subject, it is unnecessary to say anything in relation to the second plea of the defendant, since the matters relied on in the first are sufficient to bar the plaintiff of his action, without the aid of the additional averments contained in the second.

The judgment of the circuit court must therefore be affirmed.

22. MARSH v. NICHOLS, 128 U. S. 605, 32 L. ed. 538 (1888).

MR. JUSTICE FIELD: * * *

This doctrine has special force in its application to a patent for an invention. A patent for land has, in the legislation of congress, a twofold operation. It conveys the title where previously that remained in the United States; but where issued upon the recognition and confirmation of a claim to a previously existing title, it is evidence of record of the existence of that title or of equities respecting the land requiring recognition by a quitclaim from the government. It always imports that the government conveys, or has previously conveyed, interests in the lands,—something which it at the time owns, or its predecessor once owned. And by the proceedings previ-

ous to its issue there is created in the claimant an equitable right to the conveyance of the legal title, or his right to such title is so established that he can enforce it against others who, with notice of his claims, may have obtained the patent. Langdeau v. Hanes, 21 Wall. 521, 529. But the patent for an invention conveys nothing which the government owns or its predecessors ever owned. The invention is the product of the inventor's brain, and if made known would be subject to the use of any one, if that use were not secured to him. Such security is afforded by the act of congress when his priority of invention is established before the officers of the patent-office, and the patent is issued. The patent is the evidence of his exclusive right to the use of the invention; it therefore may be said to create a property interest in that invention. Until the patent is issued, there is no property right in it; that is, no such right as the inventor can enforce. Until then there is no power over its use, which is one of the elements of a right of property in anything capable of ownership. In Gayler v. Wilder, 10 How. 477, 493, this subject was to some extent considered, when the court, by Chief Justice Taney, said: "The inventor of a new and useful improvement certainly has no exclusive right to it until he obtains a patent. This right is created by the patent, and no suit can be maintained by the inventor against any one for using it before the patent is issued." And again: "The monopoly did not exist at common law, and the rights, therefore, which may be exercised under it, cannot be regulated by the rules of the common law. It is created by the act of congress, and no rights can be acquired in it unless authorized by statute, and in the manner the statute prescribes."

23. DABLE GRAIN SHOVEL CO. v. FLINT, 137 U. S. 41, 34 L. ed. 618 (1890).

It is agreed that the machines in question were constructed and put in use in the defendants' grain elevators by the inventor himself, and with his knowledge and consent, while he was in their employment as superintendent of machinery, and before his application for either patent. According to the express terms of the statute, therefore, the defendants had the right to continue to use these specific machines without paying any compensation to him or his assigns, whether asked for or not.

To the argument of the plaintiff's counsel that the statute is unconstitutional as depriving the inventor of his property without compensation, there is a twofold answer,—the patentee has no exclusive right of property in his invention, except under and by virtue of the statutes securing it to him, and according to the regulations and restrictions of those statutes, (Gayler v. Wilder, 10 How. 477, 493; Brown v. Duchesne, 19 How. 183, 195; Marsh v. Nichols, 128 U. S. 605, 612, 9 Sup. Ct. Rep. 168;) and these machines have

been set free from his monopoly by his own act, consent, and permission, (Wade v. Metcalf, 129 U. S. 202, 9 Sup. Ct. Rep. 271.) Judgment affirmed.

24. CHAMPLIN v. STODDART, 30 Hun. 300, 302.

A secret in trade is fully recognized as property in equity, the disclosure of which will be restrained by injunction.

25. PEABODY v. NORFOLK, 98 Mass. 452.

Also in Vovatt v. Winyard, Jac. & W., 394; Bryson v. Whitehead, 1 S. & S. 74; Morrison v. Moat, 9 Hare 241; and Weston v. Huermons, 2 Vict. L. R. Eq. 121.

Relief by injunction was granted against former employees and others similarly situated, from practicing or disclosing various trade secrets such as process of manufacturing cloth, receipts for veterinary medicines, the mode of dyeing, and a medical recipe.

See also Benton v. Ward, 59 Fed. Rep. 411, 413.]

26. R. S. U. S. § 4908

"* * * but no witness shall be deemed guilty of contempt for * * * refusing to disclose any secret invention or discovery made or owned by himself."

27. CHADWICK v. COVELL, 151 Mass. 190, 23 N. E. 1068.

So far as the right to manufacture and sell the medicine goes, the plaintiff's case may be disposed of in a few words. Dr. Spencer has no exclusive right to the use of his formulae. His only right was to prevent any one from obtaining or using them through a breach of trust or contract. Any one who came honestly to the knowledge of them could use them, without Dr. Spencer's permission and against his will. (Peabody v. Norfolk, 98 Mass. 452; Morison v. Moat, 9 Hare, 241; Williams v. Williams, 3 Meriv. 157.

28. SCHOULER ON PERSONAL PROPERTY, Vol. 1, sec. 63 [citing Bristol v. Equitable Soc., 132 N. Y. 264; Morison v. Moat (Supra), and Chadwick v. Covell.]

But one who has ideas, trade secrets, or systems of his own which cannot be used or sold without disclosure, must guard his own property, if he has no patent or copyright to protect him, for if he discloses the idea or secret to another even in confidence, without contract to guard it or an agreement for recompense, such a party is entitled to use it for his own benefit without rewarding him.

Ibid, Vol. 1, Sec. 518, (citing Dable Grain Shovel Co. v. Flint, 137 U. S. 41.)

"For neither an inventor nor an author, here or abroad, has any exclusive right of property in his invention or writing after publish-

ing it, except under and by virtue of the statutes, foreign or domestic, securing it to him and in accordance with the regulations and restrictions of such statutes."

29. GAYLER v. WILDER, 10 How. (U. S.) 477, 13 L. ed. 504.

"* * * no suit can be maintained by the inventor against any one for using it before the patent is issued."

30.

[Note.—See also Kirk v. United States, 163 U. S. 49, 41 L. ed. 66; American Hide, &c., Co. v. American Tool, &c., Co., 4 Fish. Pat. Cas. 284, Fed. Cas. No. 302; Morton v. New York Eye Infirmary, 2 Fish. Pat. Cas. 320, 5 Blatchf., (U. S.) 116, 17 Fed. Cas. No. 9865; Brill v. St. Louis Car Co. *et al.*, 80 Fed. 909; S. S. White Dental Mfg. Co. v. Mitchell, 188 Fed. 1017.]

31. REIN v. CLAYTON, 37 Fed. 354.

BROWN, J.: * * *

We are confronted upon the threshold of this case with the important question whether an inventor can maintain a bill for an injunction before the issue of a patent. The question has been directly decided in but a single case, viz., Butler v. Ball, 28 Fed. Rep. 754; and it is upon this case alone that plaintiffs rely for the maintenance of this suit. The learned judge, who delivered the opinion in this case, does not discuss the question upon principle, but cites two authorities as settling it in favor of the jurisdiction. The first case (Evans v. Weiss, 2 Wash. C. C. 342) was an action at law against a person who had made use of plaintiff's invention for some years prior to the passage of a special act granting him a patent for such invention, and the question was whether he was liable as an infringer, for using the improvement after he had received notice of the granting of plaintiff's patent; and the court held that he was, notwithstanding a proviso in the special act that "no person who shall have used the said improvements, or erected the same for use, before the issuing of said patent, shall be liable therefor." In delivering the opinion Mr. Justice Washington observed "that the right to the patent belongs to him who is the first inventor, even before the patent is granted; and therefore any person who, knowing that another is the first inventor, yet doubting whether that other will ever apply for a patent, proceeds to construct a machine, of which it may afterwards appear he is not the first inventor, acts at his peril, and with a full knowledge of the law that, by relation back to the first invention, a subsequent patent may cut him out of the use of the machine thus erected." It is entirely clear that in saying that the right to the patent belongs to the first inventor, even before the

patent is granted, he refers only to the plaintiff's property in his invention, and his right to a patent therefor, and not to his right to enjoin an infringer before the patent is issued. The real question was whether the defendant, who had purchased the patented article before the patent was issued, and was then using it, had the right to continue to use it after the patent was granted, and it was held that he had not. The principle of this case was subsequently affirmed by the supreme court in Evans v. Jordan, 9 Cranch, 199. In the other case, also, (Jones v. Sewall, 6 Fish. Pat. Cas. 343,) suit was brought upon letters patent, and in opening his opinion Mr. Justice Clifford made the incidental remark that inventions lawfully secured by letters patent are the property of the inventors, and as much entitled to legal protection as any other species of property. "They are indeed property, even before they are patented, and continue to be such, even without that protection, until the inventor abandons the same to the public, unless he suffers the patented product to be in public use or on sale, with his consent and allowance, for more than two years before he files his application." He is evidently speaking here of the right of an inventor to a patent in case he makes his application within two years after his device has been made public; and this right is a species of property which remains unimpaired during the continuance of the two years. But there is no intimation here that the inventor may apply for an injunction before his right is lawfully secured by letters patent; indeed, the intimation is the other way. He is evidently speaking of the same right of property to which Mr. Justice Hunt alludes in Manufacturing Co. v. Vulcanite Co., 13 Blatchf. 375, 383: "So far as the plaintiff's own use or manufacture is concerned, it needs no act of congress to enable it to make, use, and vend the article, and it obtains no such right from congress. The benefit of the patent law is that the plaintiff may prevent others from making, using, or vending its invention. To itself, to its own right to make, use, or vend, no right or authority is added by those statutes." We think that neither of these cases is authority for the proposition laid down in the case of Butler v. Ball.

Let us now examine the question upon principle. At common law there was no special property in an invention, because the policy of the law was opposed to this as to all other monopolies. Walk. Pat. § 159. Indeed, the inventive genius of the English-speaking people did not begin to manifest itself to any considerable extent before the middle of the last century, and it is only within the past 60 years that the business of the patent-office has been considered of any great importance. Patents for inventions were at first treated as a royal prerogative, and granted as a matter of favor, and never as a legal right. They were in fact a branch of that extensive system of monopolies which became so odious during the reign of Elizabeth and her successors, the Stuarts. In the reign of James I. a statute

known as the "Statute of Monopolies" was passed, declaring all monopolies contary to law, and void, except as to patents, not exceeding the grant of 14 years, to authors of new inventions, and some others not material to be noticed here. This was the earliest recognition of the right of an inventor to a monopoly of the manufacture, sale, and use of his invention. It still remained, however, a royal prerogative, which was granted or refused at the pleasure of the crown. This statute was followed by others, securing to the inventor a monopoly, as a matter of right, and providing the proper machinery for procuring and enforcing it. In this country patents have been recognized as existing only by virtue of positive law. The constitution of the United States conferred upon congress the power "to promote the progress of science and useful art by securing for limited times, to authors and inventors, the exclusive right to their respective writings and discoveries." The adoption of the constitution was followed the next year by the first federal statute upon the subject, which became the foundation of the patent law of this country. That the right of an inventor to a monopoly is purely a feature of the statute was recognized by the supreme court in Brown v. Duchesne, 19 How. 183, 195, in which Mr. Chief Justice Taney observed:

"But the right of property which the patentee has in his invention, and his right to its exclusive use, is derived altogether from these statutory provisions; and this court have always held that an inventor has no right of property in his invention, upon which he can maintain a suit, unless he obtains a patent for it, according to the acts of congress; and that his rights are to be regulated and measured by these laws, and cannot go beyond them."

Still stronger language is used by him in Gayler v. Wilder, 10 How. 477, 493, in which he says:

"The inventor of a new and useful improvement certainly has no exclusive right to it, until he obtains a patent. This right is created by the patent, and no suit can be maintained by the inventor against any one for using it before the patent is issued. But the discoverer of a new and useful improvement is vested by law with an inchoate right to its exclusive use, which he may perfect and make absolute by proceeding in the manner the law requires. * * * The monopoly did not exist at common law, and the rights, therefore, which may be exercised under it, cannot be regulated by the rules of the common law. It is created by the act of congress; and no rights can be acquired in it unless authorized by statute, and in the manner the statute prescribes."

And in the recent unreported case of Marsh v. Nichols, (9 Sup. Ct. Rep. 168, 15 Fed. Rep. 914,) appealed from this court, in which the point decided was that a patent not signed by the secretary of the interior is absolutely void, it is said:

"The invention is the product of the inventor's brain, and, if made known, would be made subject to the use of any one, if that use were not secured to him. Such security is afforded by the act of congress, when his priority of invention is established by the officers of the patent-office, and the patent is issued. The patent is the evidence of his exclusive right to his use of the invention. It therefore may be said to create a property interest in that invention. Until the patent is issued, there is no property right in it; that is, no such right as the inventor can enforce. Until then there is no power over its use, which is one of the elements of a right of property in anything capable of ownership."

A similar observation was made by Judge Shepley in Machine Co. v. Tool Co., 4 Fish. Pat. Cas. 284, 294. "An inventor," says he, "has no right to his invention at common law. He has no right of property in it originally. The right which he derives is the creature of statute and of grant." See, also, Sargent v. Seagrave, 2 Curt. 553, 555.

The power of a court to deal with patents is now regulated by the fifty-fifth section of the patent act of 1870, incorporated into Rev. St. § 4921, which declares that "the several courts vested with jurisdiction of cases arising under the patent laws shall have power to grant injunctions, according to the course and principles of the courts of equity, to prevent violation of any rights *secured by patent,* on such terms as the court may deem reasonable." It is impossible to deduce from this language any recognition of a power to grant such injunction before the right has been "secured by patent." Indeed, if it does not absolutely inhibit that power, it points very strongly in that direction. While no court has decided that it would not grant an injunction after application for but prior to the issue of a patent, it has been frequently held that after a patent has been surrendered no action will lie upon it, and all actions founded upon it abate, notwithstanding an application for a reissue for the same be pending. *Moffitt* v. *Garr,* 1 Black, 273; *Peck* v. *Collins,* 103 U. S. 664. This particular defect has since been remedied by the act of 1870, declaring that the surrender shall take effect upon the issue of the amended patent, but the principle of these decisions is not affected. Now, if a bill will not lie upon a patent surrendered, though an application for a reissue be pending, it is impossible to see upon what ground it can be sustained before any patent whatever has been issued.

There are also certain practical difficulties in the way of assuming jurisdiction of a bill like the one under consideration. Courts of justice have no original cognizance of the subject of inventions. Congress has provided a commissioner of patents, has furnished him with a library of such scientific works and periodicals, both foreign and American, as may aid him in the discharge of his duties, with

copies of models of all patents heretofore granted, together with a large corps of intelligent and experienced assistants, whose duty it is to examine every application; to compare it with patents previously issued, (that two may not be issued for the same invention;) to correct the specifications and claims; to give notice to the patentee of interferences; and to determine questions of priority between rival inventors of the same device. It is a matter of common knowledge that the commissioner is in the habit of limiting, altering, and expunging claims, and that it is impossible to say, after the specifications and claims have been filed, in what shape, and with what limitations, they will emerge from the patent office. It is absolutely impossible for courts of justice to deal with questions of this description. We are asked in this case to assume that a patent will be issued covering five different claims, yet we have no assurance whatever that, if a patent be issued, any one of these claims will be allowed in the language in which it is couched. Besides, the effect of assuming cognizance of a patent before the patent is granted would be to extend the life of the patent beyond the statutory period of 17 years, by the time, which may be months, and even years, during which the application is pending in the patent office.

The jurisdiction of courts to determine the validity of patents is purely appellate. It is conferred upon the theory that, application for patents being made *ex parte*, in the pressure of business, patents may be granted by inadvertence or mistake, or rival claimants may not have an opportunity of being heard; and because there is no other method provided by law of determining whether persons using similar devices are or are not infringers upon the rights of the patentee. It is obvious that when parties are represented by experienced counsel, and witnesses are examined with that care and deliberation which is only attainable in judicial proceedings, a correct result is much more likely to be reached than upon the hurried examination of an examiner in the patent office. These considerations, however, do not by any means justify us in anticipating his decision, or intermeddling in any way with his action before it has been consummated by the issuance or refusal of the patent.

A decree will therefore be entered denying the injunction, and dismissing the bill for want of jurisdiction.

32. McCLURG v. KINGSLAND, 1 How. (U. S.) 202, 11 L. ed. 102 (1843).

BALDWIN, J. * * * Whether these exceptions are well taken or not must depend on the law as it stood at the emanation of the patent, together with such changes as have been since made; for though they may be retrospective in their operation, that is not a sound objection to their validity; the power of congress to legislate upon the subject of patents is plenary by the terms of the constitution, and as there are no restraints on its exercise, there can be no

limitation of their right to modify them at their pleasure, so that they do not take away the rights of property in existing patents. * * * (See No. —.)

[NOTE.—This is sometimes suggested as a judicial dictum that congress is not restrained by the term "exclusive" in the constitution, but it should be observed that the court was here dealing with acts of congress providing rules for the trial of actions for the violation of patented rights, which were held applicable to patents granted before or after the passage of the act.]

33. SEYMOUR v. OSBORNE, 11 Wal. (U. S.) 516, 20 L. ed. 33 (1870).

* * *

* * * Inventions secured by letters patent are property in the holder of the patent, and as such are as much entitled to protection as any other property, consisting of a franchise, during the term for which the franchise or the exclusive right is granted.

Letters patent are not to be regarded as monopolies, created by the executive authority at the expense and to the prejudice of all the community except the persons therein named as patentees, but as public franchises granted to the inventors of new and useful improvements for the purpose of securing to them, as such inventors, for the limited term therein mentioned, the exclusive right and liberty to make and use and vend to others to be used their own inventions as tending to promote the progress of science and the useful arts, and as matter of compensation to the inventors for their labor, toil and expense in making the inventions, and reducing the same to practice for the public benefit, as contemplated by the constitution and sanctioned by the laws of congress. * * *

34. BLOOMER v. McQUEWAN, 14 How. 539, 549, 14 L. ed. 539, 548 (1852).

* * * The franchise which the patent grants consists altogether in the right to exclude every one from making, using or vending the thing patented, without the permission of the patentee. * * *

35. BEMENT v. NATIONAL HARROW COMPANY, 186 U. S. 70; 46 L. ed. 1058 (1901).

* * * It was, therefore, the owner of a monopoly recognized by the constitution and by the statutes of congress. An owner of a patent has the right to sell it or keep it; to manufacture the article himself or to license others to manufacture it; to sell such articles himself or to authorize others to sell it. As stated by Mr. Justice Nelson, in *Wilson v. Rousseau,* (4 How. 646, 674), in speaking of a patent:

"The law has thus impressed upon it all the qualities and characteristics of property for the specified period; and has enabled him to hold and deal with it the same as in the case of any other descrip-

tion of property belonging to him, and on his death it passes, with his personal estate, to his legal representative, and becomes part of the assets." (1846.) * * *

36. GRANT v. RAYMOND, 6 Pet. 218, 241, 8 L. ed. 736 (1832).

* * * And it cannot be doubted that the settled purpose of the United States has ever been, and continues to be, to confer on the authors of useful inventions an exclusive right to their inventions for the time mentioned in their patents. It is the reward stipulated for the advantage derived by the public for the exertions of the individual, and is intended as a stimulus to those exertions. The laws which are passed to give effect to this purpose ought, we think, to be construed in the spirit in which they have been made; and to execute the contract fairly on the part of the United States, where the full benefit has been actually received; if this can be done without transcending the intention of the statute, or countenancing acts which are fraudulent or may prove mischievous. The public yields nothing which it has not agreed to yield; it receives all which it has contracted to receive. The full benefit of the discovery, after its enjoyment by the discoverer for fourteen years, is preserved; and for his exclusive enjoyment of it during that time the public faith is pledged.* * *

37. UNITED STATES v. AMERICAN BELL TELEPHONE CO., 167 U. S. 224, 42 L. ed. 144 (1896).

* * * The only effect of it was to restrain others from manufacturing and using that which he invented. After his invention he could have kept the discovery secret to himself. He need not have disclosed it to any one. But in order to induce him to make that invention public, to give all a share in the benefits resulting from such an invention, congress, by its legislation made in pursuance of the constitution, has guaranteed to him an exclusive right to it for a limited time; and the purpose of the patent is to protect him in this monopoly, not to give him a use which, save for the patent, he did not have before, but only to separate to him an exclusive use. The government parted with nothing by the patent. It lost no property. Its possessions were not diminished. The patentee, so far as a personal use is concerned, received nothing which he did not have without the patent, and the monopoly which he did receive was only for a few years. * * *

38. CONTINENTAL PAPER BAG COMPANY v. EASTERN-PAPER BAG COMPANY, 210 U. S. 405, 52 L. ed. 1122 (1907).

(Mr. Justice McKenna quoting the above case): * * *

"Counsel seem to argue that one who has made an invention and thereupon applies for a patent therefor occupies, as it were,

the position of a quasi-trustee for the public; that he is under a sort of moral obligation to see that the public acquires the right to the free use of that invention as soon as is conveniently possible. We dissent entirely from the thought thus urged. The inventor is one who has discovered something of value. It is his absolute property. He may withhold a knowledge of it from the public, and he may insist upon all the advantages and benefits which the statute promises to him who discloses to the public his invention." * * *

(Mr. Justice McKenna then continued):

"And the same relative rights of the patentee and the public were expressed in prior cases, and we cite them because there is something more than the repetition of the same thought by doing so. It shows that whenever this court has had occasion to speak it has decided that an inventor receives from a patent the right to exclude others from its use for the time prescribed in the statute. And for his exclusive enjoyment of it during that time the public faith is forever pledged." (Chief Justice Marshall in *Grant v. Raymond*, 6 Pet. 243, p. 242.) * * *

[And see *McKay-Copeland, etc., Co. v. Copeland, etc., Co.*, 77 Fed. 306.]

39. RUBBER TIRE WHEEL CO. v. MILWAUKEE, ETC. CO., 154 Fed. 358, 83 C. C. A. 336 (1907).

* * * "Under its constitutional right to legislate for the promotion of the useful arts, congress passed the patent statutes. The public policy thereby declared is this: Inventive minds may fail to produce many useful things that they would produce if stimulated by the promise of a substantial reward; what is produced is the property of the inventor; he and his heirs and assigns may hold it as a secret till the end of time; the public would be largely benefited by obtaining conveyances of these new properties; so the people through their representatives say to the inventor: Deed us your property, possession to be yielded at the end of 17 years, and in the meantime we will protect you absolutely in the right to exclude every one from making, using or vending the thing patented, without your permission." * * *

40. JEWETT v. ATWOOD SUSPENDER CO., 100 Fed. 647.

WHEELER, J. A patent does not confer even the right to use the invention. The inventor had that right before. It is merely an incorporeal right to exclude others from using the invention throughout the United States conferred by the government upon compliance with certain requirements, and is transferable only according to the laws of its creation, which the state statutes cannot affect. Hall, Pat. Est. § 11; Walk. Pat. 274. This is a personal

right. Section 4898, Rev. St. U. S. Patents can be reached under the bankrupt law, because they are wholly subject to the laws of the United States. They cannot be reached otherwise for debts except by proceedings which compel a personal assignment. Ager v. Murray, 105 U. S. 126, 26 L. Ed. 942; Newton v. Buck, 23 C. C. A. 355, 77 Fed. 614. (See Ball v. Coker, 168 Fed. 304.)

41. NATIONAL HOLLOW B. B. CO. v. INTERCHANGEABLE B. B. CO., 106 Fed. 693, 45 C. C. A. 544 (Eighth Circuit, 1901).

A patent is a contract by which the government secures to the patentee the exclusive right to vend and use his invention for a few years, in consideration of the fact that he has perfected and described it and has granted its use to the public forever after.

42. FRIED, KRUPP, ETC. v. MIDVALE STEEL CO,, 191 Fed. 588.

An American patent is a written contract between an inventor and the government. This contract consists of mutual, interrelated considerations moving from each party to the other for such contract. The consideration given on the part of the inventor to the government is the disclosure of his invention in such plain and full terms that any one skilled in the art to which it appertains may practice it. The consideration on the part of the government given to the patentee for such disclosure is a monopoly for 17 years of the invention disclosed to the extent of the claims allowed in the patent.

43. UNITED STATES v. STANDARD SANITARY MFG. CO.,191 Fed. 172.

Before GOFF and PRITCHARD, C. J., and ROSE, D. J.

ROSE, D. J. * * * A patentee is as much subject to the laws of the land as is any other man. From one special application of one class of laws he is exempt. At common law and by statute monopolies are unlawful. At common law and by statute a man who invented a new and useful thing might be given a right which would enable him for a limited time effectually to monopolize it. The courts have said that this right to monopolize what he invented cannot be taken away from a patentee by state laws. They say it has not been taken away by congress. All men know that congress never intended when it passed the Sherman act to change the patent law. It did not do so.

The patentee may, in spite of that law, monopolize for the term of his patent the thing which he or his assignor invented. Neither at common law nor in this country by statute has he ever had a right to monopolize anything else. As to everything not validly claimed in his patent he is as other men. If by the common law or the statutes of the state or by the enactments of congress men are

forbidden to restrain trade or to monopolize it, a patentee may not restrain trade or attempt to monopolize it in anything except that which is covered by his patent.

A patent is a grant of a right to exclude all others from making, using, or selling the invention covered by it. It does not give a right to the patentee to sell indulgences to violate the law of the land, be it the Sherman act or another. The right to exclude others is the property of the patentee. It is his very own. He may do with it as he will. * * *

A patentee who monopolizes his invention breaks no law. He who uses his property right to exclude others from the making, selling, or using his invention, for the purpose and with the effect of making a combination to restrain trade in something from which his patent gives him no right to exclude others, does break the law. He breaks it precisely as the individual defendants in the Standard Oil and American Tobacco Companies broke it. They had the same right to use their brains, their capital, and their credit as they thought best, as he had to use his right to exclude all others from making, using, or selling automatic dredges. He was subject to the same limitations as they were. They could not lawfully use their brains, their money, and their credit to restrain trade in petroleum and tobacco. He cannot use his patent rights to restrain trade in unpatented bath tubs. * * *

[For an elaborate discussion of the right of a patentee to exclude others from making, using or selling the invention for the full term of his patent solely by reason of the bargain made with the government in consideration of the disclosure and without reference to whether or not the invention has been used, see Continental Paper Bag Co. v. Eastern Paper Bag Co., *supra*, and especially the collection of cases therein at page 1131, 52 L. ed. and pages 425, 426, 210 U. S., and also the cases, *contra*, page 1132, 52 L. ed. and pages 427, 428, 210 U. S.]

45.

[For definitions by the state courts of patents as exclusive rights or monopolies, see, for example, Gilbert v. Knobbe, 70 N. Y. 361, 370; King v. Platt, 37 N. Y. 155; Crown Cork, etc., v. State, 87 Md. 687, 689, 40 Atl. 1074; Com. v. Central Dest., etc., Co., 145 Pa. St. 121, 127, 22 Atl. 841; Vose v. Singer, 4 Allen (Mass.) 226, 230.

That the consideration for the grant of a patent is a disclosure of an invention: International, etc., Co. v. Hauks, etc., Co., 111 Fed. 916; Carr v. Rice, 5 Fed. Cas. No. 2,440; 1 Fish Pat. Cas. 198; Goodyear v. N. J. Central R. R., etc., Co., 10 Fed. Cas. No. 5,563, 1 Fish Pat. Cas. 626.

That while the patent is a monopoly it is not a monopoly of

something that previously existed and belonged to others or the public, but is a monopoly of something created by the patentee, and therefore should have a liberal construction. See Davoll v. Brown, 7 Fed. Cas. No. 3,662; Goodyear v. Central, etc., R. R. Co., 10 Fed. Cas. No. 5,563; Singer v. Wamsley, 22 Fed. Cas. No. 12,900; Blanchard v. Sprague, 3 Fed. Cas. No. 1,518; Parker v. Stiles, 18 Fed. Cas. No. 10,749; Wickersham v. Singer, 29 Fed. No. 17,610; De la Vergne Co. v. Featherstone, 147 U. S. 209, 37 L. ed. 138; Lein v. Myers, 97 Fed. 607; McBride v. Kingman, 72 Fed. 908; Fitch v. Bragg, 8 Fed. 588; Holloway v. Whiteley, 4 Wall. 522, 18 L. ed. 335. See also herein divisions ix, xiii, and xiv.]

PART II.

PATENTABILITY—WHAT IS PATENTABLE.

Statutory Classes of Invention and Principles—

Art—Process and Method—Function of Machine—Force of Nature—Scientific Principles and Ideas—Property of Matter—Result or Function—Product—Process and Product—Machine—Article of Manufacture—Composition of Matter.

Statutory Requisites—

Invention—Novelty—Utility—Want of Invention and Tests of Invention—Discovery—Accident—Research—Definitions—Examples—Mechanical Skill—Common Knowledge—Common Experience—Mere Carrying Forward—Portability—Strengthening—Adjustability—Change in Form, Size, Proportion, Degree—Change or Substitution of Material—Adding and Omitting Parts or Elements—Change of Location—Reversal or Transposition of Parts—Duplication or Multiplication of Parts- Adaptation—Inoperativeness—Immoral Object—Simplicity—Demand—Extensive Use—Commercial Success—Turning Failure into Success—Increased Efficiency—Old Elements and Old Result—Old Elements and New Result—New Elements and Old Result—Use or Advantage—Uncontemplated Use or Function—Beneficial Use and Scope.

Unclassified Inventions.

Systems and Arrangements.

Broad and Narrow Inventions.

Improvements.

Statutory Bars—

Want of Patentable Novelty—Anticipation—State of Art—Prior Use—Identity—Single Use—Judicial Notice—(see also Part XVI)—Abandoned Experiments—Secret Use—(see also Part I)—Foreign Use, etc.

Prior Patents and Publications.

Public Use.

Abandonment—Dedication to the Public.

Utility.

Foreign Applications and Patents.

[See Part IX for Double Patenting and Divisional Patenting, Equivalents, and many illustrations of the principles of invention and patentability, and distinctions between patents as to breadth, scope, function, etc.]

STATUTES AND RULES OF PRACTICE.

46. WHAT INVENTIONS ARE PATENTABLE.

Sec. 4886. Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtain a patent therefor.

* * *

"Proviso—Patents Granted to Officers, etc., of the United States; R. S., 4886; Exceptions."

The Secretary of the Interior and the Commissioner of Patents are authorized to grant any officer of the Government, except officers and employes of the Patent Office, a patent for any invention of the classes mentioned in section forty-eight hundred and eighty-six of the Revised Statutes when such invention is used or to be used in the public service, without the payment of any fee: *Provided,* That the applicant in his application shall state that the invention described therein, if patented, may be used by the Government, or any of its officers or employes in prosecution of work for the Government, or by any other person in the United States, without the payment to him of any royalty thereon, which stipulation shall be included in the patent.

47. PATENTS FOR INVENTIONS PREVIOUSLY PATENTED ABROAD.

As amended by act approved March 3, 1897, and act approved March 3, 1903.

Sec. 4887. No person otherwise entitled thereto shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid by reason of its having been first patented or caused to be patented by the inventor or his legal representatives or assigns in a foreign country, unless the application for said foreign patent was filed more than twelve months, in cases within the provisions of section forty-eight hundred and eighty-six of the Revised Statutes, and four months in cases of designs, prior to the filing of the application in this country, in which case no patent shall be granted in this country.

An application for patent for an invention or discovery or for a design filed in this country by any person who has previously regularly filed an application for a patent for the same invention, discovery, or design in a foreign country which, by treaty, convention, or law, affords similar privileges to citizens of the United States shall have the same force and effect as the same application would have if filed in this country on the date on which the application for patent for the same invention, discovery, or design was first filed in such foreign country, provided the application in this country is filed within twelve months in cases within the provisions of section forty-eight hundred and eighty-six of the Revised Statutes, and within four months in cases of designs, from the earliest date on which any such foreign application was filed. But no patent shall be granted on an application for patent for an invention or discovery or a design which had been patented or described in a printed publication in this or any foreign country more than two years before the date of the actual filing of the application in this country, or which had been in public use or on sale in this country for more than two years prior to such filing.

48. REQUISITES OF APPLICATION, DESCRIPTION, SPECIFICATION, AND CLAIM.

Sec. 4888. Before any inventor or discoverer shall receive a patent for his invention or discovery, he shall make application therefor, in writing, to the Commissioner of Patents, and shall file in the Patent Office a written description of the same, and of the manner and process of making, constructing, compounding, and using it in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of a machine, he shall explain the principle thereof, and the best mode in which he has contemplated applying that principle, so as to distinguish it from other inventions; and he shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery. The specification and claim shall be signed by the inventor and attested by two witnesses.

Rule 24. [From R. S., secs. 4886, 4887.] A patent may be obtained by any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof, or more than two years prior to his application, and not patented in a country for-

eign to the United States on an application filed more than twelve months before his application, and not in public use or on sale in the United States for more than two years prior to his application, unless the same is proved to have been abandoned, upon payment of the fees required by law and other due proceedings had. (For designs, see Rule 79.)

49. PATENT NOT VOID ON ACCOUNT OF PREVIOUS USE IN FOREIGN COUNTRY.

Sec. 4923. Whenever it appears that a patentee, at the time of making his application for the patent, believed himself to be the original and first inventor or discoverer of the thing patented, the same shall not be held to be void on account of the invention or discovery, or any part thereof, having been known or used in a foreign country, before his invention or discovery thereof, if it had not been patented or described in a printed publication.

50. DISCUSSION OF NEILSON v. HARTFORD, 1 Webs. Pat. Cas. 273-373 (English).

Curtis, § 136. It is quite apparent then, first, that in speaking of the specification of a patent for a principle, in reference to this case of the hot blast, the court had in view a specification stating in the abstract that the patentee had found out that furnaces could be advantageously worked with a blast of hot air instead of cold air, without describing any particular means of applying or working out this principle. Hence, it is to be inferred that there is a distinction between the principle itself and the application or working out of the principle, in arts or manufactures. The former cannot be the subject of a patent; the latter may be. Secondly, the case is an authority to show when and how the application of a principle may be made the subject of a patent; for it ascertains that if the specification discloses, by sufficient and clear directions, some practical means by which persons of competent skill in the art can apply the principle and work it, so as to produce the effect contemplated by the patentee, it discloses a patentable invention, that invention consisting in a machine or other thing embodying the principle; or, stated in the other way, the patentable invention consists in the practical application of the principle. Thirdly, the case is an authority to show that when a patent covers the application of a principle, in the above sense, it may be infringed by the use of machinery or apparatus differing as machinery or apparatus from that described by the patentee, provided it effects a practical application of the same principle embodied by the patentee by means of his machinery or apparatus.

51. DISCUSSION OF STONE v. SPRAGUE, 1 Story 270 (1840), Curtis on Patents, 4th Edition.

* * *

Sec. 146. The patentee was the inventor of an improvement in looms, which consisted in communicating motion from the reed to the yarn-beam, and in the connection of one with the other, which was described as produced by a particular machinery; the invention being claimed as follows: "I claim as my invention the connection of the reed with the yarn-beam, and the communication of the motion from the one to the other, which may be done as above specified." It was contended, in the defense, that this was a claim for an abstract principle, or all modes by which motion could be communicated from the reed to the yarn-beam, and therefore that the patent was void. But the court construed it as a patent for an invention limited to the specific machinery and mode of communicating the motion specially described; at the same time intimating a very decided opinion that, if construed to include all other modes of effecting the object, it would be void, as an attempt to maintain a patent for an abstract principle.

Sec. 147. Upon the whole, the case of Stone v. Sprague, in respect to the limitation of the claim to the specific devices or contrivances described in the patent, is probably to be regarded as a case in which some one had preceded the plaintiff in communicating the described motion by another means. Without this hypothesis, it is not clear that the extreme alternative construction suggested by the court would be necessary; but the limited construction which confined the patentee to his device (as in the case of Seed v. Higgins, ante), would upon this hypothesis be the right one.

52. DISCUSSION OF WYETH v. STONE, 1 Story 273 (1840).

Curtis, § 148. * * * The patent was granted "for a new and useful improvement in the manner of cutting ice, together with the machinery and apparatus therefor." After setting forth two machines, to be used separately or in combination, for the purpose of cutting ice, the patentee summed up his claim as follows: "It is claimed as new, to cut ice of a uniform size, by means of an apparatus worked by any other power than human. The invention of this art, as well as of the particular method of the application of the principle, are claimed by the subscriber." It was held that the first clause of this claim had undertaken to cover an art or principle in the abstract, namely, the cutting of ice of a uniform size by means of an apparatus worked by any other power than human; which would render the patent void, unless a disclaimer had been filed in season to save it as a patent for the machines or machine which constituted the particular method embraced by the second clause of the claim. Certainly if it was necessary to construe this as a claim to the in-

vention and appropriation of an art, being the art of cutting ice by any other than human power, it is an indisputable proposition that it covered no possible subject of a patent privilege. But the first clause of this claim was probably mere surplusage, intended only to state that the patentee was the first person who had invented an apparatus for cutting ice of a uniform size, and that it mattered not by what power the apparatus was moved along the ice. The second clause is the one in which the invention resided; and this appeared, on the face of the claim to be a particular method of applying what the patentee miscalled an art or principle, it being in truth no art or principle whatever to cut ice by any other than human power. In other words, the patent was a patent for an apparatus to be used in cutting ice, and all beyond that, which did not mislead any one, might have been rejected as surplusage. The case is not one which belongs strictly to the class we are here considering. The patentee neither discovered nor applied any force, or truth, or element in nature, or any law or property of matter, never before discovered and applied to the same purpose. He merely invented a machine capable of doing what had before been done by hand.

53. DISCUSSION OF FOOTE v. SILSBY, 1 Blatchf. (U. S.) 445, 4 How. (U. S.) 218, 14 L. ed. 394 (Fed. Cas. No. 4917).

Curtis, § 149. * * * The plaintiff claimed "the application of the expansive and contracting power of a metallic rod by different degrees of heat, to open and close a damper which governs the admission of air into a stove, in which such rod shall be acted upon directly by the heat of the stove or the fire which it contains." At the trial before Conkling, J., he ruled that this was a claim for the application of a natural property of metals for the purpose set forth, and was not the fit subject of a patent, although the specification described devices by which a metallic rod was to be made to work in the application of the expansive and contractile property by means of variation in the heat of the stove. Mr. Justice Nelson reversed this construction, on a motion for a new trial, and held that the claim was not for a natural property of the metallic rod, but for a new application of it by means of mechanical contrivances: and it appeared on this trial that the patentee was the first to make this application to the regulation of the heat of a stove. The mechanical devices used by the defendant were, however, substantially the same as those of the plaintiff. Upon this the learned judge observed: "I am not sure that the plaintiff was bound to go to this length in making out a case of infringement. There is some ground for the position that the new application of the principle, by means of mechanical contrivances, constitutes of itself a part of his invention, and that any different or improved mode of application is but an improvement upon his dis-

covery, and not available without his consent." But the verdict that was affirmed by the refusal of a new trial rested on the validity of a claim which covered the particular combination only. In this dictum we reach, for the first time in any American case, the suggestion of a doctrine which, in reference to cases of this kind, must either be established in or rejected from the patent law. This doctrine treats the application of the principle, by some mechanical means, as being at least a part of the invention and of the subject-matter of the patent; and, as a corollary of this position, it regards a variation of the means, even if an improvement, as still an infringement, if used without the consent of the patentee. The opposite doctrine is that which is maintained by those who contend that the application of a principle in this sense is not capable of appropriation under a patent; that its appropriation can extend only to the application of the principle as effected by the particular means used by the patentee, and by such other means as may turn out to be colorable imitations, mechanical equivalents, or fraudulent evasions, to neither of which categories is a real improvement to be referred. We have seen what the weight of English authority is on this subject; and, having now contrasted the opposite doctrines, we may continue the investigation of the cases in our own courts.

54. DISCUSSION OF ROBERTS v. DICKEY, 4 Fish. 532. (Fed. Cas. No. 11899.)

Curtis, § 153a. In the case of Roberts v. Dickey, the invention claimed was a method of increasing the productiveness of oil wells by causing an explosion of gunpowder in the particular manner described. This invention was based upon the geological knowledge that petroleum, or other oil taken from oil wells, was contained in seams or crevices, usually in the second or third strata of sandstone or other rock abounding in the oil regions; and that these seams, being of different dimensions and irregularly located, were frequently not penetrated by the wells made for this purpose, which circumstance materially affected the supply of oil. Modes of overcoming this difficulty had been used, but with only partial success. The improvement of the patentee was to fracture the oil-bearing rock in proximity to the bore of the well, and for some distance around it, thus making artificial passages into seams or crevices containing oil, which, without such passages, would not communicate with the well, and also enlarging existing apertures into oil deposits, or clearing such apertures when they had become clogged. The method devised for accomplishing these objects was to sink into the well to the desired position a water-tight flask containing gunpowder or other powerful explosive material, then to fill the well with water and cause an explosion of the powder in the flask, which

would open communication between the well and the oil-bearing crevices. "It has been further urged," said Mr. Justice Strong, "that all Roberts discovered was that the seams or rifts in oil-bearing rock would, if opened by a blast, yield oil, and that this was merely a discovery of a law of nature, a geological truth, and not the invention of a new art or manufacture. If this were all, doubtless it would not have been patentable. But it was not all. He devised a mode of turning to practical account this geological truth; and if the means thus devised were novel, if the process was the product of invention and was useful, it was a proper subject for a patent."

This combination, therefore, of instrumentalities before known to produce a new and useful result, was held to be patentable as an art.

55. DISCUSSION OF LEROY v. TATHAM, 14 How. (U. S.) 156, 14 L. ed. 367 (1852, Patent Reissue 82), and 63 U. S. 132, 16 L. ed. 366 (1859).

Curtis, § 62. On the other hand, the great feature of the invention which the plaintiffs claimed consisted in the discovery of the fact, that lead, when recently set, and still under heat, will reunite perfectly around a core, under extreme pressure, notwithstanding the particles have been separated, and will thus form pipe of great solidity and unusual strength. This beautiful discovery was made available by the substitution of a short immovable core in front of the die, supported by a bridge or cross-bars, and extending into and through the die, so that the true centrality of the core in reference to the die was constantly preserved; and although the particles of the metal, when forced through the apertures in the bridge were necessarily separated, they reunited perfectly around the core, and formed a pipe superior in quality and cheaper in production than had ever been made before.

§ 63. The patent which was to protect this remarkable invention, after duly describing the apparatus and its mode of operation, and after disclaiming any design of patenting the machinery independent of the arrangement and combination set forth, summed up the claim as follows: "What we do claim as our invention, and desire to secure, is the combination of the following parts above described, to-wit, the core and bridge, or guide-piece, with the cylinder, the piston, the chamber, and the die, when used to form pipes of metal, under heat and pressure in the manner set forth, or in any other manner substantially the same."

§ 64. It does not appear with sufficient distinctness, from the report of this case, whether the precise combination of the bridge or guide-piece with the cylinder, the piston, the chamber, and the

die, had been used before; although evidence was offered in the defense tending to show that substantially the same combination had been used before in the manufacture of lead pipe, of clay pipe, and of the confection called macaroni. It may be assumed, however, that the evidence did not show any previous manufacture of lead pipe by the substitution of a bridge for the long cylindrical mandril, for the purpose of making available the capacity of lead, when recently set, to reunite after separation. From the charge of the judge who tried the cause, and from the finding of the jury, it is to be inferred, that before the plaintiff's invention this combination of machinery had not been used for the development and application of this property of lead, and that this was a newly discovered property, for the first time made known, and made of practical consequence by the invention of the plaintiff. The jury was instructed, in substance, that the invention of the plaintiff did not consist in the combination of the machinery separate from the manner in which and the purpose for which it was used by him, but that the novelty of the invention consisted in the application of a combination of machinery, which might of itself be old, to a new end, by making a newly discovered property of lead practically useful, and producing thereby an article of manufacture which was both new in respect to the process by which it was made and in respect to its superior qualities, and that such invention was patentable. That this instruction was correct, provided the patentee's summary of his claim had not made the novelty of his machinery essential, there can be, I conceive, no doubt. But in the Supreme Court of the United States it was held by a majority of the judges that the claim did not admit of a construction that would support this direction; but that the patentee had made the novelty of his machinery essential by claiming it as part of his invention, and that therefore the novelty of the machinery was a material fact for the jury.

56. CURTIS, SEC. 153, note.

The case of LeRoy v. Tatham (14 Howard) resulted unfavorably to the patentees, by a construction of the claim which, if correct, shows that the real invention was not duly described in the claim itself. But in a subsequent proceeding (in equity), this patent again came before the Supreme Court, and appears to have been construed and sustained as a patent for a new process, which it undoubtedly was. In coming to this result, the court necessarily discarded the idea that the patented subject consisted in the application of an old contrivance to a new use, which was merely a double use, and they supported the patent upon the ground that, although the machinery might be old, yet its application to the development and employment of a new property of lead made a new and patentable process. See LeRoy v. Tatham, 22 How. (U. S.) 132.

57. O'REILLY v. MORSE, 15 How. (U. S.) 62, 14 L. ed. 601 (1853).

TANEY, C. J., delivered the opinion of the court. * * *

And this brings us to the exceptions taken to the specification and claims of the patentee in the reissued patent of 1848.

We perceive no well-founded objection to the description which is given of the whole invention and its separate parts, nor to his right to a patent for the first seven inventions set forth in the specification of his claims. The difficulty arises on the eighth.

It is in the following words:—

"Eighth. I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specifications and claims; the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electromagnetism, however developed for marking or printing intelligible characters, signs, or letters, at any distances, being a new application of that power of which I claim to be the first inventor or discoverer."

It is impossible to misunderstand the extent of this claim. He claims the exclusive right to every improvement where the motive power is the electric or galvanic current, and the result is the marking or printing intelligible characters, signs, or letters at a distance. * * *

Many cases have been referred to in the argument, which have been decided upon this subject, in the English and American courts. We shall speak of those only which seem to be considered as leading ones. And those most relied on, and pressed upon the court, in behalf of the patentee, are the cases which arose in England, upon Neilson's patent for the introduction of heated air between the blowing apparatus and the furnace in the manufacture of iron.

The leading case upon this patent, is that of Neilson and others v. Harford and others, 8 M. & W. 806, in the English Court of Exchequer. It was elaborately argued, and appears to have been carefully considered by the court. [See quotation from this case in LeRoy v. Tatham, and Tilghman v. Proctor.]

* * * Undoubtedly, the principle that hot air will promote the ignition of fuel better than cold, was embodied in this machine. But the patent was not supported because this principle was embodied in it. He would have been equally entitled to a patent, if he had invented an improvement in the mechanical arrangements of the blowing apparatus, or in the furnace, while a cold current of air was still used. But his patent was supported, because he had invented a mechanical apparatus, by which a current of hot air, instead of cold, could be thrown in. And this new method was protected by his patent. The interposition of a heated receptacle, in any form, was the novelty he invented.

We do not perceive how the claim in the case before us can derive any countenance from this decision. If the Court of Exchequer had said that Neilson's patent was for the discovery, that hot air would promote ignition better than cold, and that he had an exclusive right to use it for that purpose, there might, perhaps, have been some reason to rely upon it. But the court emphatically denied his right to such a patent. And his claim, as the patent was construed and supported by the court, is altogether unlike that of the patentee before us.

For Neilson discovered, that by interposing a heated receptacle between the blower and the furnace and conducting the current of air through it, the heat in the furnace was increased. And this effect was always produced, whatever might be the form of the receptacle, or the mechanical contrivances for heating it, or for passing the current of air through it, and into the furnace.

But Professor Morse has not discovered, that the electric or galvanic current will always print at a distance, no matter what may be the form of the machinery or mechanical contrivances through which it passes. You may use electro-magnetism as a motive power, and yet not produce the described effect, that is, print at a distance intelligible marks or signs. To produce that effect, it must be combined with, and passed through, and operate upon, certain complicated and delicate machinery, adjusted and arranged upon philosophical principles, and prepared by the highest mechanical skill. And it is the high praise of Professor Morse that he has been able, by a new combination of known powers, of which electro-magnetism is one, to discover a method by which intelligible marks or signs may be printed at a distance. And for the method or process thus discovered, he is entitled to a patent. But he has not discovered that the electro-magnetic current, used as motive power, in any other method, and with any other combination, will do as well.

We have commented on the case in the Court of Exchequer more fully, because it has attracted much attention in the courts of this country, as well as in the English courts, and has been differently understood. And perhaps a mistaken construction of that decision has led to the broad claim in the patent now under consideration.

We do not deem it necessary to remark upon the other decisions, in relation to Neilson's patent, nor upon the other cases referred to, which stand upon similar principles. The observations we have made on the case in the Court of Exchequer, will equally apply to all of them.

We proceed to the American decisions. And the principles herein stated, were fully recognized by this court in the case of LeRoy et al. v. Tatham et al., decided at the last term, 14 How. (U. S.) 166.

It appeared that, in that case, the patentee had discovered that lead, recently set, would, under heat and pressure in a close vessel, reunite perfectly, after a separation of its parts, so as to make wrought instead of cast pipe. And the court held that he was not entitled to a patent for this newly-discovered principle or quality in lead; and that such a discovery was not patentable. But that he was entitled to a patent for the new process or method in the art of making lead pipe, which this discovery enabled him to invent and employ; and was bound to describe such process or method, fully, in his specification.

Many cases have also been referred to, which were decided in the circuit courts. It will be found, we think, upon careful examination, that all of them, previous to the decision on Neilson's patent, maintain the principles on which this decision is made. Since that case was reported, it is admitted, that decisions have been made, which would seem to extend patentable rights beyond the limits here marked out. As we have already said, we see nothing in that opinion which would sanction the introduction of any new principle in the law of patents. But if it were otherwise, it would not justify this court in departing from what we consider as established principles in the American courts. And to show what was heretofore the doctrine upon this subject, we refer to the annexed cases. We do not stop to comment on them, because such an examination would extend this opinion beyond all reasonable bounds. Wyeth v. Stone, 1 Story, 273, 285, Blanchard v. Sprague, 3 Sumn. 540. The first-mentioned case is directly in point.

Indeed, independently of judicial authority, we do not think that the language used in the act of congress, can justly be expounded otherwise.

The 5th section of the act of 1836 declares that a patent shall convey to the inventor, for a term not exceeding fourteen years, the exclusive right of making, using, and vending to others to be used, his invention or discovery; referring to the specification for the particulars thereof.

The 6th section directs who shall be entitled to a patent, and the terms and conditions on which it may be obtained. It provides that any person shall be entitled to a patent who has discovered or invented a new and useful art, machine, manufacture, or composition of matter; or a new and useful improvement on any previous discovery in either of them. But before he receives a patent, he shall deliver a written description of his invention or discovery, "and of the manner and process of making, constructing, using, and compounding the same," in such exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same.

This court has decided, that the specification required by this law is a part of the patent; and that the patent issues for the invention described in the specification. * * *

The provisions of the acts of congress in relation to patents may be summed up in a few words.

Whoever discovers that a certain useful result will be produced, in any art, machine, manufacture, or composition of matter, by the use of certain means, is entitled to a patent for it; provided he specifies the means he uses in a manner so full and exact, that any one skilled in the science to which it appertains, can, by using the means he specifies, without any addition to, or subtraction from them, produce precisely the result he describes. And if this cannot be done by the means he describes, the patent is void. And if it can be done, then the patent confers on him the exclusive right to use the means he specifies to produce the result or effect he describes, and nothing more. And it makes no difference, in this respect, whether the effect is produced by chemical agency or combination; or by the application of discoveries or principles in natural philosophy known or unknown before his invention; or by machinery acting altogether upon mechanical principles. In either case, he must describe the manner and process as above mentioned, and the end it accomplishes. And any one may lawfully accomplish the same end without infringing the patent if he uses means substantially different from those described.

Indeed, if the eighth claim of the patentee can be maintained, there was no necessity for any specification, further than to say that he had discovered that, by using the motive power of electro-magnetism, he could print intelligible characters at any distance. We presume it will be admitted on all hands, that no patent could have issued on such a specification. Yet this claim can derive no aid from the specification filed. It is outside of it, and the patentee claims beyond it. And if it stands, it must stand simply on the ground that the broad terms above mentioned were a sufficient description, and entitled him to a patent in terms equally broad. In our judgment the act of congress cannot be so construed.

The patent then being illegal and void, so far as respects the eighth claim, the question arises whether the whole patent is void, unless this portion of it is disclaimed in a reasonable time, after the patent issued. * * *

Whether, therefore, the patent is illegal in part because he claims more than he has sufficiently described, or more than he invented, he must in either case disclaim, in order to save the portion to which he is entitled; and he is allowed to do so when the error was committed by mistake. * * *

It appears that no disclaimer has yet been entered at the patent office. But the delay in entering it is not unreasonable. For the objectionable claim was sanctioned by the head of the office; it has been held to be valid by a circuit court, and differences of opinion in relation to it are found to exist among the justices of this court. Under such circumstances the patentee had a right to insist upon it, and not disclaim it until the highest court to which it could be carried had pronounced its judgment. The omission to disclaim, therefore, does not render the patent altogether void; and he is entitled to proceed in this suit, for an infringement of that part of his invention which is legally claimed and described. But as no disclaimer was entered in the patent-office before this suit was instituted, he cannot, under the act of congress, be allowed costs against the wrongdoer, although the infringement should be proved. And we think it is proved by the testimony. * * *

The two reissued patents of 1848, being both valid, with the exception of the eighth claim in the first, the only remaining question is, whether they or either of them have been infringed by the defendants. * * *

The Columbian (O'Reilly's) telegraph does not profess to accomplish a new purpose, or produce a new result. Its object and effect is to communicate intelligence at a distance, at the end of the main line, and at the local circuits on its way. And this is done by means of signs or letters impressed on paper or other material. The object and purpose of the telegraph is the same with that of Professor Morse.

Does he use the same means? Substantially, we think he does, both upon the main line and in the local circuits. He uses upon the main line the combination of two or more galvanic or electric circuits, with independent batteries for the purpose of obviating the diminished force of the galvanic current, and in a manner varying very little in form from the invention of Professor Morse. And, indeed, the same may be said of the entire combination set forth in the patentee's third claim. For O'Reilly's can hardly be said to differ substantially and essentially from it. He uses the combination which composes the register with no material change in the arrangement, or in the elements of which it consists; and with the aid of these means he conveys intelligence by impressing marks or signs upon paper—these marks or signs being capable of being read and understood by means of an alphabet or signs adapted to the purpose. And as regards the second patent of Professor Morse for the local circuits, the mutator of the defendant does not vary from it in any essential particular. All of the efficient elements of the combination are retained, or their places supplied by well known equivalents. Its organization is essentially the same.

Neither is the substitution of marks and signs, differing from those invented by Professor Morse, any defense to this action. His patent is not for the invention of a new alphabet; but for a combination of powers composed of tangible and intangible elements, described in his specification, by means of which marks or signs may be impressed upon paper at a distance, which can there be read and understood. And if any marks or signs or letters are impressed in that manner by means of a process substantially the same with his invention, or with any particular part of it covered by his patent, and those marks or signs can be read, and thus communicate intelligence, it is an infringement of his patent. The variation in the character of the marks would not protect it, if the marks could be read and understood.

We deem it unnecessary to pursue further the comparison between the machinery of the patents. The invasion of the plaintiff's rights, already stated, authorized the injunction granted by the circuit court, and so much of its decree must be affirmed. But, for the reasons hereinbefore assigned, the complainants are not entitled to costs, and that portion of the decree must be reversed, and a decree passed by this court, directing each party to pay his own costs, in this and in the circuit court.

Wayne, J., Nelson, J., and Grier, J., dissent from the judgment of the court on the question of the validity of the eighth claim, and also on the question of costs, and concurred in the opinion of Grier, J., on these points.

[From dissenting opinion by GRIER, J.]

* * * * *

A new and useful art, or a new and useful improvement on any known art, is as much entitled to the protection of the law as a machine or manufacture. The English patent acts are confined to "manufactures," in terms; but the courts have construed them to cover and protect arts as well as machines; yet without using the term art. Here we are not required to make any latitudinous construction of our statute for the sake of equity or policy; and surely we have no right, even if we had the disposition, to curtail or narrow its liberal policy by astute or fanciful construction.

It is not easy to give a precise definition of what is meant by the term "art," as used in the acts of congress; some, if not all, the traits which distinguish an art from the other legitimate subjects of a patent, are stated with clearness and accuracy by Mr. Curtis, in his Treatise on Patents. "The term art, applies," says he, "to all those cases where the application of a principle is the most important part of the invention, and where the machinery, apparatus, or other means, by which the principle is applied, are incidental only, and not of the

essence of his invention. It applies also to all those cases where the result, effect, or manufactured article is old, but the invention consists in a new process or method of producing such result, effect, or manufacture." Curt. on Pat. 80.

A machine, though it may be composed of many parts, instruments, or devices combined together, still conveys the idea of unity. It may be said to be invented, but the term "discovery" could not well be predicated of it. An art may employ many different machines, devices, processes, and manipulations, to produce some useful result. In a previously known art, a man may discover some new process, or new application of a known principle, element, or power of nature, to the advancement of the art, and will be entitled to a patent for the same, as "an improvement in the art," or he may invent a machine to perform a given function, and then he will be entitled to a patent only for his machine.

That improvements in the arts, which consist in the new application of some known element, power, or physical law, and not in any particular machine or combination of machinery, have been frequently the subject of patents both in England and in this country, the cases in our books most amply demonstrate. I have not time to examine them at length; but would refer to James Watt's patent for a method of saving fuel in steam-engines by condensing the steam in separate vessels, and applying non-conducting substances to his steam-pipes; Clegg's patent for measuring gas in water, Webster's Pat. Cas. 103; Jupe v. Pratt, Webster's Pat. Cas. 144; and the celebrated case of Neilson's patent for the application of hot blast, being an important improvement in the art of smelting iron.

In England, where their statute does not protect an art in direct terms, they have made no clear distinction between an art or an improvement in an art, and a process, machine, or manufacture. They were hampered and confined by the narrowness of the phraseology of their patent acts. In this country, the statute is as broad as language can make it. And yet, if we look at the titles of patents, as given at the patent-office, and the language of our courts, we might suppose that our statute was confined entirely to machines. Notwithstanding, in Kneass v. The Bank, 4 Wash. C. C. R. 9, Mr. Justice Washington supported a patent which consisted in nothing else but a new application of copperplates to both sides of a bank-bill as a security against counterfeiting. The new application was held to be an art, and, therefore, patentable. So the patent in McClurg v. Kingsland, 1 How. (U. S.) 204, was in fact for an improvement in the art of casting chilled rollers by conveying the metal to the mould in a direction approaching to the tangent of the cylinder; yet the patentee was protected in the principle of his discovery, (which was but the application of a known law of nature to a new

purpose) against all forms of machinery embodying the same principle.

The great art of printing, which has changed the face of human society and civilization, consisted in nothing but a new application of principles known to the world for thousands of years. No one could say it consisted in the type or the press, or in any other machine or device used in performing some particular function, more than in the hands which picked the types or worked the press. Yet if the inventor of printing had, under this narrow construction of our patent law, claimed his art as something distinct from his machinery, the doctrine now advanced, would have declared it unpatentable to its full extent as an art, and that the inventor could be protected in nothing but his first rough types and ill contrived press.

I do not intend to review the English cases which adopt the principle for which I now contend, notwithstanding their narrow statute; but would refer to the opinion of my brother Nelson, in 14 How. (U. S.) 177; and will add, that Mr. Justice M'Lean, in delivering the opinion of the court in that case, quotes with approbation the language of Lord Justice Clerke, in the Neilson case, which is precisely applicable to the question before us. He says: "The specification does not claim any thing as to form, nature, shape, materials, numbers, or mathematical character of the vessel or vessels in which the air is to be heated, or as to the mode of heating such vessels." Yet this patent was sustained as for a new application of a known element; or, to use correct language, as an improvement in the art of smelting iron, without any regard to the machinery or parts of machinery used in the application. Such I believe to be the established doctrine of the English courts.

He who first discovers that an element or law of nature can be made operative for the production of some valuable result, some new art, or the improvement of some known art; who has devised the machinery or process to make it operative, and introduced it in a practical form to the knowledge of mankind, is a discoverer and inventor of the highest class. The discovery of a new application of a known element or agent may require more labor, expense, persevering idustry, and ingenuity than the invention of any machine. Sometimes, it is true, it may be the result of a happy thought or conception, without the labor of an experiment, as in the case of the improvement in the art of casting chilled rollers, already alluded to. In many cases, it is the result of numerous experiments; not the consequence of any reasoning a priori, but wholly empirical; as the discovery that a certain degree of heat, when applied to the usual processes of curing India rubber, produced a substance with new and valuable qualities.

The mere discovery of a new element, or law, or principle of

nature, without any valuable application of it to the arts, is not the subject of a patent. But he who takes this new element or power, as yet useless, from the laboratory of the philosopher, and makes it the servant of man; who applies it to the perfecting of a new and useful art, or to the improvement of one already known, is the benefactor to whom the patent law tenders its protection. The devices and machines used in the exercise of it may or may not be new; yet, by the doctrine against which I contend, he cannot patent them, because they were known and used before. Or, if he can, it is only in their new application and combination in perfecting the new art. *In other words, he may patent the new application of the* mechanical devices, but not the new application of the operative element which is the essential agent in the invention. He may patent his combination of the machinery, but not his art.

When a new and hitherto unknown product or result, beneficial to mankind, is effected by a new application of any element of nature, and by means of machines and devices, whether new or old, it cannot be denied that such invention or discovery is entitled to the denomination of a "new and useful art." The statute gives the inventor of an art a monopoly in the exercise of it as fully as it does to the inventor of a mere machine. And any person who exercises such new art without the license of the inventor is an infringer of his patent, and of the franchise granted to him by the law as a reward for his labor and ingenuity in perfecting it. A construction of the law which protects such an inventor in nothing but the new-invented machines or parts of machinery used in the exercise of his art, and refuses it to the exercise of the art itself, annuls the patent law. If the law gives a franchise or monopoly to the inventor of an art as fully as to the inventor of a machine, why shall its protection not be coextensive with the invention in one case as well as in the other? To look at an art as nothing but a combination of machinery, and give it protection only as such, against the use of the same or similar devices or mechanical equivalents, is to refuse it protection as an art. It ignores the distinction between an art and a machine; it overlooks the clear letter and spirit of the statute; and leads to inextricable difficulties. It is viewing a statue or a monument through a microscope.

The reason given for thus confining the franchise of the inventor of an art to his machine and parts of machinery is, that it would retard the progress of improvement, if those who can devise better machines or devices, differing in mechanical principle from those of the first inventor of the art, or, in other words, who can devise an improvement in it, should not be allowed to pirate it.

To say that a patentee, who claims the art of writing at a distance by means of electro-magnetism, necessarily claims all future

improvements in the art, is to misconstrue it, or draws a consequence from it not fairly to be inferred from its language. An improvement in a known art is as much the subject of a patent as the art itself; so, also, is an improvement on a known machine. Yet, if the original machine be patented, the patentee of an improvement will not have a right to use the original. This doctrine has not been found to retard the progress of invention in the case of machines; and I can see no reason why a contrary one should be applied to an art.

The claim of the patentee is, that he may be protected in the exercise of his art as against persons who may improve or change some of the processes or machines necessary in its exercise. The court, by deciding that this claim is too broad, virtually decides that such an inventor of an improvement may pirate the art he improves, because it is contrary to public policy to restrain the progress of invention. Or, in other words, it may be said that it is the policy of the courts to refuse that protection to an art which it affords to a machine, which it is the policy of the constitution and the laws to grant.

2. Let us now consider what is the nature of the invention now under consideration.

It is not a composition of matter, or a manufacture, or a machine. It is the application of a known element or power of nature, to a new and useful purpose by means of various processes, instruments and devices; and, if patentable at all, it must come within the category of "a new and useful art." It is as much entitled to this denomination as the original art of printing itself. The name given to it in the patent is generally the act of the commissioner, and in this, as in many other cases, a wrong one. The true nature of the invention must be sought in the specification.

The word telegraph is derived from the Greek, and signifies "to write afar off or at a distance." It has heretofore been applied to various contrivances or devices, to communicate intelligence by means of signals or semaphores, which speak to the eye for a moment. But in its primary and literal signification of writing, printing or recording at a distance, it never was invented, perfected, or put into practical operation till it was done by Morse. He preceded Steinheil, Cook, Wheatstone and Davy in the successful application of this mysterious power or element of electro-magnetism to this purpose, and his invention has entirely superseded their inefficient contrivances. It is not only "a new and useful art," if that term means anything, but a most wonderful and astonishing invention, requiring tenfold more ingenuity and patient experiment to perfect it, than the art of printing with types and press, as originally invented.

3. Is it not true, as set forth in this eighth claim of the specification, that the patentee was the first inventor or discoverer of the

use or application of electro-magnetism to print and record intelligible characters or letters? It is the very ground on which the court agree in confirming his patent. Now the patent law requires an inventor, as a condition precedent to obtaining a patent, to deliver a written description of his invention or discovery, and to particularly specify what he claims to be his own invention or discovery. If he has truly stated the principle, nature, and extent of his art or invention, how can the court say it is too broad, and impugn the validity of his patent for doing what the law requires as a condition for obtaining it? And if it is only in case of a machine that the law requires the inventor to specify what he claims as his own invention and discovery, and to distinguish what is new from what is old, then this eighth claim is superfluous, and cannot affect the validity of his patent, provided his art is new and useful, and the machines and devices claimed separately are of his own invention. If it be in the use of the words "however developed" that the claim is to be adjudged too broad, then it follows that a person using any other process for the purpose of developing the agent or element of electro-magnetism, than the common one now in use, and described in the patent, may pirate the whole art patented.

But if it be adjudged that the claim is too broad, because the inventor claims the application of this element to his new art, then his patent is to be invalidated for claiming his whole invention, and nothing more. If the result of this application be a new and useful art, and if the essence of his invention consists in compelling this hitherto useless element to record letters and words, at any distance and in many places at the same moment, how can it be said that the claim is for a principle or an abstraction? What is meant by a claim being too broad? The patent law and judicial decisions may be searched in vain for a provision or decision that a patent may be impugned for claiming no more than the patentee invented or discovered. It is only when he claims something before known and used, something as new which is not new, either by mistake or intentionally, that his patent is affected.

The act of congress requires the applicant for a patent to swear that "he is the original and first inventor of the art, machine, etc." It requires the commissioner to make an examination of the alleged invention, "and if it shall appear that the same has not been invented prior to the alleged invention, he shall grant a patent, etc. But if it shall appear that the applicant is not the original and first inventor or discoverer thereof, or that any part of that which is claimed as new had before been invented," then the applicant to have leave to withdraw his application.

The 13th section treats of defective specifications and their remedy, where the applicant, through mistake or inadvertency, had claimed "more than he had a right to claim as new."

The 15th section, in enumerating the defenses which a defendant may be allowed to make to a patent, states that inter alia he may show, "that the patentee was not the original and first inventor or discoverer of the thing patented, or of a substantial and material part thereof claimed as new." And the proviso to the same section allows the court to refuse costs, "when the plaintiff shall fail to sustain his action on the ground that, in his specification or claim is embraced more than that of which he was the first inventor."

The 7th section of the act of March 3, 1837, specially defines the meaning of the phrase "too broad," to be, "when the patent claims more than that of which the patentee was the original and first inventor." And the 9th section of the same act, again providing for cases, where, by accident or mistake, the patentee claims more than he is justly entitled to, describes it to be "where the patentee shall have in his specification claimed to be the original inventor or discoverer of any material or substantial part, of which he is not the first and original inventor, and shall have no legal and just right to the same."

Thus we see that it is only where, through inadvertence or mistake, the patentee has claimed something of which he was not the first inventor, that the courts are directed to refuse costs.

The books of reports may be searched in vain for a case where a patent has been declared void, for being too broad, in any other sense.

Assuming it to be true, then, for the purpose of the argument, that the new application of the power of electro-magnetism to the art of telegraphing or printing characters at a distance, is not the subject of a patent, because it is patenting a principle; yet as it is also true, that Morse was the first who made this application successfully, as set forth in this eighth claim, I am unable to comprehend how in the words of the statute, we can adjudge "that he has failed to sustain his action, on the ground that his specification or claim embraces more than that of which he was the first inventor." It is first inventor, that the courts are directed to refuse costs.

4. Assuming this eighth claim to be too broad, it may well be said, that the patentee has not unreasonably delayed a disclaimer, when we consider that it is not till this moment he had reason to believe it was too broad. But the bill claims, and it is sustained by proof, that the defendant has infringed the complainant's second patent for his improvement.

The court sustains the validity of this patent. Why, then, is the complainant not entitled to his costs? At law, a recovery on one good count is sufficient to entitle the plaintiff to recover costs; and I can see no particular equity which the defendants can claim, who are adjudged to have pirated two inventions at once.

I am of opinion, therefore, that the decree of the circuit court should be affirmed, with costs.

58. CURTIS, § 166.

We have seen that it is possible to destroy a claim to a very important and easily understood invention, by separating the principle from its application by the necessary means; and the more striking and comprehensive the discovery of the principle, the greater will be the tendency, perhaps, to fall into this error. Although there are grounds for contending that Morse's specification furnished the material for saving his eighth claim from this fatal defect, it cannot be denied that it was so drawn as to expose it to the force of this objection. What, then, is the proper mode, or one of the proper modes, of avoiding this peril? The danger of claiming an abstract principle will be avoided by the use of appropriate terms, signifying that the application of the principle is claimed as effected by the means used and described by the patentee, and by all other means which, when applied within the just scope of his conditions, will perform, for the purpose of the application, the like office.

[For a striking example of such a claim in an analogous art sustained by the same court, see the Telephone cases, No. 63, *infra*.]

59. CORNING v. BURDEN, 15 How. (U S.) 252, 14 L. ed. 683 (1853, Patent, No. 1,890 of 1840).

* * * * *

GRIER, J. A process, eo nomine, is not made the subject of a patent in our act of congress. It is included under the general term "useful art." An art may require one or more processes or machines in order to produce a certain result or manufacture. The term machine includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result. But where the result or effect is produced by chemical action, by the operation or application of some element or power of nature, or of one substance to another, such modes, methods, or operations, are called processes. A new process is usually the result of discovery; a machine, of invention. The arts of tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores, and numerous others, are usually carried on by processes, as distinguished from machines. One may discover a new and useful improvement in the process of tanning, dyeing, etc., irrespective of any particular form of machinery or mechanical device. And another may invent a labor-saving machine by which this operation or process may be performed, and each may be entitled to his patent. As, for instance, A has discovered that by exposing India rubber to a certain degree

of heat, in mixture or connection with certain metallic salts, he can produce a valuable product, or manufacture; he is entitled to a patent for his discovery, as a process or improvement in the art, irrespective of any machine or mechanical device. B, on the contrary, may invent a new furnace or stove, or steam apparatus, by which this process may be carried on with much saving of labor, and expense of fuel; and he will be entitled to a patent for his machine, as an improvement in the art. Yet A could not have a patent for a machine, or B for a process; but each would have a patent for the means or method of producing a certain result, or effect, and not for the result or effect produced. It is for the discovery or invention of some practicable method or means of producing a beneficial result or effect, that a patent is granted, and not for the result or effect itself. It is when the term process is used to represent the means or method of producing a result that it is patentable, and it will include all methods or means which are not effected by mechanism or mechanical combinations.

But the term process is often used in a more vague sense, in which it cannot be the subject of a patent. Thus we say that a board is undergoing the process of being planed, grain of being ground, iron of being hammered, or rolled. Here the term is used subjectively or passively as applied to the material operated on, and not to the method or mode of producing that operation, which is by mechanical means, or the use of a machine, as distinguished from a process.

In this use of the term it represents the function of a machine or the effect produced by it on the material subjected to the action of the machine. But it is well settled that a man cannot have a patent for the function or abstract effect of a machine, but only for the machine which produces it.

It is by not distinguishing between the primary and secondary sense of the term "process," that the learned judge below appears to have fallen into an error. It is clear that Burden does not pretend to have discovered any new process by which cast iron is converted into malleable iron, but a new machine or combination of mechanical devices by which the slag or impurities of the cast iron may be expelled or pressed out of the metal, when reduced to the shape of puddlers' balls. The machines used before to effect this compression, were tilt hammers and alligator's jaws, acting by percussion and pressure, and by nobbling rolls with eccentric grooves, which compressed the metal by use of the inclined plane in the shape of a cyclovolute or snail cam. In subjecting the metal to this operation, by the action of these machines, more time and manual labor is required than when the same function is performed by the machine of Burden. It saved labor, and thus produced the result in a cheaper, if not a better manner, and was, therefore, the proper subject of a patent.

In either case the iron may be said, in the secondary sense of the term, to undergo a process in order to change its qualities by pressing out its impurities, but the agent which effects the pressure is a machine or combination of mechanical devices.

The patent of Burden alleges no discovery of a new process, but only that he has invented a machine, and therefore, correctly states the nature of his invention.

The patent law requires that "every patent shall contain a short description or title of the invention or discovery, indicating its nature and design," etc. The patent in question recites that:—

"Whereas, Henry Burden, of Troy, New York, has alleged that he has invented a new and useful machine for rolling puddle balls, or other masses of iron, in the manufacture of iron, which he states has not been known or used before his application; has made oath that he is a citizen of the United States; that he does verily believe that he is the original and first inventor or discoverer of the said machine, etc."

The specification declares that his improvement consists in "the employment of a new and useful machine for rolling of puddlers' balls;" again, he calls it "my rolling machine," and describes his "machine as consisting of a cast iron cylinder," etc. In fine, his specification sets forth the "particulars" of his invention, in exact accordance with its title in the patent, and in clear, distinct, unequivocal, and proper phraseology.

It is true that the patentee, after describing his machine, has set forth his claim in rather ambiguous and equivocal terms, which might be construed to mean either a process or machine. In such case, the construction should be that which is most favorable to the patentee, *ut res magis valeat quam pereat.* His patent having a title which claims a machine, and his specification describing a machine, to construe his claim as for the function, effect, or result of his machine, would certainly endanger, if not destroy, its validity. His claim cannot change or nullify his previous specification with safety to his patent. He cannot describe a machine which will perform a certain function, and then claim the function itself, and all other machines that may be invented to perform the same function.

We are of opinion, therefore, that the learned judge of the court below erred in the construction of the patent, and in his first proposition or instruction to the jury. And as the second and third instructions are based on the first they must fall with it. Taking the bills of exception to rejection of evidence in the inverse order, it is clear that the last two rulings, being founded on the erroneous construction of the patent, are, of course, erroneous. The testimony offered was directly relevant to the issues trying, and should have been received.

The refusal of the court to hear the opinion of experts, as to the construction of the patent, was proper. Experts may be examined as to the meaning of terms of art on the principle of *cuique in sua arte credendum,* but not as to the construction of written instruments.

60. COCHRANE v. DEENER, 94 U. S. 780, 24 L. ed. 139 (1876, Patent Reissue 5,841).

BRADLEY, J.: * * * "The object of my invention was to increase the production of the best quality of flour; and my improvement consisted in separating from the meal first the superfine flour, and then the pulverulent impurities mingled with the flour-producing portions of the middlings-meal, so as to make 'while' or 'purified' middlings, which, when reground and rebolted, would yield pure white flour which when added to the superfine, would improve the quality of the flour resulting from their union, instead of deteriorating its quality, as had heretofore been the case when the middlings flour was mingled with the superfine." The process employed for producing the result here indicated is then described. It consists in passing the ground meal through a series of bolting-reels clothed with cloth of progressively finer meshes, which pass the superfine flour and retard the escape of the finer and lighter impurities; and, at the same time, subjecting the meal to blasts or currents of air introduced by hollow perforated shafts furnished with pipes so disposed that the force of the blast may act close to the surface of the bolting-cloth; the bolting chest having an opening at the top for the escape of the air, and of the finer and lighter particles therewith, through a chamber where the particles are arrested, whilst the floor and sides of each compartment of the chest are made close, so as to prevent the escape of the air in any other direction than through the said opening. By this means, the superfine flour is separated, and the fine and light specks and impurities which ordinarily adhere to the middlings and degrade the flour produced therefrom, are got rid of; and when the middlings are now separated from the other portions of the meal, they are white and clean, and capable of being reground and rebolted, so as to produce superfine flour equal in quality and even superior to the first installment. * * *

The defendants admit that the process has produced a revolution in the manufacture of flour; but they attribute that revolution to their improvements. It may be as they say, that it is greatly due to these. But it cannot be seriously denied that Cochrane's invention lies at the bottom of these improvements, is involved in them, and was itself capable of beneficial use, and was put to such use. It had all the elements and circumstances necessary for sustaining the

patent, and cannot be appropriated by the defendants, even though supplemented by and enveloped in very important and material improvements of their own. * * *

That a process may be patentable, irrespective of the particular form of the instrumentalities used, cannot be disputed. If one of the steps of a process be that a certain substance is to be reduced to a powder, it may not be at all material what instrument or machinery is used to effect that object, whether a hammer, a pestle and mortar, or a mill. Either may be pointed out; but if the patent is not confined to that particular tool or machine, the use of the others would be an infringement, the general process being the same. A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. If new and useful, it is just as patentable as is a piece of machinery. In the language of the patent law, it is an art. The machinery pointed out as suitable to perform the process may or may not be new or patentable; whilst the process itself may be altogether new, and produce an entirely new result. The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence.

61. TILGHMAN v. PROCTOR, 102 U. S. 708, 26 L. ed. 279 (1880).

BRADLEY, J.: * * * That a patent can be granted for a process, there can be no doubt. The patent law is not confined to new machines and new compositions of matter, but extends to any new and useful art or manufacture. A manufacturing process is clearly an art, within the meaning of the law. Goodyear's patent was for a process, namely, the process of vulcanizing india-rubber by subjecting it to a high degree of heat when mixed with sulphur and a mineral salt. The apparatus for performing the process was not patented, and was not material. The patent pointed out how the process could be effected, and that was deemed sufficient. Neilson's patent was for the process of applying the hot-blast to furnaces by forcing the blast through a vessel or receptacle situated between the blowing apparatus and the furnace, and heated to a red heat; the form of the heated vessel being stated by the patent to be immaterial. These patents were sustained after the strictest scrutiny and against the strongest opposition. * * *

Neilson's patent above referred to had some features very similar to those of Tilghman's. The strong objection urged against the latter is, that the particular apparatus described in the specification is not that which is generally used, and that it cannot be used with much profit or success in large manufacturing operations; whereas the slower method of dissolving fats in a common boiler or digester

at a lower temperature even than that of melting bismuth, which is not described in the specification, is the one which is generally adopted. Precisely this circumstance existed in reference to the patent of Neilson. The specification directed that the blast or current of air produced by the blowing apparatus should be passed into an air-vessel or receptacle heated to a red heat, and from thence into the furnace. Then, after stating that the air-vessel or receptacle should be increased in size according to the size of the forge or furnace to be supplied, the specification adds: "The form or shape of the vessel or receptacle is immaterial to the effect, and may be adapted to the local circumstances or situation." Now, the most simple and natural form of an air-vessel, for heating the blast, as here directed, would be a box or chamber, or a cylindrical vessel; but it turned out in practice that a receptacle of this kind would answer the purpose but very imperfectly; and that the best and most useful method was to heat the blast in a series of tubes placed in a heated oven. This was held to be no ground for invalidating the patent, or for preventing it from covering intermediate tubes, as well as an intermediate box or chamber, the jury being of opinion that a man of ordinary skill and knowledge in the construction of blowing and air-heating apparatus would be able, from the information contained in the specification, to erect a machine which would answer some beneficial purpose in the application of the process, and would not be misled and prevented from so doing by the declaration that the form or shape of the vessel or receptacle was immaterial to the effect. In this view of the subject the patent was sustained after very great consideration.

Some question has, indeed, been made whether Neilson's patent was sustained as a patent for a process. The Court of Exchequer, in reviewing the proceedings at the trial, and answering the objection that it was a patent for a principle, said: "It is very difficult to distinguish it from the specification of a patent for a principle, and this at first created in the minds of some of the court much difficulty; but, after full consideration, we think that the plaintiff does not merely claim a principle, but a machine embodying a principle, and a very valuable one. We think the case must be considered as if, the principle being well known, the plaintiff had first invented *a mode of applying it* by a mechanical apparatus to furnaces; and his invention consists in this,—*by interposing a receptacle for heated air between the blowing apparatus and the furnace.* In this receptacle he directs the air to be heated by the application of heat externally to the receptacle, and thus he accomplishes the object of applying the blast, which was before of cold air, in a heated state to the furnace." Web. P. C. 275, 371.

In this passage, we think that the Court of Exchequer (who spoke through Baron Parke) drew the true distinction between a

mere principle, as the subject of a patent, and a process by which a principle is applied to effect a useful result. That a hot-blast is better than a cold-blast for smelting iron in a furnace was the principle or scientific fact discovered by Neilson; and yet, being nothing but a principle, he could not have a patent for that. But having invented and practically exemplified a process for utilizing this principle, namely, that of heating the blast in a receptacle, between the blowing apparatus and the furnace, he was entitled to a patent for that process, although he did not distinctly point out all the forms of apparatus by which the process might be applied,—having, nevertheless, pointed out a particular apparatus for that purpose, and having thus shown that the process could be practically and usefully applied. Another person might invent a better apparatus for applying the process than that pointed out by Neilson, and might obtain a patent for such improved apparatus; but he could not use the process without a license from Neilson. His improved apparatus would, in this respect, stand in a relation to the process analogous to that which an improvement on a patented machine bears to the machine itself.

That Neilson's patent was regarded as for a process is apparent from what is said by the judges who had it under consideration. Thus Baron Parke at the trial had said: "The specification and patent together make it clear what the discovery was: it was the introduction of hot air by means of heating it before it was introduced into the furnace, between the blowing apparatus and the furnace." Web. P. C. 275, 312. And when the matter came before the House of Lords, after a trial in Scotland, Lord Campbell said: "After the construction first put upon it [the patent] by the learned judges of the Court of Exchequer, sanctioned by the high authority of my noble and learned friend now upon the woolsack, when presiding in the Court of Chancery, I think the patent must be taken to extend to all machines, of whatever construction, whereby the air is heated intermediately between the blowing apparatus and the blast furnace. That being so, the learned judge was perfectly justified in telling the jury that it was unnecessary for them to compare one apparatus with another, because, confessedly, that system of conduit pipes was a mode of heating air by an intermediate vessel between the blowing apparatus and the blast furnace, and, therefore, it was an infraction of the patent." Id. 715.

This case of the hot-blast was commented upon in the great case of O'Reilly v. Morse, and is there recognized and approved in the opinion of this court delivered by Chief Justice Taney. After quoting the remarks of Baron Parke in the Court of Exchequer, cited above, the Chief Justice says: "We see nothing in this opinion differing in any degree from the familiar principles of law applicable to patent cases. Neilson claimed no particular mode of constructing

the receptacle, or of heating it. He pointed out the manner in which it *might* be done; but admitted that it might also be done in a variety of ways, and at a higher or lower temperature; and that all of them would produce the effect in a greater or less degree, provided the air was heated by passing through a heated receptacle. * * * Whoever, therefore, used this method of throwing hot air into the furnace, used the process he had invented, and thereby infringed his patent, although the form of the receptacle or the mechanical arrangements for heating it might be different from those described by the patentee. For whatever form was adopted for the receptacle, or whatever mechanical arrangements were made for heating it, the effect would be produced in a greater or less degree, if the heated receptacle was placed between the blower and the furnace, and the current of air passed through it. * * * The patent was supported because he [Neilson] had invented a mechanical apparatus by which a current of hot air, instead of cold, could be thrown in. And this new method was protected by the patent. The interposition of a heated receptacle in any form was the novelty he invented." 15 How. 62, 115, 116.

We have quoted these remarks of the Chief Justice more fully because they show most clearly that he put the same construction upon Neilson's patent that was put upon it by Lord Campbell, and that he fully acquiesced in the legality and validity of a patent for a process. Yet it has been supposed that the decision in O'Reilly v. Morse was adverse to patents for mere processes. The mistake has undoubtedly arisen from confounding a patent for a process with a patent for a mere principle. We think that a careful examination of the judgment in that case will show that nothing adverse to patents for processes is contained in it. The eighth claim of Morse's patent was held to be invalid, because it was regarded by the court as being not for a process, but for a mere principle. It amounted to this, namely, a claim of the exclusive right to the use of electromagnetism as a motive power for making intelligible marks at a distance; that is, a claim to the exclusive use of one of the powers of nature for a particular purpose. It was not a claim of any particular machinery, nor a claim of any particular process for utilizing the power; but a claim of the power itself,—a claim put forward on the ground that the patentee was the first to discover that it *could* be thus employed. This claim the court held could not be sustained.

That this was the true ground of the decision will be manifest from the following observations of the Chief Justice in the opinion already quoted from. * * *

It seems to us that this clear and exact summary of the law affords the key to almost every case that can arise. "Whoever discovers that a certain useful result will be produced in any art by the use of certain means is entitled to a patent for it, provided he speci-

fies the means." But everything turns on the force and meaning of the word "means." It is very certain that the means need not be a machine, or an apparatus; it may, as the court says, be a *process*. A machine is a thing. A process is an act, or a mode of acting. The one is visible to the eye,—an object of perpetual observation. The other is a conception of the mind, seen only by its effects when being executed or performed. Either may be the means of producing a useful result. The mixing of certain substances together, or the heating of a substance to a certain temperature, is a process. If the mode of doing it, or the apparatus in or by which it may be done, is sufficiently obvious to suggest itself to a person skilled in the particular art, it is enough, in the patent, to point out the process to be performed, without giving supererogatory directions as to the apparatus or method to be employed. If the mode of applying the process is not obvious, then a description of a particular mode by which it may be applied is sufficient. There is, then, a description of the process and of one practical mode in which it may be applied. Perhaps the process is susceptible of being applied in many modes and by the use of many forms of apparatus. The inventor is not bound to describe them all in order to secure to himself the exclusive right to the process, if he is really its inventor or discoverer. But he must describe some particular mode, or some apparatus, by which the process can be applied with at least some beneficial result, in order to show that it is capable of being exhibited and performed in actual experience.

Let us apply these principles to the present case. In the first place, the claim of the patent is not for a mere principle. The chemical principle or scientific fact upon which it is founded is, that the elements of neutral fat require to be severally united with an atomic equivalent of water in order to separate from each other and become free. This chemical fact was not discovered by Tilghman. He only claims to have invented a particular mode of bringing about the desired chemical union between the fatty elements and water. He does not claim every mode of accomplishing this result. He does not claim the lime-saponification process, nor the sulphuric-acid distillation process, and if, as contended, the result was accomplished by Dubrunfaut, Wilson, and Scharling, by means of steam distillation, he does not claim that process. He only claims the process of subjecting to a high degree of heat a mixture continually kept up, of nearly equal quantities of fat and water in a convenient vessel strong enough to resist the effort of the mixture to convert itself into steam. This is most certainly a process. It is clearly pointed out in the specification, and one particular mode of applying it and carrying it into effect is described in detail. But it is not the particular apparatus described which Tilghman desires to secure by his patent. Having pointed out the process and suggested a particular

mode of applying it, he claims as his invention "*the manufacturing of fat acids and glycerine from fatty bodies by the action of water at a high temperature and pressure.*" The true construction of this claim is to be sought by comparing it, as we have already done, with the context of the specification; with the statement of the patentee that his "invention consists of a *process* for producing free fat acids and solution of glycerine from those fatty and oily bodies of animal and vegetable origin, which contain glycerine as a base;" that "for this purpose he subjects these fatty and oily bodies to the action of water at a high temperature and pressure, so as to cause the elements of those bodies to combine with water and thereby obtain at the same time free fat acids and solution of glycerine;" that he "mixes the fatty body to be operated upon with from a third to a half of its bulk of water, and the mixture may be placed in any convenient vessel in which it can be heated to the melting-point of lead" (which is afterwards explained to be only desirable for a quick result, not essential); that "the vessel must be closed and of great strength, so that the requisite amount of pressure may be applied to prevent the conversion of the water into steam." This is the process which the patentee claims to have invented; and this description of it gives the proper construction and qualification to the claim.

62. NEW PROCESS FERMENTATION CO. v. MAUS, 122 U. S. 413, 30 L. ed. 1193, 7 Sup. Ct. 1304 (1887).

BLATCHFORD, J. This is a suit in equity, brought in the circuit court of the United States for the district of Indiana, by the New Process Fermentation Company, an Illinois corporation, against Magdalena Maus, Albert C. Maus, Casper J. Maus, Frank A. Maus, and Mathias A. Maus, for the infringement of letters patent No. 215,679, granted May 20, 1879, to George Bartholomae, as assignee of Leonard Meller and Edmund Hofmann, as inventors, for an "improvement in processes for making beer," subject to the limitation prescribed by section 4887 of the Revised Statutes, by reason of the inventions having been patented in France, November 30, 1876, and in Belgium, February 28, 1877. * * *

The third claim of the patent is as follows: "(3) The process of preparing and preserving beer for the market, which consists in holding it under controllable pressure of carbonic acid gas from the beginning of the *kraeusen* stage until such time as it is transferred to kegs and bunged, substantially as described." This claim covers the real invention of the process of the patentees, if it be their invention and be patentable as a process.

The circuit court, in its opinion (20 Fed. Rep. 725, 733,) held that the most that could be claimed by the patentees was that they applied the controllable pressure, created by the carbonic acid gas

in a state of fermentation, at an earlier stage than was before known; that the essential parts of the apparatus used were known before; that the same controllable pressure had been applied at various stages of the manufacture; that the application at one stage of the condition of the beer instead of another would seem not to involve anything more than a mere mechanical change, which could be employed by any one skilled in the art; and that the claim of the patent for a particular process, irrespective of the mechanical devices claimed (which the defendants had not used) could not be sustained. But we think that in this view the court erred, and that the third claim of the patent is a valid claim for the process covered by it and described in the specification. The testimony is very full and clear that, as a process, it was not known or used before in the art of making beer; that it worked a valuable and important change in that art, in the particulars set forth in the specification; that it went at once extensively into use, both in Europe and in the United States; and that it was recognized as a new and valuable invention, in published works on the subject, immediately after it was made known.

* * * The invention of the patentees covered by claim 3 is, as stated before, applicable to the beer in the *kraeusen* stage in the shavings casks. The shavings in these casks are thin strips of white beech, hazel-nut, or other suitable wood, placed lengthwise of the cask, on its bottom, opposite the bung-hole, and used as a fining medium. Being porous, they absorb the turbid ingredients in the beer, and also mechanically arrest them, when precipitated. The *kraeusen* beer which is added to the contents of the shavings casks, to produce fermentation, is young beer, in full fermentation, the beer or wort to which the *kraeusen* beer is added in the shavings casks being itself comparatively flat and not clarified.

Vent-bungs of various descriptions existed before, but were used towards the last stage of the fermentation of the beer in the *kraeusen* stage in the shavings casks, to confine mechanically the very last of the slowly generating gas, the valve or vent in the bung operating to prevent overpressure or "overbunging," in case there should be delay in drawing off the beer after it became ready for market. The effect of the accumulation of the carbonic acid gas generated in the later stages of the fermentation was and is to impart more effervescence to the beer. The invention of the patentees is entirely independent of the old and well-known vent-bungs, and of any prior apparatus for preventing overbunging. It is for the process of bunging the cask simultaneously with the commencement of the active fermentation of the beer in the *kraeusen* stage. It utilizes the gas to clarify the beer, the pressure of the gas causing the impurities quickly and permanently to deposit themselves on the bottom and sides of the cask, instead of being removed, as in the old method, by

overflowing and slow deposit. Professor Haines says: "The novelty and characteristic feature of the process, by which its excellent results are produced, chiefly arises from its introducing an automatically-acting process at an earlier stage of the preparation of beer than has been practiced by other devices. This earlier bunging produces a number of valuable results, one of the most valuable of which is the rapid clarification of the beer. By placing the actively fermenting liquid under adequate, automatically controlled pressure, and keeping it thus under pressure until drawn off for use, the beer ferments more equably, less sediment is produced, and clarification is more rapid and more certain. It is, then, as I understand it, not the mechanical application of pressure, but the application of a suitable pressure, beginning with the second active fermentation of the beer and continuing to the close, that constitutes the most valuable and novel feature of this process." * * *

Within the rules laid down by this court in Corning v. Burden, 15 How. 252, 267, in Cochrane v. Deener, 94 U. S. 780, 787, 788, and in Tilghman v. Proctor, 102 U. S. 707, 722, 724, 725, we think that the method or art covered by the third claim of the patent is patentable as a process, irrespective of the apparatus or instrumentality for carrying it out. It is the performing of a series of acts upon the beer in the *kraeusen* stage, producing new and useful results in the art of making marketable beer. The process consists not in merely applying an apparatus to the cask at some period of the *kraeusen* stage of the beer, but consists in this: that when the beer has been put into the casks, and the *kraeusen* beer is added to it, and the apparatus is applied at the beginning of the *kraeusen* stage, the beer will be kept under a controllable pressure of carbonic acid gas until such time as it is fit to be transferred to the kegs for market, such pressure resulting in the complete and speedy clarification of the beer, although it is in a state of active fermentation in the closed shavings casks, with the incidental results of no loss of beer, no fouling of the casks or the cellar, no alteration of the flavor of the beer, and no danger to the health of the workmen. This is, as was said in Cochrane v. Deener, "a mode of treatment of certain materials to produce a given result," and "an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing," and "requires that certain things should be done with certain substances, and in a certain order." It is therefore a process or art. The apparatus for carrying out the process is of secondary consequence, and may itself be old, separately considered, without invalidating the patent, if the process be new and produces a new result.

There appears, also, to be a new principle of action involved in the invention of the patentees. The carbonic acid gas generated by the fermentation in the cask, instead of being allowed to continually

ascend, as it does with an open bung-hole, keeping the liquid constantly in a turbid state and overflowing at the bung-hole, is made, as stated in the specification, to first accumulate in the space above the beer in the closed cask, until the pressure is such that the gas overcomes the density of the beer, and enters it again, and charges it up to the pressure at which the water column is set, thus creating an equilibrium between the rising bubbles of gas and the pressure above, so that gravity can act on the yeast and impurities, and carry them down so that they will remain with the shavings at the bottom. This is a new use, in the treatment of fermenting beer, of the carbonic acid gas which it generates, and a new method or process of hastening the clarifying and settling of the beer.

This being the proper construction of the third claim of the patent, we are prepared to consider the question of the novelty of the process covered by the claim, in the light in which it has been explained.

The United States patent to George Wallace, No. 62,581, granted March 5, 1867, does not exhibit any such process. The apparatus shown in it acted on a directly opposite principle, and was designed to stir up the fermenting medium, and accelerate the fermentation and decomposition of mash. Professor Haines says, in regard to it: "I have examined the Wallace patent, and compared it with the process and apparatus of Meller and Hofmann. In my opinion, the two are radically different. The Wallace patent introduces to the bottom of one fermenting tank a pipe which is connected with the upper portion of the other fermenting cask. Now, if any excess of pressure should occur in either cask over what there is in the other, a quantity of carbonic acid gas will be forced to the very bottom of the cask having the smaller pressure, and in this way the yeast and other sediment will be thoroughly stirred up and diffused through the fermenting liquid. This would unquestionably increase the rapidity of fermentation, but it would accomplish exactly the opposite result of what the Meller and Hofmann process contemplates; namely, the forcing down of the sediment, so as to clarify the beer, and not its agitation and dissemination through the fluid. It seems to me, therefore, that the Wallace apparatus and process, as figured and described in patent 62,581, would not and could not be used for the same purposes that the Meller and Hofmann process is employed." Dr. Ruschhaupt testifies to the same effect. * * *

It is testified that the appellant's process of treating beer under the automatically controllable pressure of carbonic acid gas is of great value in the brewing business, and has come into general use, and been put up in about 80 breweries, many of which are among the largest in the United States. * * *

We have confined our consideration of this case to the third claim of the patent, as that is the one which distinctly embodies the inven-

tion of the patentees, and it has been infringed by the defendants. It will be time enough to consider the other process claims, and the eighth claim, in cases involving their infringement, where the third claim is not also infringed. In the present case, it appears that the defendants have used "the process of preparing and preserving beer for the market," by "holding it under controllable pressure of carbonic acid gas from the beginning of the *kraeusen* stage until such time as it is transferred to kegs and bunged, substantially as described" in the specification of the patent.

The decree of the circuit court is reversed, and the case is remanded to that court, with a direction to enter a decree establishing the validity of the third claim of the patent, and awarding a perpetual injunction, and an account of profits and damages, and to take such further proceedings in the suit as may not be inconsistent with this opinion.

63. TELEPHONE CASES, 126 U. S. 1, 31 L. ed. 863, 8 Sup. Ct. 778 (1887, Patents Nos. 174,465, 186,787).

[The figures following illustrate the distinction between the telegraph and the telephone; the microphone which has made the telephone a commercial success, and the features of the earliest form of telephone and the telephones of two of Bell's principal rivals, Gray and Drawbaugh.

Fig. 1 is a diagram representing the simplest form of Morse telegraph without relay. The electricity furnished by the battery 1 goes to the key 2. When the key is "open," i. e., in the position shown, as it normally is, the current of electricity goes no farther. When the finger of the operator depresses the key so that it touches the anvil 3, the electric current passes through the line 4, through the coils of the receiver magnet 5, to the ground at 6, thence through the earth to the ground point 7, and back to the other pole of the battery. When the key 2 is lifted the electric current is interrupted and stops altogether. When the current flows through the receiver 5 it magnetizes the core and thus pulls down the armature 8; when the flow of electricity stops the core ceases to be magnetized and the spring 9 pulls up the armature. The operator at the receiver is aware, by watching the armature, or listening for its click, when the sender depresses his key and when he raises it. By the conventional signals of the Morse alphabet, that is dashes and dots based on the relative length of time the key is held down, these motions represent letters and thus words.

In the actual apparatus as first constructed there was also an elaborate printing mechanism by which these dots and dashes of the Morse alphabet were printed as the armature moved up and down.

In the Morse telegraph the electrical changes are created by interrupting a current, that is by making and breaking the circuit.

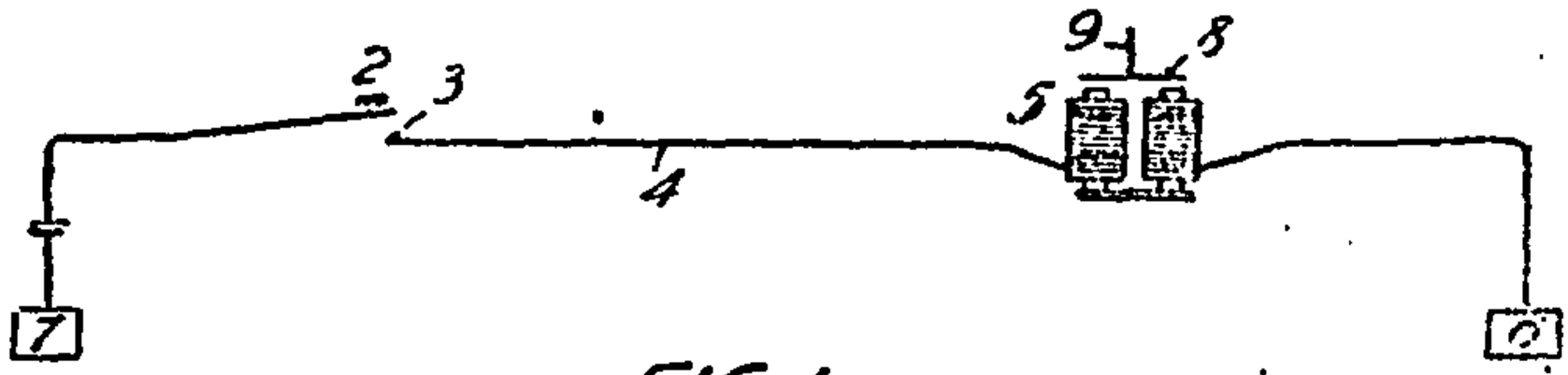


FIG. 1.

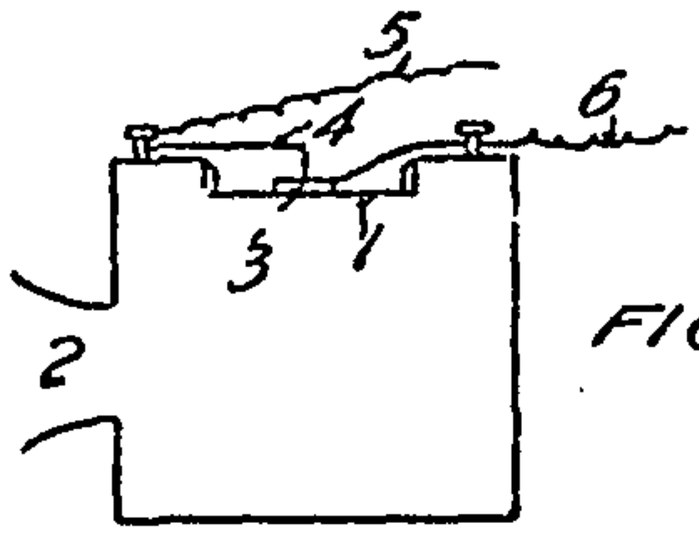


FIG 2

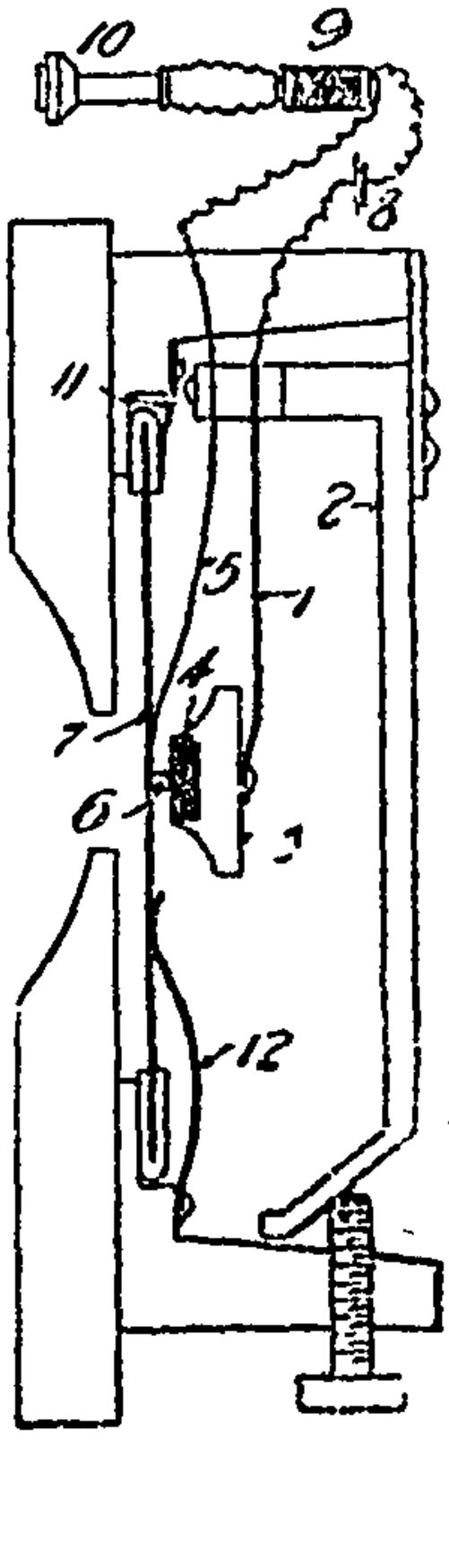


FIG. 4.

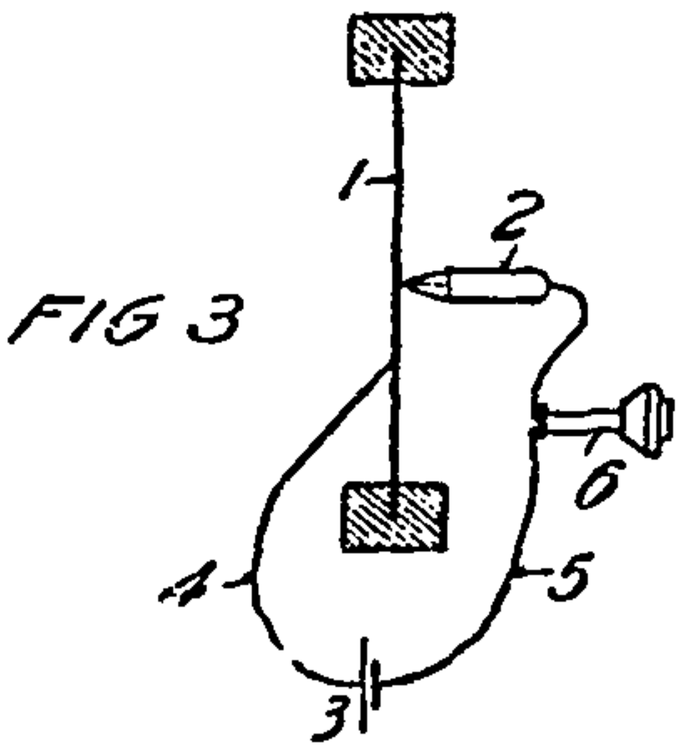


FIG 3

Fig. 2 represents the principle of the Reis telephone which was the principal citation against the validity of the Bell patent and which preceded Bell by at least fifteen years. In this appa-

ratus of Fig. 2, a membrane 1 stretched on the cover of a box was exposed to sound waves entering the tube 2 below the membrane and these sound waves vibrated the membrane, the frequency of the vibrations corresponding to the pitch of the sound. On the center of the membrane 1 was cemented a patch of platinum 3, which was connected with one pole of a battery. On the top of the apparatus was a hopping piece of metal 4, one end of which rested on the frame work and the other, terminating in a little leg, rested on the platinum patch 3. This hopping piece was connected with the other pole of the battery and the circuit was completed by the contact of the leg of the hopping piece and the platinum patch at 3. If this end of the hopping piece 4 be lifted up the circuit is broken and the current ceases. If the membrane be rather thin, such as sausage skin, which Reis employed, and the hopping piece quite light, sound waves of no greater strength than those ordinarily produced by the voice—especially when the sound continues of the same pitch for an appreciable time, as in the case of musical notes—will set the membrane into vibration sufficiently violent to throw the end of the hopping piece up into the air, and thus break the circuit and interrupt the current through the battery which, it is understood, lies between the ends of the coiled wires 5 and 6. It is apparent that this apparatus operated on the make and break principle. That is, it was a modification of the telegraphic principle. It operated to transmit musical notes because musical notes do not have that peculiar quality of the human voice which requires a continuous current to properly join the sounds of the human voice in talking so that the words may be intelligible. That is to say, that sound waves would vibrate the contact pin 3 but when that was done a certain portion of the effect of the sound waves would be lost when the contact was broken, so that the principle of the Reis telephone could not be applied to transmitting the undulations occasioned by the voice in speaking.

Fig. 3 illustrates the principle of the microphone, the feature of the telephone which gives it power and certainty. If a wire be cut at the ends and separated by even a minute distance an electric current will not pass through. If the ends of the wire be brought together the current will pass but not as well as before it was cut, because mere mechanical contact does not give the perfect union of the molecules which is the feature of an uncut wire.

If the two wire ends are lightly brought together the union will be so poor that while a current of electricity will pass it will be a feeble current; if the two wire ends are pressed together vigorously the union is better and the current will be stronger.

The point of this is that the strength of the electric current can be varied by varying the force with which one wire-end or electrode, is pressed against the other.

In Fig. 3, 1 represents the diaphragm of a telephone transmitter. This corresponds to one electrode. The other electrode is shown at 2 with a pointed end pressed against the diaphragm. The battery is indicated at 3 and the wire connections at 4 and 5. 6 represents a receiver. Now, if the diaphragm 1 receives the impact of sound waves, the diaphragm will be moved alternately away and from the electrode 2 and if this be done within so small a range as not to part the contact at the point of the electrode 2, the electric current will be varied in accordance with these motions.

This represents the variable resistance feature which is an essential feature of practical or commercial telephones. Various forms of these microphones have been since invented and so perfected that they have rendered possible long distance telephony. It may be mentioned incidentally that it was acertained that the telephone worked best if one of the electrodes was made of carbon, and that it was later ascertained that the most delicate form was where the diaphragm vibrated against powdered charcoal or similar carbon.

A commercial form of the microphone is illustrated in Fig. 4 which illustrates the Blake transmitter.

1 is a spring of steel, one one-hundredth of an inch thick, and about one-eighth of an inch wide, fastened at its upper end to a heavy lever 2. Its lower end carries a weight—a piece of brass—3, which holds a bit of carbon 4. Another much slimmer spring 5, fastened at its upper end carries at its lower end a little pinhead of platinum 6 which rests against the diaphragm 7, and which, indeed, may be soldered to it. The spring 1 presses towards the diaphragm so that its effect is to keep the carbon 4 in contact with the platinum pin 6 and to press the pin 6 against the diaphragm and make it move with the diaphragm, if it is not already soldered to the latter. The current from a battery 8 goes down the spring 1 to the brass 3, thence to the carbon 4, thence through the contact of 4 and 6 to the pin 6, thence up the spring 5 which is insulated from 1 by the interposition between them of an insulating block, forming a part of the lever 2, thence to the induction coil 9 and back to the battery 8. By means of the induction coil this circuit is connected with the receiver 10. Incidentally, the diaphragm is held in place by two springs 11, 12. When the brass 3 is pulled or thrown backward away from the diaphragm the contact of 4 and 6 is broken and the current ceases to pass. A sharp blow on the front of the diaphragm will throw the weight 2 back and break the current. But the stiffness of the diaphragm and the strength of the spring 1 (the tension of which may be varied by means of the lever 2 and an adjusting screw 13 working against a bent part) and the mass or weight of the brass 1 are so proportioned that ordinary vibrations

given to the diaphragm 7 by the voice will not throw off the weight and break the contact. On the other hand, as the diaphragm

FIG. 5.

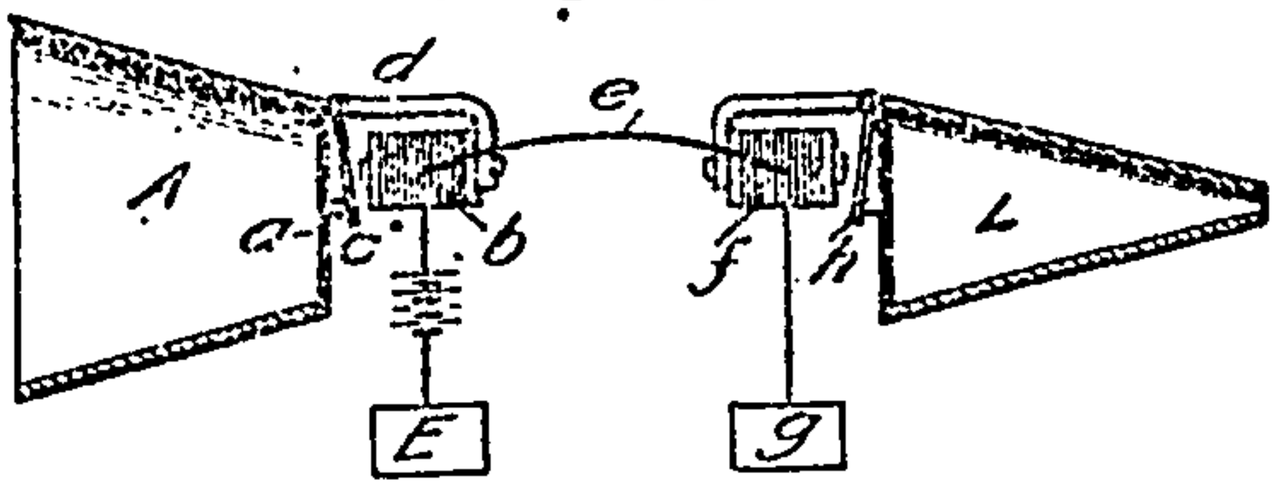
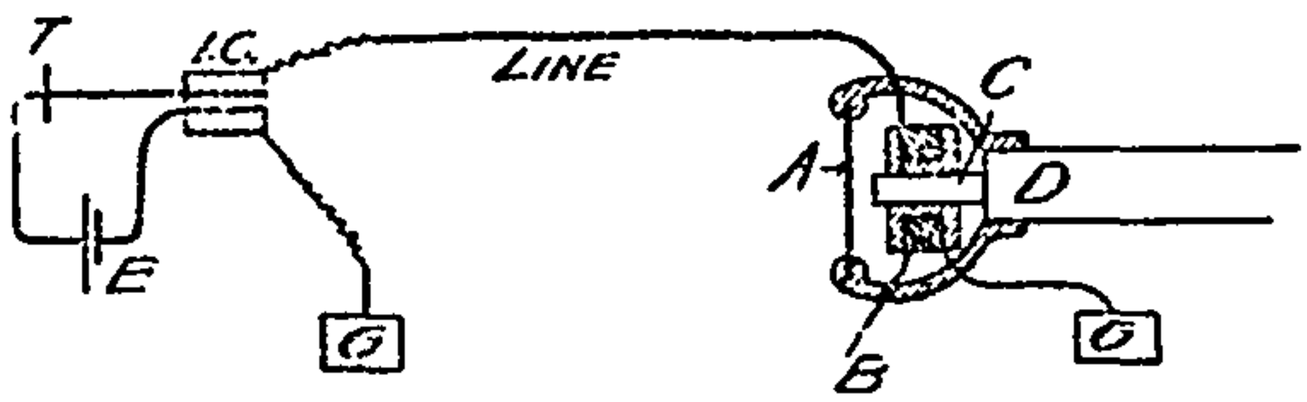


FIG. 6.



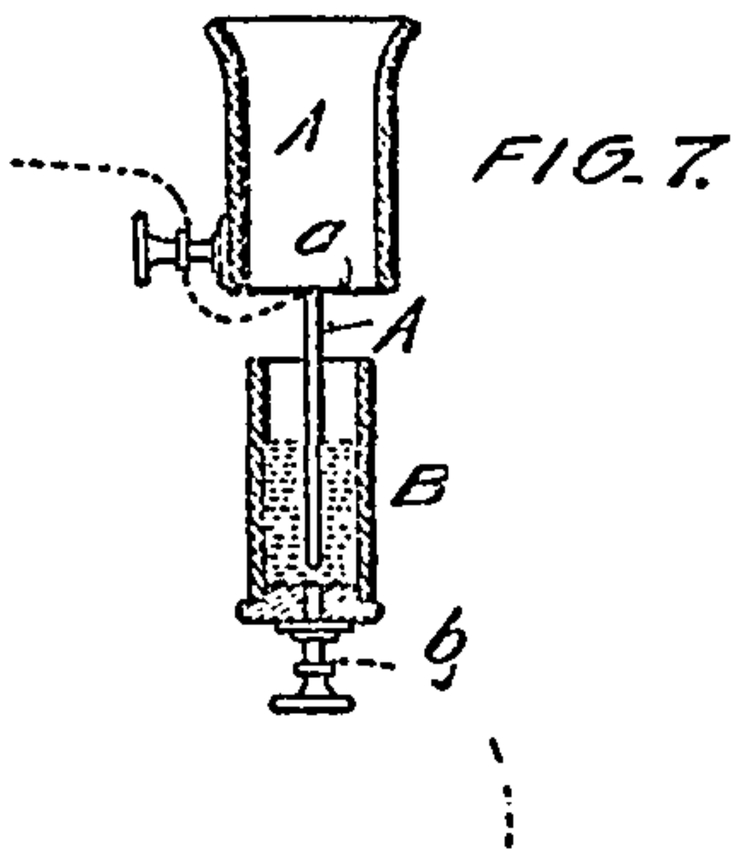
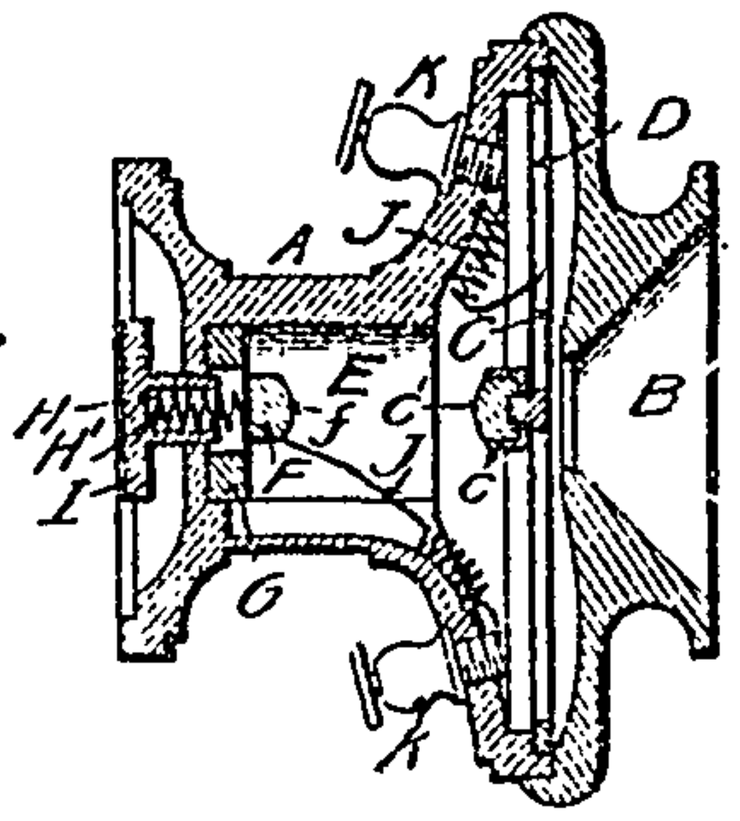


FIG. 7.

FIG. 8



7 moves towards or away from the weight 2 the inertia of the weight develops an increased pressure of the contact of 4 and 6

when the diaphragm is endeavoring to push it back, and a diminished pressure at the same place when the diaphragm recedes. It will be apparent that this commercial transmitter forms a delicate instrument for transmitting the undulations caused by the human voice in speaking. This transmitter is discussed at some length because no such completed commercial transmitter is found in the Bell patent illustrated at Fig. 5.

In the Bell patent there were additional figures but this figure was the main one used to illustrate the principle of the invention. This figure, which is Fig. 7 of the patent, is thus described by Bell in his patent:

"The armature c, Fig. 7, is fastened loosely by one extremity to the uncovered leg d of the electro-magnet b, and its other extremity is attached to the center of a stretched membrane a. A cone, A, is used to converge sound vibrations upon the membrane. When a sound is uttered in the cone the membrane a is set in vibration, the armature c is forced to partake of the motion, and thus electrical undulations are created upon the circuit E b e f g. These undulations are similar in form to the air vibrations caused by the sound: that is they are represented graphically by similar curves. The undulatory current passing through the electro-magnet f influences its armature h to copy the motion of the armature c. A similar sound to that uttered into A is then heard to proceed from L."

The statement of the patent also fully bore out the principle discussed, which was as stated in claim 5:

"5. The method of and apparatus for transmitting vocal or other sounds telegraphically, as herein described by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds, substantially as set forth."

In Fig. 6 is illustrated the form which the Bell telephone took in the fall of 1878 when it was put to commercial use. In this illustration the transmitter is indicated at T, the battery at B, with the connecting wires leading into the induction coil IC. The rest of the circuit is shown by the wire marked "Line" and leading to the ground G. The receiver more fully illustrates these parts, the diaphragm being shown at A, the battery at B, the core of the magnet at C, joined to the handle D which is now in much the same form in the ordinary receiver, it being customary in the present form to attach the wires at the outer end of the handle. It will be observed that this form uses an induction coil by which every varying impulse passing through the primary helix of the coil generates anew in a second helix an exactly corresponding electrical impulse. This induction coil is used because it generates what is called a greater electro-motive force than the battery alone gives—a force better fitted to over-

come the resistance of a long line when a small battery is used. The principle of operation is essentially the same in both the Bell patent and in the commercial form notwithstanding the striking difference in detail and appearance.

Fig. 7 illustrates the transmitter of the Gray caveat. The caveat was filed in the patent office on February 14, 1876. This figure shows a chamber A across the end of which is stretched a diaphragm a of some thin substance such as a parchment or gold beaters' skin. A′ is a light metal conductor of electricity extending into a vessel B of glass or other insulating material, having its lower end closed by a plug which may be of metal, and through which passes a conductor b forming part of the circuit. If the vessel B be partly filled with some liquid possessing high resistance, such, for instance, as water, the vibrations of the plunger or rod A′, which does not quite touch the conductor b, will cause variations in resistance, and consequently, in the potential of the current passing through the rod A′.

It will be apparent that this construction will provide a variable resistance. That is to say, the current will be weaker or stronger as the conducting rod A′ moves up or down and as the current has to pass through more or less of the liquid which resists the passage of the electricity in a greater degree than does the rod. This apparatus, therefore, discloses the principle at the base of the Bell patent and even carries it further in a certain sense, because it fairly discloses and describes not only the plan of holding on to the current and not permitting a make or break, but also the variable resistance idea. It was held, however, that Gray had not completed his invention, either actually by making and testing a telephone or constructively by filing an application.

Fig. 8 illustrates one of the exhibits presented by Drawbaugh and which he testified had been completed in the form shown in this figure prior to the invention of Bell. It will be observed that the Drawbaugh instrument illustrates a form of telephone which at the date of the trial of the cause was of the latest form, that is, according to Drawbaugh's testimony before Bell or any of the others had conceived this invention he had actually made and produced this finished telephone with its carbon microphone transmitter.

The parts indicated are as follows: A, body of instrument. B, cap of same. C, diaphragm. c, carbon cup on diaphragm; brass. c′, carbon ball in cup c. D, cardboard ring. E, recess for carbon holder. F, lower carbon cup; brass. i, carbon ball in same. G, wood ring. H, recess in adjusting screw. H′, spiral spring in same. I, screw; adjusting. J, wires or conductors. K, screw cups.

The final decision of the supreme court was for Bell by a vote of four to three. To make a complete study of this case one should read carefully the able opinion of Judge Wallace in the lower court sustaining the Bell patent and analyzing the testimony. It is the consensus of opinion that the factor which weighed most in Bell's favor was the fact that he was the one who had put the invention to use, had brought it before the public.

Bell had studied and experimented with the Reis telephone. A coin laid upon the hopping piece 4 of the Reis telephone would have made it a speaking telephone. That is, anything which would have kept that piece from hopping, from making and breaking the circuit, would have made it identical in principle and operation with the telephone as illustrated in the Bell patent. Bell when he prevented the make and break at the same time realized its meaning in the application of the transmission of vibrations caused by the human voice, and he also realized then the reason for having the undulations continuous so as to transmit not merely loudness and pitch, but also the quality, the peculiar characteristics of the voice in speaking. In his patent Bell showed an apparatus for creating a varying current. In the telephone as used and as illustrated by Gray in his caveat, the principle was of varying the strength of a current. Thus if Reis had at some time made the part 4 heavier he might have discovered by the results that it would transmit the vibrations made by the voice in speaking. If Gray had filed an application instead of a caveat he might have been adjudged the prior inventor. If Drawbaugh could have produced one positive proof of prior disclosure and demonstration of his invention to the public he would have succeeded as against both Gray and Bell. But after a trial involving fourteen thousand pages of record, the examination of hundreds of witnesses, the testimony of many experts and the elaborate arguments of counsel, the decision was rendered in favor of Bell who had unquestionably made an original invention, whether the first to conceive or not, and who had unquestionably disclosed his invention in the most public manner.

Waite, C. J.: * * * The important question which meets us at the outset in each of these cases is as to the scope of the fifth claim of the patent of March 7, 1876, which is as follows: "The method of and apparatus for transmitting vocal or other sounds telegraphically, as herein described, by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds, substantially as set forth." It is contended that this embraces the art of transferring to or impressing upon a current of electricity the vibrations of air produced by the human voice in articulate speech, in

a way that the speech will be carried to and received by a listener at a distance on the line of the current. Articulate speech is not mentioned by name in the patent. The invention, as described, "consists in the employment of a vibratory or undulatory current of electricity, in contradistinction to a merely intermittent or pulsatory current, and of a method of and apparatus for producing electrical undulations upon the line wire." A "pulsatory current" is described as one "caused by sudden or instantaneous changes of intensity;" and an "electrical undulation," as the result of "gradual changes of intensity exactly analogous to the changes in the density of air occasioned by simple pendulous vibrations." Among the uses to which this art may be put is said to be the "telegraphic transmission of noises or sounds of any kind;" and it is also said that the undulatory current, when created in the way pointed out, will produce through the receiver at the receiving end of the line "a similar sound to that uttered into" the transmitter at the transmitting end. One of the means of imparting the necessary vibrations, through the transmitter, to produce the undulations, may be the human voice. Articulate speech is certainly included in this description, for it is an "uttered" "sound," produced by the "human voice." It is contended, however, that "vocal sounds" and "articulate speech" are not convertible terms, either in accoustics or in telegraphy. It is unnecessary to determine whether this is so or not. Articulate speech necessarily implies a sound produced by the human voice; and as the patent on its face is for the art of changing the intensity of a continuous current of electricity by the undulations of the air caused by sonorous vibrations, and speech can only be communicated by such vibrations, the transmission of speech in this way must be included in the art. The question is not whether "vocal sounds" and "articulate speech" are used synonymously as scientific terms, but whether the sound of articulate speech is one of the "vocal or other sounds" referred to in this claim of the patent. We have no hesitation in saying that it is, and that, if the patent can be sustained to the full extent of what is now contended for, it gives to Bell, and those who claim under him, the exclusive use of his art for that purpose until the expiration of the statutory term of his patented rights.

In this art—or, what is the same thing under the patent law, this process, this way, of transmitting speech—electricity, one of the forces of nature, is employed; but electricity, left to itself, will not do what is wanted. The art consists in so controlling the force as to make it accomplish the purpose. It had long been believed that, if the vibrations of air caused by the voice in speaking could be reproduced at a distance by means of electricity, the speech itself would be reproduced and understood. How to do it was the question. Bell discovered that it could be done by gradually changing the intensity of a continuous electric current, so as to make it corre-

spond exactly to the changes in the density of the air caused by the sound of the voice. This was his art. He then devised a way in which these changes of intensity could be made, and speech actually transmitted. Thus his art was put in a condition for practical use. In doing this, both discovery and invention, in the popular sense of those terms, were involved; discovery in finding the art, and invention in devising the means of making it useful. For such discoveries and such inventions the law has given the discoverer and inventor the right to a patent, as discoverer, for the useful art, process, method of doing a thing, he has found; and, as inventor, for the means he has devised to make his discovery one of actual value. Other inventors may compete with him for the ways of giving effect to the discovery, but the new art he has found will belong to him, and those claiming under him, during the life of his patent. If another discovers a different art or method of doing the same thing, reduces it to practical use, and gets a patent for his discovery, the new discovery will be the property of the new discoverer; and thereafter the two will be permitted to operate each in his own way, without interference by the other. The only question between them will be whether the second discovery is in fact different from the first. The patent for the art does not necessarily involve a patent for the particular means employed for using it. Indeed, the mention of any means, in the specification or descriptive portion of the patent, is only necessary to show that the art can be used; for it is only useful arts—arts which may be used to advantage—that can be made the subject of a patent. The language of the statute is that "any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter" may obtain a patent therefor. Rev. St., § 4886. Thus, an art—a process—which is useful, is as much the subject of a patent as a machine, manufacture, or composition of matter. Of this there can be no doubt, and it is abundantly supported by authority. Corning v. Burden, 15 How. 252, 267; Cochrane v. Deener, 94 U. S. 780, 787, 788; Tilghman v. Proctor, 102 U. S. 707, 722, 724, 725; Fermentation Co. v. Maus, 122 U. S. 413, 427, 428, 7 Sup. Ct. Rep. 304. What Bell claims is the art of creating changes of intensity in a continuous current of electricity, exactly corresponding to the changes of density in the air caused by the vibrations which accompany vocal or other sounds, and of using that electrical condition, thus created, for sending and receiving articulate speech telegraphically. For that, among other things, his patent of 1876 was, in our opinion, issued; and the point to be decided is whether, as such a patent, it can be sustained.

In O'Reilly v. Morse, 15 How. 62, it was decided that a claim in broad terms (page 86) for the use of the motive power of the electric or galvanic current called "electro-magnetism, however developed, for making or printing intelligible characters, letters, or

signs, at any distances," although "a new application of that power" first made by Morse, was void, because (page 120) it was a claim "for a patent for an effect produced by the use of electro-magnetism, distinct from the process or machinery necessary to produce it;" but a claim (page 85) for "making use of the motive power of magnetism, when developed by the action of such current or currents, substantially as set forth in the foregoing description, * * * as means of operating or giving motion to machinery, which may be used to imprint signals upon paper or other suitable material, or to produce sounds in any desired manner, for the purpose of telegraphic communication at any distances," was sustained. The effect of that decision was, therefore, that the use of magnetism as a motive power, without regard to the particular process with which it was connected in the patent, could not be claimed, but that its use in that connection could.

In the present case the claim is not for the use of a current of electricity in its natural state as it comes from the battery, but for putting a continuous current, in a closed circuit, into a certain specified condition, suited to the transmission of vocal and other sounds, and using it in that condition for that purpose. So far as at present known, without this peculiar change in its condition it will not serve as a medium for the transmission of speech, but with the change it will. Bell was the first to discover this fact, and how to put such a current in such a condition; and what he claims is its use in that condition for that purpose, just as Morse claimed his current in his condition for his purpose. We see nothing in Morse's case to defeat Bell's claim; on the contrary, it is in all respects sustained by that authority. It may be that electricity cannot be used at all for the transmission of speech, except in the way Bell has discovered, and that therefore, practically, his patent gives him its exclusive use for that purpose; but that does not make his claim one for the use of electricity distinct from the particular process with which it is connected in his patent. It will, if true, show more clearly the great importance of his discovery, but it will not invalidate his patent.

But it is insisted that the claim cannot be sustained because, when the patent was issued, Bell had not in fact completed his discovery. While it is conceded that he was acting on the right principle, and had adopted the true theory, it is claimed that the discovery lacked that practical development which was necessary to make it patentable. In the language of counsel, "there was still work to be done, and work calling for the exercise of the utmost ingenuity, and calling for the very highest degree of practical invention." It is quite true that when Bell applied for his patent he had never actually transmitted telegraphically spoken words so that they could be distinctly heard and understood at the receiving end of his line; but in his specification he did describe accurately,

and with admirable clearness, his process,—that is to say, the exact electrical condition that must be created to accomplish his purpose,—and he also described, with sufficient precision to enable one of ordinary skill in such matters to make it, a form of apparatus which, if used in the way pointed out, would produce the required effect, receive the words, and carry them to and deliver them at the appointed place. The particular instrument which he had, and which he used in his experiments, did not, under the circumstances in which it was tried, reproduce the words spoken so that they could be clearly understood; but the proof is abundant, and of the most convincing character, that other instruments, carefully constructed, and made exactly in accordance with the specification, without any additions whatever, have operated, and will operate, successfully. A good mechanic, of proper skill in matters of the kind, can take the patent, and, by following the specification strictly, can, without more, construct an apparatus which, when used in the way pointed out, will do all that it is claimed the method or process will do. Some witnesses have testified that they were unable to do it. This shows that they, with the particular apparatus they had, and the skill they employed in its use, were not successful; not that others, with another apparatus, perhaps more carefully constructed, or more skillfully applied, would necesarily fail. As was said in Loom Co. v. Higgins, 105 U. S. 580, 586, "when the question is whether a thing can be done or not, it is always easy to find persons ready to show how not to do it." If one succeeds, that is enough, no matter how many others fail. The opposite results will show that in the one case the apparatus used was properly made, carefully adjusted, with a knowledge of what was required, and skillfully used, and that in the others it was not. The law does not require that a discoverer or inventor, in order to get a patent for a process, must have succeeded in bringing his art to the highest degree of perfection; it is enough if he describes his method with sufficient clearness and precision to enable those skilled in the matter to understand what the process is, and if he points out some practicable way of putting it into operation. This Bell did. He described clearly and distinctly his process of transmitting speech telegraphically, by creating changes in the intensity of a continuous current or flow of electricity, in a closed circuit, exactly analogous to the changes of density in air occasioned by the undulatory motion given to it by the human voice in speaking. He then pointed out two ways in which this might be done: One, by the "vibration or motion of bodies capable of inductive action, or by the vibration of the conducting wire itself in the neighborhood of such bodies;" and the other, "by alternately increasing and diminishing the resistance of the circuit, or by alternately increasing and diminishing the power of the battery." He then said he preferred to employ for his purpose "an electro-magnet.

* * * having a coil upon only one of its legs," and he described the construction of the particular apparatus shown in the patent as Fig. 7, in which the electro-magnet, or magneto method, was employed. This was the apparatus which he himself used without entirely satisfactory results, but which Prof. Cross, Mr. Watson, Dr. Blake, Prof. Pope, and others testify has done, and will do, what was claimed for it, and transmit speech successfully, but not so well, indeed, as another constructed upon the principle of the microphone or the variable resistance method.

An effort was made, in argument, to confine the patent to the magneto instrument, and such modes of creating electrical undulations as could be produced by that form of apparatus; the position being that such an apparatus necessarily implied "a closed circuit, incapable of being opened, and a continuous current, incapable of being intermittent." But this argument ignores the fact that the claim is—First, for the process; and, second, for the apparatus. It is to be read (1) as a claim for "the method of transmitting vocal or other sounds telegraphically, as herein described, by causing electrical undulations similar in form to the vibrations of the air accompanying the said vocal or other sounds, substantially as set forth;" and (2) as for "the apparatus for transmitting vocal or other sounds telegraphically, as herein described, by causing electrical undulations, * * * substantially as set forth." The method, "as herein described," is to cause gradual changes in the intensity of the electric current used as the medium of transmission, which shall be exactly analogous to the changes in the density of the air occasioned by the peculiarities in the shapes of the undulations produced in speech, in the manner "substantially as set forth:" that is to say, "by the vibration or motion of bodies capable of inductive action, or by the vibration of the conducting wire itself in the neighborhood of such bodies," which is the magneto method; or "by alternately increasing and diminishing the resistance of the circuit, or by alternately increasing and diminishing the power of the battery;" which is the variable resistance method. This is the process which has been patented, and it may be operated in either of the ways set forth. The current must be kept closed, to be used successfully; but this does not necessarily imply that it must be so produced, or so operated upon, as to be incapable of being opened. If opened, it will fail to act for the time being, and the process will be interrupted; but there is nothing in the patent which requires it to be operated by instruments which are incapable of making the break. The apparatus, "as herein described," which is included in the claim, is undoubtedly one in which an electro-magnet is employed, and constructed "substantially as set forth" in the specification. One acting on the variable resistance mode is not described, further than to say that the vibration of the conducting wire in mer-

cury, or other liquid, included in the circuit, occasions undulations in the current, and no other special directions are given as to the manner in which it must be constructed. The patent is both for the magneto and variable resistance methods, and for the particular magneto apparatus which is described, or its equivalent. There is no patent for any variable resistance apparatus. It is undoubtedly true that when Bell got his patent he thought the magneto method was the best. Indeed, he said, in express terms, he preferred it; but that does not exclude the use of the other, if it turns out to be the most desirable way of using the process under any circumstances. Both forms of apparatus operate on a closed circuit by gradual changes of intensity, and not by alternately making and breaking the circuit, or by sudden and instantaneous changes, and they each require to be so adjusted as to prevent interruptions. If they break, it is a fault, and the process stops until the connection is restored.

It is again said that the claim, if given this broad construction, is virtually "a claim for speech transmission by transmitting it; or, in other words, for all such doing of a thing as is provable by doing it." It is true that Bell transmits speech by transmitting it, and that long before he did so it was believed by scientists that it could be done by means of electricity, if the requisite electrical effect could be produced. Precisely how that subtle force operates under Bell's treatment, or what form it takes, no one can tell. All we know is that he found out that, by changing the intensity of a continuous current so as to make it correspond exactly with the changes in the density of air caused by sonorous vibrations, vocal and other sounds could be transmitted and heard at a distance. This was the thing to be done, and Bell discovered the way of doing it. He uses electricity as a medium for that purpose, just as air is used within speaking distance. In effect, he prolongs the air vibrations by the use of electricity. No one before him had found out how to use electricity with the same effect. To use it with success, it must be put in a certain condition. What that condition was he was the first to discover, and with his discovery he astonished the scientific world. Prof. Henry, one of the most eminent scientists of the present century, spoke of it as "the greatest marvel hitherto achieved by the telegraph." The thing done by Bell was "transmitting audible speech through long telegraphic lines;" and Sir William Thomson, on returning to his home in England, in August or September, 1876, after seeing at the Centennial Exposition in Philadelphia what Bell had done and could do by his process, spoke in this way of it to his countrymen: "Who can but admire the hardihood of invention which devised such very slight means to realize the mathematical conception that, if electricity is to convey all the delicacies of quality which distinguish articulate speech, the strength of its current must vary continuously, as nearly as may be, in simple

proportion to the velocity of a particle of air engaged in constituting the sounds." Surely, a patent for such a discovery is not to be confined to the mere means he improvised to prove the reality of his conception.

We come now to consider the alleged anticipation of Philipp Reis. And here it is to be always kept in mind that the question is not whether the apparatus devised by Reis to give effect to his theory can be made, with our present knowledge, to transmit speech, but whether Reis had in his time found out the way of using it successfully for that purpose; not as to the character of the apparatus, but as to the mode of treating the current of electricity on which the apparatus is to act, so as to make that current a medium for receiving the vibrations of air created by the human voice in articulate speech at one place, and, in effect, delivering them at the ear of a listener in another place. Bell's patent is not alone for the particular apparatus he describes, but for the process that apparatus was designed to bring into use. His patent would be quite as good if he had actually used Reis' apparatus in developing the process for which it was granted. That Reis knew what had to be done in order to transmit speech by electricity is very apparent, for in his first paper he said: "As soon as it is possible to produce, anywhere and in any manner, vibrations whose curves shall be the same as those of any given tone, or combination of tones, we shall receive the same impression as that tone, or combination of tones, would have produced on us." Bourseul also knew it before Reis, for, in a communication published in a Paris journal in 1854, he said: "Reproduce precisely these vibrations," to-wit, the vibrations made by the human voice in uttering syllables, "and you will reproduce precisely these syllables." Reis discovered how to reproduce musical tones, but he did no more. He could sing through his apparatus, but he could not talk. From the beginning to the end he has conceded this. * * * It is not contended that Reis had ever succeeded in actually transmitting speech, but only that his instrument was capable of it if he had known how. He did not know how, and all his experiments in that direction were failures. With the help of Bell's later discoveries in 1875 we now know why he failed.

As early as 1854, Bourseul, in his communication which has already been referred to, had said, substantially, that, if the vibrations of air produced by the human voice in articulate speech could be reproduced by means of electricity at a distance, the speech itself would be reproduced and heard there. * * * That Reis was working all the time, from the beginning to the end of his experiments, upon the principle of the telegraph as thus suggested by Bourseul, is abundantly proven. * * *

Such was the beginning, and it was maintained persistently to the end, as well by Reis as by those who availed themselves of what

he was doing. * * * All recognized the fact that the "minor differences in the original vibrations" had not been satisfactorily reproduced, but they attributed it to the imperfect mechanism of the apparatus used, rather than to any fault in the principle on which the operation was made to depend. It was left for Bell to discover that the failure was due, not to workmanship, but to the principle which was adopted as the basis of what had to be done. He found that what he called the "intermittent current"—one caused by alternately opening and closing the circuit—could not be made, under any circumstances to reproduce the delicate forms of the air vibrations caused by the human voice in articulate speech, but that the true way was to operate on an unbroken current by increasing and diminishing its intensity. This he called a "vibratory or undulatory current," not because the current was supposed to actually take that form, but because it expressed with sufficient accuracy his idea of a current which was subjected to gradual changes of intensity, exactly analogous to the changes of density in the air occasioned by its vibrations. Such was his discovery, and it was new. Reis never thought of it, and he failed to transmit speech telegraphically; Bell did, and he succeeded. Under such circumstances, it is impossible to hold that what Reis did was an anticipation of the discovery of Bell. To follow Reis is to fail, but to follow Bell is to succeed. The difference between the two is just the difference between failure and success. If Reis had kept on, he might have found out the way to succeed; but he stopped, and failed. Bell took up his work, and carried it on to a successful result.

As to what is shown to have been written and done by Dr. Van der Weyde, it is only necessary to say that he copied Reis; and it was not until after Bell's success that he found out how to use a Reis instrument so as to make it transmit speech. Bell taught him what to do to accomplish that purpose.

So, as to James W. McDonough. We presume that it will not be claimed that he is entitled to more than he asked for in his application for a patent, filed April 10, 1876; and there a "circuit breaker," so adjusted as to "break the connection by the vibrations of the membrane," is made one of the elements of his invention. The patent office was clearly right in holding that he had been anticipated by Reis.

The patents of Cromwell Fleetwood Varley, of London, England, —granted, one, June 2, 1868, and the other, October 8, 1870,—were for "*improvements in electric telegraphs.*" * * *

Another alleged anticipation is that of Daniel Drawbaugh. Bell got his patent March 7, 1876, and the fortunate accident which led to his discovery occurred June 2, 1875. Active litigation to enforce his patented rights was begun by his company on the 12th of September, 1878, with a suit, in the circuit court of the United States

for the district of Massachusetts, against Richard A. Dowd. This suit was defended by the Western Union Telegraph Company, and vigorously contested. The answer was filed November 4, 1878, setting up alleged anticipations by Gray, Edison, Dolbear, and others. The record fills 1,200 printed pages; but before a decision was reached the case was compromised, and a decree entered by consent. The litigation ended at some time in the latter part of the year 1879. The last deposition was taken on the 19th of September in that year. The next contested suit was brought in the same court on the 28th of July, 1880, against Albert Spencer and others. An answer was filed in this case September 6, 1880, and depositions afterwards taken; some of those in the Dowd suit being used in this by stipulation. On the 27th of June, 1881, a decision was announced by Judge Lowell sustaining the patent, upon which a decree was entered. On the 14th of November, 1879, Abner G. Tisdel filed in the patent-office an application for a patent for "a new and useful improvement in speaking telephones," and on the 18th of November, 1879, Frank A. Klemm also filed an application for a patent for "a new and useful improvement in telephone transmitters." These inventions were transferred by assignment to Ernest Marx and Frank A. Klemm, of New York city, Moritz Loth, of Cincinnati, and Simon Wolf, of Washington. On the 6th of March, 1880, these parties entered into a mutual agreement to the effect that "each and all of their interests in said improvements and inventions, and the letters patent to be issued therefor, shall be merged and consolidated as common stock in a corporate body, under the laws of either of the states of Ohio, New York, or the general laws of the United States, relating to the formation of incorporations in the District of Columbia, or of such other states or territories as may be found necessary hereafter." This agreement was recorded in the patent-office March 10, 1880. On the 6th of May, 1880, Edgar W. Chellis, a merchant of Harrisburg, Pa., M. W. Jacobs, a lawyer at the same place, and Lysander Hill, a lawyer then residing in Washington, in the District of Columbia, made an arrangement with Daniel Drawbaugh by which they were to become jointly interested with him in his alleged telephone inventions, each to have a quarter interest. Nothing was paid for this, but each of the parties was to have one-fourth of anything that should be realized from the enterprise. On the 24th of May, 1880, Simon Wolf, one of the parties interested in the Klemm and Tisdel inventions, visited Harrisburg on business with Chellis in reference to telephone matters. On the 18th of May, four days before this visit, a patent was issued to Wolf and his associates upon the invention of Tisdel. While Wolf was in Harrisburg negotiations were begun with Chellis for a transfer of the Drawbaugh inventions to the owners of those of Klemm and Tisdel. These negotiations resulted in a conditional contract of the

22d of June, by reason of which Chellis, Jacobs, Hill and Drawbaugh went to Washington; and there, on the 21st of July, 1880, Drawbaugh, claiming to "have invented certain new and useful improvements in the transmission of vocal speech, and the apparatus to be used for such purpose, for which I am about to make application for letters patent of the United States," assigned to Klemm, Marx, Wolf, and Loth "the full and exclusive right to the said invention, as fully set forth and described in the specification prepared and executed by me, dated the 21st day of July, 1880, preparatory to obtaining letters patent of the United States therefor;" and he at the same time, and by the same instrument, authorized and requested the commissioner of patents to issue the patent to his assignees, "each as assignee of one-fourth part." The specification referred to in the assignment has not been put in evidence in any of the cases. In the course of taking the testimony, it was called for by the Bell Company; but the counsel for the opposite party refused to produce either the original, or a copy from the patent-office. The assignment was recorded in the patent-office July 22, 1880, and in the official digest of assignments the following notation appears: "About to make appl'n. Spe'n dated July 21, 1880." * * *

At this time, and in this way, the attention of the general public was called for the first time to the fact that Drawbaugh claimed to have anticipated Bell in the discovery of the telephone. Bell's success had been proclaimed more than four years before at the Centennial Exposition in Philadelphia. In the mean time, inventions in aid of his discovery had been multiplied. According to the testimony of Park Benjamin, more than 100 patents had been issued and indexed under the word "Telephone." Numerous interferences had been declared and considered at the patent-office. Gray, Edison, Dolbear, and others had either claimed for themselves, or others had claimed for them, priority of invention and discovery, and Bell had thus far been sustained as against them all. Blake had perfected his microphone apparatus, and Bell's patent had become a great commercial success. * * *

The People's Company began taking depositions on the 19th of April, 1881, but Drawbaugh himself did not appear as a witness until December 7, 1881. After that time others were examined, and when the proofs were closed between three and four hundred witnesses had been produced whose testimony was taken, and put into the record, to establish the priority of Drawbaugh's invention. This testimony, as is now claimed, shows the story of that invention to have been as follows: "Early conception and experiments with the continuous current, 1862, 1866, and 1867. Teacup transmitter and receiver, 1866 and 1867. Tumbler and tin-cup and mustard can, ('F' and 'B,') 1867 and 1869. Improvement on 'B' ('C,') 1869, 1870. Further improvement upon 'C,' and the more perfect

magneto instrument, 'I,' 1870, 1871. Mouth-piece changed to center and adjusting screw inserted, (Exhibit A,) 1874. 'D' and 'E,' perfectly adjusted and finished magneto instruments, January and February, 1875. 'L,' 'M,' 'G,' and 'O,' from February, 1875, to August, 1876. 'H,' August, 1876. 'J,' 'N,' and 'P,' 1878." This statement of the Drawbaugh claim we have quoted from the brief of counsel appearing in his behalf, and his success in the litigation has been placed, as we understand it, both in the answer and in the argument, on the truth or falsehood of what is thus set forth. The letters "F," "B," etc., in the statement, refer to exhibits in the cause, being certain instruments claimed to have been made and used by Drawbaugh in the progress of his work, and preserved until now. The original tea-cup instrument was not produced, but Drawbaugh in his deposition gave what he said was a drawing, showing how it had been constructed. "F," "B," "C," "I," and "A" were neither of them in a condition for use when they were put in evidence, and no one of all the witnesses except Drawbaugh could tell how they were originally constructed, or what the process was by which sound was transmitted when they were used. All any of the witnesses could say on that subject was that they had used one or more of the different instruments at Drawbaugh's shop; had heard sounds, and sometimes spoken words, through them; and that Drawbaugh told them the sound was carried on the wire by electricity. There was nothing whatever produced in print or in writing on the subject; not even a memorandum or a drawing of any kind. And there is nothing in the testimony to show that Drawbaugh ever told any one how his earlier instruments were made, or what his process was, until he was called as a witness in December, 1881, and explained it in his testimony. This was nearly twenty years, according to the present claim, after he had begun his experiments; nearly seven after he had made and used "D" and "E," perfectly adjusted and finished magneto instruments; and more than five after "L," "M," "G," "O," and "H" had been constructed, and kept in his shop. It was also nearly six years after the date of Bell's patent, more than five after the success of his discovery had been proclaimed at the Centennial Exposition in Philadelphia, four after his process had got into public use, three after it had become an established success, and two after he had brought his first suit for the establishment of his rights against Dowd, who represented the Western Union Telegraph Company, to a successful termination.

Under these circumstances, it becomes important to consider the conduct of Drawbaugh in reference to his alleged invention during this 20 years of eventful history, as connected with the discovery and use of telephones. If his present claim is true, his experiments began almost as far back as those of Reis, and he had in

his shop at Eberlys Mills, within three miles of Harrisburg, telephones that were substantially perfect months before Bell, on the 2d of June, 1875, got the clue to his subsequent discoveries. It is conceded that "D" and "E," made, as is claimed, in February, 1875, are substantially as good magneto instruments as any Bell had used before December, 1881; and "L," "M," "G," "O," and "H," all of which it is claimed were constructed by August, 1876, and some in February, 1875, are as good, or nearly as good, microphones as those of Blake, which were not invented until 1878. This is the theory of Drawbaugh's defense as it is set forth in the answer and in the argument, and by it his case must stand or fall. The claim is that the discovery of the process was complete, and that perfect telephones had been made, and were in a condition for use, a year and more before Bell got his patent. Drawbaugh was, when he gave his deposition, 54 years of age, and had lived all his life at or near Eberly Mills, a small village near Harrisburg. He was a skillful and ingenious mechanic; and if he made "D" and "E," and the instruments which came after them, at the time it is said he did, he had good tools and good materials in 1875 and 1876, and was capable of doing the best of work. He was also somewhat of an inventor, and had some knowledge of electricity. According to the testimony, he was an enthusiast on the subject of his "talking machine," and showed it freely to his neighbors and people from the country when they visited his shop. The Centennial Exposition was opened at Philadelphia in May, 1876, and Drawbaugh visited it on the 17th of October, 1876, remaining four or five days. Before he went he had heard, as he says, that some one besides himself had invented a speaking telephone, which he had the impression was on exhibition there. If what he now claims is true, he had then on hand in his shop Exhibits D, E, L, M, G, O, and H; all of them good instruments of their kind, and capable of transmitting speech, and some of them but just finished. Bell's apparatus had been exhibited to the board of judges in June before, and had attracted marked attention. The matter was much discussed in the public press, and yet it never seems to have occurred to Drawbaugh to take any of his telephones with him when he went, although they were small in size, and some, or all of them, could have been carried without serious inconvenience.

When giving his testimony, he was examined in chief as to that visit; and this is what he said on the subject of telephones: "Question 386. Did you attend the Centennial Exposition at Philadelphia in the year 1876? Answer. Yes, sir; I did. Q. 387. Can you give the date on which you went there? A. I can by reference to a book. It was October 17, 1876. The 17th was a day on which I dated a letter from Philadelphia, while I was there on that visit. Q. 388. How long did your visit there last? A. About four or five

days, to the best of my recollection. Q. 389. Who went with you on that visit? A. Mr. George Leonard. Q. 390. Was that the only visit to the Centennial Exhibition that you made? A. Yes, sir; it was. Q. 391. At the time that you went there, or before that time, had you heard that somebody else besides yourself had invented a speaking telephone, or a telephone? A. Yes, sir; some time before that. I don't remember how long, but not a great while. Q. 392. When you went there, did you suppose it would be on exhibition there? A. I don't remember whether I had heard that it was on exhibition or not; but I got the impression some way that it was on exhibition. Q. 393. While you were there at the Centennial, did you see any telephones, or make an effort to see any there? A. Yes, sir; I made an effort, and seen an instrument called a 'telephone,' and supposed it to be the instrument spoken of,—the one of which I had heard. I was looking and had made some inquiry, and was directed or came to a portion of the building where I saw on a counter some man's telephone; the name I don't remember. At that time, or several times that I called, there was no one there to attend to it. I spoke to another party that had something else on exhibition—I don't recollect what it was—just near by, and I asked him whether there was any one there to attend, or to show the instruments. I was informed, then, there was no one there to show them. Q. 394. If you remember, please state what kind of an instrument it was that you saw there, and state what information you were able to obtain there regarding it, and its mode of operation. A. There was a number of instruments placed onto a raised portion,—something like a shelf; that is, it resembled something like pigeon-holes, a box open in front, and each instrument at the back of it had an electro-magnet. The number of instruments I don't remember. I don't remember of counting them. If I am not mistaken, there may have been a dozen or more, perhaps. Some were larger than others. I could not give you a much better description than that. I couldn't get any information about them. This attendant made some remarks about the instruments; but he didn't understand them, and couldn't explain them. I was several feet from where the instruments were. They were placed—it occurs to me—on a raised place like a shelf, just about high enough for a man to speak into; that is the way it looked to me. I did not go in behind the counter to examine them, although there was an opening to go in by, because I did not like to make too free, as there was no one there. Q. 395. Did you see any circulars lying around there referring to these instruments, or other advertisements of them? A. I don't remember about that; it may have been. Q. 396. What was your impression as to the character of the instruments when you finally left them? A. I was impressed with the idea that they were instruments to telegraph by sounds. A certain sound to represent a certain letter of the alpha-

bet. I am not certain how I got the idea, or whether any person told me that at the time, but that is the idea that I had. When I said certain sounds, I meant that sounds of a different pitch would represent different letters. Q. 397. Do you know whether that was 'Gray's Harmonic Telegraph' that you saw there or not? A. It didn't say 'Telegraph;' I am confident is was called 'Telephone.' I didn't see the working parts of the interior, except the electro-magnets. I took the name of the man and his address on a piece of paper, and put it in my pocket, but I don't know what became of it. I don't know whether it was 'Gray's Harmonic Telegraph' or not. Q. 398. Did you see any tuning forks about it? A. I did not."

That was all he did during his entire visit to ascertain whether any one besides himself had actually entered upon this then new and interesting field of invention and discovery. He spoke to no one about what he had done himself, and he made no special effort to find out whether that which was on exhibition was in any respect like what he had at home. Neither did he when he got home, so far as the records show, say anything to his neighbors or visiting friends about what he had seen or heard. He had apparently lost all interest in "talking machines." Not so, however, with his other inventions. The testimony shows that during the early part of 1876 he was much occupied in building an electric clock, which he thought of exhibiting at the Centennial. This he did not do, however, but either just before he went to Philadelphia, or soon after, Rufus E. Shapley, a jeweler of Mechanicsburg, went by his invitation, or on his suggestion, to Eberly's Mills to look at the clock which he had made. Soon afterwards the clock was taken to Shapley's store in Mechanicsburg, and on the 8th of November, 1876, Drawbaugh by an instrument in writing, transferred to Shapley a half-interest in the "clock I am getting up, the said R. E. Shapley to pay for patenting the same." Shapley had then $2,000 in money which Drawbaugh was anxious to have him invest in that business, and the clock was taken by him to his shop so that it might be examined with that end in view, if it should prove to be useful. Some time afterwards it was taken back to Eberly's Mills, where it remained until April 1, 1878, or thereabouts, when a clock company was formed, and that clock, or another one substantially like it, was taken about the country for exhibition. For this Drawbaugh was paid $500, with an interest in the profits, and on the 20th of September, 1878, he applied for a patent for "improvement in earth batteries for electric clocks," which was issued January 14, 1879, to the members of the clock company. The enterprise does not seem to have been productive of any great success. In November or December, 1878, while this clock was on exhibition at Harrisburg, Drawbaugh was introduced to Edgar W. Chellis. He had with him at the time a "wooden model of a faucet" that he wanted Chellis and another man to take

each a third interest in. An arrangement was afterwards made by which Chellis got a two-thirds interest, he paying for it $250 January 7, 1879. On the 14th of the same month Drawbaugh filed in the patent-office an application for a patent for "improvement in rotary measuring faucets;" Chellis to have a two-thirds interest. After this application an interference was declared, March 29, 1879, between Drawbaugh and David A. Hauck, who had filed a conflicting application January 17th. In his preliminary statement upon this interference, Drawbaugh said that he had conceived the idea of his faucets, and sketched them, late in the fall of 1876; that he made a working model in the spring of 1877, and actually tested it then, but the patent-office model was not completed until about the 1st of November, 1878. The case was closely contested, but finally decided in favor of Drawbaugh, January 15, 1880. The patent was granted to him and Chellis, July 6th of the same year. In this contest Jacobs and Hill, who afterwards became interested in his telephone claims, appeared as the counsel of Drawbaugh. On the 2d of July, 1879, Drawbaugh filed another application in the patent-office for "improvement in water motors;" Chellis to have in this, also, a two-thirds interest. Upon this application a patent was issued March 16, 1880. It is impossible to believe, if Drawbaugh had in his shop, when he reached home from the Centennial, Exhibits D, E, L, M, G, O, and H, or even D and E alone, that he would have set himself to work, in the first instance, at developing his clock enterprise, or perfecting his former conception of a measuring faucet, instead of making some effort to call the attention of his friends to his great discovery of the telephone, which he was in danger of losing by the patent which had been issued to another, and which he could not but have known was even then attracting the greatest attention. And in this connection it must be kept in mind that the theory of the defense is, as stated in the answer, that Drawbaugh had at that time fully perfected his invention; and that while, at first, he "conceived that its range and capacity for usefulness to the public might be very greatly enlarged," he had, before the date of Bell's patent, "notwithstanding his embarrassed and impoverished pecuniary condition, and his utter want of proper mechanical tools," finally perfected his work. His conduct afterwards, therefore, is to be judged, not as that of one who was still in the midst of his experiments, and doubtful of the results, but of one who had arrived at the end and had completed his success.

No man of his intelligence, with or without the enthusiasm upon the subject which it is said he possessed, could have remained silent under such circumstances. As we have read the testimony, it is not even pretended that he took any of his instruments outside of his own village until May, 1878, when, as is claimed, he showed one to his friend Stees, in Harrisburg, whom he had known for years, and

who was the first to use, and, in fact, was then using, a Bell telephone, in that place, upon a private line of his own between his office and his shops. This produced no results; and when afterwards, in January, 1879, Chellis was told that Drawbaugh had "a phonograph and a telephone that he had invented," he gave it no attention, because, to use his own language, "I was interested in the faucet and motor business, and wished to push them, and I did not think we could do much with the telephone, as Bell had a patent, and I did not know that he could antedate them." And again, when speaking of a conversation he had with Drawbaugh, he said: "I advised him to drop it,—the telephone,—as he could not antedate Bell. He said he did not know about that; that he had been working on it a good while. It was his way of expressing himself. When I would say 'You can't antedate Bell,' he would say, 'I don't know about that; I have been working at it a good while.'" This, it must be remembered, was in 1879, after the telephone had become a success, and after it had been a year or more in use in Harrisburg, where Chellis lived. It is impossible to believe that either Chellis or Drawbaugh was ignorant of the approximate time of Bell's invention, which had been the subject of frequent newspaper comment from the time of its exhibition at the Centennial. The subject was often referred to in the Harrisburg and Mechanicsburg papers, and it is not for a moment to be supposed that all of these various articles escaped their attention. Under such circumstances, if it were true that Drawbaugh had made his "D" and "E," as is now claimed, in February, 1875, he certainly would have said so, and would not have contented himself with so doubting an answer to Chellis' suggestion of his inability to antedate Bell as that which Chellis now says he gave.

Another important fact in this connection is one which is proved by the testimony of Andrew R. Kiefer, who from 1863 had been division telegraph operator, having charge of the middle division of the Pennsylvania railroad, and residing in Harrisburg. From 1867 to the winter of 1881-82 he was a member of a partnership firm in that place which was engaged in "the manufacture of burglar alarms, electric hotel annunciators, and fine electric work for the government,—instruments for the signal bureau, patent models, etc." He had also, since 1876, kept a place for the sale of electrical supplies. He had known Drawbaugh certainly since 1876, and probably before. Drawbaugh met him on different occasions and talked upon electrical matters. In the course of their acquaintance, Drawbaugh showed him an electrical fire-alarm apparatus, and the works of his electric clock; but the subject of telephones was never alluded to between them until in the summer of 1881, when this occurred. We quote from Kiefer's deposition: "In the summer of 1881 I took my wife out for a drive, and went over to see his (Drawbaugh's) works, never having seen them, and having promised to come and see him

some time. My wife, not caring about going through the shop, remained in the carriage, and I went through alone with Mr. Drawbaugh. He showed me through the shops, and introduced me to Mr. Chellis, and showed me parts of the water motor and some other things of his getting up. On account of my wife's being in the carriage alone, I did not stay long. As I stepped into, or was just in, the carriage, Mr. Drawbaugh said, 'I forgot to show you my telephone.' I did not get out again to go and see it, and I drove away without seeing it, expecting to see it again; but I have never got over to the shop since." This was after the suit of the Bell Company against the People's Company was begun, and of course after the matter got into the hands of Chellis and his associates. It is no answer to the criticism of Drawbaugh's conduct in this particular to say, as was said in argument, that "one reason why he did not speak or apply to every man with whom he had personal acquaintance was that he was ridiculed by his neighbors; that his invention was considered a humbug by them, and of no commercial value." Bell's success was proclaimed in the Harrisburg Patriot as early as February 26, 1877, and the days of ridicule were then past. If Drawbaugh had at that time in his shop the machines which it is now claimed were all complete as they now are by August, 1876, and most of them before, there cannot be a doubt that he would have taken them to some place where they could be tried, and show that they would do what he had all along claimed for them. All he had to do, at any time after he came back from the Centennial, was to take any pair of his little instruments to his friend Zeigler or his friend Stees at Harrisburg, attach them to a line wire, and show what he had. They were men who could appreciate his achievement, and help him if it was, as he now says it was, a success. It would certainly have been easier then, within two years of the time the first of them were made, and within a year of the date of Bell's patent, to show that he "antedated" Bell, than it was three years afterwards, when he was brought into the controversy through the instrumentality of his associates; not, as must be evident to all, to get a patent for himself, but to defeat that of Bell. And in this connection it is specially significant that the application which it is claimed was made for a patent on the 21st of July, 1880, and the specification of his invention which was then written out, have been purposely and designedly kept out of the case, although their production was demanded. They were written before this suit was begun, and it is impossible to believe that they would have been withheld, at least upon the call of the opposite party, if they were in all respects consistent with the subsequent developments of the case. The excuse given by counsel at the time, that they were "in the secret archives of the patent-office," and, "if produced and published in this cause, would possibly invite the filing of contesting

applications, and result in interference and additional litigation, besides unnecessarily prolonging the taking of testimony here, and increasing the expenses," we cannot accept as satisfactory, especially as in the answer it was said that one object of filing the application was to procure "interference proceedings to be instituted against the patents of Bell, in order that Drawbaugh may be adjudged by the commissioner to be, as he rightfully is, the original and first inventor."

We have not overlooked the depositions that have been taken in such large numbers to show that Drawbaugh was successful with "F," "B," "C," "I," and "A," before "D" and "E" were made. They have been studied with care, and, if they contained all the testimony in the case, it would be more difficult to reach the conclusion that Drawbaugh's claim was not sustained. But in our opinion their effect has been completely overcome by the conduct of Drawbaugh, about which there is no dispute, from the time of his visit to the Centennial until he was put forward by the promoters of the People's Company, nearly four years afterwards, to contest the claims of Bell. He was silent, so far as the general public were concerned, when, if he had really done what these witnesses now think he did, he would most certainly have spoken. There is hardly a single act of his connected with his present claim, from the time he heard, before going to Philadelphia, that some one else had invented a telephone which was on exhibition at the Centennial, that is not entirely inconsistent with the idea, even then, of a complete discovery or invention by himself which could be put to any practical use. It is not pretended that what he did was done in private. He had influential friends, with ample pecuniary resources, ready to help him in bringing out his inventions when they promised success. He easily got aid for his clock and for his faucet. The news of Bell's invention spread rapidly and at once, and it took but a few months to demonstrate to the world that he had achieved a brilliant success. If it were known at Eberly's Mills alone that Drawbaugh had been doing the same thing for years in his shop there,—and it certainly would have been known all through the little village if it had actually been done,—no one can believe that the public would be kept in ignorance of it until four years afterwards, when a "special" from Washington "to the Cincinnati Commercial" announced a "telephone combination" "to have entire charge of the telephones, not only in this country, but in the world," that could transmit messages "for almost a song."

But there is another fact in this case equally striking. As has already been seen, "F," "B," "C," and "I" were in no condition for use when they were produced and put in evidence. They were mere "remains," and no one but Drawbaugh himself could tell how they were made, or how they were to be used. He undertook to repro-

duce some of them, especially "F" and "B." This was in the latter part of 1881, while the testimony was being taken. The Bell Company proposed that they should be tried to see if they would do what the witnesses said had been done with the originals, which the "remains" show must have been exceedingly primitive in their character. The testimony also shows that, when they were originally used by or in the presence of the witnesses, no particular care was taken in their adjustment. They were lying around in the shop, or standing upon shelves. Some say that when experiments were made they were held in the hand, or allowed to stand on the table. Many testify to satisfactory results, and Drawbaugh himself said in his deposition: "I would have persons in the cellar reading printed matter,—some advertisement or something,—and I could hear the words that were read; and at other times I would go down into the cellar and read something, and coming up they would repeat the words to me that I had read."

The proposition of the Bell Company was accepted, and the reproductions were tried in March, 1882, under the most favorable circumstances. Three days were occupied in the test, and it is substantially conceded that it was a failure. Occasionally a sound was heard, and sometimes a word, but "it would not transmit sentences." At the time of these experiments, "F," which was the transmitter, was placed on a table, and used as Drawbaugh said it was originally. Two years afterwards other reproductions were presented, differently constructed, and used in a different way, and these would "talk;" but they were neither made nor used in the same way as the originals. To our minds, the result of the second experiments conclusively showed that the original instruments could not have done what the witnesses supposed they did, and that what they saw and heard was produced by some other means than an electric speaking telephone. We do not doubt that Drawbaugh may have conceived the idea that speech could be transmitted to a distance by means of electricity, and that he was experimenting upon that subject; but to hold that he had discovered the art of doing it before Bell did, would be to construe testimony without regard to "the ordinary laws that govern human conduct." Atlantic Works v. Brady, 107 U. S. 192, 203. 2 Sup. Ct. 225. Without pursuing the subject further, we decide that the Drawbaugh defense has not been made out.

Another objection to Bell's patent, put forth in the oral argument of Mr. Hill, and in the printed brief signed by him, and in that signed by Mr. Dixon, is that his application as originally filed in the patent-office did not contain his present fourth claim, or any description of the variable resistance method, and that all which now appears in the specification on that subject, including the fourth claim, was surreptitiously interpolated afterwards. Bell's application was filed February 14, 1876, and afterwards, during the same day,

Elisha Gray filed a *caveat,* in which he claimed as his invention "the art of transmitting vocal sounds or conversations telegraphically through an electric circuit," and in his specification described the variable resistance method. The precise charge now made in the printed brief of Mr. Hill is that "Mr. Bell's attorneys had an underground railroad in operation between their office and Examiner Wilbur's room in the patent-office, by which they were enabled to have unlawful and guilty knowledge of Gray's papers as soon as they were filed in the patent-office," and "that an important invention, and a claim therefor, were bodily interpolated into Bell's specification, between February 14, 1876, and February 19, 1876, by Pollock, in consequence of the guilty knowledge which the latter already had of the contents of Gray's *caveat* before the declaration of interference with Gray on February 19th." So grave a charge, made in so formal a manner, is entitled to careful consideration. It involves the professional integrity and moral character of eminent attorneys, and requires us to find from the evidence that after Bell swore to his application on the 20th of January, 1876, and after the application thus sworn to had been formally filed in the patent-office, an examiner, who got knowledge of the Gray *caveat* put in afterwards, disclosed its contents to Bell's attorneys; that they were then allowed to withdraw the application, change it so as to include Gray's variable resistance method over Bell's signature, and over the jurat, and then restore it to the files, thus materially altered as if it were the original; and all this between February 14th and February 19th. Although much stress was laid in argument on the fact that what purported to be a certified copy of the specification of Bell, as found in the file-wrapper and contents printed in the Dowd case, differed materially from the patent, the cause of these differences has been explained in the most satisfactory manner; and we entertain no doubt whatever that the specification as now found in the patent is precisely the same as that on which the order to issue was made. If any alterations were made, it was all done before February 19th; and the fair copy which is now found on the files of the office is precisely as it was when the order for the patent was granted. Not a shadow of suspicion can rest on any one growing out of the misprint of the specification in the Dowd case. All that remains, therefore, on which to rest this serious charge is that in a paper handed by Bell to George Brown, of Toronto, describing his invention, and which was intended to be used in England to secure a British patent, what is now claimed to be an interpolation in the American application is not to be found. It is but right to say that, during the whole course of the protracted litigation upon the Bell patent, no argument was ever presented based on this discrepancy until the brief of Mr. Hill was filed in this court on the 18th of January, 1887, six days before the argument in these ap-

peals was begun. So far as we are advised, nothing had ever before occurred in the cases that seemed to make it necessary to prove when the variable resistance method or the fourth claim was put into the American application, or why it was left out of the paper handed to Brown. It seems always to have been assumed, until the cases got here, that, because it was in the American patent, it was rightfully there. Certainly, there is nothing in the pleadings in any of the cases to direct attention to the materiality of this fact. A comparison of the paper handed Brown with the American application shows that they differ in more than 30 different places, besides those which relate to the variable resistance method and the fourth claim. The differences are generally in forms of expression; thus indicating that one was written after the other, and evidently for the purpose of securing greater accuracy. The paper handed Brown was clearly a rough draft, and not a fair copy, for the record shows that it bore on its face the evidence of many erasures and interlineations. Bell says in his testimony that he began writing his specification in September or October, 1875, and wrote and rewrote it a number of times, finally adopting that mode of expression which seemed to him the best to explain his invention, and the relation which one portion bore to another. He visited Brown in Canada in September, and again in December, 1875. The arrangement was made between them on the 29th of December, at this last interview, by which Brown was to interest himself in getting out British patents. Other inventions besides the telephone were included in the contract entered into for that purpose. Bell returned to Boston on the 1st of January, and immediately set himself to work to complete his specification. He had it done so that it was taken to Washington by Mr. Hubbard about the 10th of that month, and delivered to Pollok & Bailey, the attorneys. It was then examined by the attorneys, found correct, and a fair copy made, and returned on the 18th to Bell in Boston for his signature and oath. It was signed and sworn to in Suffolk county, Mass., January 20th, and immediately returned to the attorneys. Afterwards Pollok met Bell in New York, and it was again gone over with care by the two together. No change whatever was made in it at that time, and Pollok took it back with him to Washington. On the 25th of January, 1876, Bell met Brown, who was then on the way to England, in New York. It is now assumed that the paper which Brown took to England was handed to him then; and, because the variable resistance method and the fourth claim were not in that, it is argued that they could not have been in the American specification at that time. But no one has said when the paper was actually handed to Brown. Bell says he cannot tell, but that it must have been after he made his contract with Brown on the 29th of December. As the American specification was signed and sworn to five days before the interview with Brown on the 25th

of January, and the paper of Brown differs from it in so many particulars besides that now in question, it would seem to be clear that the paper was a copy of some former draft which Bell had made,—possibly, one taken to Canada in December,—and not of that which was perfected afterwards. As the specification which had been prepared and sworn to was a fair copy, without erasures or interlineations, the fact that the paper handed Brown was not a fair copy would imply that it was not intended to be an exact transcript of the other. At any rate, the bare fact that the differences exists, under such circumstances, is not sufficient to brand Bell and his attorneys, and the officers of the patent-office, with that infamy which the charges made against them imply. We therefore have no hesitation in rejecting the argument. The variable resistance method is introduced only as showing another mode of creating electrical undulations. That Bell had had his mind upon the effect of such a method is conclusively established by a letter which he addressed to Mr. Hubbard on the 4th of May, 1875, and which is found in the Dowd record, introduced into the Overland case by stipulation. Its insertion in his final draft of his specification is another proof of the care with which his work had been done.

In the case of the Clay Commercial Company objection was made to the sufficiency of the proof of the incorporation of the American Bell Telephone Company, and of its title to the Bell patents. Upon the first point the proof was (1) a special act of the general court of Massachusetts, entitled "An act to incorporate the American Bell Telephone Company," which authorized certain persons therein named, and their associates, to organize themselves under the provisions of chapter 224 of the Acts of 1870, and the acts in amendment thereof, for telephone purposes; and (2) a certificate of the secretary of the commonwealth, in the form required by section 11, of chapter 224, that certain persons, among whom were the most of those mentioned in the special act, were legally organized and established as an existing corporation, under the name of the American Bell Telephone Company. This section made such a certificate "conclusive evidence of the existence of a corporation" organized under that chapter. The authority granted by the special act to the persons named to organize as a corporation in this way gave them the authority to select a corporate name, and also made the statutory certificate conclusive evidence of their corporate existence. The objections to the proof of title are not, in our opinion, well taken. We do not deem it necessary to add to the length of this opinion by referring particularly to the testimony on that point.

This disposes of all the cases so far as the patent of March 7, 1876, is concerned. It remains only to consider the patent of January 30, 1877, about which but little has been said either in the oral

or printed arguments. Apparently, it received but little attention by counsel or the court in either of the cases below. In the Dolbear case, it was, by consent, excluded from the decree, and of course is not presented by that record in this court. In all the other cases the patent was sustained, and the Clay Commercial Company was adjudged to have infringed the third, fifth, sixth, seventh, and eighth claims; the Molecular Company, the sixth, seventh, and eighth, but not the fifth; the People's Company, the fifth, sixth, and eighth; and the Overland Company, the third, fifth, sixth, seventh, and eighth. From the decree in favor of the Molecular Company as to the fifth claim the Bell Company has appealed. In the case of the Clay Commercial Company, it was alleged in the answer that the substantial and material parts of the things described and claimed were described and claimed in a prior British patent taken out by or for Bell, dated December 9, 1876, and that, inasmuch as the American patent does not bear the same date with the foreign patent, and is not limited to expire therewith, it is void. This patent has not been pressed in the argument here, and in our opinion it has been settled by the decision of this court in O'Reilly v. Morse, 15 How. 62, 112, and impliedly by that in Siemens v. Sellers, 123 U. S. 276, 8 Sup. Ct. 117, (at the present term,) that the effect of section 4887, Rev. St., is not to render invalid an American patent which does not bear the same date as a foreign patent for the same invention, but only to limit its term. The patent itself is for the mechanical structure of an electric telephone, to be used to produce the electrical action on which the first patent rests. The third claim is for the use in such instruments of a diaphragm, made of a plate of iron or steel, or other material capable of inductive action; the fifth, of a permanent magnet constructed as described, with a coil upon the end or ends nearest the plate; the sixth, of a sounding box, as described; the seventh, of a speaking or hearing tube, as described, for conveying the sounds; and the eighth, of a permanent magnet and plate combined. The claim is not for these several things in and of themselves, but for an electric telephone, in the construction of which these things, or any of them, are used; hence the fifth claim is not anticipated by the Schellen magnet, as was decided in the Molecular case below. The patent is not for the magnet, but for the telephone of which it forms but part. To that extent the decree in that case was erroneous.

It follows that the decree in each of the cases, so far as it is in favor of the Bell Company, and those claiming under it, must be affirmed, and that the decree in the Molecular case, so far as it is against that company on the fifth claim of the patent of January 30, 1877, must be reversed, and a decree directed to that extent in its favor. It is consequently so ordered.

Gray, J., was not present at the argument, and took no part in the decision of these cases. Lamar, J., not being a member of the court when these cases were argued, took no part in their decision.

Bradley, J., (*dissenting*). Mr. Justice Field, Mr. Justice Harlan, and myself are not able to concur with the other members of the court, sitting in these cases, in the result which has been reached by them. Without expressing an opinion on other issues, the point on which we dissent relates to the defense made on the alleged invention of Daniel Drawbaugh, and applies to all the cases in which that invention is set up. We think that Drawbaugh anticipated the invention of Mr. Bell, who, at most, is not claimed to have invented the speaking telephone prior to June 10, 1875. We think that the evidence on this point is so overwhelming, with regard both to the number and character of the witnesses, that it cannot be overcome. As this is a question of fact, depending upon the weight of the evidence, and involves no question of law, it does not require an extended discussion on the part of those who dissent from the opinion of the majority; which is very ably drawn, and presents the case with great clearness and force. On the point mentioned, however, we cannot concur in the views expressed.

The essence of the invention claimed by Mr. Bell is the transmission of articulate speech to a distance, by means of an electrical current subjected to undulations produced by the air vibrations of the voice. There are two modes (as yet discovered) by which these undulations may be thus produced. In one, they are produced by interposing in the circuit a substance whose electrical conductivity may be varied by the concussions or vibrations of the air produced by the voice. This is called the "variable resistance process," because the electrical current is subjected to the variable resistance (or conductivity) of the substance thus interposed. By the other mode, the undulations are produced by the inductive effect of an armature, (or small, flat piece of iron,) attached to the membrane spoken against, and placed near to the poles of an electro-magnet situated in the circuit. In both cases the undulations impart the vibrations which caused them to another diaphragm at a distance (called the receiver) by means of an electro-magnet in the circuit, placed near to an armature affixed to such diaphragm. These vibrations, thus reproduced, are detected by the ear, and the spoken words are heard. We are satisfied from a very great preponderance of evidence, that Drawbaugh produced, and exhibited in his shop, as early as 1869, an electrical instrument by which he transmitted speech, so as to be distinctly heard and understood, by means of a wire, and the employment of variable resistance to the electrical current. This variable resistance was produced by causing the electrical current to pass through pulverized charcoal, carbon, and other substances,

acted upon by the vibrations of the voice in speaking. This was the whole invention, so far as the principle of variable resistance is concerned. We are also satisfied that as early as 1871 he reproduced articulate speech, at a distance, by means of a current of electricity, subjected by electrical induction to undulations corresponding to the vibrations of the voice in speaking,—a process substantially the same as that which is claimed in Mr. Bell's patent.

In regard to the instrument in which the principle of variable resistance was used, more than 70 witnesses were examined, who either testified to having seen it and heard it, or established such facts and circumstances in relation to it as to put its existence and date beyond a question. With regard to the instrument in which electrical induction was employed to produce the requisite undulations, some 40 or 50 witnesses were produced, many of whom saw it, and heard speech through it; and others either saw it, or heard it talked about in such a manner as to fix the time when it was in existence. On the questions of time and result, there is such a cloud of witnesses in both cases, that it seems almost impossible not to give credence to them. The evidence of some of them may have been shaken with regard to the time they had in mind; but that of the great majority was not shaken at all, but corroborated by circumstances which rendered the proof irrefragable. Many of them, it is true, were plain country people; but they heard the words through the instrument, and that is a matter about which they could not be mistaken. It did not require science nor learning to understand that. But the witnesses were not confined to this class. A number of them were people of position in society, official, professional, and literary; all, however, like the inventor, regarding the matter more as one of curiosity than of public importance. As it would serve no useful purpose to repeat the testimony of these witnesses, we shall refrain from doing so. We will only add that nearly all the original instruments used by Drawbaugh were produced on the trial, and identified by the witnesses. Some of them were broken, and in a dilapidated condition, but sufficiently perfect to be accurately reproduced. Their very form and principle of construction showed that they were intended for speaking telephones, and nothing else. Drawbaugh certainly had the principle, and accomplished the result. Perhaps without the aid of Mr. Bell, the speaking telephone might not have been brought into public use to this day; but that Drawbaugh produced it there can hardly be a reasonable doubt. We do not question Mr. Bell's merits. He appreciated the importance of the invention, and brought it before the public in such a manner as to attract to it the attention of the scientific world. His professional experience and attainments enabled him to see, at a glance, that it was one of the great discoveries of the century. Drawbaugh was a different sort of man. He did not

see it in this halo of light. Had he done so, he would have taken measures to interest other persons with him in it, and to have brought it out to public admiration and use. He was only a plain mechanic; somewhat better instructed than most ordinary mechanics,—a man of more reading; of better intelligence. But he looked upon what he had made more as a curiosity than as a matter of financial, scientific, or public importance. This explains why he did not take more pains to bring it forward to public notice. Another cause of his delay in bringing his invention to public notice was that he was ever indulging the hope of producing speech, at the receiving end of the line, loud and distinct enough to be heard across a room, like the voice of a person speaking in an ordinary tone.

It is perfectly natural for the world to take the part of the man who has already achieved eminence. No patriotic Briton could believe that anybody but Watts could produce an improvement in the steam-engine. This principle of human nature may well explain the relative feeling towards Bell and Drawbaugh in reference to the invention of the telephone. It is regarded as incredible that so great a discovery should have been made by the plain mechanic, and not by the eminent scientist and inventor. Yet the proof amounts to demonstration, from the testimony of Mr. Bell himself, and his assistant, Watson, that he never transmitted an intelligible word through an electrical instrument, nor produced any such instrument that would transmit an intelligible word, until after his patent had been issued; while, for years before, Drawbaugh had talked through his so that words and sentences had again and again been distinctly heard. We do not wish to say a word depreciatory of Mr. Bell. He was original, if not first. He preconceived the principle on which the result must be obtained, by that forecast which is acquired from scientific knowledge, as Leverrier did the place of the unknown planet; but in this, as in the actual production of the thing, he was, according to the great preponderance of the evidence, anticipated by a man of far humbler pretensions. A common astronomer, by carefully sweeping the sky, might have been first in discovering the planet Neptune; while no one but a Leverrier, or an Adams, could have ascertained its existence and position by calculation. So it was with Bell and Drawbaugh. The latter invented the telephone without appreciating the importance and completeness of his invention. Bell subsequently projected it on the basis of scientific inference, and took out a patent for it. But, as our laws do not award a patent to one who was not the first to make an invention, we think that Bell's patent is void by the anticipation of Drawbaugh.

64. LAWTHER v. HAMILTON, 124 U. S. 1, 31 L. ed. 325, 8 Sup. Ct. 342 (1887, Patent No. 168,164).

Bradley, J. The appellant, Alfred B. Lawther, filed his bill in the court below against the appellees, alleging that they were infringing a patent granted to him on the twenty-eighth of September, 1875, for certain improvements in processes of treating oleaginous seeds, and praying for an account of profits and damages, and an injunction. * * *

The purpose and effect of the invention claimed by the patentee as a new process, and the argument against the validity of the patent as a patent for a process, cannot be better or more clearly stated than is done in the opinion of the court below, pronounced by Judge Dyer (21 Fed. Rep. 811). We quote therefrom as follows: "The proofs show, and in fact it is undisputed, that formerly, in the process of extracting oil from flaxseed, the seed was subjected to the crushing and disintegrating action of the muller-stones, which consisted of two large and very heavy stone wheels, mounted on a short horizontal axis, attached to a vertical shaft. By the rotation of this shaft the stones were caused to move on their edges shortly around in a circular path upon a stone bed-plate, with a peculiar rolling and grinding action, upon a layer of flaxseed placed on the bed-plate. This was the usual mechanical appliance in connection with the operating movement of the muller-stones. By this means such portions of the seed as came in contact with the muller-stones were reduced to a complete state of pulverization. To facilitate the disintegrating action of the muller-stones, the seed was generally first more or less crushed by passing it through one or more pairs of rollers, thus better preparing it for the rubbing and grinding action of the muller-stones. The further treatment of the seed required the application of heat and moisture, and this was accomplished in various ways. Sometimes the heat and moisture were applied by a steaming device before the seed was crushed by the muller-stones. Sometimes the seed was moistened when it was under the action of the muller-stones, by sprinkling water upon the layer of seed beneath the stones, the heat being applied afterwards by a separate operation. At other times both heat and moisture were applied after the seed had been run through the mullers, and was in the form of meal in the heater. As the last step in the process, the seed thus crushed and disintegrated, and in moist and warm condition, was usually placed in haircloth mats or bags, and subjected to hydraulic pressure, by which means the oil was extracted. This was the state of the art, and this the usual process, when the complainant obtained his patent." * * *

The view thus taken by the court below seems to us open to some criticism. If, as that court says, and we think rightly says, the omission of the muller-stones is a real improvement in the process of ob-

taining the oil from the flaxseed; if it produces more oil and better oil-cakes, and it is new, and was not used before,—why is it not patentable discovery? and why is not such new method of obtaining the oil and making the oil-cakes a process? There is no new machinery. The rollers are an old instrument, the mixing machinery is old, the hydraulic press is old; the only thing that is new is the mode of using and applying these old instrumentalities. And what is that but a new process? This process consists of a series of acts done to the flaxseed. It is a mode of treatment. The first part of the process is to crush the seeds between rollers. Perhaps, as this is the only breaking and crushing of the seed which is done, the rollers are required to be stronger than before; but, if so, it is no less a process.

The evidence shows that although the crushing of the seed by two horizontal rollers, and then passing it, thus crushed, under the muller-stones, was the old method commonly used, yet that, for several years before Lawther took out his patent, a more thorough crushing had been effected by the employment of four or five strong and heavy rollers arranged on top of one another in a stack, still using the muller-stones to grind and moisten the crushed seed after it was passed through the rollers. The invention of Lawther consisted in discarding the muller-stones. and passing the crushed seed directly into a mixing machine, to be stirred, moistened, and heated by jets of steam or water and then transferring the mass to the presses for the expression of the oil by hydraulic or other power. The machinery and apparatus used by Lawther had all been used before. His only discovery was an improvement in the process. He found that, by altogether omitting one of the steps of the former process,—the grinding and mixing under the muller stones,—and mixing in the mixing-machine by means of steam, a great improvement was effected in the result. Why should it be doubted that such a discovery is patentable? It is highly useful, and it is shown by the evidence to have been the result of careful and long-continued experiments, and the application of much ingenuity. By the omission of the mullers, greater care may be necessary on the part of the workman in carrying on the operations, especially in watching the moistening and mixing process, so as to produce the proper moisture and consistency of the mass before subjecting it to hydraulic pressure. But though it be true that the new process does require greater care, and even greater skill, on the part of the workman than was formerly required, this does not change its character as being that of a process, nor does it materially affect its utility.

The only question which, in our view, raises a doubt on the validity of the patent, is whether it sufficiently describes the process to be followed in order to secure the beneficial results which it promises. * * *

From this statement it is apparent that the beneficial result is due, not only to a proper degree of crushing of the seed in the rolls, but to a proper and uniform moistening of the crushed material in the heating-machine before it is subjected to pressure. The question is whether the patent sufficiently describes the operation to be performed in order to accomplish these results. After a careful consideration of the specification of the patent, and in view of the principle of law that it is to be construed in the light of that knowledge which existed in the art at the time of its date, we are satisfied that it does sufficiently describe the process to be followed. * * *

Every oil manufacturer in the country would understand him. They would also understand that it might require additional care and skill to make the new process work successfully. It is evident that they did understand him, and that the manufacture of linseed oil and oil-cakes has ever since been greatly improved and facilitated by the invention.

But while we are satisfied that the invention is that of a process, it is nevertheless limited by the clear terms of the specification, at least so far as the crushing of the seed is concerned, to the use of the kind of instrumentality described, namely, in the first part of the process, to the use of powerful revolving rollers for crushing the seed between them under pressure. The claim cannot have the broad generality which its terms, taken literally, might, at first sight, seem to imply; but, limited as suggested, it seems to us sustainable in law. * * *

The appellees also contend that they do not (in the words of the claim) "moisten the seeds by direct subjection to steam." It is proven, however, that they do moisten the seeds by a shower of spray in the mixing-machine, produced by directing a jet of steam against a small stream of water. This is within the claim of the patent. The specification describes the process of moistening the seeds as follows: "They are then passed [after being crushed] directly, without the aid of muller-stones, to the mixing-machine, to be stirred, moistened, and heated by the admission of small jets of water or steam to the mass." Again: "The crushed seeds are next placed in a steam-jacketed reservoir of the mixing-machine, where they are stirred, moistened, and heated by perforated revolving stirrer arms, which throw jets of water or steam into the mass," etc. Then the claim is for three successive steps, viz., the crushing of the seeds under pressure, the moistening of the seeds by direct subjection to steam, and the expression of the oil by suitable pressure. These words are to be read in the light of the explanations in the descriptive part; and, thus read, it is apparent that the meaning of the claim is that the crushed seeds are to be moistened and heated by the use of steam, or steam and water, immediately after coming from the

rollers, without any aid from muller-stones. This is precisely what the appellees do.

One of the defenses set up is an implied license. It seems that Lawther has another patent for some improvement in the stack of rollers now commonly used for crushing the seed, and supplies them to order through a foundryman by the name of McDonald. The appellees purchased a set of these rollers from McDonald, with the knowledge and consent of Lawther. These rollers were returned on account of some imperfection in the material; but the frame was retained, and the appellees procured similar rollers made elsewhere. They contend that by this transaction Lawther gave his consent to their use of his process. We do not think that there is sufficient evidence of any such consent. The use of the rollers did not necessarily involve the use of the process, and there is no proof that anything was said about the process.

Other points were raised which we do not deem it necessary to discuss. We cannot but think that Lawther discovered a new process of manufacturing oil from seeds, and that he was entitled to a patent therefor; and we are of opinion that the patent in suit, construed as we have suggested, is a good and valid patent. We are also of opinion that the appellees infringe the patent, and that they have not shown any legal defense to the suit. It follows that the appellant is entitled to a decree for an injunction, and an account of profits and damages, as prayed in the bill. The decree of the circuit court is therefore reversed, and the cause remanded, with instructions to enter a decree for the appellant, and take such further proceedings as may be in conformity with this opinion.

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[Note: The patent office had granted many "mechanical method" patents and the Supreme Court of the United States and the other federal courts had sustained many patents for processes which were either purely "mechanical" or on the border line between mechanical methods and processes of a chemical or elemental nature. In addition to the cases hitherto presented may be noted the following:—

Downton v. Yaeger Milling Co., 108 U. S. 466, 27 L. ed. 789; Eames v. Andrews, 122 U. S. 40, 30 L. ed. 1064; Ansonia Brass and Copper Co. v. Electrical Supply Co., 144 U. S. 11, 36 L. ed. 327; Hoyt v. Horne, 145 U. S. 302, 36 L. ed. 713; Wood v. Cleveland, etc., Co., Fed. Cas. No. 17,941, 4 Fish. 550; Wallace v. Noyes, 13 Fed. 172; Globe Nail Co. v. United States Horse Nail Co., 19 Fed. 819; Celluloid Mfg. Co. v. Tower, 26 Fed. 451; Union Paper-Bag Machine Co. v. Standard Paper-Bag Co., 29 Fed. 96; Henius v. Lublin, 30 Fed. 838; Cottle v. Krementz, 31 Fed. 42; Hammerschlag Mfg.

Co. v. Bancroft, 32 Fed. 585; Eastern Paper-Bag Co. v. Standard Paper-Bag Co., 30 Fed. 63; Edison v. Klaber, 38 Fed. 744; Uhlmann v. Bartholomae & Leicht Brewing Co., 41 Fed. 132; Hoff v. The Iron Clad Mfg. Co., 139 U. S. 326, 35 L. ed. 179; Oval Wood Dish Co. v. Sandy Creek, N. Y., Wood Mfg. Co., 60 Fed. 285; Goldie v. Diamond State Iron Co., 64 Fed. 237; Travers v. American Cordage Co., 64 Fed. 771; Clinton Wire-Cloth Co. v. Wright, etc., Co., 65 Fed. 425; Ex parte Young, 46 O. G. 1635; Ex parte Bulz, 67 O. G. 677; Celluloid Mfg. Co. v. Arlington Mfg. Co., 52 Fed. 740, 3 C. C. A. 269; Appleton v. Ecaubert, 67 Fed. 917, 15 C. C. A. 730; Lalance, etc., Mfg. Co. v. Haberman Mfg. Co., 8 C. C. A. 53, 59 Fed. 143; Vermont Farm Machine Co. v. Gibson, 5 C. C. A. 451, 56 Fed. 143; Guarantee Trust, etc., Deposit Co. v. New Haven Gas-Light Co., 39 Fed. 268; Ex parte Rudd, 68 O. G. 535; Ex parte Holt, 68 O. G. 536.

An early example of a similar claim found patentable is the English case of Russell v. Cowley, 1 Web. P. C. 459, Exchequer N. P. Feb. 14, 1834, in which the following claim was interpreted as a process and sustained in that and subsequent suits, and the process of the defendant, though carried out by a different apparatus, was held an infringement:

"The principle of my invention is to heat the previously proposed tubes of iron to a welding heat, that is, nearly to the point of fusion, and then, after withdrawing them from the fire, to pass them between dies or through holes, by which the edges of the heated iron may be pressed together, and the joint firmly welded."

In Globe Nail Co. v. United States Horse Nail Co.,supra, the following claim was sustained, and the case accepted as an authority:

"The process of curving the bodies of nails and beveling their points by spreading the metal laterally and afterwards forcing them through an open die to shear off superfluous metal, substantially as and for the purpose specified."

These are claims somewhat of the order of Corning v. Burden, New Process v. Maus (infra), and Lawther v. Hamilton. Some idea, therefore, may be had of the surprise with which the men of the patent world read the following case of Risdon v. Medart and of the interest with which they followed the subsequent reduction of this case by the Supreme Court in Westinghouse v. Boyden, and the manner in which Risdon v. Medart was disregarded by the other courts and the patent office, and its final overthrow in the Expanded Metal case.]

66. RISDON IRON, ETC., WORKS v. MEDART, 158 U. S. 68, 39 L. ed. 899, 15 Sup. Ct. 745, (1894, Patent No. 248,599).

Mr. Justice Brown delivered the opinion of the Court.

The three patents involved in this suit are for an improved belt-

pulley, and for the manufacture of the same. Each of them requires a separate consideration.

First. Patent No. 248,599 is for an improved process of manufacturing that class of belt-pulleys formed of a wrought-metal rim and a separate center, usually a spider, and usually made of cast metal. The drawings represent the machinery for carrying out the invention, and the pulley at the various stages of its manufacture. The process of manufacture is set forth in detail in the specification, and consists of the following steps: first, centering the pulley center or spider; second, grinding the ends of the arms concentrically with the axis of the pulley; third, boring the center; fourth, securing the rim to the spider; fifth, grinding the face of the rim concentric with the axis of the pulley; sixth, grinding or squaring the edges of the rim. This process, it may be observed, is purely a mechanical one.

Does it disclose a patentable invention? That the patent is for a process in manufacture, and not for the mechanism employed, nor for the finished product of such manufacture, is undeniable, and is so expressed upon the face of the specification.

The four claims of the patent make no reference to the mechanism exhibited in the drawings, and described in the specification. All claim an improvement in the art of manufacturing, and set forth in more or less detail the various steps in that process. That certain processes of manufacture are patentable is as clear as that certain others are not, but nowhere is the distinction between them accurately defined. There is somewhat of the same obscurity in the line of demarkation as in that between mechanical skill and invention, or in that between a new article of manufacture, which is universally held to be patentable, and the function of a machine, which it is equally clear is not.

It may be said in general that processes of manufacture which involve chemical or other similar elemental action are patentable, though mechanism may be necessary in the application or carrying out of such process, while those which consist solely in the operation of a machine are not. Most processes which have been held to be patentable require the aid of mechanism in their practical application, but where such mechanism is subsidiary to the chemical action, the fact that the patentee may be entitled to a patent upon his mechanism does not impair his right to a patent for the process; since he would lose the benefit of his real discovery, which might be applied in a dozen different ways, if he were not entitled to such patent. But, if the operation of his device be purely mechanical, no such considerations apply, since the function of the machine is entirely independent of any chemical or other similar action.

A review of some of the principal cases upon the subject of patents for processes may not be out of place in this connection, and will

serve to illustrate the distinction between such as are and such as are not patentable. * * *

The first case in this Court in which a claim for a process received attentive consideration was the great case of O'Reilly v. Morse, (15 How. 62), involving the validity of the patent to Morse for an electric telegraph. This patent contained eight claims, all of which, except the last, were for the machinery by which the electricity was transmitted and the message recorded. The eighth claim was for the use of the electric current as a motive power, however developed, for marking or printing intelligible characters at any distance. This claim was held to be too broad and not warranted by law, the Court being of opinion that the allowance of such a claim would shut the door against the inventions of other persons, and enable the patentee to avail himself of any new discoveries in the properties and powers of electricity which scientific men might bring to light. In delivering the opinion of the Court Mr. Chief-Justice Taney observed:

"Whoever discovers that a certain useful result will be produced in any art, machine, manufacture, or composition of matter, by the use of certain means, is entitled to a patent for it; provided he specifies the means he uses in a manner so full and exact that any one skilled in the science to which it appertains can, by using the means he specifies, without any addition to, or subtraction from them, produce precisely the result he describes. And if this cannot be done by the means he describes the patent is void. And if it can be done, then the patent confers on him the exclusive right to use the means he specifies to produce the result or effect he describes and nothing more. And it makes no difference, in this respect, whether the effect is produced by chemical agency or combination; or by the application of discoveries or principles in natural philosophy known or unknown before his invention; or by machinery acting altogether upon mechanical principles. In either case he must describe the manner and process as above mentioned, and the end it accomplishes. And any one may lawfully accomplish the same end without infringing the patent, if he uses means substantially different from those described."

In view of some of our later decisions it may be questioned whether the language used by the Chief Justice in some portions of this paragraph may not be broader than these cases would justify, since patents for processes involving chemical effects or combinations have been repeatedly held to be valid. Thus in Mowry v. Whitney (14 Wall. 620), a patent was sustained for an improved process for manufacturing cast-iron railroad-wheels, by retarding their cooling by a second application of heat, until all parts of the wheel were raised to the same temperature, and then permitting the heat to subside gradually. So in Cochrane v. Deener (94 U. S. 780), a patent to Cochrane for a process in manufacturing flour, which consisted in passing the ground meal through a series of bolting-reels

composed of cloth of progressively finer meshes, and at the same time subjecting the meal to blasts or currents of air, by which the superfine flour was separated and the impurities were so eliminated as to be capable of being reground and rebolted, so as to produce superfine flour, was held to be valid, and the patentee not limited to any special arrangement of machinery. In delivering the opinion of the Court, Mr. Justice Bradley observed:

"That a process may be patentable, irrespective of the particular form of the instrumentalities used, cannot be disputed. * * * A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed, and reduced to a different state or thing. If new and useful, it is just as patentable as a piece of machinery. In the language of patent law, it is an art. The machinery pointed out as suitable to perform the process may or may not be new or patentable; whilst the process itself may be altogether new and produce an entirely new result. The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence."

It will be observed in this case that the process for which the patent was sustained was not chemical in its nature, but, as stated in the opinion of the Court, was a series of acts performed upon the subject-matter to be transformed and reduced to a different state or thing.

In Tilghman v. Proctor (102 U. S. 707), a patent for a process for separating the component parts of fats and oils, so as to render them better adapted to the uses of the arts, or, as stated in the claim, "the manufacturing of fat acids and glycerine from fatty bodies by the action of water at a high temperature and pressure," was sustained. The case of O'Reilly v. Morse was distinguished as not a patent for a process, but for a mere principle.

"If the mode of doing it (said Mr. Justice Bradley), or the apparatus in or by which it may be done, is sufficiently obvious to suggest itself to a person skilled in the particular art it is enough, in the patent, to point out the process to be performed, without giving supererogatory directions as to the apparatus or the method to be employed."

In New Process Fermentation Company v. Maus (122 U. S. 413), a patent was sustained for preparing and preserving beer for the market, which consisted in holding it under controllable pressure of carbonic-acid gas from the beginning of the kraeusen stage until such time as it is transferred to kegs and bunged. The process was strictly a chemical one, and was patentable within all the authorities upon the subject, although the mechanism by which the process was applied was also set forth in the patent.

Undoubtedly, the most important case in which a patent for process was considered was that of the Bell Telephone, 126 U. S. 1, in which a claim was sustained for—

"the method of, and apparatus for, transmitting vocal and other sounds telegraphically * * * by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds, substantially as set forth."

The case of O'Reilly v. Morse was again commented on and distinguished, Mr. Chief-Justice Waite remarking:

"In the present case the claim is not for the use of a current of electricity in its natural state as it comes from the battery, but for putting a continuous current in a closed circuit into a certain specified condition suited to the transmission of vocal and other sounds, and using it in that condition for that purpose. * * * We see nothing in Morse's case to defeat Bell's claim; on the contrary, it is in all respects sustained by that authority. It may be that electricity cannot be used at all for the transmission of speech except in the way Bell has discovered, and that therefore, practically, his patent gives him its exclusive use for that purpose, but that does not make his claim one for the use of electricity distinct from the particular process with which it is connected in his patent."

See also American Bell Telephone Co. v. Dolbear, 15 Fed. 448.

It will be observed that, in all these cases, the process was either a chemical one, or consisted in the use of one of the agencies of nature for a practical purpose.

It is equally clear, however, that a valid patent cannot be obtained for a process which involves nothing more than the operation of a piece of mechanism, or, in other words, for the function of a machine. The distinction between the two classes of cases nowhere better appears than in the earliest reported case upon that subject, viz., Wyeth v. Stone, 1 Story 273, in which the patentee claimed as his invention the cutting of ice of a uniform size by means of an apparatus worked by any other power than human. This was said to be a claim for an art or principle in the abstract, and not for any particular method or machinery by which ice was to be cut, and to be unmaintainable in point of law, although the patent was held to be good for the machinery described in the specification.

The leading case in this Court is that of Corning v. Burden, 15 How. 252, decided at the same term with that of O'Reilly v. Morse. The patent was for a new and useful machine for rolling puddler's balls and other masses of iron, in the manufacture of iron. Upon the trial the court below charged the jury that the patent was for a new process, mode, or method for converting puddler's balls into blooms by continuous pressure and rotation of the balls between converging surfaces. Upon appeal to this Court, however, the patent was held to be one for a machine, and, in delivering the opinion of the Court,

Mr. Justice Grier stated with great clearness the difference between such processes as were patentable and such as involved merely mechanical operation. * * * [See infra.]

Although the cases are not numerous, this distinction between a process and a function has never been departed from by this Court, and has been accepted and applied in a large number of cases in the circuit courts. The following processes have been held not to be patentable: an improvement in sewing-machines, by which the soles and uppers of boots and shoes could be sewed together without any welt by a certain kind of stitches, McKay v. Jackman, 12 Fed. Rep. 615; a process for washing shavings in breweries, Brainard v. Cramme, 12 Fed. Rep. 621; for an improved method of treating seed by steam, Gage v. Kellogg, 23 Fed. Rep. 891; a process for crimping heel-stiffenings of boots and shoes, Hatch v. Moffitt, 15 Fed. Rep. 253. See also Sickles v. Falls Company, 4 Blatchf. 508; Excelsior Needle Co. v. Union Needle Co., 32 Fed. Rep. 221.

The patent in question clearly falls within this category. As already shown, it is upon its face "for an improved process of manufacture," and mechanism is shown and described simply for the purpose of exhibiting its operation, which is described in detail. The result is a pulley more perfectly balanced, more faultless in shape, stronger and more durable, perhaps, than any before produced; but this was not because the patentee had discovered anything new in the result produced, but because the mechanism was better adapted to produce that result than anything that had before been known. As pulleys of that description had been produced before, doubtless, with greater care in the manufacture of them, a pulley as perfect as his might have been made. So that all that he invented in fact was a machine for the more perfect manufacture of such pulleys. The operation or function of such machine, however, is not patentable as a process.

Second Patent No. 248,598, granted upon the same day, is obviously, though not in so many words, for the product of the mechanical process described in the patent just disposed of—in other words, for a belt-pulley made substantially in the manner detailed in that patent. In his specification the patentee states that his invention—"consists in a pulley which is perfectly true and accurately balanced—that is, a pulley in which the center of gravity and geometrical center or axis coincide."

He further states that all the prior belt-pulleys had been open to the objection of not having been accurately balanced, a defect inherent in their structure.

"Thus, while cast pulleys are of accurate shape, they cannot be practically produced of perfect balance, owing to the irregularity of the weight of the metal at different portions of the rim, and to contraction in cooling; and where pulleys of similar character to

that herein shown have been made, the spiders have not been properly prepared—that is, the spiders have not been operated upon so as to make the ends of their arms exactly concentric with the true center or axis of the pulley * * * The spider, however made, will be slightly imperfect in shape, and unless the irregularities are cured before applying the rim, the completed pulley will not be accurately balanced."

After detailing the advantages of having the pulleys perfectly balanced and shaped with absolute accuracy, and setting forth in general terms the manner of securing this by grinding the rim concentrically with the axis, he claims, first—

"the improved belt-pulley herein described, having the ends of the spider-arms ground off concentrically with the axis of the pulley;" and second, the same pulley with the rim and the ends of the spider-arm ground off concentrically.

Obviously the patent in question is not for a new device, nor for a new combination of old devices. It contains precisely the elements of every other belt-pulley, and operates in substantially the same way. It is in reality a patent for a belt-pulley which differs from other belt-pulleys only in the fact that the rim and ends of the spider-arms are ground off concentrically with the axis. Obviously this is not a patentable feature. The claims state in substance that the belt-pulley must be made in a peculiar way, which is equivalent to saying that it must be made by a peculiar process; in other words, that it is a product of a mechanical process, which we have already held not to be patentable. The only object in having the ends of the spider-arms ground off concentrically with the axis of the pulley is that the rim may be concentric with such axis. This, however, is necessary in every pulley, and if the patented pulley be superior to others in this particular, it is because its workmanship is superior, and because it is made so by a superior process of manufacture. The specification states in substance that this belt-pulley is superior to every other because it is better made, more perfectly balanced, and is one in which the center of gravity and geometrical center, or axis, coincide. It is said that such perfection of balance can only be obtained by the process described in the prior patent, viz., by grinding off the ends of the spider-arms; but it does not follow that some other person may not, by another process, or by greater care or superior skill or deftness in the handling of tools, manufacture a pulley which shall be equal to this. But if this patent be valid, he would be an infringer in so doing, though he employed no mechanism whatever in the manufacture of such pulley, and did the work entirely with his own hands, if only he ground off the ends of the spider arms.

In short, this is a patent only for superior workmanship, and within all the authorities is invalid. This Court has repeatedly stated

that all improvement is not invention. If a certain device differs from what precedes it only in superiority of finish, or in greater accuracy of detail, it is but the carrying forward of an old idea, and does not amount to invention. Thus, if it had been customary to make an article of unpolished metal, it does not involve invention to polish it. If a telescope had been made with a certain degree of power, it involves no invention to make one which differs from the other only in its having greater power. If boards had heretofore been planed by hand, a board better planed by machinery would not be patentable, although in all these cases the machinery itself may be patentable. * * *

[Citing Smith v. Nichols, Pickering v. McCullough, Burt v. Evory and Wooster v. Calhoun.] * * *

As the first claim does not describe a pulley which differs at all in its completed state from prior pulleys, it is clearly invalid.

The second claim is for a belt-pulley provided with wooden arms and a cast-iron hub with sockets and bracket-lugs, for the attachment of the rim. But as this claim was not found by the court below to have been infringed, it is not necessary to consider it.

For the reasons above given we think all these patents are invalid, and that the demurrer to the bill should have been sustained, except perhaps so far as the second claim of the last patent is concerned.

Medart may or may not have been entitled to a patent for the machinery employed in the manufacture of the belt-pulleys in question; but he certainly was not entitled to a patent for the function of such machine, nor to the completed pulley, which differed from the prior ones only in its superior workmanship.

The decree of the court below must, therefore, be reversed, and the case remanded to the circuit court, with directions to dismiss the bill.

67. WESTINGHOUSE v. BOYDEN, 170 U. S. 537, 42 L. ed. 1136, 18 Sup. Ct. 707 (1897, Patent No. 360,070).

Mr. Justice Brown delivered the opinion of the Court.

The history of arresting the speed of railway trains by the application of compressed air is one, to which the records of the Patent Office bear frequent witness, of a gradual progress from rude and imperfect beginnings, step by step, to a final consummation, which, in respect to this invention, had not been reached when the patent in suit was taken out, and which, it is quite possible, has not been reached to this day. It is not disputed that the most important steps in this direction have been taken by Westinghouse himself.

The original substitution of the air-brake for the old hand-brake was itself almost a revolution, but the main difficulty seems to have arisen in the subsequent extension of that system to long trains of

freight-cars, in securing a simultaneous application of brakes to each of perhaps forty or fifty cars in such a train, and finally in bringing about the instantaneous as well as simultaneous application of such brakes in cases of emergency, when the speediest possible stoppage of the train is desired to avoid a catastrophe. * * *

[Then discusses patents Nos. 88,929, 124,404, 141,685, 163,242, 144,006, 168,359, 217,838, 220,556.] * * *

From this description it will be seen that the action of the automatic brake was, in fact, the converse of that of the straight air-brake, and that the result was to obviate the most serious defects which had attended the employment of the former.

This automatic brake appears, in its perfected form, in Patent No. 220,556, although this patent was but the culmination of a series of experiments, each successive step in which appears in the prior patents. * * *

He embodied in Patent No. 220,556, (1879), the most complete form of the automatic brake, as stated by the court below—

"the ordinary work of braking was performed by a partial traverse of its chamber by the triple-valve piston, graduated according to the purpose desired, at the will of the engineer, and emergency work was done by an extreme traverse of the piston to the end of its chamber."

While the automatic brake had thus obviated the most important defects of the old or straight air-brake, and came into general use upon passenger-trains, throughout the country, it was found, in practice upon long freight-trains, that the air from the auxiliary reservoirs did not act with sufficient promptness upon the brakes of the rear cars, where a particularly speedy action was required, and that it would be necessary to devise some other means for cases of special emergency. In the business of transporting freight over long distances, the tendency has been in the direction of increasing the load by using stronger and heavier cars and larger locomotives. Upon a long train of this kind, composed of thirty to fifty cars, a demand was made for quicker action in cases of emergency than had yet been contemplated, although for ordinary work, such as checking the speed of a train while running, holding it at a slow speed on a downgrade, and also for making the ordinary station stops, the automatic brake was still sufficient, and produced satisfactory results even in the equipment of long and heavy trains. But however effective for ordinary purposes, the automatic brake did not sufficiently provide for certain emergencies, requiring prompt action, and, therefore, failed in a single important particular.

Upon examination of these defects it was found that they could only be remedied by securing (1) in cases of emergency, a more abundant discharge of compressed air into the brake-cylinder; and (2) an escape of air near to each triple valve without requiring the

escaping air to travel all the way back to the engine. The latter device having been already embodied in Patent No. 217,838, these features Mr. Westinghouse introduced into the patent in suit, by which a passage was opened directly from the train-pipe, filled from the main reservoir on the engine, to the brake-cylinder through which, in cases of emergency, the train-pipe air, instead of being discharged into the atmosphere, could pour directly from the train pipe into the brake-cylinder. This operation resulted in charging the brake-cylinder and applying the brakes more quickly than before, and also, by reason of the fact that the filling of the brake-cylinder from the train-pipe on one car made what was, in effect, a local vent for the release of pressure sufficient to operate the valve on the next car behind, each successive valve operated more quickly than when a diminution of pressure was caused by an escape of air only at the locomotive. * * *

We are now in position to take up the several claims of the patent in suit, and their defenses thereto. It may be stated generally that the position of complainants in this connection is, that the novel feature of this patent, in respect to which they are entitled to be protected, is the opening of a passage directly from the train-pipe to the brake-cylinder, without passing through the auxiliary reservoir and without reference to the means by which such passage-way is controlled. Defendant's theory is that they are limited to such passage-way when governed by the auxiliary valve 41, a device which, although of no utility as arranged in the patent in suit, became afterward exceedingly useful when further combined with the supplementary piston shown in Patent No. 376,837. The further inference is that, as they do not use the auxiliary valve of this patent, they cannot be held liable as infringers.

Complainant's case must rest either upon the theory that the admission of compressed air directly from the train-pipe to the brake-cylinder is patentable as a function, or that the means employed by the defendants for that purpose are a mechanical equivalent for the auxiliary valve 41, described in the patent.

1. The first theory is based upon the second claim, which is—

"in a brake mechanism, the combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, and a triple valve having a piston, whose preliminary traverse admits air from the auxiliary reservoir to the brake-cylinder, and which by a further traverse admits air directly from the main air-pipe to the brake-cylinder, substantially as set forth."

In the construction of this claim, the district judge was of opinion that it was broad enough to cover other devices in which air was admitted directly from the train-pipe to the brake-cylinder by the further traverse of the piston actuating a valve admitting such air, and that the defendants could not exculpate themselves from the charge

of infringement, from the fact that in their device the train-pipe air was admitted through the triple-valve chamber, and not through a by-passage, nor by the fact that in their device the further traverse of the piston opens the main valve in a special manner, which produces the same result, but does not make use of a separate auxiliary valve.

Upon the other hand, the Circuit Court of Appeals held that—

"the transmission of train-pipe air and auxiliary-reservoir air simultaneously to the brake-cylinder is a result of [or] function, and is not patentable; [that] the means by which this or any other result or function is accomplished may be many and various, and if these several means are not mechanical equivalents, each of them is patentable."

It was of opinion that when the second claim—

"in its language describing the action of that device, failed to describe any means by which the extreme traverse of the piston produced it, declaring merely that the piston, 'by a further traverse, admits air directly from the main air-pipe to the brake-cylinder,' it was fatally defective, claiming only a result which is public property, and not identifying the specific means (his own property) by which the result is achieved."

It is true, as observed by the Court of Appeals, that the further traverse of the piston for use in cases of emergency had been shown in prior patents, but it had never been employed for the purpose of admitting air directly from the main air-pipe to the brake-cylinder until the patent in suit was taken out.

The claim in question is, to a certain extent, for a function, viz., the admission of air directly from the train-pipe to the brake-cylinder, and is only limited to such function when performed by the further traverse of the piston of the triple valve. This limitation, however, does not obviate the objection that the means are not fully and specifically set forth for the performance of the function in question.

The difficulty we have found with this claim is this: That, if it be interpreted simply as a claim for the function of admitting air to the brake-cylinder directly from the train-pipe, it is open to the objection, held in several cases to be fatal, that the mere function of a machine cannot be patented.

This rule was clearly laid down in the leading case of Corning v. Burden, 15 How. 252, in which Mr. Justice Grier, delivering the opinion of the Court, drew the distinction between such processes as were the result or effect of—

"chemical action, by the operation or application of some element or power of nature, or of one substance to another,"

and the mere result of the operation of a machine. * * *

In the subsequent case of Burr v. Duryee, 1 Wall. 531, 570, Mr. Justice Grier laid down the same principle as follows: * * * [See infra.]

So also in Fuller v. Yentzer, 94 U. S. 288, this Court, speaking through Mr. Justice Clifford, also said:

"Patents for a machine will not be sustained if the claim is for a result, the established rule being that the invention, if any, within the meaning of the patent act, consists in the means or apparatus by which the result is obtained, and not merely in the mode of operation independent of the mechanical devices employed; nor will a patent be held valid for a principle or for an idea, or any other mere abstraction."

Most of the prior authorities upon this subject are reviewed in the recent case of Risdon Locomotive Works v. Medart, 158 U. S. 68, in which it was also held that a valid patent could not be obtained for a process which involved nothing more than the operation of a piece of mechanism, or the function of a machine. See also to the same effect Wicke v. Ostrum, 19 O. G. 867; 103 U. S. 461, 469. These cases assume, although they do not expressly decide, that a process to be patentable must involve a chemical or other similar elemental action, and it may be still regarded as an open question whether the patentability of processes extends beyond this class of inventions. Where the process is simply the function or operative effect of a machine, the above cases are conclusive against its patentability; but where it is one which, though ordinarily and most successfully performed by machinery, may also be performed by simple manipulation, such, for instance, as the folding of a paper in a peculiar way for the manufacture of paper bags, or a new method of weaving a hammock, there are cases to the effect that such a process is patentable, though none of the powers of nature be invoked to aid in producing the result. (Eastern Paper-Bag Co. v. Standard Paper-Bag Co., 30 Fed. Rep. 63; Union Paper-Bag Machine Co. v. Waterbury, 39 Ib. 389; Travers v. Am. Cordage Co., 64 Ib. 771.) This case, however, does not call for an expression of our opinion upon this point, nor even upon the question whether the function of admitting air directly from the train-pipe to the brake-cylinder be patentable or not, since there is no claim made for an independent process in this patent, and the whole theory of the specification and claims is based upon the novelty of the mechanism.

But if the second claim be not susceptible of the interpretation that it is simply for a function, then the performance of that function must be limited to the particular means described in the specification for the admission of air from the train pipe to the brake-cylinder. This we understand to be the theory of the defendants, and this raises the same question which is raised under the first and fourth claims, whether defendants' device contains the auxiliary valve of the Westinghouse patent, or its mechanical equivalent.

In this view, it becomes unnecessary to express an opinion whether the second claim be valid or not, since in the aspect of the

case most favorable to the complainants, it is necessary to read into it something which is not found there, or, in the language of complainant's brief—

"to refer back to the specification; not, it is true, for a slavish adoption of the identical instrumentalities therein described, but for the understanding of the essential and substantial features of the means therein illustrated."

In thus reading the specification into the claim, we can adopt no other construction than to consider it as if the auxiliary valve were inserted in the claim in so many words, and then to inquire whether the defendants make use of such valve, or its mechanical equivalent.

There are two other facts which have a strong bearing in the same connection, and preclude the idea that this can be interpreted as a claim for a function, without reading into it the particular device described in the specification.

One of these is that the claim is for a triple-valve device, etc., for admitting air from the main air-pipe to the brake-cylinder, "substantially as set forth." These words have been uniformly held by us to import into the claim the particulars of the specification, or, as we said in Seymour v. Osborne (11 Wall. 516, 547)—

"where the claim immediately follows the description of the invention, it may be construed in connection with the explanations contained in the specifications; and where it contains words referring back to the specifications, it cannot be properly construed in any other way."

In that case it was held that a claim which might otherwise be bad, as covering a function or result, when containing the words "substantially as described," should be construed in connection with the specification, and when so construed was held to be valid. To the same effect is The Corn Planter Patent, 23 Wall. 181-218.

Again, it appears from the file-wrapper and contents, that in his original application Mr. Westinghouse made a broad claim for the admission of air directly from the main air-pipe to the brake-cylinder, which was rejected upon reference to a prior patent to Boyden, No. 280.285, and that on January 19, 1887, his attorney wrote the patent-office in the following terms:

* * *

[Here follow extracts from file.]

We agree with the defendant that this correspondence, and the specification as so amended, should be construed as reading the auxiliary valve into the claim, and as repelling the idea that this claim should be construed as one for a method or process. Language more explicit upon this subject could hardly have been employed.

While it is true that no claim is formally made for the admission of train-pipe air directly to the brake-cylinder as a method or pro-

cess, a construction is given by the complainants and the circuit court to the second claim which eliminates the mechanical features described, and one which could only be supported upon the theory that the claim was for a method or process. If the mechanism described by Westinghouse, and particularly the auxiliary valve, be not essential to the validity of the second claim, then it could only be supported upon the theory that it was for the process of admitting train-pipe air directly to the brake-cylinder.

2. The first and fourth claims of this patent are as follows:

"1. In a brake mechanism, the combination of a main air-pipe, an auxiliary reservoir, a brake-cylinder, a triple valve, and an auxiliary-valve device, actuated by the piston of the triple valve and independent of the main valve thereof, for admitting air in the application of the brake directly from the main air-pipe to the brake-cylinder, substantially as set forth.

4. The combination, in a triple-valve device, of a case or chest, a piston fixed upon a stem and working in a chamber therein, a valve moving with the piston-stem and governing ports and passages in the case leading to connections with an auxiliary reservoir and a brake-cylinder and to the atmosphere, respectively, and an auxiliary valve actuated by the piston-stem and controlling communication between passages leading to connections with a main air-pipe and with the brake-cylinder, respectively, substantially as set forth."

These two claims are practically little more than different expressions of one and the same invention. In both of them there is a main air-pipe, an auxiliary reservoir, a brake-cylinder, a triple valve and piston, described in the fourth claim as "fixed upon a stem and working in a chamber" in a case or chest, and an auxiliary valve; and in the fourth claim also a case or chest, which contains the whole device, and is immaterial.

In both of these claims an auxiliary valve is named as an element. In the first it is described as "actuated by the piston of the triple valve and independent of the main valve thereof;" and in the fourth as "actuated by the piston-stem and controlling communication between passages leading to connections with the main air-pipe and with the brake-cylinder."

To what liberality of construction these claims are entitled depends to a certain extent upon the character of the invention, and whether it is what is termed in ordinary parlance a "pioneer." This word, although used somewhat loosely, is commonly understood to denote a patent covering a function never before performed, a wholly novel device, or one of such novelty and importance as to mark a distinct step in the progress of the art, as distinguished from a mere improvement or perfection of what had gone before. Most

conspicuous examples of such patents are: the one to Howe of the sewing-machine; to Morse of the electrical telegraph; and to Bell of the telephone. The record in this case would indicate that the same honorable appellation might be safely bestowed upon the original air-brake of Westinghouse, and, perhaps also, upon his automatic brake. In view of the fact that the invention in this case was never put into successful operation, and was to a limited extent anticipated by the Boyden patent of 1883, it is perhaps an unwarrantable extension of the term to speak of it as a "pioneer," although the principle involved subsequently and through improvements upon this invention became one of great value to the public. The fact that this invention was first in the line of those which resulted in placing it within the power of an engineer, running a long train, to stop in about half the time and half the distance within which any similar train had stopped, is certainly deserving of recognition, and entitles the patent to a liberality of construction which would not be accorded to an ordinary improvement upon prior devices. At the same time, as hereinafter observed, this liberality must be exercised in subordination to the general principle above stated; that the function of a machine cannot be patented, and, hence, that the fact that the defendants' machine performs the same function is not conclusive that it is an infringement.

The device made use of by the defendants is exhibited in Patents Nos. 481,134 and 481,135, both dated August 16, 1892, and both of which were granted after the commencement of this suit. * * *

In both the complainants' and defendants' devices there is (1) a feeding-in valve to charge the auxiliary reservoir; (2) a valve which complainants call their "main valve," and which the defendants denominate a "graduating valve," which is opened by the preliminary traverse of the piston to admit reservoir-air to the brake-cylinder; (3) a release-valve which discharges air from the brake-cylinder to the atmosphere; and (4) a quick-action valve—41 in the complainants' patent, and 22 in the defendants'—which is opened by the further traverse of the piston to admit train-pipe air to the brake-cylinder. In defendants' patent, it may also be used to admit auxiliary-reservoir air to the brake-cylinder. * * *

As the graduating-valve of the Boyden patent practically does all the work in ordinary cases, and the puppet-valve is only called into action in emergency cases, the latter is practically an auxiliary valve, by which, we understand, not necessarily an independent valve, nor one of a particular construction, but simply a valve which in emergency cases is called into the assistance of the graduating valve. In this particular, the puppet-valve of the Boyden device performs practically the same function as the slide-valve 41 of the Westinghouse. It is not material in this connection that it is a puppet-valve, while the other is a slide-valve, since there is no invention in sub-

stituting one valve or spring of familiar shape for another; (Imhaeuser v. Buerk, 101 U. S., 647, 656;) nor, that in one case the piston pushes the valve off its seat, and in the other pulls it off; nor is it material that this puppet-valve may have been used in prior patents to perform the function of a main valve, so long as it is used for a different purpose here. Indeed, this valve seems to have been taken bodily from Westinghouse patent No. 141,685, where it was used as a main valve, and the stem-valve 18 with its ports *i*, *j*, *k*, added for ordinary uses, and the puppet-valve thus converted from a main valve to an auxiliary valve. * * *

But even if it be conceded that the Boyden device corresponds with the letter of the Westinghouse claims, that does not settle conclusively the question of infringement. We have repeatedly held that a charge of infringement is sometimes made out, though the letter of the claims be avoided. (Machine Co. v. Murphy, 13 O. G., 366; 97 U. S. 120; Ives v. Hamilton, 92 U. S. 341; Morey v. Lockwood, 8 Wall. 230; Elizabeth v. Pavement Company, 97 U. S. 137; Sessions v. Romadka, 145 U. S. 29; Hoyt v. Horne, 145 U. S. 302.) The converse is equally true. The patentee may bring the defendant within the letter of his claims, but if the latter has so far changed the principle of the device that the claims of the patent, literally construed, have ceased to represent his actual invention, he is as little subject to be adjudged an infringer as one who has violated the letter of a statute has to be convicted, when he has done nothing in conflict with its spirit and intent.

"An infringement [says Mr. Justice Grier in Burr v. Duryee, 1 Wall, 531, 572] involves substantial identity, whether that identity be described by the terms 'same principle,' same 'modus operandi,' or any other. * * * The argument used to show infringement assumes that every combination of devices in a machine which is used to produce the same effect, is necessarily an equivalent for any other combination used for the same purpose. This is a flagrant abuse of the term 'equivalent.'"

We have no desire to qualify the repeated expressions of this court to the effect that, where the invention is functional, and the defendant's device differs from that of the patentee only in form, or in a rearrangement of the same elements of a combination, he would be adjudged an infringer, even if, in certain particulars, his device be an improvement upon that of the patentee. But, after all, even if the patent for a machine be a pioneer, the alleged infringer must have done something more than reach the same result. He must have reached it by substantially the same or similar means, or the rule that the function of a machine cannot be patented is of no practical value. To say that the patentee of a pioneer invention for a new mechanism is entitled to every mechanical device which produces the same result is to hold, in other language, that he is en-

titled to patent his function. Mere variations of form may be disregarded, but the substance of the invention must be there. As was said in Burr v. Duryee (1 Wall. 531, 573), an infringement—

"is a copy of the thing described in the specifications of the patentee, either without variation, or with such variations as are consistent with its being in substance the same thing. If the invention of the patentee be a machine, it will be infringed by a machine which incorporates in its structure and operation the substance of the invention; that is, by an arrangement of mechanism which performs the same service or produces the same effect in the same way, or substantially the same way. * * * That two machines produce the same effect will not justify the assertion that they are substantially the same, or that the devices used are, therefore, mere equivalents for those of the other."

Not only is this sound as a general principle of law, but it is peculiarly appropriate to this case. Under the very terms of the first and fourth claims of the Westinghouse patent, the infringing device must not only contain an auxiliary valve, or its mechanical equivalent, but it must contain the elements of the combination, "substantially as set forth." In other words, there must not only be an auxiliary valve, but substantially such a one as is described in the patent, i. e., independent of the triple valve. Not only has the Boyden patent a puppet instead of a slide valve—a matter of minor importance—but it performs a somewhat different function. In the Westinghouse patent the valve is not in the line of travel between the auxiliary reservoir and the brake-cylinder, and admits train-pipe air only. In the Boyden patent, it is in the line of travel, both from the auxiliary reservoir and from the train-pipe, and admits both currents of air to the brake-cylinder. The by-passage, to which the auxiliary reservoir is merely an adit, is wholly wanting in the Boyden device, both currents of air uniting in chamber C and passing to the brake-cylinder together, through the puppet-valve.

But a much more radical departure from the Westinghouse patent is found in the partition 9, separating the valve-chamber C from the piston-chamber D. * * *

Conceding that the function of the two devices are practically the same, the means used in accomplishing this function are so different that we find it impossible to say, even in favor of a primary patent, that they are mechanical equivalents. While the puppet-valve, which, for the purposes of this case, we may term the auxiliary valve, is in its operation independent of the main valve, the word "independent" in the claims of the Westinghouse patent evidently refers to a valve auxiliary to the triple valve, and independently located as well as operated. The difference is that in one case the air from the train-pipe is introduced into the brake-cylinder separately and independently from the air from the auxiliary reservoir;

while in the other case they unite in the chamber C and pass through the same valve to the brake-cylinder. In the Westinghouse patent there is one valve operated by the direct thrust of the piston, opening a by-passage, in the other, there is a puppet-valve also opened by the piston, and another valve, 26, opened by the pressure maintained upon the outside of the partition 9.

It is claimed, however, by the complainants that Boyden was not the inventor of the differential pressure theory; that there is such a differential pressure in their own patent, caused by the fact that the air from the auxiliary reservoir in passing to the brake-cylinder travels through a restricted port, 35, and, as the entrance to the brake-cylinder is through a much larger port, the air is taken up by it much more rapidly than it is supplied by the restricted port, which reduces the pressure in the by-passage so much that when the quick-action valve 41 is opened, the pressure from the train-pipe air is sufficient to open the valve 49 and admit a full volume of train-pipe air, at a pressure of fifty-five pounds, to the brake-cylinder. The fact, however, that no suggestion is made in the patent of such a function of the restricted port 35, indicates either that none such had been discovered, or that it was not considered of sufficient importance to mention it. Indeed, it seems to have been an afterthought, suggested by the necessity of an answer to the defendants' argument, based upon their partition 9. That when the auxiliary valve is opened there must be a difference in pressure above and below the check-valve 49, in order to open it, is manifest; yet, this is rather an incident to the Westinghouse device than the controlling feature that it is made in the Boyden patent. There is no partition in the proper sense of the word—certainly none located as in the Boyden device—between the chambers D and C, and no aperture in such partition opened for the express purpose of maintaining this differential pressure. If such differential pressure existed to the extent claimed in the Westinghouse patent, it certainly was not productive of the results flowing from the same device in the Boyden patent.

We are induced to look with more favor upon this device, not only because it is a novel one and a manifest departure from the principle of the Westinghouse patent, but because it solved at once in the simplest manner the problem of quick action, whereas the Westinghouse patent did not prove to be a success until certain additional members had been incorporated into it. The underlying distinction between the two devices is that in one, a separate valve and separate by-passage are provided for the train-pipe air, while in the other, the patentee has taken the old triple (or quadruple) valve, and by a slight change in the functions of two of its valves and the incorporation of a new element (partition 9), has made a more perfect brake than the one described in the Westinghouse patent. If

credit be due to Mr. Westinghouse for having invented the function, Mr. Boyden has certainly exhibited great ingenuity in the discovery of a new and more perfect method of performing such function. If his patent be compared with the later Westinghouse patent No. 376,837, which appears to have been the first completely successful one, the difference between the two, both in form and principle, becomes still more apparent, and the greater simplicity of the Boyden patent certainly entitles it to a favorable consideration. If the method pursued by the patentee for the performance of the function discovered by him would naturally have suggested the device adopted by the defendants, that is in itself evidence of an intended infringement; but, although Mr. Boyden may have intended to accomplish the same results, the Westinghouse patent, if he had had it before him, would scarcely have suggested the method he adopted to accomplish these results. Under such circumstances, the law entitles him to the rights of an independent inventor.

Upon careful consideration of the testimony we have come to the conclusion that the Boyden device is not an infringement of the complainants' patent, and the decree of the Circuit Court of Appeals is, therefore, affirmed.

DISSENTING OPINION.

Mr. Justice Shiras, with whom concurred Mr. Justice Brewer, dissented and filed the following opinion:

I am unable to concur in the reasoning and conclusion of the Court, and shall briefly state my views.

The history of the art discloses that the patent in suit was what is called a "pioneer invention." In it, for the first time, was brought to light a method or process which, by the co-operation of the air from the train-pipe with that from the car-reservoir, created the "quick-action" brake. The patent, in its specification and claims, clearly described a machine or mechanical combination whereby the invention was exemplified or rendered operative.

It is not an unwarrantable extension of the term to speak of this invention in suit as a pioneer, since it is practically conceded in this case, and justly observed by the court below, "one of the highest value to the public," and conspicuously one "which entitles the proprietor to a liberal protection from the courts in construing the claim." The very fact that this invention resulted in placing it within the power of an engineer, running a long train, to stop in about half the time and half the distance within which any similar train had been stopped, is certainly deserving of recognition. The claims of such patents have from time out of mind been allowed a liberal construction, and considered as entitled to the fullest benefit of the doctrine of mechanical equivalents.

It in no wise detracts from the merit of this invention that later devices have been adopted which render its practical operation more efficient. The very term, "pioneer patent," signifies that the invention has been followed by others. A pioneer patent does not shut but opens the door for subsequent invention.

The particular patent in suit was, as I understand it to be admitted, an entire success in supplying passenger-trains and short freight-trains with a "quick-action" brake; but while it enabled even the longest freight-trains to stop in half the time and half the distance previously occupied, there remained difficulties which required further devices to give to the invention the perfect success which it has now attained.

Being of the character so described as a pioneer, the patent in suit is entitled to a broad or liberal construction. In other words, the invention is not to be restricted narrowly to the mere details of the mechanism described as a means of carrying the invention into practical operation.

I cannot assent to what is, perhaps, rather intimated than decided in the opinion of the Court that what is called a "process in order to be patentable must involve a chemical or other similar elemental action." The term process or method, as describing the subject of a patent, is not found in the statutes. No reason is given in the authorities, and I can think of none in the nature of things, why a new process or method may not be patentable, even though a mechanical device or a mechanical combination may be necessary to render the new process practicable. It seems to be used by the courts as descriptive of an invention which, from its novelty and priority in the art to which it belongs, is not to be construed as inhering only in the particular means described, in the Letters Patent, as sufficient to exemplify the invention and bring it into practical use.

Thus in the case of Winans v. Denmead, (15 How., 330,) the patent was for a new form of the body of a car for the transportation of coal, thus avoiding certain practical difficulties or disadvantages in such cars as previously made. To the argument on behalf of the infringer, that the claim of the patent was confined to a single form, and only through and by that form to the principle which it embodies, this Court said, per Mr. Justice Curtis: * * * [See infra.]

McCormick v. Talcott, 20 How. 402, was also a case of a mechanical patent, and it was said by Mr. Justice Grier, who delivered the opinion of the Court:

"If the patentee be the original inventor of the device or machine, he will have a right to treat as infringers all who make machines operating on the same principle and performing the same functions by analogous means or equivalent combination, even though

the infringing machine may be an improvement of the original and patentable as such."

In Morley Machine Co. v. Lancaster, (129 U. S., 263,) there was also a question of an alleged invention of a primary character, and wherein the invention was embodied in a mechanical combination; and it was held that, in a pioneer patent, such as that of Morley, the patentee, the special devices set forth by Morley were not necessary consituents of the claims; that his patent was to receive a liberal construction, in view of the fact that he was a pioneer in the construction of an automatic button-sewing machine, and that his patent was not to be limited to the particular device or instrumentalities described by him.

In that case extended and approving reference was made to the case of Proctor v. Bemis, (36 Ch. Div., 740,) which was a case of an invention embodied in a mechanical contrivance, and the following language of Lord Justice Bowen was quoted:

"Now, I think it goes to the root of this case to remember that this is, as was described by one of the counsel, really a pioneer invention; and it is by the light of that, as it seems to me, that we ought to consider whether there have been variations or omissions and additions, which prevent the machine which is complained of from being an infringement of the plaintiff's. With regard to the additions and omissions, it is obvious that additions may be an improvement and that omissions may be an improvement; but the mere fact that there is an addition, or the mere fact that there is an omission, does not enable you to take the substance of the plaintiff's patent. The question is not whether the addition is material or whether the omission is material, but whether what has been taken is the substance and essence of the invention."

These were cases wherein the discovery or invention was made effective through machines or mechanical combinations, and wherein it was held that the merit of the process or method was not to be confined, in the case of a pioneer patent, to the mere form described in the specification as sufficient to make the invention practically operative.

Neilson's patent (Web. Pat. Cas., 275), was a noted case, in which the true distinction was drawn between a mere principle, as the subject of a patent, and a process by which a principle is applied to effect a new and useful result. The Court of Exchequer, in answering the objection that Neilson's patent was for a principle, said:

"It is very difficult to distinguish it from the specification of a patent for a principle, and this at first created in the minds of some of the court much difficulty; but, after full consideration, we think the plaintiff does not merely claim a principle, but a machine embodying a principle, and a very valuable one. We think the case

must be considered as if, the principle being well known, the plaintiff had first invented a mode of applying it by a mechanical apparatus to furnaces; and his invention consists in this—by interposing a receptacle for heated air between the blowing apparatus and the furnace. In this receptacle he directs the air to be heated by the application of heat externally to the receptacle, and thus he accomplishes the object of applying to the blast, which was before of cold air, in a heated state to the furnace."

And when the case came before the House of Lords, Lord Campbell said:

"After the construction first put upon the patent by the learned judges of the Exchequer, I think the patent must be taken to extend to all machines, of whatever construction, whereby the air is heated intermediately between the blowing apparatus and the blast-furnace. That being so, the learned judge was perfectly justified in telling the jury that it was unnecessary for them to compare one apparatus with another, because, confessedly, that system of conduit-pipes was a mode of heating air by an intermediate vessel between the blowing apparatus and the blast-furnace, and, therefore, it was an infringement of the patent." (Web. Pat. Cas. 715.)

Very applicable to the present case is the doctrine of Tilghman v. Proctor (102 U. S. 767). It was there held, overruling the case of Mitchell v. Tilghman, (19 Wall., 284,) that a patent may be validly granted for carrying a principle into effect; and if the patentee suggests and discovers not only the principle, but suggests and invents how it may be applied to a practical result by mechanical contrivances and apparatus, and shows that he is aware that no particular sort or modification of form of apparatus is essential to obtain benefit from the principle, then he may take his patent for the mode of carrying it into effect, and is not under the necessity of confining himself to one form of apparatus.

Having discussed the previous cases, particularly that of Neilson and of O'Reilly v. Morse, (15 How., 62,) Mr. Justice Bradley said:

"Whoever discovers that a certain useful result will be produced in any art by the use of certain means is entitled to a patent for it, provided he specifies the means. But everything turns on the force and meaning of the word 'means.' It is very certain that the means need not be a machine, or an apparatus; it may be a process. A machine is a thing. A process is an act, or a mode of acting. The one is visible to the eye—an object of perpetual observation. The other is a conception of the mind, seen only by its effects when being executed or performed. Either may be the means of producing a useful result. * * * Perhaps the process is susceptible of being applied in many modes and by the use of many forms of apparatus. The inventor is not bound to describe them all in order to

secure to himself the exclusive right to the process, if he is really its inventor or discoverer. But he must describe some particular mode, or some apparatus, by which the process can be applied with at least some beneficial result, in order to show that it is capable of being exhibited and performed in actual experience."

The Telephone Cases (126 U. S. 1, 533), contain an apt illustration of these principles. Mr. Chief Justice Waite, in discussing the case, said: * * * [See infra.]

The conclusion justified by the authorities is that whether you call Westinghouse's discovery, that "quick action" may be accomplished by the co-operation of the main pipe air and that from the car-reservoir, a process, or a mode of operation, yet if he was the first to disclose it and to describe a mechanical means to give practical effect to the invention, he must be regarded as a pioneer inventor, and as entitled to protection against those who, availing themselves of the discovery, seek to justify themselves by pointing to mere differences in form in the mechanical devices used.

Much stress was laid in the argument on an alleged disclaimer by the patentee while the application was pending in the patent-office, whereby it is said Westinghouse must be understood to have abandoned the second claim, or, at any rate, to have consented that that claim should be interpreted by the courts as if it contained an auxiliary valve as a material element in the claim.

There are cases, no doubt, in which it has been held that when a claimant has, under objection in the patent-office, withdrawn certain claims, or has modified them by adding or striking out terms or phrases, and accepts a patent which does not grant the abandoned or unmodified claims, he cannot be heard to insist upon such a construction of the allowed claims as would cover what had been previously rejected. (Shepard v. Carrigan, 116 U. S. 593; Roemer v. Peddie, 132 U. S. 313; Corbin Lock Co. v. Eagle Lock Co., 150 U. S. 38.)

An examination of the cited cases, however, will disclose, as I think, that they turned upon matters of construction. In other words, were cases where it was questionable what the patent, as actually granted, meant. In such cases, as in other cases of ambiguity, it may be allowable to consult the application and file wrapper, and possibly written communications, which may throw light upon claims that are ambiguous or capable of different constructions.

But where the claims allowed are not uncertain or ambiguous, the courts should be slow to permit their construction of a patent, actually granted and delivered, to be affected or controlled by alleged interlocutions between the officers in the patent-office and the claimant. No doubt, in proceedings to revoke or cancel a patent granted by inadvertence or by fraudulent representations, it would be competent to show what had taken place in the patent-office pend-

ing the application. But when we consider that often the employes in the patent-office are inexperienced persons, and that the mass of the business is so vast that it is impossible for the commissioner or the chief examiner to review it, except in a perfunctory way, it can be readily seen how dangerous it would be to modify or invalidate a patent, clear and definite in its terms, by resorting to such uncertain sources of information.

However this may be, I do not perceive that the matters alleged in the present case are entitled to any weight in the construction of the patent. Even if the letter of the claimant's attorney, written on January 19, 1887, can be looked to as helping us to understand the meaning of a patent granted on March 29, 1887, it only appears to be an argument as to the meaning or legal effect of the language used in the claims, and does not amount to a withdrawal or modification of them.

Accordingly the second claim of the patent is before us for construction on its own terms, and, to avoid protracting this discussion, the opinion of Judge Morris in the circuit court is referred to and adopted as a sound construction of that claim. (66 Fed. Rep., 997.) This claim is not, as I read it, open to the objection that it aims to patent a principle. It sets forth the discovery that by a co-operation of the air from the auxiliary reservoir and that from the main air-pipe, the action of the brakes is quickened and the air vented from the main air-pipe directly to the brake-cylinder.

But, even if the second claim must, as argued in the opinion of the Court, be read, by reason of the letter of the claimant's attorney, as if it called for the auxiliary valve described in the first and fourth claims, and even if, when not so read, it can be regarded as void because simply for a function or principle, nevertheless the invention, as described in the other claims and specification, is clearly set forth, and, under the evidence as to the state of the art, is entitled to be regarded as a pioneer. Regarding the second claim as a mere statement of the idea or invention and the other claims as describing a form or combination of mechanism which embodies the invention and renders it operative, all the requisites of the law are sufficiently complied with.

The only remaining question is that of the infringement, and that is readily disposed of. For it is conceded in the opinion of the majority of the Court that, if the patent in suit is entitled to a broad construction as a pioneer, embodying a new mode of operation, not limited to the particular means described in the specification, then the defendant's device is an adoption of the idea or principle of the Westinghouse patent with a mechanical equivalent or substitute for the auxiliary valve.

Upon the whole I am of the opinion that the decree of the Circuit Court of Appeals should be reversed and that the cause should

be remanded with directions to restore the decree of the circuit court.

Mr. Justice Brewer concurred in the dissenting opinion.

Mr. Justice Gray and Mr. Justice McKenna also dissented from the opinion and from the decision of the Court.

68. SIMONDS ROLLING MACH. CO. v. HATHORN MFG. CO., 93 Fed. 958, 36 C. C. A. 24 (1899, First Circuit).

Before Colt, Circuit Judge, and Webb and Aldrich, District Judges.

Colt, Circuit Judge. This suit was brought for infringement of two patents, No. 319,754, dated June 9, 1885, and No. 419,292, dated January 14, 1890. The first patent was issued to George F. Simonds for dies "for forging articles circular in cross section," such as car axles, and the second to the complainant, as assignee of Simonds, for the method of making irregular shaped metal articles or "of making wrought-metal forgings that are circular in cross-sectional area." The court below held that the first claim of the die patent was limited to irregular shaped articles, and did not cover dies for making balls; that the second claim must be strictly construed, and therefore was not infringed; and that the method patent was valid, and infringed by the defendants. 90 Fed. 201. The complainant appeals from so much of the decree below as limits the scope of the first claim of the die patent, and holds that the defendants do not infringe the second claim. The defendants appeal from so much of the decree as declares that they infringe the first claim of the die patent and the method patent.

It is apparent that the method and the die patents are not for the same invention. The former covers the method, irrespective of the specific means or instrumentalities employed; the latter covers certain specific features of dies used in carrying out the method. These are distinct inventions. The main defense to both patents relied upon in the court below and on this appeal is the alleged anticipation of Simonds' method and dies by the prior English patent granted to William Bundy. Preliminary to the consideration of this question, it may be observed that Simonds' method was radically new in the metal-forging art. It revolutionized the branch of the art to which it relates. It is practically and commercially successful. The Simonds method patent is for "making wrought-metal forgings which are circular in cross-sectional area." It deals with the forging of hot metal. It contains a description of the method, the mode of operation, and refers to different forms of dies which may be employed in carrying out the method. The dies illustrated in the drawings are so shaped as to roll balls, car axles, and other articles circular in cross section. The dies are used in pairs, and have raised

working parts. They rotate and shape the blank between them. They travel in parallel lines in opposite directions. At the beginning of the operation the forward ends of the dies are opposite one another, and at the end of the operation the rear ends are opposite one another. * * *

The claim of the method patent is as follows:

"The method herein described of making rolled-metal forgings by acting upon all parts of a metal bar in spiral lines, so as at each part in succession and upon such lines to cause the bar to rotate, and to strain and spread the metal axially, and compress it to the required shape and size."

The Bundy English patent was granted in 1806. It was for an invention of "machines or instruments for the purpose of making leaden bullets and other shot." It was not for forging hot metal. It does not appear that leaden bullets were ever made with the Bundy machine, or that it made any impression on the art of metal working.

* * *

There is certainly a close resemblance between the Bundy dies for making lead balls and (apparently) their mode of operation, and the Simonds dies for forging balls and their mode of operation. But the complainant contends that there are important differences, which may be stated as follows: Bundy makes only leaden bullets. Simonds forges various articles circular in cross section from a heated metal blank. Bundy cuts away the surplus lead by sharp cutting edges, and shapes the remainder. Simonds spreads or crowds away the surplus hot metal, and compacts the outer surface of the article forged. Bundy provides corrugations within the grooves to rotate the leaden balls. Simonds places his corrugations outside the grooves so as to rotate the mass of the heated blank. Bundy made no impression on the art. Simonds' patent is the foundation of a new industry. We are not prepared to say that the cutting and molding of the cold lead by the Bundy dies is the same as the spreading and compacting of the hot metal by the Simonds forging dies. Nor are we fully convinced that in mode of operation and result the dies are essentially different.

If the question of identity of method and result is doubtful, the doubt must be resolved in favor of the successful patentee, who has in a practical way materially advanced the art. Washburn v. Gould, 3 Story 122, 144 Fed. Cas. No. 17,214. In Bundy the corrugations for causing the rolling of the metal are located at the bottom of the forming groove of the die, while in Simonds' they are located outside the forming groove. It appears that dies with Bundy corrugations would be inoperative for forging hot metal. Further, Bundy speaks of the sides of the grooves of the two molds being "sufficiently sharp" to press and "cut away" the lead. This does not accurately

describe the Simonds die for spreading, crowding, and compacting the surplus hot metal on the outer surface of the forged article. Again, and perhaps of greater consequence, we are not fully satisfied from the evidence in the record relating to the experiments which were made that the Bundy patent describes practically operative means for making lead bullets. It can, at least, be said, we think, that the Bundy patent does not disclose practically operative means for forging metal articles circular in cross section. Upon the whole we do not find in the Bundy patent a description of the Simonds method in such "full, clear, and exact terms" as are necessary to anticipate the Simonds patents. Hanifen v. Godshalk Co., 28 C. C. A. 507, 84 Fed. 649; Heap v. Tremont & S. Mills, 27 C. C. A. 316, 82 Fed. 449, 452; Consolidated Car-Heating Co. v. American Electric Heating Corp., 82 Fed. 993, 997, on appeal 29 C. C. A. 386, 85 Fed. 662, 665. As it is not seriously contended that any prior patent in the forging art anticipates the Simonds method, it follows that the Simonds method patent is valid, and that the defendants infringe this patent.

We come next to the die patent. This patent is entitled, "Die for forging metal articles circular in cross section." The specification says that the inventor has "invented certain improvements in faces for car-axle dies designed to be used in pairs." The specification further says:

"My invention consists in dies designed to be used in pairs, and provided with forming surfaces raised upon the plane face of the die, and with reducing and spreading surfaces running diagonal to the line of movement of the die, and standing oblique to the plane of the die. My invention further consists, in providing the reducing and spreading surfaces above mentioned, when necessary, with corrugations or irregularities, to engage the metal and insure the rotation of the work."

The claims are as follows:

"(1) Dies adapted to form metal articles circular in cross-sectional area, with the working parts raised upon a plane surface, and provided with forming surfaces running in line with the movement of the die, to give the shape required, and diverging reducing and spreading surfaces to force the metal laterally, substantially as described. (2) Dies adapted to form metal articles circular in cross-sectional area, having forming surfaces to give the shape required, and reducing and spreading surfaces to force the metal laterally, provided with corrugations or irregularities, to engage the mass of metal and insure its rotation, substantially as set forth."

We agree with the court below that the second claim is narrow, and is limited to the corrugations "substantially as set forth." The defendants' dies not having the same corrugations, or the corrugations located in the same situation on the dies, do not infringe this

claim. This does not apply to Ball Dies No. 1, and Boot-Calk Dies No. 1, used only by defendant Hathorn, for they have the corrugations in the same location described by Simonds. As to the first claim, however, we do not think it excludes dies for making balls, and is limited to dies for forging car axles, boot calks, and other irregular shaped articles analogous to car axles. We are of opinion that this claim fairly covers "dies for forging metal articles circular in cross section," substantially as described, and that it embraces the dies for forging balls which are used by the defendants. This suit was brought against the Hathorn Manufacturing Company and three individual defendants. The court below limited its decree in favor of the complainant to the joint infringement of all the defendants. We see no sufficient reason, under the present bill, why the defendant Hathorn should not account for his several or individual infringements. We understand this to be the general rule. Herring v. Gage, 3 Ban. & A. 396, 402 Fed. Cas. No. 6,422; Tatham v. Lowber, 4 Blatchf. 86, 87, Fed. Cas. No. 13,765; New York Grape Sugar Co. v. American Grape Sugar Co., 42 Fed. 455. The decree of the circuit court is modified as to the construction of the first claim of patent No. 319,754, and as to the liability of defendant Hathorn for his several infringements, and the case is remanded to that court for proceedings not inconsistent with this opinion. Costs in this court are awarded to the complainant, the Simonds Rolling-Machine Company.

69. IN RE WESTON, 17 App. D. C. 431, 94 O. G. 1784; 1901 C. D. 290.

Morris, J.:

This is an appeal from a decision of the Commissioner of Patents, wherein, affirming the decisions of the lower tribunals of his office, he has refused a patent for an alleged process in the manufacture of a device used in the construction of electrical measuring instruments. The claims sought to be patented are nine in number, and they are described in the following terms:

"1. The described method of manufacturing a symmetrical movable coil for an electrical measuring instrument, consisting in first forming a supporting frame or spool by subjecting a short tube of metal to pressure until the desired conformation and shape is obtained, then winding the coil thereon and finally securing the pivot-pins thereto in the axial line of the coil. * * *

3. The described method of manufacturing a supporting frame or spool without joint or seam for an electrical coil, consisting in giving to a short section of tubing the desired configuration, then subjecting it to pressure until the desired curvature is obtained, and finally turning down the lateral edges thereof in such manner as to constitute the flanges of the frame or spool. * * *

7. The described method of securing the pivot-pins to the movable coil for an electrical measuring instrument in the mathematical axial line thereof, consisting in securing or locking the coil in a definite or fixed position and then detachably securing the pivot-pins to movable supports which have a fixed or definite relation to the mathematical axis of the supported coil and finally moving the supported pivot-pins into mechanical contact with the coil and permanently securing them thereto. * * *

9. The described method of securing the needle-supporting pivot to the movable coil of an electrical measuring instrument in such manner that the point of the needle shall have a definite or fixed relation to the axis of the coil, consisting in securing or locking the coil in a definite or fixed position and then detachably securing the needle supporting pivot to a movable support which has a definite or fixed relation to the mathematical axis of the supported coil, then rotating the pivot to a definite point and finally securing it permanently to the coil."

Five of these claims, being those numbered 5, 6, 7, 8 and 9, were allowed by the Primary Examiner, apparently with some reservation of further inquiry into them. His decision in this regard is in these words:

"The remaining claims are allowed, as at present advised—"

or, as he expresses it in another place—

"the remaining claims may, as advised, be allowed."

But the claims numbered 1, 2, 3 and 4 he rejected, on the ground that they were not patentable. From his decision in rejecting these four claims an appeal was taken to the Board of Examiners; and the Board of Examiners affirmed the action of the Primary Examiner. Upon a further appeal from the Board of Examiners to the Commissioner of Patents, the Commissioner affirmed the decision of the board, although he seems to have had some difficulty in reconciling the action of the Primary Examiner in the refusal of some of the claims with his allowance of the others. From the decision of the Commissioner the case comes to us by appeal.

The application, it will be noticed, in each and all of the four claims brought here for our consideration is for a method or process, and not either for the thing produced or for the mechanism by which it is produced. Both the mechanism and the product, it is understood, which are connected with the process for which a patent is now sought have already been patented to the present appellant. The question, therefore, for determination is the greatly-vexed one, how far a method or a process is patentable, and when it is a subject of patentability.

The general question was decided in the affirmative by the Supreme Court of the United States in the case of Cochrane v. Deener,

11 O. G. 687, 94 U. S. 780, 787, in which that Court by Mr. Justice Bradley said: * * * [See infra.]

The process in that case was for the manufacture of flour, and the patent, which had been issued for it, was sustained.

In the previous case of Corning v. Burden, (15 How., 252,) in an opinion written for the Supreme Court by Mr. Justice Greer, the distinction was indicated between a process which was patentable and the mere function of a machine which was not patentable. There the Court said: * * * [See infra.]

In that case the patent under consideration was for—

"a new and useful machine for rolling puddler's balls and other masses of iron, in the manufacture of iron—"

and it was held to be a patent for a machine, and not for a process, although it was stated that the language of the claim was equivocal.

Subsequently the whole subject came up for consideration anew in the Supreme Court in the case of Risdon Iron and Locomotive Works v. Medart, (71 O. G., 330; 158 U. S., 68,) in which the patent under consideration was for an alleged process in the manufacture of belt-pulleys, and the Court by Mr. Justice Brown said. * * * [See infra.]:

The Court thereupon cited and discussed the cases of Neilson v. Harford, (1 Web. Pat. Cas. 331;) Household Coal and Iron Company v. Neilson, (1 Web. Pat. Cas. 673;) O'Reilly v. Morse, (15 How. 62;) Corning v. Burden, (15 How. 252;) Mowry v. Whitney, (1 O. G. 499; 14 Wall., 620;) Tilghman v. Proctor, (19 O. G. 859; 102 U. S. 707;) New Process Fermentation Co. v. Maus, (39 O. G. 1419; 122 U. S. 413;) Bell Telephone Co. Case, (126 U. S. 1,) and Wyeth v. Stone, (1 Story 273,) quoting at large from the opinion of Mr. Justice Greer in the case of Corning v. Burden as stating the true distinction to be observed in such cases. Then it proceeded to say:

"Although the cases are not numerous, this distinction between a process and a function has never been departed from by this Court, and has been accepted and applied in a large number of cases in the circuit courts. The following processes have been held not to be patentable; an improvement in sewing machines, by which the soles and uppers of boots and shoes could be sewed together without any welt by a certain kind of stitches, (McKay v. Jackman, 12 Fed. Rep. 615;) a process for washing shavings in breweries, (Brainard v. Cramme, 12 Fed. Rep. 621; an improved method of treating seed by steam, (Gauge v. Kellogg, 23 Fed. Rep. 891;) a process for crimping heel-stiffenings of boots and shoes, (Hatch v. Moffit, 15 Fed. Rep. 252.) See also, Sickels v. Falls Company, (4 Blatchf.) 508), and Excelsior Needle Co. v. Union Needle Co., (32 Fed. Rep. 221.)"

The alleged process, for which the patent had been issued which was under consideration in the case of Risdon Iron and Locomotive Works v. Medart, purported to be—

"an improved process for the manufacture of belt-pulleys formed of a wrought-metal rim and a separate center, usually a spider and usually made of cast metal."

And, as it is argued that it was entirely analogous to that which is involved in the case before us, it may be stated to have consisted of six several steps: first, centering the pulley center or spider; second, grinding the ends of the arms concentrically with the axis of the pulley; third, boring the center; fourth, securing the rim to the spider; fifth, grinding the face of the rim concentric with the axis of the pulley; sixth, grinding or squaring the edges of the rim. "This process," the Court said, "is a purely mechanical one;" and accordingly it held the patent to be void.

The decision in the case of Risdon Iron and Locomotive Works v. Medart seems to have been understood by some courts and to some extent by the patent-office as restricting the patentability of processes to those which involved chemical or other elemental action. But that this was an erroneous impression sufficiently appears from the subsequent case of Westinghouse v. Boyden Power Brake Company, (83 O. G., 1067; 170 U. S., 537,) which was a case of alleged infringement, and in which the patent under consideration was for a fluid-pressure automatic-brake mechanism, the object of which was stated in the specification to be—

"to enable the application of brake-shoes to car-wheels by fluid-pressure to be effected with greater rapidity and effectiveness than heretofore, more particularly in trains of considerable length, as well as to economize compressed air in the operation of braking, by utilizing in the brake-cylinders the greater portion of the volume of air which in former practice was directly discharged into the atmosphere."

The controversy in the case to some extent turned upon the question whether one of the claims of the patent was to be regarded as being one for a process, or merely for novelty of mechanism. The Court held that the whole theory of the specification and claims was based upon the alleged novelty of the mechanism; but at the same time it proceeded also to discuss the question of the patentability of process, and in so doing reviewed a number of the preceding cases, including that of Corning v. Burden, and Risdon Iron and Locomotive Works v. Medart. The Court in its opinion said as follows:

"The complainant's case must rest either upon the theory that the admission of compressed air directly from the train-pipe to the brake-cylinder is patentable as a function, or that the means em-

ployed by the defendants for that purpose are a mechanical equivalent for the auxiliary valve—"
described in the patent.

And then it proceeded to state that the first theory was based on the second claim of the patent, and it said:

"The difficulty we have found with this claim is this, that, if it be interpreted simply as a claim for the function of admitting air to the brake-cylinder directly from the train-pipe, it is open to the objection, held in several cases to be fatal, that the mere function of a machine cannot be patented."

Then, after citing and discussing the cases of Corning v. Burden, (15 How., 252;) Burr v. Duryee, (1 Wall., 531;) Fuller v. Yentzer, (94 U. S., 288;) and Risdon Iron and Locomotive Works v. Medart, (71 O. G., 330; 158 U. S. 68,) the opinion, which, it may be remarked, was written by the same Justice who wrote the opinion in the case of Risdon Iron and Locomotive Works v. Medart, continued as follows:

"These cases assume, although they do not expressly decide, that a process to be patentable must involve a chemical or other similar elemental action; and it may still be regarded as an open question whether the patentability of processes extends beyond this class of inventions. Where the process is simply the function or the operative effect of a machine, the above cases are conclusive against its patentability; but where it is one which, though ordinarily and most successfully performed by machinery, may also be performed by simple manipulation, such, for instance, as the folding of paper in a peculiar way from the manufacture of paper bags, or a new method of weaving a hammock, there are cases to the effect that such a process is patentable, though none of the powers of nature be invoked to aid in producing the result. (Eastern Paper Bag Co. v. Standard Paper Bag Co., 41 O. G., 231; 30 Fed. Rep., 63; Union Paper Bag Machine Co. v. Waterbury, 39 Fed. Rep., 389; Travers v. American Cordage Co., 70 O. G., 277; 64 Fed. Rep., 771.) This case, however, does not call for an expression of our opinion on this point, nor even upon the question whether the function of admitting air directly from the train-pipe to the brake-cylinder be patentable or not, since there is no claim made for an independent process in this patent, and the whole theory of the specification and claims is based upon the novelty of the mechanism."

In view of the disclaimer in the last sentence of any intention to express an opinion on the subject of the patentability of processes, it is intimated in the argument of the case before us that the previous intimation on the subject is *obiter dictum*, and has not therefore the effect of modifying the opinion in the case of Risden Iron and Locomotive Works v. Medart. But we deem it unnecessary to go into that consideration: for we find no real antagonism between the two

cases. In the one illustrations have been cited of processes decided not to be patentable; in the other there is mention of processes that have been held patentable; and the general subject of patentability of processes, other than those involving chemical or other elemental action, is left an open question.

It may be noticed that in the case of Westinghouse v. Boyden Power Brake Co., four of the Justices dissented; and in the dissenting opinion written by Mr. Justice Shiras it was said:

"I cannot assent to what is, perhaps, rather intimated than decided in the opinion of the Court that what is called a process in order to be patentable must involve a chemical or other similar elemental action. The term 'process' or 'method,' as describing the subject of a patent, is not found in the statutes. No reason is given in the authorities, and I can think of none in the nature of things, why a new process or method may not be patentable, even though a mechanical device or a mechanical combination may be necessary to render the new process practicable."

It seems to us from all these authorities the deductions to be drawn are these: First, that processes involving a chemical or other elemental action, if new and useful, are patentable; second, that a process, which amounts to no more than the mere function of a machine, is not patentable; third, that a process or method of a mechanical nature, not absolutely dependent upon a machine, although perhaps best illustrated by mechanism, may, if new and useful, be the proper subject of a patent, even though it involves no chemical or other elemental action.

In this last class of cases, possibly a very large class, and thus far certainly a very indefinite class, the criterion of patentability, so far as it seems possible yet to state any definite criterion, would seem to be that the process may be performed by hand or by other mechanism than that exhibited, although perhaps not with equal efficiency. That we must at all events recognize the existence of such a class would seem to be beyond doubt. To this effect are the cases of Melvin v. Potter, (91 Fed. Rep. 151;) Travers v. American Cordage Co., (70 O. G., 277; 64 Fed. Rep. 771;) Union Paper-Bag Machine Co. v. Waterbury, (39 Fed. Rep. 389;) Eastern Paper-Bag Co. v. Standard Paper-Bag Co., (41 O. G. 231, 30 Fed. Rep., 63;) Covert v. Travers Brothers' Co., (75 O. G. 349;) American Fibre Chamois Co. v. Buckskin Fibre Co., (75 O. G. 833;) and Jackson v. Birmingham Brass Co., (75 O. G. 677,) and the Commissioner of Patents has very properly recognized such a classification in ex parte Rogers and Winslow, (87 O. G. 699), where he has made the same deductions from the authorities which we have here made.

Now, if the appellant's claims here in controversy are patentable, they must fall into this last class; and we understand it to be his contention that they do so fall. Otherwise, they must be relegated

to the second class, in which patentability is inadmissible. What then is the appellant's method or process: And wherein does its novelty as a method consist independently of the mechanism which is used to illustrate it? The novelty and the utility of the mechanism as such seem to be conceded; and the only question is whether there is anything more involved in the claims than the mere function of such mechanism.

The appellant's claims numbered 3 and 4 need scarcely enter into our consideration at all; for plainly they involve merely well-known mechanical operations. They consist merely in drawing a section of sheet metal over a mandrel and subjecting it to pressure until a desired configuration is acquired, and then turning down the lateral edges. This is a simple and well-known mechanical operation, and we fail to find in it any element of patentable novelty. Whether a spool to be used in an electrical apparatus was ever so constructed before the appellant constructed one, is of no consequence; for the claim here is for a process, and the process is well known, and therefore not patentable. That the appellant's apparatus effects the purpose more thoroughly and more effectively than it was accomplished before, is only evidence that he has a better apparatus for the purpose. The result is merely the function of the mechanism.

The claims numbered 1 and 2 embrace the elements of claims numbered 3 and 4, and others also in addition thereto, the first of which is that of winding the coil around the spool, after the spool has been fashioned in the manner stated in claims numbered 3 and 4. But the winding of a coil around a spool so fashioned is not new. As in the matter of the configuration of the spool itself, the appellant's mechanism may effect this result more thoroughly and more efficiently than before; but the method itself as a process is not new. It is only the function of the machine that gives it the character of an improvement.

So, neither the fashioning of a spool of sheet metal in the mode stated in the appellant's claims, nor the winding of a coil around such spool after it has been fashioned, nor both together, can be held to constitute a novel and patentable process. The patentability of the appellant's claims, therefore, must be found, if at all, in the other elements, of which there is in the first claim only one, that of securing the pivot-pins in the axial line of the coil; and in the second claim, in addition to this last, the further element of "simultaneously adjusting the needle-supporting pivot in such manner that the point of the needle is located in the central plane of the coil, or in a plane at a definite angle thereto." And we think that these elements in combination constitute a patentable process.

The purpose is to make a symmetrical movable coil for an electrical measuring instrument. This is effected by taking a spool of sheet metal with a certain configuration, winding the coil thereon,

and securing the pivot-pins thereto in the axial line of the coil, at the same time adjusting the needle-supporting pivot in a certain specified manner. Why should not this adjustment of pivots and pivot-pins to accomplish an important result, which could not be accomplished without such adjustment, be regarded as a process? The question is not whether the mechanism exhibited by the applicant is competent to effect the result, but what the result is that is to be effected, and whether such result is the function exclusively of the mechanism.

As has been well argued by counsel for the appellant, there are three things involved in many, perhaps in most of what are known as pioneer inventions—the thing produced, the mechanism by which it is produced, and the process of production; and the last is very often the most important part of the invention or discovery, for the reason that the first mechanism used is very often crude, the thing produced equally so, and the process only is that which effects the great change in the art of science to which it appertains. In such cases, as Mr. Justice Brown said in the case already cited of Risdon Iron and Locomotive Works v. Medart, the inventor or discoverer might lose the benefit of his real invention or discovery, if he were not entitled to a patent for the process invented or discovered. And so, there is, of course, no question that, in a proper case, an inventor may have a patent for his process, irrespective of the mechanism used and of the result of the process. The process, however, is an intangible thing, while the mechanism and the thing produced are tangible. But after all, it is the idea, the intangible thing, that is of permanent importance and most valuable.

Now, the thing to be produced in the present case is a coil for an electrical measuring instrument. The appellant has discovered that by taking a spool of sheet metal, with the coil properly wound around it, and adjusting it in a certain manner on pivot-pins and adjusting the needle in a certain manner through the instrumentality of the pivot which supports it, he can accomplish the desired purpose. Now this we understand to be a process or method for effecting a result: it is a process or method for the adjustment of coils for electrical measuring instruments in such manner as that they will accurately measure the electrical current passing through them. And this process or method, while it may require the use of delicate mechanism for its actual development and manifestation and to effect the desired adjustment, seems to us to be, as a mental operation, entirely independent of such mechanism. It may be that the mechanism employed is incapable of any other function. It may even be that the process could not well be performed for any useful purpose by any other mechanism. But it does not necessarily follow from this that the process should be regarded as the mere function of the mechanism exhibited for its practical manifestation. The

process is first in the logical order of things; the mechanism is only a sequence. The applicant's discovery, for which he here seeks a patent, is that, if he caused a metal spool with a coil of wire wound around it to be adjusted in a certain manner on pivot-pins, he could have a new and useful mode for the construction of electrical measuring apparatus. It does not appear to us that the mechanism which he uses for the purpose of such adjustment is a necessary part of his process. He might possibly effect the purpose by mere manipulation. It is not impossible that he might effect it by mechanism of a radically different character from that which he exhibits. Ordinarily a process can be carried into practical effect by mechanism only; and it is the function of such mechanism to effect the process. But the process and the function of the mechanism are not for that reason one and the same thing in law or in our conception of the discovery.

We cannot see that this case differs in principle from that of the Eastern Paper-Bag Co. v. Standard Paper-Bag Co., (41 O. G. 231: 30 Fed. Rep., 63,) where it was discovered that, if a piece of paper was folded in a certain manner, an ingenious, new and useful paper bag would be the result. Of course, mechanism was immediately devised whereby to manufacture the bag in great quantity for commercial purposes; and it was the function of such mechanism to effect the process. And yet it was held that the process, as distinguished from the function of the machine, was patentable, and the patent which had been granted therefor was upheld.

Numerous other cases have been cited to us wherein the patent-office has issued patents for processes of a merely mechanical character, as distinguished from processes of elemental or other similar action; and it seems to us that, in the absence of any distinct and positive utterance from the Supreme Court of the United States limiting patentability to processes of the latter character, it is not improper that the practice should be continued. The criterion of patentability in such cases would seem to be, not that the process or method in question is independent of the special mechanism by which it is given practical effect, but that it is clearly conceivable as a mental operation independently of any such mechanism. As in the Paper Bag case the peculiar adjustment of the piece of paper so as to form the bag was the matter of discovery, so here we understand the adjustment of the metal spool with its coil of wire on its pivot at a definite angle, to be the subject-matter of discovery. We think the one is a process as much as the other.

Nor is this case in our opinion one of mere mechanical contrivance, which would naturally have occurred to any mechanic skilled in the art. It is always a potent, although of course, not always a complete answer to this argument that no one has accomplished the specified result before the actual claimant. But, apart from this, we fail to see here in the state of the electrical art how

any mechanic, by mere mechanical skill, as distinguished from the inventive faculty, could have reached the result effected by the applicant. The several steps of the process are of a mechanical character; but this is a very different thing from the merely mechanical improvement of an existing device.

In pursuance, no doubt, of the reasoning which has led us to this conclusion, was the action of the Primary Examiner of the patent-office in allowing in this case the applicant's claims numbered 7 and 8, which also are purely claims for processes. In the view which we take of the matter, we find no difference in principle between claims numbered 1 and 2 and claims numbered 7 and 8; and it would seem that the Commissioner of Patents was of the same opinion, with this difference, however, that he, in his construction of the law, would seem to have regarded them all as unpatentable, while we think that they are patentable.

There may be question, however, in the view which we take of the unpatentability of the spool alone, as set up in claim numbered 3, and of the unpatentability of the spool with the coil wound around it, as set up in claim numbered 4, whether the claims numbered 1 and 2 before us differ substantially from claim numbered 7. But claims numbered 1 and 2 are before us for adjudication, and claim numbered 7 is not, while it is properly included in the record.

In view of what we have said, we must hold that the applicant's claims numbered 1 and 2 are patentable, and that those numbered 3 and 4 are not patentable. Therefore, the decision of the Commissioner as to the claims numbered 3 and 4 is affirmed; and his decision as to those numbered 1 and 2 is reversed.

The clerk of the court will certify this opinion and the proceedings in the cause in this court to the Commissioner of Patents according to law.

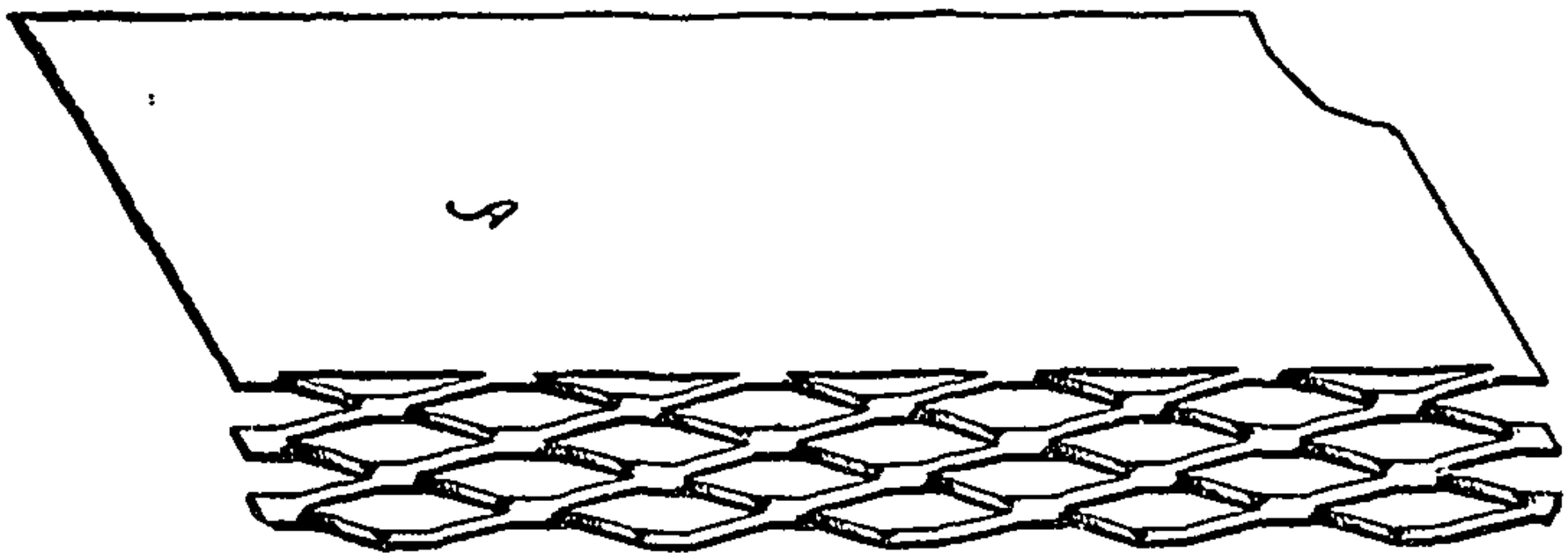
(Mr. Justice Shepard dissented as to the reversal.)

70. THE EXPANDED METAL COMPANY v. BRADFORD, 214 U. S. 366, 53 L. ed. 1034, 29 Sup. Ct. 652 (1909).

[The upper figure illustrates the invention of the Golding and Durkee patent No. 320,242. The inventors thus describe the process:

"The process consists in the employment of a flat piece of metal of any desired size, and beginning at one side and corner and making an incision within the side of the metal, thus forming a strand which is simultaneously pressed away from the plane of the metal in a direction at or near a right angle, the position the stand assumes depending upon the distance it is moved from the plane of the metal. a in the drawing shows the first cut made. The next step in this process is to make additional incisions, as is shown at c, b, and d, further within the

plate of metal, and leaving uncut sections at the ends of the cuts, and simultaneously with the cutting the strands are pressed away from the plane of the metal at the angle and to the desired position, as above described. Thus each row of meshes is simultaneously cut and formed from a blank piece of metal without buckling or crimping the blank. In the act of cutting and forming the meshes, the finished article is contracted in a line with the cuts or incisions, and consequently it is shorter in this direction than the piece from which it was cut, but is greatly lengthened in a line at an angle to the plane of the original sheet plate or blank.



"The object of beginning to cut within one side and the corner is, that the cut farthest within the metal will produce a strand, which as it is cut and bent downward or away from the plane of the uncut metal will allow the strands in advance of it to be freely cut and bent away from the plane of the metal simultaneously therewith. It is evident that the meshes could not

be cut and simultaneously formed if the cuts were made in a single direct line across the metal, for the reason that as the meshes are made the article which they form is contracted to a length less than the original length of the metal from which it is cut."

(In criticism of the presentation of this application and the oversight of the patent office it may be observed that the drawing contains reference letters not mentioned in the specification.)

The second figure is from the patent in suit, Golding No. 527,242. In this instance knives are used to make a series of slits in a straight line at equal listances apart across the sheet and at the same time the severed portions of the metal are carried downward. This operation is performed by bending the severed portions at a time when the ends of the portions are seslits in a straight line at equal distances apart across the sheet without materially shortening it. The sheet is then fed forward and the slitting and stretching operation repeated in such manner that the slits are in every case made back of the part unsevered by the preceding operation. Thus there is no contraction in the length of the metal and the expansion is obtained by the stretching distention or elongation of the severed strand. The first operation across the platc will form the half diamond shape which is indicated immediately against the back of the plate in the figure. The succeeding operations form the full diamond shape illustrated in the figure.

The claim of the patent 527,242 reads as follows:

The herein described method of making open or reticulated metal work, which consists in simultaneously slitting and bending portions of a plate or sheet of metal in such manner as to stretch or elongate the bars connecting the slit portions and body of the sheet or plate, and then similarly slitting and bending in places alternate to the first mentioned portions, thus producing the finished expanded sheet metal of the same length as that of the original sheet or plate, substantially as described.

It will be observed that this method or process does not involve "chemical or other similar elemental action," and that in a measure it defines the patentable novelty by a statement of the effect or result as in the phrase, "simultaneously slitting and bending portions of a plate or sheet of metal in such manner as to stretch and elongate the bars connecting the slit portions and the body of the sheet or plate."]

Mr. Justice Day delivered the opinion of the Court.

These cases involve opposing decisions as to the validity of Letters Patent of the United States No. 527,242, dated October 9, 1894, granted to John F. Golding for an alleged improvement in the method of making expanded sheet metal. In case No. 66, here on

writ of certiorari to the Circuit Court of Appeals for the Third Circuit, a decree of the Circuit Court of the United States for the Eastern District of Pennsylvania, sustaining the patent, was reversed, and the patent held invalid. The opinion of the circuit judge sustaining the patent is found in 136 Fed. 870. The case in the court of appeals is found in 146 Fed. 984. After the decree in the Circuit Court of Appeals for the Third Circuit, the Expanded Metal Company having filed a bill against the General Fireproofing Company in the Circuit Court of the United States for the Northern District of Ohio, the case was heard and the patent held invalid on the authority of the case in the Circuit court of Appeals for the Third Circuit. (157 Fed. 564.) The Circuit Court of Appeals for the Sixth Circuit reversed the United States Circuit Court for the Northern District of Ohio, and held Golding's patent valid and infringed. (164 Fed. 849.) These writs of certiorari bring these conflicting decisions of the courts of appeal here for review.

The patent in controversy relates to what is known as expanded sheet metal. Expanded metal may be generally described as metal open-work, held together by uncut portions of the metal, and constructed by making cuts or slashes in metal and then opening them so as to form a series of meshes or lattice-work. In its simplest form sheet metal may be expanded by making a series of cuts or slits in the metal in such relation to each other as to break joints, so that the metal, when opened or stretched, will present an open-mesh appearance. It may be likened to the familiar woven-wire open-work construction, except that the metal is held together by uncut portions thereof, uniting the strands, and the whole forms a solid piece.

In the earlier patents different methods are shown for cutting the metal, which cuts were afterward opened by a separate operation of pulling or stretching. These crude methods are shown in the earlier American and English patents which appear in the record. While nothing more than such methods was accomplished in the art there was little general or commercial use for expanded metal.

It was apparent that if a method could be devised by which the metal could be simultaneously cut and expanded, such method would be a distinct advance in the art, and this record discloses that the desirable result of simultaneously performing these operations was accomplished in the Golding and Durkee patent No. 320,242. In that patent the operation was performed by means of knives arranged in a step order, the sheet to be fed obliquely. * * *

With this patent as the advanced state of the art, Golding set about making further improvements and the result was the patent in suit. The specifications of the patent in suit state:

"In the manufacture of what is now generally known as expanded sheet metal, it has been customary to first cut the slits in the sheet metal at short distances apart, and to open the metal at the cuts thus

formed by bending the severed portions or strands in a direction at right angles substantially to the plane of the sheet. It has also been made by simultaneously cutting and opening the metal by means of cutters set off or stepped relatively so to make the slashes or cuts in different lines in the manner set forth in patent No. 381,230 or No. 381,231, of April 17, 1888. In both of these methods the product is somewhat shorter and materially wider than the original sheet, but practically no stretching or elongation of the metal forming the strands is caused.

"In my present invention I seek to avail myself of the ability of the metal to stretch or distend as well as of its ability to bend under strain or pressure, and the invention consists in the improved method of making expanded metal, viz., by simultaneously cutting and opening or expanding the metal at the cuts by stretching the severed portions."

In the method further described in the specifications the expanded metal is shown to be made by the use of knives making a series of slits in a straight line at equal distances apart across the sheet and at the same time carrying downward the severed portions of the metal. And this operation is performed by bending the severed portion at a time when its ends are securely attached to the main sheet, thereby expanding the sheet without materially shortening it. The sheet is then fed forward, and the slitting and stretching operation is repeated in such a manner that the slits are in every case made back of the portion unsevered by the preceding operation, or, in other words, as the specification states, the slits and unsevered portions alternate in position in each successive operation, the bends given to the severed portions or strands being in direction at right angles to the plane of the sheet, there is no contraction in the length of the metal, and the expansion is obtained by the stretching distention, or elongation of the severed strand. This patent contains the single claim, which is as follows:

"The herein-described method of making open or reticulated metal work, which consists in simultaneously slitting and bending portions of a plate or sheet of metal in such manner as to stretch or elongate the bars connecting the slit portions and body of the sheet or plate, and then similarly slitting and bending in places alternate to the first-mentioned portions, thus producing the finished expanded sheet metal of the same length as that of the original sheet or plate, substantially as described."

It is thus apparent that the method covered by the claim of the patent is accomplished by the two operations indicated and performed in the manner pointed out in the specifications. The first operation of cutting, bending and stretching the strands simultaneously produces a series of stretched loops or half-diamonds.

* * *

This series of half-diamonds is then supplemented by the second operation, which consists in making a second series of cuts and expansions for stretching the strands back of and opposite the parts of the metal left uncut by the first operation. The result is that the series of one-half diamonds is converted into the series of full diamonds and because of the manner in which the stretching is done, while the ends of the strands are still firmly attached to the sheet, there is no material shortening of the length of the sheet. * * *

What has Golding accomplished by this alleged improvement? These records leave no doubt that there are substantial advantages in the method of the patent in suit. As the sheet is not shortened, the completed product is regular in form and ready for many uses to which the shortened sheet of the old method could not be put. The metal worked upon can be much heavier than that which could be successfully manipulated by the old process. The meshes are formed in a uniform and regular way, so that a line drawn through their intersections in one direction is at right angles with a line drawn through their intersections in the other direction. There is no irregularity in the width of the strands. Put to the test of actual use, this record discloses that while the method of the Golding and Durkee patent is still in use in some places in this country, the method disclosed in the patent in controversy is largely in use in the United States, Great Britain and Continental Europe; that it has greatly increased the use of expanded metal in this country, and opened new fields for use where sheets of a regular shape can be used to a greater advantage than they could be when made under the old process.

The learned Circuit Court of Appeals for the Third Circuit seems to have regarded the invention as consisting merely of the improvement of the process in the manufacture of expanded metal by stretching certain portions of the metal when the slit is cut and the mesh is opened. A broad claim of that character was made in the Patent Office, and the file-wrapper and contents show that it was disallowed by the Examiner. The claim in its present form, framed by the Examiner as sufficient to cover the real invention of the patent, was accepted by the applicant, and is now the claim of the patent.

If all that Golding did was to show a method of simultaneously cutting and stretching the metal, the Examiner was doubtless right in holding it to have been anticipated by former inventions, notably the patent to Ohl, No. 475,700, and in a degree in the previous patents to Golding and to Golding and Durkee.

But the patent in suit, embraced in the claim allowed, shows more than a mere method of making open meshes by simultaneously cutting and stretching the metal. It shows a method by which the metal is first cut and stretched in the manner indicated to make the half-diamond, and then a second operation, co-ordinating with the first and completing the mesh by the manner in which it is performed in

connection with the first. It is the result of the two operations combined which produces the new and useful result covered by the claim allowed in the Patent Office, and, which, when read in connection with the specifications, shows substantial improvement in the art of making expanded metal-work.

But it is said that the patent in suit discloses no means of practically operating the method shown, and therefore, as said by the learned judge in the third circuit, "it is but the expression of a happy thought," but the requirement of the patent law, in order to make a method or process patentable, is that the patent shall indicate to those skilled in the art the adaptation of means to put it into practice.

We think this record amply discloses, while no complete mechanism is pointed out in the specifications, enough to indicate to those skilled in such matters a mechanism whereby the method of the patent can be put into operation. As said by Judge Severens, delivering the opinion of the court in No. 606, in the Circuit Court of Appeals for the Sixth Circuit:

"But here the inventor has gone on to point out that the slitting and bending is to be done by a stationary cutter under the sheet, and upper cutters to co-operate in shearing the slit. These upper cutters are so constructed as to bend down the strand to the proper distance. It is not stated just what the form shall be, but only ordinary skill in mechanics would suggest that the outer side of the cutter might be beveled or a shoulder might be formed thereon to carry down the strand when severed.

"Mechanism for the shifting of the sheet and of the knives was already in use in machines for expanding metal, and, indeed, was common in the mechanical arts. Moreover, experts have here testified that these devices could be arranged by any skilful mechanic, and we have no reason to doubt it."

Golding testifies that he at first executed his process by hand. Other witnesses, skilled in the art, say that they could do likewise from the information found in the patent.

The important thing in this patent is a method of procedure, not the particular means by which the method shall be practiced. Golding's machine patent was not applied for for more than a year and a half after the issue of the patent in suit.

It is suggested that Golding's improvement, while a step forward, is nevertheless only such as a mechanic skilled in the art, with the previous invention before him, would readily take; and that the invention is devoid of patentable novelty. It is often difficult to determine whether a given improvement is a mere mechanical advance, or the result of the exercise of the creative faculty amounting to a meritorious invention. The fact that the invention seems simple after it is made does not determine the question; if this were the rule many of the most beneficial patents would be stricken down. It may

be safely said that if those skilled in the mechanical arts are working in a given field and have failed after repeated efforts to discover a certain new and useful improvement, he who first makes the discovery has done more than make the obvious improvement which would suggest itself to a mechanic skilled in the art, and is entitled to protection as an inventor. There is nothing in the prior art that suggests the combined operation of the Golding patent in suit. It is perfectly well settled that a new combination of elements, old in themselves, but which produce a new and useful result entitles the inventor to the protection of a patent. (Loom Company v. Higgins, 105 U. S. 580-591.)

To our minds, Golding's method shows that degree of ingenuity and usefulness which raises it above an improvement obvious to a mechanic skilled in the art, and entitles it to the merit of invention. Others working in the same field had not developed it, and the prior art does not suggest the combination of operations which is the merit of Golding's invention.

It is lastly contended, and this is perhaps the most important question in the case, that in view of the former declaration and opinions of this Court, what is termed a process patent relates only to such as are produced by chemical action, or by the operation or application of some similar elemental action, and that such processes do not include methods or means which are affected by mere mechanical combinations, and a part of the language used in Corning v. Burden, 15 How. 252, and Risdon Locomotive Works v. Medart, 158 U. S. 68, is seized upon in support of this contention. We have no disposition to question the decision in those cases.

An examination of the extent of the right to process patents requires consideration of the object and purpose of the Congress in exercising the constitutional power to protect for a limited period meritorious inventions or discoveries. Section 4886 of the Revised Statutes provides:

"Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof * * * may obtain a patent therefor."

This is the statute which secures to inventors the right of protection, and it is not the province of the courts to so limit the statute as to deprive meritorious inventors of its benefits. The word "process" is not used in the statute. The inventor of a new and useful art is distinctly entitled to the benefit of the statute as well as he who invents a machine, manufacture, or composition of matter. The word "process" has been brought into the decisions because it is supposedly an equivalent form of expression or included in the statutory designation of a new and useful art.

What then is the statutory right to a patent for a "process" when the term is properly considered? Curtis, in his work on the law of patents, says:

"A process may be altogether new, whether the machinery by which it is carried on be new or old. A new process may be invented or discovered, which may require the use of a newly-invented machine. In such case, if both the process and the machine were invented by the same person, he could take separate patents for them. A new process may be carried on by the use of an old machine, in a mode in which it was never used before. * * * In such a case, the patentability of the process in no degree depends upon the characteristic principle of the machine, although machinery is essential to the process, and although a particular machine may be required. (Curtis, 4th ed., sec. 14.)"

In Robinson on Patents (vol. 1, sec. 167) it is said:

"While an art cannot be practiced except by means of physical agents, through which the force is brought in contact with or directed toward its object, the existence of the art is not dependent on any of the special means employed. It is a legal, practical invention in itself. Its essence remains unchanged, whatever variation takes place in its instruments as long as the acts of which it is composed are properly performed."

And Walker on Patents (4th ed., sec. 3) states that valid process patents may be granted for—

"operations which consist entirely of mechanical transactions, but which may be performed by hand or by any of several different mechanisms or machines."

It is undoubtedly true, and all the cases agree, that the mere function or effect of the operation of a machine cannot be the subject-matter of a lawful patent. But it does not follow that a method of doing a thing, so clearly indicated that those skilled in the art can avail themselves of mechanism to carry it into operation, is not the subject-matter of a valid patent. The contrary has been declared in decisions of this Court. A leading case is Cochrane v. Deener, 94 U. S. 780, in which this court sustained a process patent involving mechanical operations, and in which the subject was discussed by Mr. Justice Bradley, speaking for the Court. On page 787 that learned justice said:

"That a process may be patentable, irrespective of the particular form of the instrumentalities used, cannot be disputed. * * * Either may be pointed out; but if the patent is not confined to that particular tool or machine, the use of the others would be an infringement, the general process being the same. A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. If new and useful,

it is just as patentable as is a piece of machinery. In the language of the patent law, it is an art. The machinery pointed out as suitable to perform the process may or may not be new or patentable, while the process itself may be altogether new, and produce an entirely new result. The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence.

This clear and succinct statement of the rule was recognized and applied (Mr. Justice Bradley again speaking for the Court) in the case of Tilghman v. Proctor, 102 U. S. 707. In the course of the opinion the learned justice tersely says:

"A machine is a thing. A process is an act, or a mode of acting. The one is visible to the eye—an object of perpetual observation. The other is a conception of the mind, seen only by its effects when being executed or performed. Either may be the means of producing a useful result."

That this Court did not intend to limit process patents to those showing chemical action or similar elemental changes is shown by subsequent cases in this Court.

In Westinghouse v. Boyden Company, 170 U. S. 537, the opinion was written by the same eminent justice who wrote the opinion in Risdon Locomotive Works v. Medart, 158 U. S., supra, and, delivering the opinion of the Court, he said:

"These cases (158 U. S. 68, and 103 U. S. 461) assume, although they do not expressly decide, that a process to be patentable must involve a chemical or other similar elemental action, and it may be still regarded as an open question whether the patentability of processes extends beyond this class of inventions."

And added these significant words:

"Where the process is simply the function or operative effect of a machine, the above cases are conclusive against its patentability; but where it is one which, though ordinarily and most successively performed by machinery, may also be performed by simple manipulation, such, for instance, as the folding of paper in a peculiar way for the manufacture of paper bags, or a new method of weaving a hammock, there are cases to the effect that such a process is patentable, though none of the powers of nature be invoked to aid in producing the result. (Eastern Paper-Bag Co. v. Standard Paper-Bag Co., 30 Fed. Rep. 63; Union Paper-Bag Machine Co. v. Waterbury, 39 Fed. Rep. 389; Travers v. Am. Cordage Co., 64 Fed. Rep. 771.) This case, however, does not call for an expression of our opinion upon this point, nor even upon the question whether the function of admitting air directly from the train-pipe to the brake-cylinder be patentable or not, since there is no claim made for an independent process in this patent, and the whole theory of the specification and claims is based upon the novelty of the mechanism."

And the same learned justice wrote the opinion of the Court in Carnegie Steel Co. v. Edward Thompson, 185 U. S. 403, and sustained a process patent. If by any construction that process could be said to involve a "chemical or other similar elemental action," no stress was laid upon that fact. This Court, speaking through Mr. Chief Justice Waite, sustained a patent in the Bell Telephone Cases, 126 U. S. 1, for a method of transmitting electrical undulations similar in form to the vibrations of the air accompanying vocal sounds, and at the same time the patent for the apparatus by which the method was operated was sustained.

In Leeds & Catlin v. Victor Talking Machine Company, decided at this term (213 U. S. 301, 308), this court said:

"A process and an apparatus by which it is performed are distinct things. They may be found in one patent; they may be made the subject of different patents."

We therefore reach the conclusion that an invention or discovery of a process or method involving mechanical operations, and producing a new and useful result, may be within the protection of the Federal statute, and entitle the inventor to a patent for his discovery.

We are of opinion that Golding's method was a substantial improvement of this character, independently of particular mechanisms for performing it, and the patent in suit is valid as exhibiting a process of a new and useful kind.

As to the infringement, little or no question was made in case No. 606. In case No. 66 the circuit court held that there was some evidence of infringement, enough at least to warrant the decree sustaining the patent and awarding an accounting. With this conclusion we agree. It follows that the decree of the Circuit Court of Appeals for the Third Circuit (No. 66) should be reversed and that of the Circuit Court of Appeals for the Sixth Circuit (No. 606) should be affirmed, and the cases remanded to the Circuit Courts of the United States for the Eastern District of Pennsylvania and the Northern District of Ohio, respectively, for further proceedings consistent with this opinion.

71. BERARDINI v. TOCCI, 190 Fed. 329 (C. C. N. Y. 1911, Patents Nos. 889,094 and 889,095).

Hough, D. J. * * *

It would, I think, be quite possible, if the earlier patent were for a combination of elements producing a new result, to show, first, that the elements were not new, and that the result was not new; but the patent must be judged according to its wording, and claims 1 to 6 thereof are not for any "composition of matters," nor a manufacture, nor a machine, but they are for (eo nomine) a "code message," and it necessarily follows that a code message must be an art within the meaning of Rev. Stat.,] 4886, as amended by Act

March 3, 1897, c. 391, § 1, 29 Stat. 692 (U. S. Comp. St. 1901, p. 3382).

It might be enough to bluntly hold that a code message cannot be an art, but that perhaps is interpreting the mere language of the claims too narrowly. It is therefore thought better to inquire what is an "art" within the meaning of the patent laws.

"In the sense of the patent law an art is not a mere abstraction. A system of transacting business, disconnected from the means for carrying out the system, is not, within the most liberal interpretation of the term, an art. Advice is not patentable." Hotel Security, etc., Co. v. Lorraine Co., 160 Fed. 469, 87 C. C. A. 451, 453, 24 L. R. A. (N. S.) 665.

A patent will not be "held valid for a principle, or for an idea, or any other mere abstraction." Fuller v. Yentzer, 94 U. S. 288, 24 L. Ed. 103.

Speaking of a patent which resulted in famous litigation, Shepley, J., said:

"It must be sustained, if it be sustained, as a patent for an art. The statute term 'art,' used, as it is in the sense of the employment of means to a desired end or the adaptation of powers in the natural world to the uses of life, is perhaps a better term than the word 'method' used by the patentee, or the word 'process,' the term of description used by the experts. A process eo nomine is not made the subject of a patent in the act of Congress; an art may require one or more processes or machines in order to produce a certain result or manufacture. It is for the discovery or invention of some practical method or means of producing an essential result or effect that a patent is granted, not for the result or effect itself. 'Process' or 'method,' when used to represent the means of producing a beneficial result, are in law synonymous with 'art,' provided the means are not effected by mechanism or mechanical combination." Piper v. Brown, 4 Fish. Pat. Cas. 175. Fed Cas. No. 11,180.[1]

[1] Note.—The patent that was involved in this case was also tested in Piper v. Moon, 10 Blatchf. 264, Fed. Cas. No. 11,182. Brown v. Piper, 91 U. S. 37, 23 L. Ed. 196, the decision of Shepley, J., was reversed, but without affecting the importance of the above-quoted discussion of the meaning of the statutory word "art."

If, therefore, this patent be construed as not merely for a thing called a "code message," but for a system of transmitting code messages, for a process or method of cable communication in cipher, the question arises whether such a process or such an art is patentable upon the evidence. Numerous cases have been cited relating to patents for index books, checks, and check books, and certain arrangements of printing upon books of account. Johnson v. Johnston, (C. C.) 60 Fed. 618; Carter Crume Co. v. American Salesbook Co., (C. C.) 124 Fed. 903; Thomson v. Citizens' Bank, 53 Fed. 250, 3 C. C. A. 518; Waring v. Johnson, (C. C.) 6 Fed. 500; Dugan v.

Gregg, (C. C.) 48 Fed. 227; Safeguard Acct. Co. v. Wellington, (C. C.) 86 Fed. 146. Upon examination each of these cases holds no more than a particular book, pamphlet, or sheet of paper treated to a particular style of printing, or arranged in a particular manner, could be patented as an article of manufacture, which is as much as to say that the paper, ink, and perhaps binding, when arranged as a composition of matter, became patentable by the presence of utility, novelty, and invention.

Such is not and cannot be the case here. No particular code message can be produced which in every exemplar thereof is the single subject of this patent. Indeed, the claims are misnomers. The patent is not intended to be for a code message, in the sense that patents have been granted for books of a peculiar kind. The patent is really for a system of devising code messages, and as such (upon a most liberal reading of the claims) it is in my judgment obnoxious to the remarks above quoted from Hotel Security Co. v. Lorraine Co. The patent is really for advice. It is for an art only in the sense that one speaks of the art of painting, or the art of curving the thrown baseball. Such arts, however, ingenious, difficult, or amusing, are not patentable within any statute of the United States.

72. SMITH v. NICHOLS, 88 U. S. 112, 22 L. ed. 566 (1874).

Mr. Justice Swayne stated the case more particularly, and delivered the opinion of the court.

* * *

The original patent was issued to the complainant on the 5th of April, 1853. On the 28th of March, 1867, it was extended for seven years. It was subsequently reissued in three divisions, as follows: Reissue No. 2656, June 18th, 1867, division A, for improvements in weaving; reissue No. 3014, June 20th, 1868, division B, for improvement in woven fabrics; and reissue No. 2844, January 14th, 1868, division C, for improvements in looms for weaving. Division B is the only one to be considered in this case. * * *

The claim is thus expressed:

"What, therefore, I claim as my invention in this subdivision of my patent is—

"The corded fabric, substantially as hereinbefore described, in which the cords are elastic and held between the upper and under weft threads, and separated from each other by the interweaving of the upper and under weft threads with the warp threads in the spaces between the cords, and only there, substantially as above shown."

* * *

The evidence before us leaves to the complainant none of the particulars claimed as of his invention, except perhaps greater tight-

ness of the weaving, a firmer grasping of the elastic cords by the weft theads half round, above and below, and greater beauty and value of the fabric. The entire ground of the controversy between the parties is reduced to this narrow isthmus, and the question presented for our determination is one rather of law than of fact.

A patentable invention is a mental result. It must be new and shown to be of practical utility. Everything within the domain of the conception belongs to him who conceived it. The machine, process, or product is but its material reflex and embodiment. A new idea may be ingrafted upon an old invention, be distinct from the conception which preceded it, and be an improvement. In such case it is patentable. The prior patentee cannot use it without the consent of the improver, and the latter cannot use the original invention without the consent of the former. But a mere carrying forward or new or more extended application of the original thought, a change only in form, proportions, or degree, the substitution of equivalents, doing substantially the same thing in the same way by substantially the same means with better results, is not such invention as will sustain a patent. These rules apply alike, whether what preceded was covered by a patent or rested only in public knowledge and use. In neither case can there be an invasion of such domain and an appropriation of anything found there. In one case everything belongs to the prior patentee, in the other, to the public at large.

The question before us must be considered in the light of these rules. All the particulars claimed by the complainant, if conceded to be his, are within the category of degree. Many textile fabrics, especially those of cotton and wool, are constantly improved. Sometimes the improvement is due to the skill of the workmen, and sometimes to the perfection of the machinery employed. The results are higher finish, greater beauty of surface, and increased commercial value. A patent for the better fabric in such cases would, we apprehend, be unprecedented. The patent in the present case rests upon no other or better foundation.

73. HOTCHKISS v. GREENWOOD, 11 How. (U. S.) 248, 13 L. ed. 683 (Patent No. 2,197).

Nelson, J.

This is a writ of error to the circuit court of the United States for the district of Ohio.

The suit was brought against the defendants for the alleged infringement of a patent for a new and useful improvement in making door and other knobs of all kinds of clay used in pottery, and of porcelain.

The improvement consists in making the knobs of clay or porcelain, and in fitting them for their application to doors, locks, and furniture, and various other uses to which they may be adapted; but

more especially in this, that of having the cavity in the knob in which the screw or shank is inserted, and by which it is fastened, largest at the bottom and in the form of dovetail, or wedge reversed, and a screw formed therein by pouring in metal in a fused state; and, after referring to drawings of the article thus made, the patentees conclude as follows:—

"What we claim as our invention, and desire to secure by letters-patent, is the manufacturing of knobs, as stated in the foregoing specifications, of potter's clay, or any kind of clay used in pottery, and shaped and finished by moulding, turning, burning, and glazing; and also of porcelain."

On the trial, evidence was given on the part of the plaintiffs tending to prove the originality and usefulness of the invention, and also the infringement by the defendants; and on the part of the defendants, tending to show the want of originality; and that the mode of fastening the shank to the knob, as claimed by the plaintiffs, had been known and used before, and had been used and applied to the fastening of the shanks to metallic knobs.

And upon the evidence being closed, the counsel for the plaintiffs prayed the court to instruct the jury that, although the clay knob, in the form in which it was patented, may have been before known, and used, and also the shank and spindle by which it is attached may have been before known and used, yet if such shank and spindle had never before been attached in this mode to a knob of potter's clay, and it required skill and invention to attach the same to a knob of this description, so that they would be firmly united, and make a strong and substantial article, and which, when thus made, would become an article much better and cheaper, than the knobs made of metal or other materials, the patent was valid, and the plaintiffs would be entitled to recover.

The court refused to give the instruction, and charged the jury that, if knobs of the same form and for the same purposes as that claimed by the patentees, made of metal or other material had been before known and used: and if the spindle and shank, in the form used by them, had been before known and used, and had been attached to the metallic knob by means of a cavity in the form of dovetail and infusion of melted metal, the same as the mode claimed by the patentees, in the attachment of the shank and spindle to their knob: and the knob of clay was simply the substitution of one material for another, the spindle and shank being the same as before in common use, and also the mode of connecting them by dovetail to the knob the same as before in common use, and no more ingenuity or skill required to construct the knob in this way than that possessed by an ordinary mechanic acquainted with the business, the patent was invalid, and the plaintiffs were not entitled to a verdict.

This instruction, it is claimed, is erroneous, and one for which a new trial should be granted.

The instruction assumes, and, as was admitted on the argument, properly assumes that knobs of metal, wood, etc., connected with a shank and spindle, in the mode and by the means used by the patentees in their manufacture, had been before known, and were in public use at the date of the patent; and hence the only novelty which could be claimed on their part was the adaptation of this old contrivance to knobs of potter's clay or porcelain; in other words, the novelty consisted in the substitution of the clay knob in the place of one made of metal or wood, as the case might be. And in order to appreciate still more clearly the extent of the novelty claimed, it is proper to add that this knob of potter's clay is not new, and therefore constiutes no part of the discovery. If it was, a very different question would arise; as it might very well be urged, and successfully urged, that a knob of a new composition of matter, to which this old contrivance had been applied, and which resulted in a new and useful article, was the proper subject of a patent.

The novelty would consist in the new composition made practically useful for the purposes of life, by the means and contrivances mentioned. It would be a new manufacture, and none the less so, within the meaning of the patent law, because the means employed to adapt the new composition to a useful purpose was old, or well known.

But, in the case before us, the knob is not new, nor the metallic shank and spindle, nor the dovetail form of the cavity in the knob, nor the means by which the metallic shank is securely fastened therein. All these were well known, and in common use, and the only thing new is the substitution of a knob of a different material from that heretofore used in connection with this arrangement.

Now it may very well be, that, by connecting the clay or porcelain knob with the metallic shank in this well known mode, an article is produced better and cheaper than in the case of the metallic or wood knob: but this does not result from any new mechanical device or contrivance, but from the fact that the material of which the knob is composed happens to be better adapted to the purpose for which it is made. The improvement consists in the superiority of the material, and which is not new, over that previously employed in making the knob.

But this, of itself, can never be the subject of a patent. No one will pretend that a machine made, in whole or in part, of materials better adapted to the purpose for which it is used than the materials of which the old one is constructed, and for that reason better and cheaper, can be distinguished from the old one, or, in the sense of the patent law, can entitle the manufacturer to a patent.

The difference is formal, and destitute of ingenuity or invention. It may afford evidence of judgment and skill in the selection and adaptation of the materials in the manufacture of the instrument for the purposes intended, but nothing more.

I remember having tried an action in the circuit in the district of Connecticut some years since, brought upon a patent for an improvement in manufacturing buttons. The foundation of the button was wood, and the improvement consisted in covering the face with tin, and which was bent over the rim so as to be firmly secured to the wood. Holes were perforated in the center, by which the button could be fastened to the garment. It was a cheap and useful article for common wear, and in a good deal of demand.

On the trial, the defendant produced a button, which had been taken off a coat on which it had been worn before the Revolution, made precisely in the same way, except the foundation was bone. The case was given up on the part of the plaintiff. Now the new article was better and cheaper than the old one; but I did not then suppose, nor do I now, that this could make any difference, unless it was the result of some new contrivance or arrangement in the manufacture. Certainly it could not, for the reason that the materials with which it was made were of a superior quality, or better adapted to the uses to which the article is applied.

It seemed to be supposed, on the argument, that this mode of fastening the shank to the clay knob produced a new and peculiar effect upon the article, beyond that produced when applied to the metallic knob, inasmuch as the fused metal by which the shank was fastened to the knob prevented the shank from acting immediately upon the knob, it being inclosed and firmly held by the metal; that for this reason the clay or porcelain knob was not so liable to crack or be broken, but was made firm and strong, and more durable.

This is doubtless true. But the peculiar effect thus referred to is not distinguishable from that which would exist in the case of the wood knob, or one of bone or ivory, or of other materials that might be mentioned.

Now if the foregoing view of the improvement claimed in this patent be correct, it is quite apparent that there was no error in the submission of the questions presented at the trial to the jury; for unless more ingenuity and skill in applying the old method of fastening the shank and the knob were required in the application of it to the clay or porcelain knob than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skillful mechanic, not that of the inventor.

We think, therefore, that the judgment is and must be affirmed.

74. SMITH v. GOODYEAR DENTAL VULCANITE CO., 93 U. S. 486, L. ed. 952 (Patent No. 18,763).

Mr. Justice Strong delivered the opinion of the Court. * * *

It plainly shows a purpose of the inventor to secure what had not been secured before,—a combination of a plate with artificial teeth, or with gums and teeth, in such a manner as to be free from the objections and defects or inconveniences attending the method before practiced of attaching such teeth to a metallic plate fitted to the roof of the mouth. Some of these objections are stated; such as expense, hurting the mouth, impeding mastication, and obstruction to perfect articulation. In carrying out the purpose proposed, the materials employed were all old. The teeth, the wax, the plaster, the moulds, the soft rubber, and the hard rubber, were none of them new. It is also true that the steps in the process were not all new. Plaster had been used for formation of moulds. The process of forming a plate by the use of such moulds was well known, and so was the process of converting a vulcanizable compound into vulcanite by heating it and allowing it to cool in moulds. But the process of Dr. Cummings extended beyond the use of known materials and the employment of the processes mentioned. It was vulcanizing soft rubber in a mould, and in contact with artificial teeth inserted in place into it while it remained in a soft condition. It was well described by the circuit judge as "the making of a vulcanite dental plate out of a vulcanizable compound, into which the teeth were embedded in its plastic condition, and the rubber compound, with the teeth thus embedded in it, afterwards vulcanized by heat, so that the teeth, gums, and plate should be perfectly joined without any intervening crevices, and the plate should possess the quality of hard rubber or vulcanite." The combination thus resulted in a manufacture which was "one piece." If, then, the claim be read, as it should be, in connection with the preceding part of the specification, and construed in the light of the explanation which that gives, the invention claimed and patented is "a set of artificial teeth as a new article of manufacture, consisting of a plate of hard rubber, with teeth, or teeth and gums, secured thereto in the manner described in the specification, by embedding the teeth and pins in a vulcanizable compound, so that it shall surround them while it is in a soft state, before it is vulcanized, and so that when it has been vulcanized the teeth are firmly and inseparably secured in the vulcanite, and a tight joint is effected between them, the whole constituting but one piece." It is evident this is much more than employing hard rubber to perform the functions that had been performed by other materials, such as gold, silver, tin, platinum, or gutta-percha. A new product was the result, differing from all that had preceded it, not merely in degree of usefulness and excellence, but differing in kind, having new uses and properties. It was capable of being perfectly fitted

to the roof and alveolar processes of the mouth. It was easy for the wearer, and favorable for perfect articulation. It was light and elastic, yet sufficiently strong and firm for the purposes of mastication. The teeth, gums, and plate constituting one piece only, there were no crevices between the teeth and their supporters into which food could gather, and where it could become offensive, and there could be no such crevices so long as the articles lasted. They were unaffected by any chemical action of the fluids of the mouth. Besides all this, they were very inexpensive as compared with other arrangements of artificial teeth. To us it seems not too much to say that all these peculiarities are sufficient to warrant the conclusion that the device was different in kind or species from all other devices. We cannot resist the conviction that devising and forming such a manufacture by such a process and of such materials was invention. More was needed for it than simply mechanical judgment and good taste. Were it not so, hard rubber would doubtless have been used in the construction of artificial sets of teeth, gums, and plates long before Cummings applied for his patent. To find a material, with a mode of using it, capable of being combined with the teeth in such a manner as to be free from the admitted faults of all other known combinations, had been an object long and earnestly sought. It had been a subject for frequent discussion among dentists and in scientific journals. The properties of vulcanite were well known; but how to make use of them for artificial sets of teeth remained undiscovered, and apparently undiscoverable, until Cummings revealed the mode. But when revealed its value was soon recognized, and no one seems to have doubted that the resulting manufacture was a new and most valuable invention. The eminent dentists and experts examined in this case uniformly speak of it as such. Not one has ventured to testify that it was not an invention. They speak of it as "a novel and desirable thing;" as "the greatest improvement in dentistry" made in many years; and as an invention which is "a great benefaction to mankind, whereby both health and comfort are promoted." The evidence also shows that it has wrought a revolution in dental practice, and that many thousands of operators are using it in preference to older devices. All this is sufficient, we think, to justify the inference that what Cummings accomplished was more than a substitution of one material for another; more than the exercise of mechanical judgment and taste,—that it was, in truth, invention. Undoubtedly, the results or consequences of a process or manufacture may in some cases be regarded as of importance when the inquiry is, whether the process or manufacture exhibits invention, thought, and ingenuity. Webster, on the subject-matter of patents, page 30, says: "The utility of the change, as ascertained by its consequences, is the real practical test of the sufficiency of an invention; and since the one cannot exist without

the other, the existence of the one may be presumed on proof of the existence of the other. Where the utility is proved to exist in any degree, a sufficiency of invention to support the patent must be presumed." We do not say the single fact that a device has gone into general use, and has displaced other devices which had previously been employed for analogous uses, establishes in all cases that the later device involves a patentable invention. It may, however, always be considered; and, when the other facts in the case leave the question in doubt, it is sufficient to turn the scale.

We have, therefore, considered this branch of the case without particular reference to Hotchkiss v. Greenwood, 11 How. 248. The patent in that case was for an improvement in making door and other knobs for doors, locks, and furniture, and the improvement consisted in making them of clay or porcelain, in the same manner in which knobs of iron, brass, wood, or glass had been previously made. Neither the clay knob nor the described method of attaching it to the shank was novel. The improvement, therefore, was nothexisted in other knobs. Hence it was ruled that the alleged iming more than the substitution of one material for another in constructing an article. The clay or porcelain door-knob had no properties or functions which other door-knobs made of different materials had not. It was cheaper, and perhaps more durable; but it could be applied to no new use, and it remedied no defects which provement was not a patentable invention. The case does decide that employing one known material in place of another is not invention, if the result be only greater cheapness and durability of the product. But this is all. It does not decide that no use of one material in lieu of another in the formation of a manufacture can, in any case, amount to invention, or be the subject of a patent. If such a substitution involves a new mode of construction, or develops new uses and properties of the article formed, it may amount to invention. The substitution may be something more than formal. It may require contrivance, in which case the mode of making it would be patentable; or the result may be the production of an analogous but substantially different manufacture. This was intimated very clearly in the case of Hicks v. Kelsey, 18 Wall. 670, where it was said: "The use of one material instead of another in constructing a known machine is, in most cases, so obviously a matter of mere mechanical judgment, and not of invention, that it cannot be called an invention, unless some new and useful result, as increase of efficiency, or a decided saving in the operation, be obtained."

But where there is some such new and useful result, where a machine has acquired new functions and useful properties, it may be patentable as an invention, though the only change made in the machine has been supplanting one of its materials by another. This

is true of all combinations, whether they be of materials or processes. In Crane v. Price, 1 Webst. Pat. Cas. 393, where the whole invention consisted in the substitution of anthracite for bituminous coal in combination with a hot-air blast for smelting iron ore, a patent for it was sustained. The doctrine asserted was, that if the result of the substitution was a new, a better, or a cheaper article, the introduction of the substituted material into an old process was patentable as an invention. This case has been doubted, but it has not been overruled; and the doubts have arisen from the uncertainty whether any new result was obtained by the use of anthracite. In Kneass v. Schuylkill Bank, the use of steel plates instead of copper for engraving was held patentable. So has been the flame of gas instead of the flame of oil to finish cloth. These cases rest on the fact that a superior product has been the result of the substitution,—a product that has new capabilities and that performs new functions. So in the present case the use, in the manner described, of hard rubber in lieu of the material previously used for a plate produced a manufacture long sought but never before obtained,—a set of artificial teeth, light and elastic, easily adapted to the contour of the mouth, flexible, yet firm and strong, consisting of one piece, with no crevices between the teeth and the plate impervious to the fluids of the mouth, unaffected by the chemical action to which artificial teeth and plates are subjected when in place, clean and healthy,—peculiarities which distinguish it from everything that had preceded it. These differences, in our opinion, are too many and too great to be ascribed to mere mechanical skill. They may justly be regarded as the results of inventive effort, and as making the manufacture of which they are attributes a novel thing in kind, and consequently patentable as such.

75. STOW v. CHICAGO, 104 U. S. 547, 26 L. ed. 816.

Mr. Justice Woods delivered the opinion of the court.

* * *

In this court he relies exclusively on the first and fourth patents set out in his bill. They will be separately considered. The first relied on is the reissue, No. 3274, dated Jan. 19, 1869, of an original granted to him, numbered 72,110, and dated Dec. 10, 1867.

(Reissue No. 3274). All, therefore, that there is left for the invention described in the first and third claims to cover is the making of the lower ends of a portion of the blocks of which the pavement is composed in wedge shape, and the driving of these wedge-shaped blocks below the general under-surface of the pavement into the sand or earth-bed on which it rests, so as to pack it and render it solid and unyielding. When thus reduced to what it really is, his invention is clearly and distinctly anticipated by the

English patent issued to David Stead, dated April 23, 1839, which is set out in full in the record. * * *

It is true that this specification does not in terms say that the purpose of driving the wedge-shaped block or pile through the space left by the octagonal blocks is to pack the earth or sand foundation, but that it does so as effectually as the use of similar blocks in a similar way under the patent of appellant, is too clear for argument. A patentee who is the first to make an invention is entitled to his claim for all the uses and advantages which belong to it. Woodman v. Stimpson, 3 Fish. Pat. Cas. 98.

It is shown that Stead invented this device. Whether he perceived and stated all its advantages is immaterial. Graham v. Mason, 5 id. 1; Tucker v. Spaulding, 13 Wall. 453.

Stead's specification, it is clear, covers (to use the language of Stow's reissued patent) "a pavement composed of wood laid on a foundation-bed of sand or loose earth," and having "a portion of the blocks of which it is composed driven down into said foundation-bed."

Everything, therefore, in the first and third claims of the appellant's reissued patent, which he sets up as new, was anticipated nearly thirty years by Stead's English patent. Appellant's patent, therefore, so far as it covers these claims, is void, and cannot be the foundation of any relief against the appellee.

The other patent which the appellant insists that the city infringed, is No. 134,404, dated Dec. 31, 1872, issued to him as the original inventor. * * *

The use of wood for street pavements, the laying of the blocks directly upon a sand foundation, the placing of the blocks in rows, leaving spaces between the rows, are all old devices. * * *

Nor is the filling with sand or gravel of the spaces between the blocks, or rows of blocks, of which the pavement is composed, a new device. * * *

All, therefore, that is left for the patent of the appellant, now under consideration, to cover, is the ramming of the gravel between the blocks, of which the pavement is composed, so as to drive the same into the sand foundation below the blocks, in order to pack it so that the pavement may sustain the weight of heavy vehicles without giving way. * * *

We have here every part of the invention described in the letters-patent under consideration, except that it does not appear that the gravel in the spaces between the rows was so compactly rammed as to drive it below the under-surface of the pavement into the earth foundation. All, therefore, that is left for the appellant's patent of 1872 to cover is the giving of a few more strokes with the rammer, whereby the gravel filling may be forced into the earth foundation of the pavement. Can this be called invention?

The testimony shows that the pavements which he charges infringe his patent of 1872 are constructed according to the plan adopted by Thompson in 1864, and it fails to show that in their construction the gravel filling was forced by the ramming into the earth foundation on which they were laid. So that if there is anything new or patentable embraced in his patent of 1872, that part of his device is not infringed by the city.

Therefore, without noticing the other defenses, we declare our opinion to be that he is not entitled to any relief against the city upon either of the patents on which his demand for relief is now based. His case as presented here has no ground to stand on.

Decree affirmed.

76. ATLANTIC WORKS v. BRADY, 107 U. S. 192, 27 L. ed. 438, 2 Sup. Ct. 225 (1883, Patent No. 72,360).

Bradley, J. This case arises upon a bill in equity filed by Edwin L. Brady against the Atlantic Works, a corporation of Massachusetts, having workshops and a place of business in Boston, praying for an account of profits for building a dredge-boat in violation of certain letters patent granted to the complainant, bearing date December 17, 1867, and for an injunction to restrain the defendants from making, using, or selling any dredge-boat in violation of said letters patent. * * *

The defendants, in their answer, denied the validity of the patent, and denied infringement of any valid patent of the complainant. They then stated the circumstances under which they came to construct the dredge-boat complained of, namely: That in October, 1867, the government of the United States advertised for proposals for building a dredge-boat for the mouth of the Mississippi river, according to certain plans and specifications; that the defendants, boats, examined the plans and specifications, and made proposals for building the boat according to the same, which were accepted, and being manufacturers and builders of marine engines and steam-they at once began the construction of the boat and completed it under the inspection and supervision of a United States officer, in conformity with the stipulations, and the boat went in charge of said officer to the mouth of the Mississippi river: that the said plans and specifications were made and furnished by Gen. McAlester, of the engineer corps of the United States, for the use of the government, and were the result of his own study, observations, and experience, and that, so far as they were original, he was the author of them. * * *

It is obvious, from reading the specifications, that the alleged invention consists mainly in attaching a screw (which the patentee calls a mud-fan) to the forward end of a propeller dredge-boat, provided with tanks for settling her in the water. It is operated by

sinking the boat until the screw comes in contact with the mud or sand, which, by the revolution of the screw, is thrown up and mingled with the current. The use of a series of tanks for the purpose of keeping the vessel level while she settles is an old contrivance long used in dry-docks, and is shown by the evidence to have been used in many light-draught monitors during the late war. The defendants themselves built one of these vessels—the Casco. * * *

The employment of their screws by propeller ships, driven stern foremost, for the removal of sand and mud accumulated at the mouths of the Mississippi, had frequently occurred years before the patentee's invention is alleged to have been made. Several French steamers, one of which was named the Francis Arago, had used this method there prior to the year 1859. In that year the Enoch Train, a double propeller,—that is, having two screws at her stern,—was used in the same way by certain contractors under the government for dredging the mouth of the Mississippi. * * *

The boat built by the defendants, which was called the Essayon, was operated in precisely the same way. Being built expressly for dredging, her dredging screw was placed at her stern, it is true; but her mode of operation was the same as that of the Enoch Train. * * *

The making of them with longer blades than those of the propelling screw, and sharpened at the points, would be a matter of course. No invention would be requisite for any of these arrangements. It seems to us that the whole principle of the Essayon's construction and furnishment, as well as that of the patent in question, was anticipated by the Enoch Train, if not by the French steamers, and that a patent for that principle, though qualified by the natural incidents and adjuncts of its application, ought not to be sustained.

The process of development in manufactures creates a constant demand for new appliances, which the skill of ordinary head-work men and engineers is generally adequate to devise, and which, indeed, are the natural and proper outgrowth of such development. Each step forward prepares the way for the next, and each is usually taken by spontaneous trials and attempts in a hundred different places. To grant a single party a monopoly of every slight advance made, except where the exercise of invention somewhat above ordinary mechanical or engineering skill is distinctly shown, is unjust in principle and injurious in its consequences.

The design of the patent laws is to reward those who make some substantial discovery or invention, which adds to our knowledge and makes a step in advance in the useful arts. Such inventors are worthy of all favor. It was never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled

mechanic or operator in the ordinary progress of manufactures. Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country, without contributing anything to the real advancement of the art. It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits and vexatious accountings for profits made in good faith.

But the Enoch Train did not exhibit all that was done in the matter of dredge-boats anterior to the alleged invention of Brady. If the application of dredging screws to the stem of a boat, driven by a propeller or otherwise, was not formerly exhibited in the Enoch Train, it was certainly exhibited in the invention of one Ephraim B. Bishop, which was patented in April, 1858, and was applied by Brady himself to a dredge-boat called the Wiggins Ferry, fitted up and operated by him at the mouth of the Mississippi in 1866. * * *

It is clear, then, that Brady did not invent the furnishing of vessels with water-tanks, so arranged as to sink them on an even keel; for these had been used long before in the light-draught monitors; he did not invent the use of revolving screws on a dredging-boat, for cutting and stirring up the mud and sediment; for these had been used for that purpose on the French steamers, and on the Enoch Train, in and prior to 1859; he did not invent the use of water-tanks in a dredging-boat for sinking the screws down to the bottom or bar to be dredged; for this plan had been adopted in the Enoch Train; he did not invent the application of screws to the forward end of a dredge-boat, so as to work in advance of the boat; for this had been virtually done on the Enoch Train, and was formerly done on the Wiggins Ferry, the plan of which had been invented by Bishop in 1858. What, then, did he invent? Did he make a selection and combination of these elements that would not have occurred to any ordinary skilled engineer called upon, with all this previous knowledge and experience before him, to devise the construction of a strong dredge-boat for use at the mouth of the Mississippi? We think not. We think that there is no reasonable ground for any such pretension.

But if a different conclusion could be reached, to our minds it is as certain as any fact depending on conflicting testimony can be, that Brady derived the ideas embraced in his patent from Gen. McAlester, the government officer, who in 1866 and 1867 had charge of the improvements at the mouth of the Mississippi river, and that he never conceived these ideas till they were communicated and explained to him by Gen. McAlester during the fitting up of

the Wiggins Ferry at New Orleans, and during the progress of her operations at the Southwest pass. * * *

Sufficient appears, however, notwithstanding the evidence adduced to the contrary, consisting mostly of the testimony of the complainant himself, to convince us that Brady derived his whole idea from the suggestions of Gen. McAlester; and that the plans for the construction of the Essayon originated entirely with that officer.

Our conclusion is that the patent sued on cannot be sustained, and that the decree of the circuit court must be reversed, and the cause remanded, with instructions to dismiss the bill of complaint.

Decree reversed accordingly.

77. PENNSYLVANIA R. R. CO. v. LOCOMOTIVE ENGINE SAFETY TRUCK CO., 110 U. S. 490, 28 L. ed. 222, 4 Sup. Ct. 220 (1884).

Gray, J. This is an appeal by the defendant below from a decree against it upon a bill in equity for the infringement of letters patent granted on February 11, 1862, to Alba F. Smith, for an improvement in trucks for locomotive engines. [Patent No. 34,377.] * * *

It is settled by many decisions of this court. which it is unnecessary to quote from or refer to in detail, that the application of an old process or machine to a similar or analogous subject, with no change in the manner of application, and no result substantially distinct in its nature, will not sustain a patent, even if the new form of result has not before been contemplated. Hotchkiss v. Greenwood, 11 How. 248; Phillips v. Page, 24 How. 164, 167; Jones v. Morehead, 1 Wall. 155, overruling S. C. nom. Livingston v. Jones, 1 Fisher, Pat. Cas. 521; Hicks v. Kelsey, 18 Wall. 670; Smith v. Nichols, 21 Wall. 112; Brown v. Piper, 91 U. S. 37; Roberts v. Ryer, Id. 150; Keystone Bridge Co. v. Phoenix Iron Co., 95 U. S. 274, 276; Planing-Machine Co. v. Keith, 101 U. S. 479, 491; Pearce v. Mulford, 102 U. S. 112; Heald v. Rice, 104 U. S. 737, 754-756; Atlantic Works v. Brady, 107 U. S. 192 [S. C. Sup. Ct. Rep. 225].

In the well-known case of Crane v. Price, in which the English court of common pleas upheld a patent for using anthracite, instead of bituminous coal, with the hot blast in smelting iron ore, the evidence, as Chief Justice Tindal remarked, proved beyond doubt that, in the result of the combination of the hot-air blast with the anthracite, not only was the yield of the furnace more, and the expense of making the iron less, but "the nature, properties, and quality of the iron were better" than under the former process by means of the combination of the hot-air blast with bituminous coal. 4 Man. & G. 580, 604; 5 Scott, N. R. 338, 389; I Webs. Pat. Cas. 393, 410. And the decision rests, as was pointed out by Chief Baron Pollock and Baron Parke, in Dobbs v. Penn, 3 Exch. 427, 432, 433, and by

Mr. Justice Bradley, in Hicks v. Kelsey, supra, upon the ground that a new metal or composition of matter was produced. As observed by Mr. Justice Bradley, "in compositions of matter a different ingredient changes the nature of the compound, whereas an iron bar in place of a wooden one, and subserving the same purpose, does not change the identity of a machine." 18 Wall. 674. So in Smith v. Goodyear Dental Vulcanite Co., in this court, as was observed by Mr. Justice Strong, in delivering its judgment: "A new product was the result, differing from all that had preceded it, not merely in degree of usefulness and excellence, but differing in kind, having new uses and properties." 93 U. S. 486, 494. See, also, Goodyear Dental Vulcanite Co. v. Davis, 102 U. S. 222.

Upon the principles which must govern this case, the decision of this court and of the highest courts of England are in full accord, as will appear by referring to three cases, fully argued and considered, all of which were carried to the exchequer chamber, and two of which were finally decided in the house of lords.

In Bush v. Fox, a patent for constructing the interior of a caisson or cylinder with successive chambers to work in, "in such manner that the work-people may be supplied with compressed air, and be able to raise the material excavated, and to make or construct foundations and buildings," under water, when a similar apparatus had already been used for working underground on land, was held by Chief Baron Pollock, by the court of exchequer chamber, and by the house of lords, to be void for want of novelty, after able arguments, in support of the patent by Sir Alexander Cockburn, then attorney general, and by Mr. Webster, the accomplished patent counsel, at the successive stages of the case. Macrory, Pat. Cas. 152, 167, 179; 9 Exch. 651; 5 H. L. Cas. 707.

So the court of queen's bench held that the finishing of yarns of wool or hair by a process previously applied to yarns of cotton and linen, by subjecting them, while distended and kept separate, to the action of rotatory beaters or burnishers, by which they would be burnished or polished on all sides, was not the subject of a patent, because, as Lord Campbell said, in order to sustain a patent for the application of an old process to a new purpose, "there must be some invention in the manner in which the old process is applied;" "here there is no novelty in the mode of application," "but merely the application of a known process by a known means to another substance." Brook v. Aston, 27 Law. J. (N. S.) Q. B. 145; S. C. 4 Jur. (N. S.) 279; S. C. (with the opinion less fully reported), 8 El. & Bl. 478. The judgment was unanimously affirmed in the exchequer chamber. Of the opinions there delivered, it is sufficient to quote from that of Baron Martin, who, after expressing his concurrence in the statement of Mr. Justice Willes, in Patent Bottle Envelope Co. v. Seymer, 28 Law J. (N. S.) C. P. 22, 24; S. C. 5

C. B. (N. S.) 164, 173, that "the application of a well known tool to work previously untried materials, or to produce new forms, is not the subject of a patent," added, "When a machine is well known, it becomes in fact a tool." 28 Law J. (N. S.) Q. B. 175, 176; 5 Jur. (N. S.) 1025, 1027.

But perhaps the most important English case is that of Harwood v. Great Northern Ry. Co., 2 Best & S. 194, 222, and 11 H. L. Cas. 654. In that case a patent was obtained for "improvements in fishes and fish-joints for connecting the rails of railways." In the specification the patentee stated that in securing the joints of rails it had been found advantageous to attach to each side of the rails, by means of bolts and rivets, pieces of iron commonly called "fishes;" and described his invention as consisting in making the fishes with a groove or recess in their outer surfaces, so as to receive the square heads of the bolts or rivets, and to prevent them from turning round while the nuts on the other side were being screwed on or off, and also to avoid the danger of the flanges of the wheels of the carriages striking against the heads; and he claimed "the constructing fishes for connecting the rails of railways, with a groove adapted for receiving the heads of the bolts or rivets employed for securing such fishes, and the application of such fishes for connecting the rails of railways." In an action for the infringement of that patent, it appeared that fishes for connecting the rails of railways had never before been made with a groove or recess in their outer surfaces, so as to receive the square heads of the bolts. But it was proved that in the construction of several railway bridges, beams of timber had been laid horizontally, one above the other, and fastened or bolted together with bolts and nuts; horizontal bars or plates of iron placed beneath, parallel to and in contact with the beams, and fastened or bolted by the same bolts and nuts, and each of these bars or plates of iron constructed with a groove in its under surface, which received the square heads of the bolts, and which served the double purpose of strength and of preventing the heads of the bolts from turning round. In those bridges there were no joints to be fished by the bars or plates of iron, nor were there corresponding bars or plates of iron above the horizontal beams of timber. But it was also proved that a bridge, known as the Hackney bridge, having too great a span to be conveniently crossed by a single beam, had been constructed with two horizontal longitudinal beams of timber on each side, the ends of which met and were joined together in the middle of the bridge by scarf-joints: that beneath those beams were transverse planks, constituting the flooring of the bridge, and beneath the planks were bars of grooved iron, like those used in the other bridges, carried under the scarf-joints, and under the whole length of the horizontal beams; that above and immediately over each scarf-joint, extending 18 inches beyond each end of the joint,

and resting immediately upon the longitudinal beam, was a horizontal flat plate of iron 13 feet in length; and that the bolts passed upwards through the grooved iron bars, the transverse planking, and the longitudinal beams, and also, at the middle of the bridge, through the plates of iron over the scarf-joints.

A verdict supporting the patent was obtained under the rulings of Lord Chief Justice Cockburn, and affirmed by the court of queen's bench. But its judgment was unanimously reversed in the exchequer chamber in a considered judgment delivered by Mr. Justice Willes; and the judgment of reversal was affirmed by the house of lords, in accordance with the opinions of Lord Chancellor Westbury, Lord Cranworth, and Lord Wensleydale, and of a majority of the judges who attended, upon the ground, as stated by the lord chancellor, that the application of the channelled iron horizontally under the timbers of a bridge being well known, "the channelled iron was applied in a manner which was notorious, and the application of it to a vertical fish would be no more than the application of a well-known contrivance to a purpose exactly analogous or corresponding to the purpose to which it had been previously applied." 11 H. L. Cas. 683. And all who gave opinions in the house of lords concurred with the court of exchequer chamber in the proposition of law that the mere application of an old contrivance in an old way to an analogous subject, without any novelty in the mode of applying such old contrivance to the new purpose, is not a valid subject-matter of a patent. 2 Best & S. 228; 11 H. L. Cas. 666, 672, 682, 684, 685.

In the case at bar, the old contrivance of a railroad truck, with the swiveling king-bolt, transverse slot, and pendent divergent links, already in use under railroad cars, is applied in the old way, without any novelty in the mode of applying it, to the analogous purpose of forming the forward truck of a locomotive engine. This application is not a new invention, and therefore not a valid subject of a patent.

The decree of the circuit court must therefore be reversed, and the case remanded, with directions to dismiss the bill.

78. THOMPSON v. BOISSELIER, 114 U. S. 1, 29 L. ed. 76, 5 Sup. Ct. 1042 (1885, Patent No. 21,734).

Blatchford, J.: * * *

The third claim of the Carr reissue is as follows: "Third. I claim, in a valve for water-closets, a cup-leather for controlling the motion of said valve in closing gradually, substantially as specified, said cup-leather moving freely in one direction, and closing against the containing cylinder in the other direction, and the leakage of water in said cylinder allowing the movement of said cup-leather as set forth." * * *

All that Carr did, if anything, was to add his form of orifice to the valve and cup-leather of the pump-plunger. But the idea of having openings extending from one side to the other of a bucket, and thus regulating the closing of a water-valve by the slow escape of the water from the upper side of the bucket, through such openings, was fully exhibited in the apparatus of Hulme.

The claim involves, therefore, as an element in it, the means of leakage set forth. It says that the use of the cup-leather is "for controlling the motion of said valve in closing gradually, substantially as specified." But it is the gradual escape of the water through the small orifice which controls the motion of the valve. The cup-leather does not control such motion. The only action of the cup-leather is the same which it had in the old pump-plunger: to hold up a column of water and act as a packing to prevent the return passage of the water. In this condition of things it would seem that the only point of invention, if it could be dignified by that name, was the special means of leakage shown by Carr, of having a screw through the cap, with part of the screw filed away; and which is not used by the defendants, who use the same means of leakage as Hulme did.

The provision of the constitution (article 1, § 8, subd. 8,) is that congress shall have power "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." The beneficiary must be an inventor and he must have made a discovery. The statute has always carried out this idea. Under the act of July 4, 1836, (5 St. 119, § 6,) in force when these patents were granted, the patentee was required to be a person who had "discovered or invented" a "new and useful art, machine, manufacture, or composition of matter," or a "new and useful improvement in any art, machine, manufacture, or composition of matter." In the act of July 8, 1870, (16 St. 201, § 24,) the patentee was required to be a person who had "invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof;" and that language is reproduced in section 4886 of the Revised Statutes. So, it is not enough that a thing shall be new, in the sense that in the shape or form in which it is produced it shall not have been before known, and that it shall be useful, but it must, under the constitution and the statute, amount to an invention or discovery.

To refer only to some more recent cases, adjudged since these suits were decided below, this principle was applied in Vinton v. Hamilton, 104 U. S. 485, where, a cupola-furnace being old, and a cinder-notch being old, and the use of a cinder-notch to draw off cinders from a blast-furnace being old, and the cinder-notch, in drawing off the cinder from a cupola-furnace, performing the same

function as in the blast-furnace, it was held that the application of the cinder-notch to the cupola-furnace would occur to any practical man, and that there was nothing patentable in such application.

In Hall v. Macneale, 107 U. S. 90; S. C. 2 Sup. Ct. Rep. 73, a cored conical bolt, in a safe, with a screw-thread on it, having existed before, and also a solid conical bolt, it was held to be no invention to add the screw-thread to the solid conical bolt.

In Atlantic Works v. Brady, 107 U. S. 192, 200; S. C. 2 Sup. Ct. Rep. 225, it was said, that it is not the object of the patent laws to grant a monopoly for every trifling device which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures: and this doctrine was applied in Slawson v. Grand St. R. Co., 107 U. S. 649; S. C. 2 Sup. Ct. Rep. 663; in King v. Gallun, 109 U. S. 99; S. C. Sup Ct. Rep. 85; in Double-pointed Tack Co. v. Two Rivers Manuf'g Co., 109 U. S. 117; S. C. 3 Sup. Ct. Rep. 105; in Estey v. Burdett, 109 U. S. 633; S. C. 3 Sup. Ct. Rep. 531; in Bussey v. Excelsior Manuf'g Co., 110 U. S. 131; S. C. 4 Sup. Ct. Rep. 38; in Pennsylvania R. Co. v. Locomotive, etc., Truck Co., 110 U. S. 490; S. C. 4 Sup. Ct. Rep. 220; in Phillips v. City of Detroit, 111 U. S. 604; S. C. 4 Sup. Ct. Rep. 580; in Morris v. McMillin, 112 U. S. 244; S. C. 5 Sup. Ct. Rep. 218; and in Hollister v. Benedict & Burnham Manuf'g Co., 113 U. S. 59; S. C. 5 Sup. Ct. Rep. 717.

In the case last cited the thing claimed was new, in the sense that it had not been anticipated by any previous invention, and it was shown to have superior utility, yet it was held not to be such an improvement as was entitled to be regarded, in the patent law, as an invention. The claim was "A stamp, the body of which is made of paper or other material, and having a removable slip of metal or other material, displaying thereon a serial number, or other specific identifying mark, corresponding with a similar mark upon the stub, and so attached that the removal of such slip must mutilate or destroy the stamp." The part designed to become a stub when the stamp proper was separated therefrom, and displaying a serial number, was well known; and so was a constituent part of the stamp proper designed to be permanently attached to a barrel. The third element, namely, a constituent part of the stamp proper displaying the same identifying serial number as the stub, which part, after the stamp proper had been affixed to the barrel, bore such relation to the permanent part, that it could be removed therefrom so as to retain its own integrity, but to mutilate, and thereby cancel, the stamp, by its removal, was not new, so far as the contents of such constituent part were identical with those on the stub. But the question turned on that feature of the third element whereby a removable part of the stamp proper, the contents of which identified the stamp with the stub after the stamp had been attached, could be so re-

moved as to retain its own integrity, but mutilate, and thereby conceal, the stamp, by its removal. This was held not to be a patentable invention; and "not to spring from that intuitive faculty of the mind put forth in the search for new results, or new methods, creating what had not before existed, or bringing to light what lay hidden from vision;" but to be only "the display of the expected skill of the calling," and involving "only the exercise of the ordinary faculties of reasoning upon the materials supplied by a special knowledge, and the faculty of manipulation which results from its habitual and intelligent practice;" and to be "in no sense the creative work of that inventive faculty which it is the purpose of the constitution and patent laws to encourage and reward."

On these principles claim 3 of the Carr reissue must, in view of the state of the art, either be held not to involve a patentable invention, or if it does, not to have been infringed. * * *

From these considerations it results that the decrees in the Missouri suits must be affirmed; and those in the New York suits must be reversed, with directions to dismiss the bills, with costs.

79. ARON v. MANHATTAN R. CO., 132 U. S. 84, 33 L. ed. 272 (1889).

Blatchford, J. This is a suit in equity, brought by Joseph Aron against the Manhattan Railway Company, in the circuit court of the United States for the southern district of New York, to recover for the infringement of letters patent No. 288,494. * * *

The drawings annexed to the patent represent two ordinary railway cars, with platforms adjoining each other, and the usual entrances from the station platform, and gates of the ordinary construction for closing such entrances. The gates are hinged in the usual manner to posts which rise from the corners of the platforms, and close against the usual jambs which project from the sides of the cars. The platforms are provided with the usual guard-railings, extending inward from the above-mentioned posts to similar posts which are located a sufficient distance apart to leave a passage-way from one car to the other. When the gates are thus arranged, it is necessary, in order to close or open both gates, for the guard to pass from one platform around the inner post to the opposite platform, thus causing some delay in opening and closing one of the gates, adding to the labor of the guard, and causing annoyance to the passengers. In order to avoid this, each of the gates is provided, at a suitable distance from its hinge, with a curved lever, which extends rearward, and terminates a short distance outside of the guard-railing. This lever is connected by a link, *e*, with a rod, *f*, which slides in or on a suitable bearing secured to the guard-railing, and is provided at its inner end with a handle by which it can be operated. The guard or attendant, while standing in the passage-way,

can, by grasping the two handles, and pushing or pulling the rods, *f*, open or close both gates simultaneously, and without loss of time. * * *

The opinion of Judge Wallace is reported in 26 Fed. Rep. 314. The only question he considered was that of the patentable novelty of the improvement, saying: "A brief reference to the prior state of the art will indicate that the combinations referred to in the several claims are merely an application to a new situation of old devices which had previously been applied to analogous uses. Devices to open and close an aperture at a distance from the operator, in a great variety of forms, were old. As illustrations of those things which are matters of common knowledge, and of which the court will take judicial notice, it is sufficient to allude to the strap used by the driver at the front of the omnibus to open and close the rear door; to the devices for opening or closing valves at a distance, in steam and hydraulic apparatus; and to the devices used at railway switches for opening and closing the rails. Referring to the prior state of the art, as shown by various prior patents which have been introduced in evidence, it appears also that mechanism to open and close the entrance to passenger cars at a point distant from the operator was likewise old; as where the operator standing upon the front platform employed such mechanism to open or close a door at the rear platform. One prior patent alone—the one granted to John Stephenson, September 15, 1874—shows five methods of closing and opening the rear door of street-cars from the front platform. Mechanism for closing and opening apertures at a distance from the operator, in which the same devices were employed as are employed by the patentee, was old, and is disclosed in a number of earlier patents, which have been put in evidence. It will suffice to refer to two only. The patent to Woolensak of March 11, 1873, for an improvement in transom-lifters, describes the means for opening and closing the transom as consisting of a sliding rod, which is connected by a pivoted link to the arm of the transom frame. The patent to Carrigan, granted April 16, 1878, for an improvement in blind-adjusters, whereby outside blinds are opened and closed without lifting the window-sash, describes as the mechanism employed a sliding bar connected by a pivoted link with a hinged shutter. In both of these patents the aperture to be opened and closed at a distance from the operator—in the one case a shutter, and in the other a transom—is opened and closed, as is the case in the patent in suit, by pushing or pulling the sliding rod or bar. In both of these patents there is likewise described a locking device, by means of which the sliding rod or bar is retained in a fixed position, so that the shutter or the transom will remain fastened when opened or closed, at the option of the operator; thus showing opening, closing, and locking apparatus in all essentials like that of the patent in suit.

Moreover, the patent to Carrigan shows this apparatus arranged to open and close the two shutters of the window, at the option of the operator, simultaneously, the sliding bars being so arranged as to be pushed or pulled each by one hand of the operator. Mechanism for opening and closing apertures distant from the operator, in which the devices used for the purpose are the mechanical equivalents of those employed by the patentee, is shown to be old by a large number of patents which have been put in evidence. This particular exhibit of the prior state of the art demonstrates that what the patentee did was to adapt well-known devices to the special purpose to which he contemplated their application. It was necessary that the gate should swing inward to open, and outward to close; that the sliding rod should be located where it would be out of the way of passengers entering or leaving the platform; and that the end or handle of the rod should be located where it could be conveniently operated by the attendant, without inconveniencing outgoing or incoming passengers. The new situation required adequate modifications of existing devices for opening and closing an aperture at a distance from the operator, appropriate to the new occasion. Accordingly, the patentee located the rods on bearings secured to the guard-rails, with their handles near the passage-way formed by the space or opening near the middle of the guard-rail. If this required invention his improvement was the proper subject of a patent. He did nothing more, and nothing less, than this. It seems impossible to doubt that any competent mechanic familiar with devices well-known in the state of the art, could have done this readily and successfully, upon the mere suggestion of the purpose which it was desirable to effect. When it was done as to one car platform, it was only requisite to duplicate it upon another, to make the improvement of the patentee in all its length and breadth. The patentee is entitled to the merit of being the first to conceive of the convenience and utility of a gate opening and closing mechanism which could be operated efficiently by an attendant in the new situation. His right to a patent, however, must rest upon the novelty of the means he contrives to carry his idea into practical application. It rarely happens that old instrumentalities are so perfectly adapted for a use for which they were not originally intended as not to require any alteration or modification. If these changes involve only the exercise of ordinary mechanical skill, they do not sanction the patent; and in most of the adjudged cases, where it has been held that the application of old devices to a new use was not patentable, there were changes of form, proportion, or organization of this character which were necessary to accommodate them to the new occasion. The present case falls within this category."

We concur in these views, and affirm the decree of the circuit court.

80. BUTLER v. STECKEL, 137 U. S. 21, 34 L. ed. 582, 11. Sup. Ct. 25 (1890).

Blatchford, J. This is a suit in equity, brought in the circuit court of the United States for the northern district of Illinois, March 28, 1883, by Theodore H. Butler, George W. Earhart, and William M. Crawford, against George Steckel and Frederick Steckel, to recover for the infringement of letters patent No. 274,264, granted to the plaintiffs March 20, 1883, on an application filed July 6, 1882, for an "improvement in bretzel cutters." * * *

It is urged by the appellants that the circuit court erred in finding as a fact that dies existed which cut cakes in the shape of the capital letter B and the character &, with two or more scrap passages, but we find that the evidence establishes that fact. In view of the testimony as to the state of the art, it required no invention to make a single die to cut dough, on a flat surface, into any particular shape desired, whether the shape of a bretzel or any other shape. Smith v. Nichols, 21 Wall. 112, 119; Dunbar v. Myers, 94 U. S. 187, 199; Pomace Holder Co. v. Ferguson, 119 U. S. 335, 338, 7 Sup. Ct. Rep. 382, and cases there cited; Peters v. Manufacturing Co., 130 U. S. 626, 628, 629, 9 Sup. Ct. Rep. 643; Watson v. Railway Co., 132 U. S. 161, 167, 10 Sup. Ct. Rep. 45. All that it was necessary to do was to take the bretzel as a pattern, and make a die to correspond in shape with it. The bretzel presented all the lines and creases, points and configurations, that were required in the die. The question was one, not of invention, but simply of mechanical skill and limitation. The perforations in the die for the passing upward of the scraps, and the expelling studs for pushing off the bretzel from the die, and all the details specified in the second claim of the patent, were old in machines that had been used by bakers for many years. All that was necessary was to take out the old cutter, and put in one in the reverse form of a bretzel. The rest of the machine had been used in the same way, in connection with other forms of dies. There is nothing in the suggestion that bretzel dough is different from other doughs, in respect to the action of a die upon it. In regard to the point taken that the existence of invention in this case is shown by the fact that a large number of persons had before attempted unsuccessfully to make a machine to cut bretzels, and had expended considerable money and time for that purpose, it is to be said, as stated by the circuit court, that most of them were engaged in trying to draw out and twist the dough by machinery, rather than to cut out the form of a bretzel by a single die from a flat sheet, or else were endeavoring to cut bretzels with dies set in revolving cylinders. It also appears that those efforts were largely made in attempts to cut out the bretzel by two opposite dies, and that, as soon as the idea occurred of cutting the dough by a single die from a flat sheet, success came at once, by merely

changing the shape of the old single die. It also appears, as suggested by the circuit court, that there was a prejudice against machine-made bretzels. The decree of the circuit court is affirmed.

81. WESTERN ELECTRIC CO. v. LA RUE, 139 U. S. 601, 35 L. ed. 294, 11 Sup. Ct. 670 (1891).

This was a bill in equity brought by La Rue, plaintiff in the court below, for the infringement of letters patent No. 270,767, issued to Edgar A. Edwards, January 16, 1883, for a new and useful improvement in telegraph keys. * * *

Mr. Justice Brown, after stating the facts as above, delivered the opinion of the court.

The invention covered by this patent consists in the use in a telegraph key of a flat strip of metal supported at either end upon posts by means of adjustable screws, and to the center of which the lever is fastened. The torsional action of this piece of metal serves as a spring support for the lever. The main object of the invention is the substitution of this torsional spring for the ordinary pivotal support previously used, which consisted of tapering pivots or gudgeons projecting from the sides of the lever into the bearings. The testimony indicates that the pivots require very exact construction and adjustment; that they are apt to wear loose in their sockets; and that inexperienced operators are apt to turn the screws, which carry these sockets, too far or not far enough, thereby rendering the motion of the lever either too difficult or too easy. For this somewhat objectionable pivotal support, the patentee substitutes a flat torsional spring, fastened at either end by ordinary screws to the top of posts or supports. Upon the middle of this spring is riveted the lever of the key, which carries regulating screws for controlling the extent of its vibrations. The specification describes the manner in which, by means of this torsional spring, the lever is enabled to play freely between its points of contact without the use of the ordinary retractile spring. * * *

So far as the testimony discloses, La Rue was the first to apply the principle of the torsional spring to telegraphic instruments, although springs of similar description had been previously used in clocks, doors, and perhaps some other article of domestic furniture. Prior to his invention, telegraph keys were pivoted upon trunnions, and were regulated in their movements either by a coil spring, as shown in the old style of Morse key, or by a flat steel spring to which they were riveted, as in the old style of Western Union key, or the key itself was constructed in the form of a flat spring riveted at one end to the bed or plate, as shown in the Warner spring lever key and in the Exhibit spring lever key.

The pole changer, which is an instrument used by telephone companies for the purpose of calling up their subscribers, consists

of a lever which vibrates back and forth by the aid of a flat spring, to which it is attached in much the same manner as the pendulum of an old-fashioned clock is connected with the spring upon which it swings. There is also a flat piece of metal which is attached to the armature, and stands vertically when the instrument lies upon the table, and which has apparently a certain torsional action; but it is evidently not depended upon for anything more than a supporting fulcrum for the armature and lever. It is stated by experts to exert some retractile force, but not enough to make the instrument operate in the way it is designed to.

The Exhibit adjustable torsional spring is not the flat spring of the patent, nor has it the adjusting screws, nor the supporting posts with the fastening screws, nor in fact any of the features, of the patent in suit. It is merely a wire attached to two supports, across the center of which, between the supports, a bar or lever extends, which is attached to the wire, and is supported thereby. But the ends of this wire pass through comparatively large holes in the end supports, and thereby have considerable freedom of movement. The very fact that the holes are larger than the wire indicates that the wire can exert no torsional force. It is a crude and apparently imperfect device, and contains no suggestion of the flat torsional spring peculiar to the patent in suit. Indeed, there is nothing in any of these exhibits which shows the use of a torsional spring in a telegraphic instrument; and, while the invention does not seem to be one of great importance, we think the adaptation of this somewhat unfamiliar spring to this new use, and its consequent simplification of mechanism, justly entitles the patentee to the rights of an inventor.

The question of infringement turns upon the construction to be given to the third claim of the patent, which is, in terms, for the combination, in a telegraph key, of a lever fulcrumed upon a torsional spring, with adjusting screws for regulating its movement. If this claim be limited strictly to a telegraph key, by which is understood the instrument which is used at the office of transmission for sending off messages, then it is clear that defendant does not infringe, since it makes use of a similar combination only in connection with a telegraph sounder, or instrument used at the receiving office for delivering or enunciating the message. It is evident, however, that both of these patentees understood that the combination described in their patents could be used in either connection, since Edwards says in his specification that he does not limit himself "to the application of torsional springs to telegraph keys alone, as it is obvious the torsional strip or spring may be applied to other electrical instruments. Thus it may replace the pivots or trunnions of the relay and sounder." Haskins also admits that "it has heretofore been proposed to support a lever of a

key or an armature upon a flat torsional spring," and says that his "torsion spring may be applied to the armature lever of any telegraphic receiving instrument, or to the lever of any telegraphic key, without departing from the spirit of the invention."

The use of the combination is practically the same in both instances. There are the same elements of a lever fulcrumed upon a torsional spring, and adjusting screws for regulating the amplitude of the lever movement, and the retractile resistance of the torsional spring. They are used for purposes which differ principally in name. The key transmits the message, the sounder receives it. The material part of the key is a lever which completes and breaks an electric circuit. The sounder consists merely of a lever which completes and breaks a magnetic circuit. In both cases, the lever is riveted to and supported by a flat torsional spring, which is itself supported at its ends upon upright posts, to which it is fastened by screws. The object of the spring in each instance is to allow the lever to play back and forth between the exceedingly narrow limits fixed by the set-screws. The employment of this spring in connection with the sounder is such a new or double use as would occur to an ordinary mechanic who had seen the Edwards key in operation. It brought into play no faculty of invention. While the promotion of an old device, such, for instance, as a torsional spring, to a new sphere of action, in which it performs a new function, involves invention, the transfer or adaptation of the same device to a similar sphere of action, where it performs substantially the same function, does not involve invention.

Against this new and analogous use of his combination the patentee is as much entitled to protection as if the word "sounder" had been expressly inserted in his claim. Since the case of Winans v. Denmead, 15 How. 330, it has been the settled doctrine of this court, as expressed in the opinion of Mr. Justice Curtis, page 343, that "the patentee, having described his invention, and shown its principles, and claimed it in that form which most perfectly embodies it, is, in contemplation of law, deemed to claim every form in which his invention may be copied, unless he manifests an intention to disclaim some of these forms." This is practically restated in different language in subsequent cases, and amounts to a declaration that the application of the patented device to another use, where such new application does not involve the exercise of the inventive faculty, is as much an infringement as though the new machine were an exact copy of the old. Sewall v. Jones, 91 U. S. 171, 183; Howe v. Abbott, 2 Story, 190; Walter v. Potter, Webst. Pat. Cas 585.

Some stress is laid by the defendant upon the fact that the "circuit-breaking" lever is made an ingredient of the first, second, and fourth claims of the patent, and that, as the sounder has no

circuit-breaking lever, but only an armature lever, there is no infringement. Assuming, however, what as a matter of fact seems doubtful, that the lever of the sounder is not a circuit-breaking lever, the objection loses all its force in view of the language of the third claim,—the only one found to be infringed,—in which the limitation of the circuit-breaking lever is omitted, and a "lever fulcrumed upon a torsional spring" is substituted.

The further objection that in the defendant's sounder a retractile spring is used in aid apparently of the torsional spring, suggests, rather than justifies, an argument that the torsional spring is useless, and that the sounder would be inoperative without the retractile spring. If such were the fact, it would be an excellent reason for discontinuing the use of the torsional spring, and thereby avoiding beyond all question the charge of infringing the patent. But, notwithstanding the testimony of Mr. Haskins that he found the best results to be obtained when the torsional spring was simply passive, allowing the armature to lie with its own weight upon the magnet, depending wholly upon the retractile spiral spring underneath to produce the upward movement, the fact seems to be that the defendant's sounder will operate about as satisfactorily if only the torsional spring is used. And even if the defendant does use the retractile spring in aid of the torsional spring, it could not thereby escape the charge of infringement. The object of the torsional spring is not only to do away with the necessity of a retractile spring, but to substitute for the ordinary pivotal bearings the torsional support. Giving Haskins' testimony its full weight, it still remains uncontradicted that he does use the torsional spring as a substitute for the trunnions or pivots heretofore used to support the lever.

The claim that defendant does not use the adjusting screws is equally without foundation. Indeed, this suggestion is disposed of by defendant's own expert, who testifies to finding adjusting screws having a relation to the sounder similar to that of the screws, H. H′, to the lever of the key in the patent, but he says that in the sounder they did not appear to have any effect upon the retractile force applied to the lever. It is evident, on examination, that their functions are practically the same in every particular.

The last defense—of want of utility—is also fully met by the fact that Haskins, an employe of the defendant, after the commencement of this suit, took out the patent for a telegraph sounder, the main element of which is the torsional spring of the Edwards patent, and that defendant, upon the accounting, stipulated that a decree might be entered for a royalty of 10 cents apiece on 1,100 sounders made and sold by the defendant embodying the Edwards invention. Under such circumstances, it does not lie in the mouth of the defendant to claim that the invention is useless. Walk.

Pat., § 85; Lehnbeuter v. Holthaus, 105 U. S. 94; Morgan v. Seaward, 1 Webst. Pat. Cas. 170.

The decree of the court below is affirmed.

82. KREMENTZ v. COTTLE CO., 148 U. S. 556, 37 L. ed. 558, 13 Sup. Ct. 719 (1894).

Fig. 1

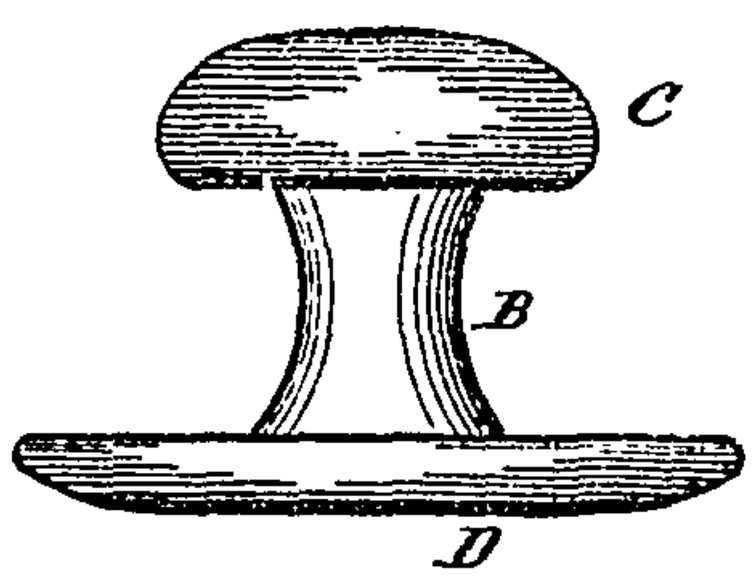


Fig. 2

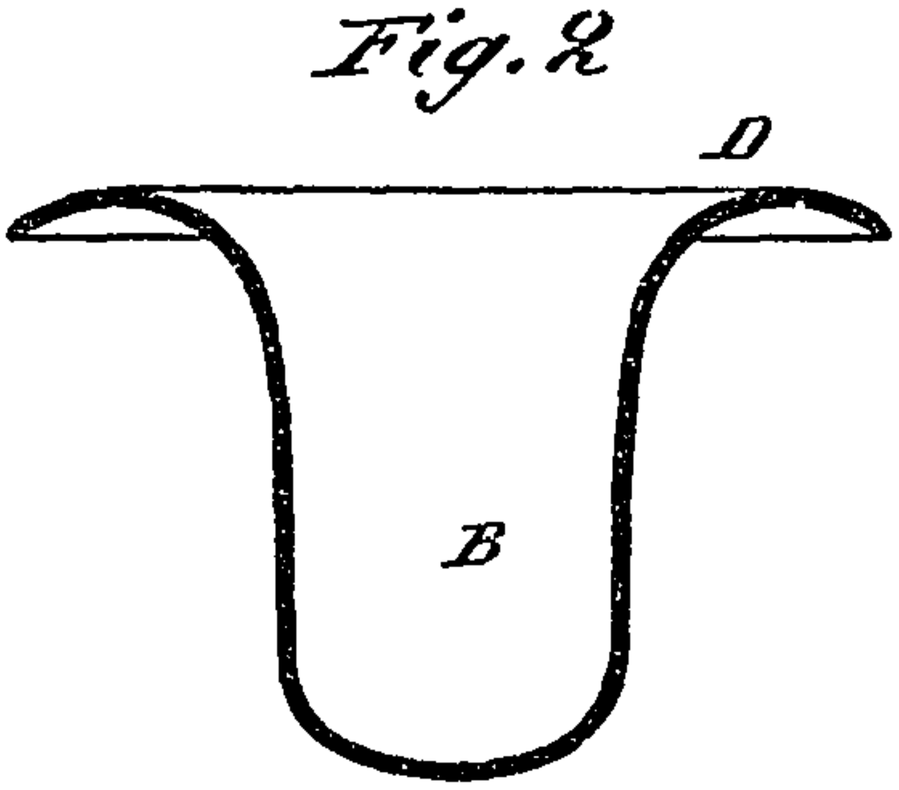


Fig. 3

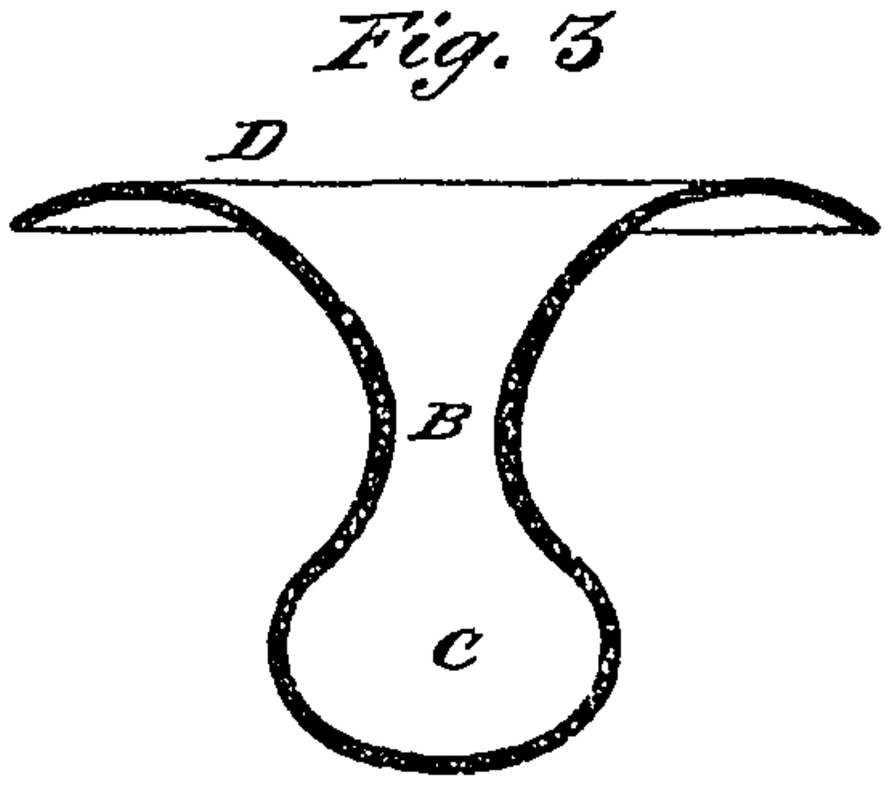


Fig. 4

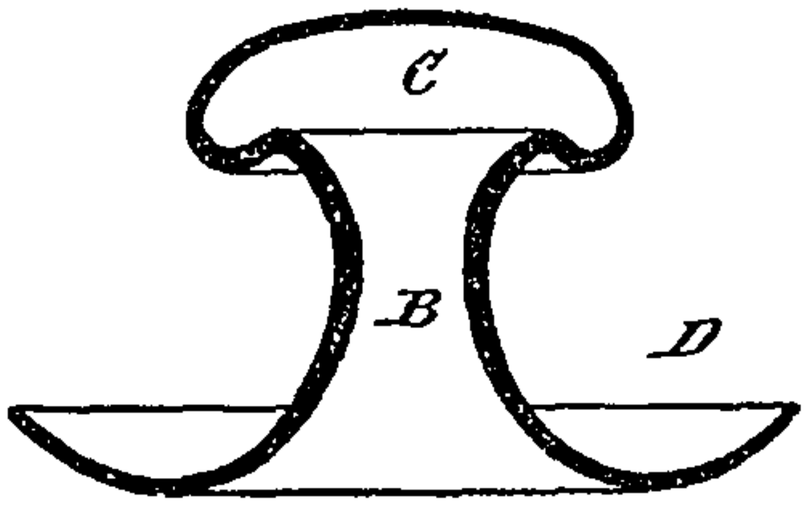
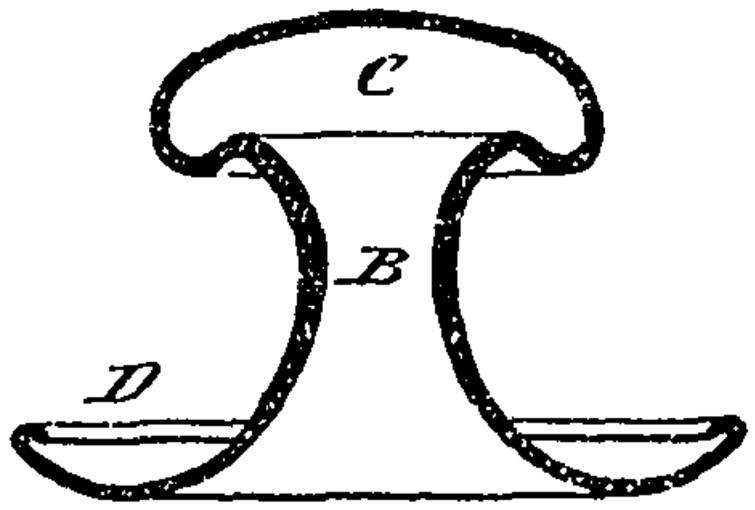


Fig. 5



[The patent thus describes the article, distinguishes from the prior art, and claims the invention.

"The collar-button is made of a single piece of metal, without soldering or joints, and the stem or shank as well as the head is hollow.

By means of suitable dies a metal plate is pressed into the shape shown in Fig. 2—that is, the plate is provided with a hollow stem, B, the sides of which are pressed together at about the middle, in some suitable manner, to form a head, C, at the end of the stem, as in Fig. 3; then the head is pressed toward the base plate or back, D, whereby the head will be upset, and will have the shape shown in Figs. 4 and 5., By this operation the head is hardened. The base plate or back D is then rounded out and finished, and its edge is turned over, as shown in Fig. 5. By finishing the back or plate it is hardened. All the parts of the button are thus hardened and will not wear off rapidly. As no parts are soldered together or connected otherwise, there is no danger of parts breaking off or becoming detached otherwise. Collar-buttons, sleeve-buttons, and other like buttons can be made in the manner herein described.

I am aware that a busk-fastening having a base, tubular shank, and a solid head has been struck up from a single piece of sheet metal; also, that a collar-button has been formed with the base and closed tubular shank in a single piece, and having a head soldered to said shank after its closed end has been cut off; and I do not desire to claim such constructions as of my invention. My invention is designed to improve said construction by forming a hollow head, a hollow stem, and a base from a single piece of struck-up sheet metal. The hollow head is much stronger than one formed solid and flat in the form of a flange, and the advantage of my construction over the button made of two parts is of course apparent at a glance. The objection to this latter class of buttons is that the heads bend on the tubular stems and expose their point of connection, and the heads will break off; and, furthermore, they are objectionable owing to the greater expense required in their manufacture, as skilled labor is required in soldering the parts together and in propely tempering them.

Having thus described my invention, what I claim as new, and desire to secure by letters-patent, is—

A collar or sleeve button having a hollow head and stem, the said head, stem, and the base plate or back of the said button being shaped and made of a single continuous piece of sheet metal, substantially as herein shown and described."

This case is one of the striking instances difficult to classify under the ordinary definitions of invention. It is a case in which the court, looking at the whole matter, concluded that the pat-

entee had done something new or made something new which was of value, and that therefore the patent should be sustained.]

Mr. Justice Shiras delivered the opinion of the Court.

This is an appeal from a decree of the Circuit Court of the United States for the Southern District of New York, dismissing a bill filed to restrain the infringement of Letters Patent of the United States No. 298,303, granted May 6, 1884, to George Krementz, of Newark, New Jersey, for a new and improved collar-button.

Complainant's evidence, tending to show that the collar-button made by the defendants was within the claim of the patent in suit, and constituted an infringement, was not contradicted or disputed, but it was held by the court below that the patent was invalid for want of novelty. (48 O. G. 1775; 39 Fed. Rep. 323.)

In his specification the patentee states that his invention consists in a collar-button having a hollow head and stem, the said button being formed and shaped out of a single continuous plate of sheet metal. * * *

The advantages attributed to the invention are the doing away with soldered joints, the lightness of the hollow stem and head, as compared with buttons having solid stems and head, and the cheapness arising from the use of less material, with equal or superior strength, which, when gold is used, is quite appreciable.

The learned Judge in the court below contended himself with comparing Krementz's invention with two earlier patents, one to Stokes, No. 171,882, granted January 4, 1876, and one to Keats, No. 177,353, granted May 9, 1876, in which patents, he thinks, are to be found the special features claimed by Krementz.

The Stokes patent was for an improvement in making a stud-fastening known as Thomson's unbreakable busk-fastening, and whereby, instead of fastening the parts of the stud together by rivets, the entire busk was made out of one piece of metal, by striking up or raising the stud out of a strip of malleable sheet metal. The structure thus produced is a solid rivet-like and flat head, intended to resist a great strain, and evidently not designed to be used as a collar-button where a well-defined round head, adapted to be used where there is no strain, is necessary and essential.

In the Keats process the button is not made of a continuous piece of sheet metal, but has side seams in the post, and has a base-plate composed of two separate parts, and the head is open on the under side. It could not be used as a collar-button, but is intended to be permanently fastened either to eyelet-holes, or to the fabric with which it is connected.

We cannot see in these devices, taken separately or together, an anticipation of the Krementz button. Indeed, the Court below concedes that:

"Krementz was the first to make a stud from a single continuous piece of metal in which the head was hollow and round in shape."

The learned Judge was, however, of the opinion that—

"any competent mechanic, versed in the manufacture of hollow sheet-metal articles, having before him the patents of Stokes and Keats, could have made these improvements and modifications, without exercising invention, and by applying the ordinary skill of the calling."

It is not easy to draw the line that separates the ordinary skill of a mechanic, versed in his art, from the exercise of patentable invention, and the difficulty is specially great in the mechanic arts, where the successive steps in improvements are numerous, and where the changes and modifications are introduced by practical mechanics. In the present instance, however, we find a new and useful article, with obvious advantages over previous structures of the kind. A button formed from a single sheet of metal, free from sutures, of a convenient shape, and uniting strength with lightness, would seem to come fairly within the meaning of the patent laws. The tools to be used in making the button are not described, but they are not claimed to be new. And the method or process of manufacture is described with sufficient particularity to enable any one skilled in the art to follow it. Buttons made of several pieces are liable to break at the soldered joints, and it is stated by an experienced witness that the metal by the process of soldering becomes soft and liable to bend. The different pieces are set together by hand, and are not always uniform or put together truly.

The view of the court below, that Krementz's step in the art was one obvious to any skilled mechanic, is negatived by the conduct of Cottle, the president of the defendant company. He himself was a patentee under letters granted April 16, 1878, for an improvement in the construction of collar and sleeve buttons, and put in evidence in this case. In his specification he speaks of the disadvantages of what he calls—

"the common practice to make the head, back, and post of collar and sleeve buttons separate, and to unite them by solder."

His improvement was to form a button of two pieces, the post and base forming one piece, and then soldering to the post the head of the button as the other piece. Yet, skilled as he was, and with his attention specially turned to the subject, he failed to see, what Krementz afterward saw, that a button might be made of one continuous sheet of metal, wholly dispensing with solder, of an improved shape, of increased strength, and requiring less material.

It was also made to appear that the advantages of the new button were at once recognized by the trade and by the public, and that very large quantities have been sold.

The argument drawn from the commercial success of a patented article is not always to be relied on. Other causes, such as the enterprise of the vendors, and the resort to lavish expenditures in advertising, may co-operate to promote a large marketable demand. Yet, as was well said by Mr. Justice Brown, in the case of Consolidated Brake-Shoe Co. v. Detroit Co. (47 Fed. Rep. 894)—

"when the other facts in the case leave the question of invention in doubt, the fact that the device has gone into general use and has displaced other devices which had previously been employed for analogous uses, is sufficient to turn the scale in favor of the existence of invention."

Webster Loom Co. v. Higgins, (105 U. S., 580), was a case where the patented device consisted in a slight modification of existing mechanism, and it was contended that this slight change did not constitute a patentable invention; but this view did not prevail, the Court saying:

"It is further argued, however, that supposing the devices to be sufficiently described, they do not show any invention, and that the combination set forth in the fifth claim is a mere aggregation of old devices already well known, and therefore it is not patentable. This argument would be sound if the combination claimed by Webster was an obvious one for atttaining the advantages proposed—one which would occur to any mechanic skilled in the art. But it is plain from the evidence and from the very fact that it was not sooner adopted and used, that it did not for years occur in this light to even the most skillful persons. It may have been under their very eyes, they may almost be said to have stumbled over it, but they certainly failed to see it, to estimate its value, and to bring it into notice. Who was the first to see it, understand its value, to give it shape and form, to bring it into notice and urge its adoption, is a question to which we shall shortly give our attention.

At this point we are constrained to say that we cannot yield our assent to the argument that the combination of the different parts or elements for attaining the object in view was so obvious as to merit no title to invention. Now that it has succeeded it may seem very plain to any one that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result never attained before, it is evidence of invention. It was certainly a new and useful result to make a loom produce fifty yards a day when it never before had produced more than forty, and we think that the combination of elements

by which this was effected, even if these elements were separately known before, was invention sufficient to form the basis of a patent."

Consolidated Valve Co. v. Crosby Valve Co., (113 U. S. 157;) Magowan v. New York Belting Co., (141 U. S. 332;) Barbed Wire Patent, (143 U. S., 275;) Gandy v. Main Belting Co., (143 U. S., 587,) are all to the same effect.

In the very recent case of Topliff v. Topliff, (145 U. S., 156,) where there was a contest between two patents, with but a slight difference between them, the Court said:

"Trifling as this deviation seems to be, it renders it possible to adopt the Auger device to any side-spring wagon of ordinary construction. While the question of patentable novelty in this device is by no means free from doubt, we are inclined, in view of the extensive use to which these springs have been put by manufacturers of wagons, to resolve that doubt in favor of the patentee and sustain the patent."

We think, therefore, we are within the principle and reasoning of these cases in reversing the decree of the court below, dismissing the bill and in remanding the record, with directions to proceed in the case in conformity with this opinion.

83. WASHBURN ETC., MFG. CO. v. THE BEAT 'EM ALL BARBED WIRE CO., 143 U. S. 275, 36 L. ed. 154, 12 Sup. Ct. 450 (1891).

Brown, J.:

[Patent No. 157,124, Glidden, November 24, 1874, Improvement in Wire Fences. Three prior patents are discussed by the court, and especially the Kelly patent of February 11, 1868. The patent in suit claimed:]

"A twisted fence-wire having the transverse spur-wire D bent at its middle portion about one of the wire strands a of said fence-wire, and clamped in position and place by the other wire strand z, twisted upon its fellow, substantially as described."

[The Kelley patent consisted of small flat pieces of iron and steel cut from a plate by machinery, each provided with a hole corresponding with the size of the wire, though a little larger, so that they could be introduced easily upon the wire, either by proper machinery or by hand. These pieces after being strung on the wire at distances about six inches apart were compressed laterally upon the wire by a blow of a hammer, or otherwise, so as to flatten the hole and also correspondingly flatten the wire at the point where the barb was located. The patentee said also that he could increase the strength of the wire by laying another wire of the same or different size alongside of a thorn-wire, and could twist the two together by any suitable mechanism.

The court, in comparing the patent in suit and the Kelly patent, said:]

"In one case a flat bit of metal is used of an elongated diamond shape, through which a hole is pierced, by means of which it is strung upon the wire, requiring something more than the aid of a second wire twisted upon the first to render it immovable. In the other the barb is a piece of wire coiled about one of the fence wires, and held rigidly in place by the twisting of another wire about the first."

[The court was also impressed by the great commercial success of the Glidden device.

The court then proceeds:]

"Under such circumstances courts have not been reluctant to sustain a patent to the man who has taken the final step which has turned a failure into a success. *In the law of patents it is the last step that wins.* It may be strange that, considering the important results obtained by Kelly in his patent, it did not occur to him to substitute a coiled wire in place of the diamond shape prong, but evidently it did not; and to the man to whom it did ought not to be denied the quality of inventor. There are many instances in the reported decisions of this court where a monopoly has been sustained in favor of the last of a series of inventors, all of whom were groping to attain a certain result, which only the last one of the number seemed able to grasp. Conspicuous among these is the case of Webster Loom Co. v. Higgins, 105 U. S. 580, 591 (26: 1177, 1181), where an improvement in looms for weaving pile fabrics, consisting of such a new combination of known devices as to give to a loom the capacity of weaving fifty yards of carpet a day, when before it could only weave forty, was held to be patentable. It was said by the court, in answer to the argument that the combination was a mere aggregation of old and well known devices, that 'this argument would be sound if the combination claimed by Webster was an obvious one for attaining the advantages proposed—one which would occur to any mechanic skilled in the art. But it is plain from the evidence, and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to even the most skillful persons. It may have been under their very eyes, they may almost be said to have stumbled over it; but they certainly failed to see it, to estimate its value, and to bring it into notice. * * * Now that it has succeeded, it may seem very plain to any one that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps, not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result never attained before, it is evidence of invention.' "

[The cases of Consolidated S. V. Co. v. Crosby S. G. & V. Co., 113 U. S. 157, 179, 28 L. ed. 939, 946; Smith v. Goodyear D. V.

Co., 93 U. S. 486, 495, 23 L. ed. 952, 954, and Magowan v. N. Y. Belting, etc., Co., 141 U. S. 332, 343, 35 L. ed. 781, were then cited and quoted as examples in point.

The court then takes up the unpatented devices, that is the prior uses, introducing the discussion of the prior uses as follows:]

"We have now to deal with certain unpatented devices, claimed to be complete anticipations of this patent, the existence and use of which are proven only by oral testimony. In view of the unsatisfactory character of such testimony arising from the forgetfulness of witnesses, their liability to mistakes, their proneness to recollect things as the party calling them would have them recollect them, aside from the temptation to actual perjury, courts have not only imposed upon defendants the burden of proving such devices, but have required that the proof shall be clear, satisfactory, and beyond a reasonable doubt. Witnesses whose memories are prodded by the eagerness of interested parties to elicit testimony favorable to themselves are not usually to be depended upon for accurate information. The very fact, which courts as well as the public have not failed to recognize, that almost every important patent, from the cotton gin of Whitney to the one under consideration, has been attacked by the testimony of witnesses who imagined they had made similar discoveries long before the patentee had claimed to have invented his device, has tended to throw a certain amount of discredit upon all that class of evidence, and to demand that it be subjected to the closest scrutiny. Indeed, the frequency with which testimony is tortured, or fabricated outright, to build up the defense of a prior use of the thing patented, goes far to justify the popular impression that the inventor may be treated as the lawful prey of the infringer. The doctrine was laid down by this court in Coffin v. Ogden, 85 U. S., 18 Wall., 120, 124 (21: 821-823), that 'the burden of proof rests upon him,' the defendant, 'and every reasonable doubt should be resolved against him. If the thing were embryotic or inchoate; if it rested in speculation or experiment; if the process pursued for its development had failed to reach the other case there was only progress, however near that progress may have approximated to the end in view.' This case was subsequently cited with approval in Cantrell v. Wallick, 117 U. S., 689, 696 (29: 1017, 1019), and its principle has been repeatedly acted upon in the different circuits. Hitchcock v. Tremaine, 9 Blatchf., 550; Perham v. American B. O. & S. Mach. Co., 4 Fish. Pat. Cas., 468; American Bell Teleph. Co. v. People's Teleph. Co., 22 Fed. Rep., 309."

[The opinion then discusses minutely the various prior uses and the discussion is illuminating both as to the manner in which the evidence was presented and overcome, and the general tendency of

such testimony. In summing up this matter of prior use, the court said:]

"There was a vast amount of testimony of similar character tending to show the use of coiled barbs upon fence-wires, which it would serve no good purpose to discuss in detail. There was evidently prior to Glidden's application more or less experimenting in a rude way in and about Delaware county, upon the subject of barbed wires as applied to wire fences, and we think it is quite probable that coiled barbs were affixed to single wires before the Glidden application was made. We are not satisfied, however, that he was not the originator of the combination claimed by him of the coiled barb, locked and held in place by the intertwisted wire. It is possible that we are mistaken in this; that some one of these experimenters may have, in a crude way, hit upon the exact device patented by Glidden, although we are not satisfied from the testimony, whether or by whom it was done. It is quite evident, too, that all or nearly all of these experiments were subsequently abandoned. But it was Glidden, beyond question, who first published this device; put it upon record; made use of it for a practical purpose; and gave it to the public, by which it was eagerly seized upon, and spread until there is scarcely a cattle-raising district in the world in which it is not extensively employed. Under these circumstances, we think the doubts we entertained concerning the actual inventor of this device should be resolved in favor of the patentee.

The decree of the circuit court will, therefore, be reversed, and the case remanded with instructions to enter a decree for the plaintiff for an accounting, and for further proceedings in conformity with this opinion."

[Mr. Justice Field dissented, upon the ground that there was no novelty in the invention.]

84. CONSOLIDATED BRAKE-SHOE CO. v. DETROIT STEEL, ETC., CO., 59 Fed 902 (1894, C. C. E. D. Michigan, Patent No. 292,861).

Swan, District Judge, (after stating the facts) said: The single question arising upon this record is as to the patentability of the Ross railway brake shoe. The defense admits this to be the only issue, and insists that the prior state of the art and the simplicity of the device both negative the validity of the patent. The proofs taken in the cause since the granting of the injunction, by Judge Brown, afford no ground for varying the conclusions which he then reached. The drawing of the Ross shoe in the patent office was made by his attorney, and shows that the lug or rib on the inner side of the flange was not carried down to the wheel, as is done in the shoe as constructed. Ross' first application was rejected in the patent office on this, and the further ground that the extension

of the inner lug or rib to the wheel was not described in the specification, and therefore the Steel patent answered Ross' claim of invention. The error in the drawing was that of Ross' attorney. The patentee's own drawing showed the projection of the wheel. The examiner, however, was in error in the statement that the extension of the rib, C, to the tread of the wheel, was not described in this specification. This expressly states that "between the grooves in the shoe is a rib, C, which forms a portion of one side of the flanged groove, and projects down to reach that portion of the wheel not worn much by the track." Notwithstanding this error or defect in the drawing, it is plain that this explicit language not only sets forth unmistakably the inventor's idea, but also, in view of the declared purpose of the device,—to produce uniformity of wear in the surface of the wheel,—no mechanic of ordinary skill could have failed to make the device from the specifications alone. The specifications are addressed to those skilled in the kind of appliances described by the inventor. Familiar, presumably, with the state of the art and the deficiencies of the appliances in use, it would be evident to them at once that the deliberate phraseology of the specification—which, in substance at least, is the inventor's own—was rather to be followed than an inaccurate drawing, which on its face, in the state of the art, suggested its practical identity with the Steel shoe. The drawing, therefore, is entitled to no weight in disparagement of Ross' invention.

His shoe is designed and adapted to get its friction surface only from those portions of the tread of the wheel not worn by the rail, and thus to avoid increasing the rail wear upon the tread proper. The inventor evidently believed, and it is the claim of his original and amended specification, that the wear of the shoe upon the wheel would practically equal, and thus offset, that of the track upon the wheel tread proper. His specifications indicate this, for, after describing the operation of the shoe, he adds, as a result:

"Those portions of the wheel which are not worn by the rail are worn down by the shoe, and the tread is thereby kept longer in its proper shape, as, while the track is wearing down one portion, the shoe is wearing down the other, thereby effecting a large saving in the wear of the wheel itself, and also in the matter of re-turning the tires or wheels."

While there is a marked similarity, which to a casual observer amounts almost to identity, in form and use, in the Ross and Steel devices, there is a substantial difference between them, which not only determined, in the patent office, the patentability of Ross' device, but has caused the former to supersede Steel's both in Great Britain and in this country. The Stilmant and Brill patents which are pleaded in defense may be laid out of consideration altogether. There is nothing anticipatory of Ross' invention in either. The is-

sue is solely between Ross and Steel. The aim of each was to produce a brake shoe which would so operate upon the wheels of railway cars as to obviate, as much as possible, the effect of the rail wear upon the tread of the wheel, and insure its constant profile. Both accepted, as a necessity for reducing the velocity or bringing to rest the moving car, the application of the restraining power or frictional energy directly upon the face or periphery of the wheel, and relied upon the grinding down, by the application of the shoe, of those parts of the tire upon which its pressure was exerted, to equalize the frictional wear of the tread proper by the track. To accomplish this result, Steel gave his device two bearings on the wheel,—one on the outside of the tread, spanning it from its outer edge with a groove or channel which extended to the upper part of the inside of the flange, at which point he formed another groove or channel in the brake block or shoe, which engaged the rim or periphery of the flange, thereby constituting the second bearing of the shoe. Ross' shoe claims three bearings, viz.: one on the outside of the tread, one on the inside, between the tread and the flange, and the third upon the periphery of the flange. The second of these bearings affords the distinctive feature of difference between the two appliances. In Steel's specifications he states expressly that "When the brake block is brought into operation, so as to stop or retard the motion of the train, it does not act upon the part, D, D, of the tire," (that is, the face of the wheel between the outer bearings and the inside of the flange, as he delineates it in his drawing,) "which is subject to the ordinary wear and tear of rolling, but it acts upon those portions which are not so worn away,—that is to say, the portions opposite the parts B and E of the block," (which are, respectively, B, the face of the wheel outside the tread, and E, the periphery of the flange.) He adds: "Under a modification of my said invention, the brake blocks may be constructed without the longitudinal channel, A," which spans the tread proper in both the Steel and Ross shoes; "that is to say, they are made solid at that part, the channel, E, however, being maintained as shown in the drawings." He states that what he claims as his invention is, "arranging or constructing brake blocks, with or without a longitudinal hollow or channel therein, and otherwise so shaping them as to bear upon the flange and those portions of the tire which are not worn in rolling."

Under this proposed modification it is argued that no one following out Steel's instructions could help making the Ross shoe, and that Ross' change in the shoe was neither a change in the principle of the invention nor a new idea; and, further, that "the invention was whole and complete as soon as Steel had told us to make a brake shoe that should be so shaped as to wear only on those parts of the wheel not worn by rolling;" and, further, that there is no

room, after that, for anything but the ordinary knowledge of the mechanic skilled in this particular art.

It is very doubtful if Steel's specification can be extended beyond the form of brake blocks set forth in his drawing, notwithstanding his claim that they may be constructed "either with or without a longitudinal hollow or channel therein." This suggestion, and its accompaniment,—"otherwise so shaping them as to bear upon the flange and those parts of the tire which are not worn in rolling,"—does not propose the substitution of a solid block extending to the flange, for the obvious reason that such a block must act upon the tread of the tire which is worn by the rail, while his leading idea, as expressed in his specification, is to avoid such contact, and to rely upon the wear of the block on other parts of the tire. How far the solid block should extend is not stated. He suggests no mode or form of "otherwise so shaping the blocks" as to avoid this double wear, and the phrase itself is vague and indefinite, conveying to those skilled in the art no idea of the form of the alternative. His invention should be limited to the device described in his specification. He could not close the field of invention to others by "an all-embracing claim, calculated, by its wide generalization and ambiguous language, to discourage further invention in the same department of industry." Carlton v. Bokee, 17 Wall. 472. Nor was the invention complete when Steel proposed to shape the brake block so as to wear only upon those parts of the wheel not worn by rolling. If the idea of such a construction must be credited to him, he failed to exemplify it so as to insure its object,—the even wear of the tire, and the avoidance of the cost of re-turning them. He evidently had no thought of the bearing upon the face of the wheel next to the flange, and made no provision for reducing its surface at that point to meet the wear of the tread, and thus preserve the normal contour of the wheel. Experience has also demonstrated, as shown by the testimony, that the necessary effect of the Steel shoe is to produce a ridge or shoulder on the inner face and in the throat of the flange. Without quoting at length from the testimony, it is enough to say that the Steel shoe has failed to meet the need of the railroads, both in this country and Great Britain, and has been discarded as impracticable, indeed detrimental, if not dangerous. Starting with the same idea of applying the resistance to the parts of a tire not worn by the track, and after a long practical experience with the ordinary flat shoe and a practical test with the Steel shoe, Ross, in August, 1883, eight years after Steel's patent had been granted, formulated his conception in the device here in issue. It has been adopted on nearly three-fourths of the railroads in the United States, and is also in use in Great Britain. Ross was master mechanic of the New York, Lake Erie & Western Railroad Company at Buffalo from February, 1881, until April, 1885,

and as such had charge of all the repairs made on the locomotives of that company at its Buffalo shops. In August, 1882, his attention was called to the excessive wear of the tires of the rear drivers of a locomotive of the Mogul type by the action of the brake shoe with which it was equipped, which necessitated re-turning of the tires about every four months. He then suggested to Mr. Wilder, the superintendent of motive power, the use of a brake shoe which should have its friction surface only upon the outside of the tread and the periphery of the flange. Wilder objected that the proposed change would simply transfer the objectionable wear to the flange of the wheel, and possibly destroy it. In July, 1883, after the tires of this engine had been three times re-turned, he again mentioned to Wilder the rapid destruction of the tire, and consequent injury to the machinery, attributable to the shoe used, and, with Wilder's permission, made and applied substantially the Steel brake shoe. This he tested by use for about a month, but found that it produced a ridge or shoulder upon the flange, and also upon the outside of the tread. By continued experiments and close study of the subject he realized the necessity of a third bearing upon the inside of the tread and the throat of the flange, and this he obtained by extending a lug or projection bearing both upon the wheel and the top and inside of the flange. This obviated the ridge formed in the throat of the flange by the brake shoe then in use, and, preserving the groove of that part of the shoe fitting the flange, he practically equalized the friction surface of the shoe on the flange and the inside of the tread with that on the outer part of the tread, and thus secured the equal wear of those parts. He constructed and put in experimental use on the same locomotive a shoe of this pattern—the present Ross brake shoe—in August, 1883, and it remained in successful operation until he resigned his position on the New York, Lake Erie & Western Railroad, April 1, 1885. Ross' letters patent bear date February 5, 1884. From October, 1884, until April, 1887, there were sold by the licensees under it 462,110 lbs. of the Ross brake shoe, and since the last date, and during the years 1887, 1888, and 1890, the licensees have sold 11,727,542 lbs. of those shoes, making the total sale since September, 1884, to and including the year 1891, 12,189,652 lbs. The proofs show that 164 of the railroads of the United States made purchases of the Ross shoe in 1890 to a greater or less extent. With the exception of the Chicago, Burlington & Quincy Railroad, which has assumed the defense in this suit, the railroads of this country have acquiesced in the validity of the Ross patent. This shoe has become the standard brake shoe for locomotive driving wheels upon the Pennsylvania Railroad and its leased lines, and is mainly, if not exclusively, used on the Old Colony Road, the Boston & Albany Railroad, the Pittsburgh Railroad, and many of the eastern trunk lines, and also upon the

smaller roads of the Union. Seventy-five per cent. of the 30,000 locomotives in this country are equipped with it. The statistics of railroads for 1890 compiled by the interstate commerce commission give the number of general officers of railroads of the United States, in 1889, at 47,039; engineers, 30,217; machinists, 25,214; and other shopmen at 75,959; and the total number of all their employes at 704,743. These figures are, of course, considerably larger than those of previous years, as each successive year exhibits an extension of railway mileage, and consequently a corresponding ratio of increase in the number of employes. Excluding from consideration the total number of railway employes, and assuming that the general officers, as practical men, have studied the problems incident to the maintenance of railroad equipment, and that the engine men, machinists, and other shopmen are mechanics of average skill, and familiar with the rolling stock, its usage, wear, the cost and frequency of its repair, and the causes thereof, it is remarkable that, during the 40 years and more in which the expense of re-turning tires has been so large a factor in the maintenance of the equipment, and "sharp-flanges" and defective wheels have caused so many accidents, no one, in these armies of mechanics and experts, has discovered a preventive, or suggested an improvement on known appliances, until Ross had remedied their defects. Conceding that Steel's idea that the brake shoe should be made to bear only on the parts of the tire not worn by the rail is exemplified in the Ross shoe, whether this suggestion be styled a "principle" or an "idea," it was a mere abstraction and unpatentable: not a complete device or machine. Leroy v. Tatham, 22 How. 132; Burr v. Duryee, 1 Wall. 531; Fuller v. Yentzer, 94 U. S. 288.

Long before Bell patented the telephone it was the general belief of scientists that speech could be transmitted by electricity if the requisite electrical effect could be produced. Bell discovered and perfected the apparatus and the process by which this could be done; and, although the previous labors of Reis in the same field had brought him almost to the point of success, he failed to reach his goal. Over 20 years before Bell's invention an eminent scientist had said, in reference to the mode of transmitting speech by electricity: "Reproduce precisely these vibrations," to wit, the vibrations made by the human voice in uttering syllables, "and you will produce precisely the syllables;" yet Bourseul neither claimed nor invented the telephone. Like Bourseul, Steel told what to do, but not how to do it. His conception of counteracting the rail wear by the shoe friction was meritorious, but not inventive. Its crude expression in his brake block not only failed to meet its purpose, but added to the defects caused by the rail wear equally prolific sources of danger in the "sharp flange," and the failure to equalize the friction area of the shoe upon the flange with that on the

tread. These defects not only caused its supersedure by the Ross shoe, but condemned its usefulness and safety. Ross' device, though but slightly varied in form from that of Steel's, has not only demonstrated its utility in years of use by prolonging the life of the tire, and obviating the great expense of frequent re-turning and the loss of use of the locomotive during such repairs, but has promoted the safety of railway travel by conserving the efficiency and contour of the wheel. Now that 10 years of successful use have established its merits, and since it has practically supplanted all others, and has been accepted in Great Britain, the home of the Steel patent, and after the skill of the mechanics and railway employes of both countries had been challenged in vain for eight years by the defects of the Steel shoe to the need of an effective device, it is too late either to refer the merits of this appliance to the suggestions of its imperfect predecessor, or to declare it merely the work of a mechanic of ordinary skill. Without essaying to define the line between the skill of the mechanic and the ingenuity of the inventor, it may be safely affirmed that one who perfects a device of confessed utility, which satisfactorily supplies a long-existing and imperative need of any branch of industry, and which excels in operation and results other existing appliances, superseding them at home and abroad, and by its structure overcoming difficulties and objections which have for years baffled the ingenuity of his fellow craftsmen the world over, including Steel himself, for whose conceptions so much breadth is claimed, has proved beyond cavil that average mechanical skill was not equal to what he has accomplished. His success is his individual achievement, the product of his inventive faculty, not merely that of his training or vocation. The merit and originality of his device is not to be determined by the application of a measure to its parts, or the extent of the difference of form between it and a contrivance which fails to answer the same purpose, when that difference, as in this case, not only produces a desired local effect, but insures the proper operation of the entire device. The lug or projection in Ross' shoe bearing upon the wheel upon the flange and the inner side of the tread performs a double function. It preserves the normal shape of that part of the wheel and flange, and aids to equalize the friction surface of the shoe on each side of the tread. It also prevents the lateral vibration of the shoe. It is essential to the success of the device, and is lacking in the Steel brake block, which has no compensating feature. The difference between these contrasted devices is therefore not merely in form, but in their mechanical and economic results. This test, and the considerations above adverted to, establish the originality of Ross' shoe, and sustain its patentability.

Examples of patented inventions which have been upheld by the courts, although they differed very little in form, mechanism, or

operation from other appliances, are numerous. Krementz v. S. Cottle Co., 148 U. S. 556, 13 Sup. Ct. 719; Loom Co. v. Higgins, 105 U. S. 580; Consolidated Safety-Valve Co. v. Crosby Steam Gauge & Valve Co., 113 U. S. 157, 5 Sup. Ct. 513; Magowan v. Packing Co., 141 U. S. 332, 12 Sup. Ct. 71; The Barbed Wire Patent, 143 U. S. 275, 12 Sup. Ct. 443, 450; Gandy v. Belting Co., 143 U. S. 587-594, 12 Sup. Ct. 598; Topliff v. Topliff, 145 U. S. 156-163, 12 Sup. Ct. 825.

For the reasons given, and those mentioned by Mr. Justice Brown in awarding the injunction in this cause, there must be a decree for complainants, with a reference to a master to ascertain damages; and the injunction is made perpetual.

85. BRUNSWICK v. KLUMPP, 131 Fed. 255, 65 C. C. A. 447 (1904, Second Circuit).

Before Lacombe, Townsend and Coxe, Circuit Judges:

Lacombe, Circuit Judge. The suit was brought upon letters patent No. 599,447, granted February 22, 1898, to complainant, as assignee of Emil Reisky, for "improvement in bowling apparatus." It was heard upon pleadings and proofs, and the bill dismissed for lack of patentable invention. Appeal was taken to this court, and decree was reversed. Our opinion is reported in 111 Fed. 904, 50 C. C. A. 61. It sufficiently sets forth the specifications and the claim in controversy. We concurred with the judge who heard the cause in the conclusion that the "improvement" was one which should have been obvious to an ordinary skilled mechanic, but were constrained by the testimony to hold that there was patentable invention. That testimony is set forth in the opinion. It showed that the desirability of retarding the ball as it neared the home terminal of the returnway had been appreciated for many years; that many different devices to secure that result had been suggested, but that apparently no one of those who sought to secure the result had adopted the seemingly obvious one of making the ball reach the home terminal on an up grade. Had any such method been disclosed in the earlier art, the original decision would have been affirmed. It now appears that, apprehending proof of such a structure antedating the patent, the patentee has filed a disclaimer which recites that in the prior art there were ball returnways with "an upgrade near the player's end, merging into the terminal," and disclaims such part of the claim "as would include a returnway by which the homing of the ball was not accelerated." The bill presents the disclaimer as well as the patent, and, with the concession that in the prior art the returning ball had been retarded by an up grade, the case may properly be disposed of on demurrer; and, for the reasons set forth in our former opinion, we have reached the conclusion that the patent discloses no patent-

able invention, except possibly as to minor details of construction, which are subject of other claims, not here in controversy.

The decree is affirmed, with costs.

86. NATIONAL CASH-REGISTER CO. v. BOSTON CASH INDICATOR, ETC., CO., 156 U. S. 502, 39 L. ed. 511 (1895, Patent No. 271,363).

* * * This was a bill in equity for the infringement of letters patent No. 271,363, issued January 30, 1883, to James Ritty and John Birch for a "cash register and indicator." * * *

The only claim alleged to have been infringed is the first, which reads as follows:

"(1) In a registering and indicating machine, the combination, with a series of indicating tablets operated by a series of keys, of a series of rods, each provided with a detent or shoulder, and carrying one of the aforesaid tablets, and a supporting wing with connecting mechanism, whereby, upon operating any one of the keys, the wing is so moved as to permit the passage of the rod, and whereby, upon the release of the keys, the wing engages with and holds up the tablet rod and tablet, substantially as described." * * *

Mr. Justice Brown, after stating the facts in the foregoing language, delivered the opinion of the court.

In the past 15 years cash registers have become extensively used in retail shops, where each sale is small in amount, such as drug stores, cigar stands, restaurants, and other small establishments, for the purpose of affording a convenient deposit for the cash received, and of preserving a record of every sale made during each day, and of the amount received therefor. The correspondence between the amount indicated by the register and the amount in the drawer shows whether each sale has been properly accounted for. It thus enables the proprietor to ascertain at the close of each day's business the amount of sales, and also operates as a check upon the dishonesty of clerks, who are held accountable for the amount of money indicated by the register.

To fulfill all its requirements, the cash register and indicator should perform the following functions:

(1) It should register the number of sales. This is done upon somewhat the same principle as a steam engine records its own revolutions.

(2) It should also register the amount of each sale, and to this end it is provided with a series of keys, representing different amounts, from five cents to five dollars, by the pressure of which keys a corresponding amount is registered, and added to the previous aggregate of small amounts upon a revolving cylinder.

(3) It should also indicate to the customer the proper amount of his purchase by exposing a tablet containing such amount in large figures, which tablet should remain in sight until the next sale

is made. If the amount of such sale is a dollar, and a fraction of another dollar, two such tablets are exposed, the aggregate of which represents the proper amount. It is necessary in each case that the tablet should remain exposed until another key is touched, when it ought to disappear, that the next customer may recognize the amount of his purchase. The customer is thus made to a certain extent an involuntary detective of the action of the clerk making the sale.

(4) The pressure upon the key should also ring a bell, to call the attention of the customer to the exposed indicator or tablet.

(5) The pressure of the key is also intended to unlock, and, by the aid of a spring, to throw open, the money drawer, which should be shoved back and closed after each sale is made.

(6) In some machines a record is made of the number of times the lid is opened, that the proprietor may know whether the box has been tampered with.

If the mechanism does its work properly, it should operate as a complete check upon any attempt at embezzlement, by the salesman, of the funds. * * *

To sum up the state of the art, then, at the date of the Ritty and Birch patent: The use of keys to raise vertical rods carrying tablets was not only well known, but lies at the foundation of every cash register to which our attention has been called. It was also old to use a pivoted wing or bar to catch a projection or elbow of the vertical rod, for the purpose of holding the tablet exposed to view until another tablet was raised. So, too, the use of a sliding bar actuated in one direction by a spring, and in the other by a projection from the vertical rod or its tablet, was a recognized equivalent of the pivoted wing. And, finally, a connecting mechanism, operated by each one of the keys by means of a bar over or underneath them, had been previously used for ringing the bell, opening the cash drawer, and in other machines for other purposes.

What, then, was the contribution of this patent to the art? It was found that not only must the machine be constructed with extreme and almost impossible accuracy in order to operate as desired, relying on the shoulders alone to move the wing, but that when the machine was put to use, some of the keys would be used much oftener than others, and the shoulders on the tablet rods belonging to these keys would become worn so that, when one of these keys was operated immediately after one that was less frequently used, the shoulder on its rod would not move the wing back far enough to release the tablet rod of the infrequently used key, which was resting on the wing. So, too, any accumulation of dust, dirt, or oil upon the projections or bar would render their operation uncertain. The consequence was that two tablets might be in view of the customer at the same time. This not only failed to indicate to the

customer the amount of his purchase, but afforded to the salesman an opportunity of deceiving the proprietor as to the actual amount of his sales. Indeed, it requires no expert to see that where all the rods are constructed alike, and the fall of one rod is made to depend exclusively upon the elevation of another, the mechanism would soon become so worn as to be inoperative. To obviate this, Ritty and Birch subdivided the power exerted by the keys in the operation of the pivoted wing, and caused such wing to be put in motion, not only by the elbow of the rod, but by the simultaneous, though wholly independent, action of a bell-crank lever, which receives its impulse from the bar beneath the keys, and, with its other arm, shoves back the upper side of the wing far enough to permit the tablet to fall and resume its original position in time to suffer the wing to fall back and catch the elbow of the last tablet rod, and hold it up. It is insisted, however, that, as the connecting mechanism had been previously used upon the other side of the machine to ring the bell and to open the cash drawer, the employment of a similar mechanism for actuating the pivoted wing was a case of mere double use, and, if patentable at all, must be restricted to the exact device used, and cannot be construed to cover a similar train of mechanism for moving the sliding bar.

It did, however, require thought to conceive the idea (1) that a remedy for the existing defects in the machine lay in the independent operation of the wing; and (2) that such operation could be secured by a mechanical connection with the keys. Given these conceptions, it was more a matter of mechanical skill than of invention to devise such connection, since a similar train of mechanism had been operated by the keys for other purposes. It is insisted, however, that inasmuch as such mechanical connection was well known before, and had been used for analogous purposes, it is a mere case of double use to employ a similar contrivance to actuate the wing. While the use was to a certain extent an analogous one, and the mechanism was probably suggested by that employed to ring the bell, there was nothing to suggest that the object to be attained, viz.: the more perfect action of the tablet rods, could be accomplished by subdividing the force exerted by the keys, and bringing a portion of their power to bear directly upon the wing itself, instead of devoting the whole of such power to the act of raising the rods, and depending solely upon the elbows of the rods to operate the wing. There is no conflict here with the principle laid down by this court in Knapp v. Morss, 150 U. S. 221, 227, 14 Sup. Ct. 81, and Wollensak v. Sargent, 151 U. S. 227, 14 Sup. Ct. 291, that the end or purpose sought to be accomplished by a device is not the subject of a patent, but only the new and useful means for obtaining that end, since the end or purpose to be accomplished in this case was not the moving of the wing, but the more perfect

operation of the rods; and the means used to accomplish it was a subdivision of the power exerted by the keys, and the application of a portion of it directly to the wing itself. The fallacy of defendant's argument in this connection lies in the assumption that the object to be accomplished was the moving of the wing, whereas this was only a means for the ultimate purpose, viz., the more satisfactory operation of the rods. Indeed, this use of the connecting mechanism can hardly be termed analogous to such as similar mechanisms had been previously used for; but, even if it were, the results are so important, and the ingenuity displayed to bring them about is such, that we are not disposed to deny the patentees the merit of invention. The combination described in the first claim was clearly new.

The cases cited by defendant upon the subject of double use are not applicable; such, for instance, as Brown v. Piper, 91 U. S. 37, in which a claim for preserving fish and other articles in a closed chamber, by means of a freezing mixture, was held to have been anticipated by a similar patent for preserving bodies, and also by the ordinary ice-cream freezer; Pennsylvania R. Co. v. Locomotive Truck Co., 110 U. S. 490, 4 Sup. Ct. 220, in which a patent for employing a certain truck for locomotive engines was held to be invalid, in view of the employment of a similar truck for railroad cars; Aron v. Railroad Co., 132 U. S. 84, 10 Sup. Ct. 24, wherein a patent for simultaneously opening two gates at the end of two adjoining passenger coaches was held invalid in view of previous patents for opening a single gate, and devices to open and close apertures at a distance from the operator; Wollensak v. Sargent, 151 U. S. 221, 14 Sup. Ct. 291, wherein a patent for opening and closing a transom over a door by means of a vertical rod was held to have been anticipated by a patent for opening and closing a series of passenger car ventilators or transoms by a horizontal rod; Blake v. City and County of San Francisco, 113 U. S. 679, 5 Sup. Ct. 692, wherein the adaptation of an automatic valve, previously known and in use to a steam fire engine, was held not to involve invention; and St. Germain v. Brunswick, 135 U. S. 227, 10 Sup. Ct. 822, wherein a revolving rack for billiard cues was held to be anticipated by such revolving contrivances as dining tables and bottle castors. In all these cases the prior uses were such obviously analogous ones that there could be no doubt of the invalidity of the patent.

In the defendant's machine the sliding bar of the Campbell and Pottin patents is substituted for the pivoted wing of the Russell and the Ritty and Birch patents, but as before observed, they were well-known equivalents for each other, and the mechanism by which they had theretofore been operated was also well known. They were apparently subject to certain defects in their operation, which impaired their efficiency, and required the use of an independent

means to secure the release of the first rod before the second one was raised into place. Whether this were done by the simultaneous action of the elbow of the rod and that of the connecting mechanism upon the wing, as in the Ritty and Birch patent, or by the prior action of such mechanism, as in defendant's device, is immaterial, so long as such action is independent of the action of the rods themselves. We have already stated how this was accomplished by the Ritty and Birch patent. Defendant also employed a universal bar operated by each key, corresponding with the bar, K, of plaintiff's patent, but located above the keys instead of beneath them, and back of the shaft upon which the keys are pivoted instead of in front of it. The operation of the keys is therefore to raise this bar instead of depressing it. A rod projecting from the end of this bar engages with the arm of a bell-crank lever, the other arm of which is so connected with an arm of the sliding bar projecting downwards that the depression of the key moves the bar to one side far enough to release the tablet rod already raised before the lug on the second or rising rod has passed the sliding bar. When the second rod has risen to its full height, the sliding bar is released from the action of the bell-crank lever, and is drawn back to its place by a spring, in time to hold the second rod up by a lug on the bar, corresponding to the lug on the rod. The operation of the two devices is the same, except that in the Ritty and Birch patent the action of the connecting mechanism in pushing back the pivoted wing is simultaneous with, and to a certain extent aided by, the elbow of the rod, while in defendant's device the action of the connecting mechanism in moving the bar is exclusive of any assistance from the rod. But, as already observed, this simultaneous action is a wholly immaterial feature of the Ritty and Birch patent. While the details of the defendant's machine are quite different from that of the plaintiff, the underlying principle of releasing the first tablet before, or simultaneously with, the elevation of the second tablet by the aid of an independent train of mechanism put in motion by the depression of the key, is precisely the same. This principle being already known, the contrivance of a connecting mechanism which should operate to move a sliding bar, as the pivoted wing of the Ritty and Birch patent was moved, was a comparatively easy matter, though, perhaps, involving invention to a limited degree. In a word, there were two known methods of accomplishing the same result,—a pivoted wing and a sliding bar. Ritty and Birch invented a train of mechanism to operate the pivoted wing; defendant adopted a similar method to operate a sliding bar. Had defendant also invented a sliding bar, and applied this mechanism to it, the case would have fallen within our ruling in Aron v. Railroad Co., as the adoption of a different means of accomplishing the same result. But

the means in this case being well-known equivalents for each other, we think the charge of infringement is made out.

The decree of the court below is therefore reversed, and the case remanded for further proceedings in conformity with this opinion.

87. WESTERN ELECTRIC CO. v. ROCHESTER TEL. CO., 145 Fed. 31, 75 C. C. A. 313 (1906, Second Circuit).

Before Wallace, Lacombe, and Townsend, Circuit Judges:

Per curiam. * * * While we do not find in any single prior patent a distinct anticipation, we fully concur in his conclusion that the device of the patent "was a mere improvement without involving the exercise of inventive faculty." * * *

At the close of a very long record one of the patentees finally stated the improvement of the patent to be the devising of a "system of supervisory signals in which the interruption of the talking current in the line circuit is caused to apply the current or power for displaying the positive supervisory signal, which current or power is later withdrawn when the plug is withdrawn from the jack, permitting the signal to disappear." This "system" is brought about by a rearrangement of old parts, and in the literature of the art these parts had already been brought together in such a variety of ways, and there had been so many substitutions of one device for another, so many methods shown of controlling one current by another and of displaying and obscuring signals, such a transposition of parts and shifting of currents that it seems to us entirely clear that the rearrangement of the patentees, clever though it may have been and in its details perhaps novel, was nevertheless one of those minor improvements which was easily within the ordinary skill of the telephone engineer. The case seems to come within the views expressed in Atlantic Works v. Brady, 107 U. S. 199, 200, 27 L. ed. 438, and peculiarly within those expressed in Thomson Houston Elec. Co. v. Western Elec. Co., (C. C.) 65 Fed. 619.

The decree is affirmed, with costs.

88. ANDREWS v. THUM, 67 Fed. 911, 15 C. C. A. 67 (1895, First Circuit).

* * * Before Colt, Webb and Aldrich, Judges:

Colt, J. Since the decision rendered June 23, 1894, denying the motion to dismiss this appeal, the objections to the validity of the appeal now urged by the appellees are not open, and the case comes before the court at this time for decision on its merits.

The Peck patent, No. 125,326, which is printed in the record, cannot be considered by the court, for the reason that it was not set up in the answer and was first introduced as evidence in the court below

in support of a motion for rehearing and to reopen the case, which was denied.

This suit was brought for the infringement of Letters Patent No. 278,294, dated May 22, 1883, and of Letters Patent No. 305,118, dated September 16, 1884, both issued to Otto Thum. These patents relate to fly-paper.

Patent No. 305,118 is for an improved method of applying the adhesive compound to the paper by means of rollers and for the improved article produced thereby. The suit is not pressed as to the first and second claims, which relate to the improved method, but only as to the third claim, for the product. This claim reads as follows:

"3. As a new article of manufacture, the fly-paper with adhesive faces placed together, so as to be packed without folding, and adapted to be separated when ready for use, substantially as described."

We are unable to discover anything patentable in this claim, considered by itself, or apart from the mechanical means set forth in the patent by which the article is produced. There certainly can be no invention in placing two sheets of fly-paper together, with their sticky surfaces face to face, although in this form they may be packed without folding and may be readily separated for use. The invention, if any, in this patent must reside in the mechanical means by which this was effected, and it is not shown that the defendants have made use of these means.

Patent No. 278,294 is for an improvement in fly-paper and contains a single claim, as follows:

"A sheet of fly-paper partially covered with a sticky composition, the latter being surrounded with a band or margin of less but still slightly adhesive material.

The specification says:

"My invention relates to an improved method of making and packing sticky fly-paper; and its object is to prevent the running and spreading of the adhesive coating under any circumstances, so that large quantities of the paper may be packed and transported without deterioration, and kept on hand. The invention consists in surrounding the adhesive coating with material of such a nature that it will adhere slightly to an adjoining sheet, but will separate readily for use, and when the sheets are in contact will prevent the adhesive coating from spreading."

The only new result which seems to have been accomplished by this method of making fly-paper is the production of an article which can be packed in large quantities and kept on hand without deterioration. It is undoubtedly true that this method produces a very merchantable article; but the question arises whether its adoption called for the exercise of invention, in view of what was old and well

known. It is not contended that there was anything new in the adhesive substances themselves or in the mechanical means by which they are applied; but the simple question is whether there was any invention in coating the body of a sheet of paper with an adhesive composition and surrounding it with a border of less adhesive material. If the patentee had been the first to apply two compositions, one of which was more adhesive than the other or one of which was adhesive and the other not, to a single sheet of paper, and this accomplished a new and useful result, it might, perhaps, be said that it involved invention in the eye of the patent law; but this can hardly be true if we find that substantially all this was old.

In the preparation of medicinal plasters it was common to spread upon a sheet of leather or paper a medicated composition, either slightly or not at all adhesive, and to surround it with a margin of more adhesive substance, intended to secure the plaster to the surface on which it was to be applied. Thus the use of two substances, the one slightly adhesive and the other readily adhesive, upon the same sheet of leather or paper was common long before the date of the patent. To apply this old method in the preparation of fly-paper only called for the transposition of these materials. All the patentee did was to reverse the order and put the less adhesive material on the outside or margin and the more adhesive in the middle of the sheet. Such a rearrangement required no invention, but would suggest itself to any one skilled in the art. It is not sufficient that the patentee may have produced a better and more merchantable article, but there must have been something novel in the means which were employed in its production. What constitutes patentability in this class of cases is clearly expressed by the Supreme Court in the recent case of Knapp v. Morss, 150 U. S. 221, 14 Sup. Ct. 81. On page 228, 150 U. S., 14 Sup. Ct., the Court says:

"Tested by these authorities, the validity of the patent in question must be ascertained, not from a consideration of the purposes sought to be accomplished, but of the means pointed out for the attainment thereof; and if such means, adapted to effect the desired results, do not involve invention, they can derive no aid or support from the end which was sought to be secured. All that Hall did was to adapt the application of old devices to a new use, and this involved hardly more than mechanical skill, as was ruled in Aron v. Railway Co., 132 U. S. 85, 10 Sup. Ct. 24, where it was said: 'The same device employed by him [the patentee] existed in earlier patents. All that he did was to adapt them to the special purpose to which he contemplated their application, by making modifications which did not require invention, but only the exercise of ordinary mechanical skill, and his right to a patent must rest upon the novelty of the means he contrived to carry his idea into practical application.'"

For these reasons Patent No. 278,294 and the third claim of Patent No. 305,118 must be held to be void for want of patentable novelty.

The decree of the circuit court is reversed and the cause remanded, with directions to dismiss the bill, with costs.

89. BROWN v. PIPER, 91 U. S. 37, 23 L. ed. 200 (1875, Patent, Reissues No. 732 and No. 36,107).

Mr. Justice Swayne: The summation and claim are: "Having described my invention, what I claim as new, and desire to secure by letters patent, is, preserving fish or other articles in a close chamber by means of a freezing mixture, having no contact with the atmosphere of the preserving chamber, substantially as set forth."

* * *

The patent is for "a new and useful improvement" in the art to which it relates. It was issued under the Act of July 4, 1836, 5 Stat. at L., 117. The rights of the parties are to be considered in the light of that Act. The defense relied upon in the answer is the want of novelty; and several instances of prior use and knowledge, with the requisite circumstances of time, place and persons, are alleged.

We deem it sufficient to consider one of them. On the 17th of August, 1842, a patent was issued to John Good "for a corpse preserver." The apparatus, as described, was an outer case with a close-fitting lid. The case was made double; there being a partition to within four or five inches, more or less, of the top of the outer one, leaving a space between the two of several inches, which was to be filled with ice. There was a false bottom with holes in it in the inner compartment. It rested upon ledges, which kept it four or five inches above the bottom. The intervening space was a receptacle for ice. The corpse was deposited upon the false bottom. A tray was placed over it, and under the lid. The tray was four or five inches deep, used to contain the freezing mixture, and had a flange to prevent the mixture from escaping. Proper outlets were provided for the passage of the water from the melting ice. There was no communication between the tray containing the freezing mixture and the inner compartment containing the body. Swartz, an intelligent and unimpeached witness, was examined on the 15th of October, 1869. He testified that he was an undertaker, and had used the apparatus for about twenty years, sometimes with ice under the false bottom and sometimes without it. In either case he applied a sufficient degree of cold to prevent putrefaction before interment. He thought the bodies were sometimes frozen, but was not certain. The material point in his business was the prevention of decay for the time being; and that was always accomplished.

Here was the application of the requisite degree of cold, exactly in the manner called for in the specification of the appellee.

This is hardly denied, but it is insisted that the process was never applied by the witness to the preservation of fish and meats.

The answer is that this was simply the application by the patentee of an old process to a new subject, without any exercise of the inventive faculty and without the development of any idea which can be deemed new or original in the sense of the patent law. The thing was within the circle of what was well known before, and belonged to the public. No one could lawfully appropriate it to himself and exclude others from using it in any usual way for any purpose to which it may be desired to apply it.

This is fatal to the patent. Ames v. Howard, 1 Sumn. (U. S.) 487; Howe v. Abbott, 2 Story 194; Bean v. Smallwood, 2 Story 411; Winans v. R. R. Co., 2 Story 412; Hotchkiss v. Greenwood, 11 How. (U. S.) 248, 13 L. ed. 683.

There is another view of the case that may properly be taken.

Evidence of the state of the art is admissible in actions at law under the general issue without a special notice, and, in equity cases, without any averment in the answer touching the subject. It consists of proof of what was old and in general use at the time of the alleged invention. It is received for three purposes and none other —to show what was then old, to distinguish what was new, and to aid the court in the construction of the patent.

Of private and special facts, in trials in equity and at law, the court or jury, as the case may be, is bound carefully to exclude the influence of all previous knowledge. But there are many things of which judicial cognizance may be taken. "To require proof of every fact, as that Calais is beyond the jurisdiction of the court, would be utterly and absolutely absurd." Gres. Eq. Ev. 294. Facts of universal notoriety need not be proved. See Taylor, Ev., sec. 4, n. 2. Among the things of which judicial notice is taken, are: The law of nations; the general customs and usages of merchants; the notary's seal; things which must happen according to the laws of nature; the coincidences of the days of the week with those of the month; the meaning of words in the vernacular language; the customary abbreviations of Christian names; the accession of the Chief Magistrate to office and his leaving it. In this country, such notice is taken of the appointment of members of the cabinet, the election and resignations of senators and of the appointment of marshals and sheriffs, but not of their deputies. The courts of the United States take judicial notice of the ports and waters of the United States where the tide ebbs and flows, of the boundaries of the several states and judicial districts, and of the laws and jurisprudence of the several States in which they exercise jurisdiction. Courts will take notice of whatever is generally known within the limits of their jurisdiction;

and, if the judge's memory is at fault, he may refresh it by resorting to any means for that purpose which he may deem safe and proper. This extends to such matters of science as are involved in the cases brought before him. See 1 Greenl. Ev. 11, Gres. Eq. Ev., supra; and Taylor, Ev., sec. 4, and post.

In the Ohio Life, etc., Co. v. Debolt, 16 How. (U. S.) 416, 435, 14 L. ed. 997, it was said to be "a matter of public history, which this court cannot refuse to notice, that almost every bill for the incorporation of companies" of the classes named, is prepared and passed under the circumstances stated. In Hoare v. Silverlock, 12 Ad. & Ell. (N. S.) 624, it was held that where a libel charged that the friends of the plaintiff had "realized the fable of the frozen snake," the court would take notice that the knowledge of that fable existed generally in society. This power is to be exercised by courts with caution. Care must be taken that the requisite notoriety exists. Every reasonable doubt upon the subject should be resolved promptly in the negative.

The pleadings and proofs in the case under consideration, are silent as to the ice cream freezer. But it is a thing in the common knowledge and use of the people throughout the country. Notice and proof were, therefore, unnecessary. The statute requiring notice was not intended to apply in such cases. The court can take judicial notice of it and give it the same effect as if it had been set up as a defense in the answer and the proof were plenary. See Glue Co. v. Upton, 6 Pat. Off. Gaz. 843, and Needham v. Washburn, 7 Pat. Off. Gaz. 651—both decided by Mr. Justice Clifford upon the circuit. We can see no substantial diversity between that apparatus and the alleged invention of the appellee. In the former, as in the apparatus of the appellee, "the freezing mixture" has "no contact with the atmosphere" of the chamber where the work is to be done. If the freezer be full and the preserving chamber be full, there would be room for but little air in either. If either were only partially full, the vacuum would be filled with that substance. The cold is generated by the same materials and applied under the same circumstances. If the cream were taken out of the freezer and fish put in, there would be, in all substantial respects, the same apparatus, process and result. If the preserving chamber were as tight as the freezer, either might be convertibly used for the purpose of the other.

"The preservative effect of cold, and especially of dry cold, is well known and exemplified in the keeping of meat and fruit in ice-houses. Animals have been found undecomposed in the ice of Siberia which belong to extinct species, and which must have been embalmed in ice for ages." Tit. "Antiseptic," 1 Amer. Encyclo. 570.

Artificial freezing is usually applied to water and articles of food.

"There are two general methods of effecting it, viz: By liquefaction and by vaporization and expansion. The method by liquefaction

is performed by freezing mixtures, which are formed by mixing together two or more bodies, one or all of which may be solid. They are used together in vessels having three or more concentric apartments—an inner one, containing the article to be frozen; one eccentric to this, containing the freezing mixture, provided with some contrivance for agitation; one, again, outside of this, filled with a non-conductor of heat, as powdered charcoal, gypsum or cotton wool; and sometimes one between them for holding water." Tit. "Freezing," Amer. Encyclo. 474.

Here the principle and substance of the appellee's claim are set forth as belonging to the general domain of knowledge and science. It is known that Lord Bacon applied snow to poultry to preserve it. He said the process succeeded "excellently well." The experiment was made in his old age, imprudently, and brought on his last illness.

Examined by the light of these considerations, we think this patent was void on its face and that the court might have stopped short at that instrument and, without looking beyond it into the answers and testimony, sua sponte, if the objection were not taken by counsel, well have adjudged in favor of the defendant.

These views render it unnecessary to conisder the exceptions to to the master's report.

The decree of the Circuit Court is reversed and the cause will be remanded, with directions to dismiss the bill.

90. ROBERTS v. RYER. 91 U. S. 150, 23 L. ed. 267 (1875, Patent No. 13,802, Reissue No. 455).

Mr. Chief Justice Waite delivered the opinion of the court.

* * *

The patent is, therefore, for a combination of three elements; to-wit: 1. An open-bottom ice-box, or its equivalent, so constructed that the air may pass freely down through it, while, at the same time, the drip of the water from the melting ice is prevented by collecting the water, and taking it in an escape-pipe outside of the refrigerator; 2. A dividing partition, open above and below, separating the refrigerator into two apartments; and, 3. A chamber directly under the open-bottom icebox, in which articles to be refrigerated may be placed in such manner as to receive the descending current of air from the ice-box directly upon them.

There is no doubt of the utility of this combination. If the patentee was its original and first inventor, the device was patentable to him. * * *

Such being the patent, we now proceed to consider the defense; which is, that the invention patented had been anticipated by Asel S. Lyman and others. Sanford, the patentee, does not carry his inven-

tion back of the summer of 1855, when, it perhaps sufficiently appears, his application was filed. * * *

When the air comes in contact with the cold surfaces of the ice, its capacity for moisture is lessened, and the moisture is deposited on the ice. By this arrangement of the ice receptacle in the upper part of the refrigerator, with an opening for receiving air in its upper part, and a grate in the lower part on which the ice rests, a cold-air chamber below the grate and a descending conduit from this cold-air chamber, or with an arrangement of parts substantially the same, so that the air shall be caused to circulate rapidly from bottom to top in the refrigerating chamber, and from top to bottom in the separate combinations as described, the air is not only cooled, but it is, by being frequently passed through the interstices of the ice, thoroughly dried, and it is washed as by a hail-storm; a decided improvement in its smell is effected; and the apparatus becomes not only cooling and drying, but, to some extent, a disinfecting apparatus."

He then claimed as his invention "the combination of the reservoir of cooling, drying and disinfecting material with the descending tube or conduit, so that the cold and condensed air in this conduit shall, on account of its increased weight, cause the warmer air to pass more rapidly through the material, where it is cooled, dried, and disinfected, and in its turn fall down the conduit, being by its sides kept separate from the other air until it mingles with the lower strata, substantially as described for the purposes aforesaid."

There was, therefore, in this invention of Lyman, the open-bottom ice-box, and the partition open above and below, dividing the refrigerator into two apartments, in one of which the air passed downward only, and in the other upward only. This constituted all there was of the "endless passage or chamber" in the original Sanford patent, "so constructed that the air is compelled to circulate through the entire apartment or apartments." True, the partition was not vertical; and the apartments need not be of equal or of any particular proportionate size. Neither was this necessary, as has been seen in the Sanford patent. Each, however, called for the circulation of air, and each obtained it substantially by the same device. They each passed the air cooled in the ice-box through convenient openings downwards in one apartment, and upwards through the other. * * *

It being, then, certain that Lyman contrived a machine which would produce the desired circulation, and could be used for refrigeration in the ascending current, it remains only to consider, whether, if one desired to make use of the descending current for the same purpose, he could claim such use as a new invention.

It is no new invention to use an old machine for a new purpose. The inventor of a machine is entitled to the benefit of all the uses

to which it can be put, no matter whether he had conceived the idea of the use or not. * * *

In fact, the proof is abundant, that in his experiments, while perfecting his invention, Lyman did, in more cases than one, utilize the descending current. With both the inventors, the circulation by means of an ascending and descending current was the principal object to be obtained. One considered the greatest benefit for the purposes of refrigeration was to be derived from the use of the descending current, while the other had his attention directed more particularly to the advantages of the ascending. They each had both, and could utilize both. It is no invention, therefore, to make use of one rather than the other. * * *

All that can possibly be claimed for this amendment is a combination of the use of the descending current with the device for the circulation. There was no change in the machine, it was only put to a new use. If there was any change of construction suggested, it was only to increase its capacity for usefulness. It was "a mere carrying forward or new or more extended application of the original thought, a change only in form, proportions, or degree, doing substantially the same thing in the same way, by substantially the same means, with better results." This is not such an invention as will sustain a patent. We so decided no longer ago than the last term, in Smith v. Nichols, 21 Wall. 112. Clearly, we think, therefore, the invention of Sanford was anticipated by Lyman; and his patent is, on that account, void. * * *

91. POTTS v. CREAGER, 155 U. S. 597, 39 L. ed. 275, 15 Sup. Ct. 194 (1895).

[Patents Nos. 322,393, July 14, 1885 and 368,898, August 23, 1887, Potts valid and infringed.

Brown J.: In defining the inventions, the court said:]

"The object of the Potts inventions was not to crush the clay, as had been previously done, but to disintegrate and pulverize it, leaving it in a loose condition, fitted to absorb the water readily. Their machines consisted substantially of a cylinder moving at a high speed, having longitudinal bars fixed in its periphery with sharp projecting corners, and a fixed abutment in close proximity thereto—in the first patent a swinging plate—in the second a smooth cylinder—and a positive feeding device by which the clay was forced between the main cylinder and the abutment. The longitudinal bars thus operated to strike the mass of clay, quick, sharp blows in rapid succession, and cut or shred small portions therefrom, which were deposited beneath the machine thoroughly mixed in their different strata, and with rough, torn, or ruptured edges—a condition best adapted to receive or absorb water, and be easily and thoroughly tempered."

[A number of patents from various arts were cited and much reliance was placed upon the exhibit known as the "Creager wood-polishing machine." It was a similar construction though having projecting strips or bars of glass where the Potts patents had similar parts of steel.

The court said:]

"Had this machine been used for an analogous purpose, it would evidently have been an anticipation of the Potts cylinder, since the substitution of steel for glass strips would not of itself have involved invention."

The court, in effect, held this machine to have been merely an abandoned experiment, but, independently of that question, held it not an anticipation of the Potts patents, reciting as an established rule of law the following much quoted conclusion:]

"As a result of the authorities upon this subject, it may be said that, if the new use be so nearly analogous to the former one, that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use, but if the relations between them be remote, and especially if the use of the old device produce a new result, it may at least involve an exercise of the inventive faculty. Much, however, must still depend upon the nature of the changes required to adapt the device to its new use."

[These patents again came before the Circuit Court and the Circuit Court of Appeals in the sixth circuit in Potts v. Creager, 38 C. C. A. 47, 97 Fed. 78 (1899), Sixth Circuit, Taft, Lurton and Thompson. In the statement of the case it is said:]

"Upon the coming down of the mandate and the entry of the interlocutory decree finding the issues for the complainant and directing a reference the defendant filed a petition for rehearing on the ground of newly-discovered evidence. The petition was allowed to be filed, and after an examination of the evidence the Circuit Court set aside the decree for the complainant and entered a new decree dismissing the bill. (71 Fed. Rep. 574; C. D. 1897, 521; 80 O. G. 186; 77 Fed. Rep. 454.) The complainant then had recourse to a proceeding in mandamus in the Supreme Court. (C. D. 1897, 342; 78 O. G. 2049.) On this application the Supreme Court held that the action of the Circuit Court in setting aside the decree entered in accordance with the mandate was irregular and void; that a petition for rehearing in such a case could properly be addressed only to the Supreme Court or to the Circuit Court after leave had been obtained from the Supreme Court to file such a petition in the Circuit Court and directed the writ to issue. Thereupon the Circuit Court restored the decree, which it had, without authority, set aside, and the defendants applied to the Supreme Court for leave to file a peti-

tion for rehearing on the same ground already irregularly presented to the Circuit Court. Leave was granted. A petition for rehearing was filed in the Circuit Court, and the Circuit Court, Judge Sage, presiding, upon a rehearing set aside the former decree and again dismissed the bill. The present appeal is from the second decree dismissing the bill upon the petition for rehearing."

[The court then proceeds to recite the patents which had been examined by Mr. Justice Brown in his opinion for the Supreme Court, referring to machines for grating apples, preparation of paper-pulp, grinding cylinder for paper-engines, rollers for grinding mills, cotton seed huller, grinding mill for general use amongst farmers, preparing wheat for grinding and clay pulverizers.

The court pointed out that the cited clay pulverizer was employed rather as a grinding machine than a disintegrating machine, and that such a machine would be inoperative, except, perhaps, where the clay was dry and of light consistency.

Reference is also made to patents for improvements in the making of bricks, straw-cutters, machines for pressing tobacco, pulp-engines, peat-machines, feed-boxes for roller mills, machines for removing hair from hides and the Creager wood-polishing machine.

It was then said, preceding a citation from the opinion of Mr. Justice Brown, that:]

"The Court then considered how far there might be the exercise of the faculty of invention in the transfer from one art to another of a device for accomplishing a different purpose and held that such a transfer might involve invention where the arts were not analogous or nearly related, the question being more or less dependent on the amount of change required to adapt the device as found in the one art to the other."

[It seems that the relation of the defendants to the complainant also had weight in this case. A quotation is made from a trade circular of the defendant advertising the advantages of their machine, which was substantially identical with complainant's machine, over machines which rolled the clay into sheets.

On the rehearing in the circuit court the defendants introduced many other prior patents. There were patents for granulating or disintegrating kernels of cocoanuts and other like substances, disintegrating devices for pulverizing clay for brickmaking, grinding mills, a prior use of an apple grinder and a clay disintegrator. The first named clay disintegrator was practically inoperative and the patent for it with many other patents were sold at auction for $25.00. The second named disintegrator was used for about six months and then sold at auction for old iron, and another machine was substituted. In the same connection testimony respecting a third disintegrating machine was introduced but this machine was also discarded and replaced by other machines. The court of appeals said:]

"The operation of the Potts machine described by Mr. Justice Brown shows that it embraces the rapid revolution of the cylinder with longitudinal blades upon it arranged with reference to the mass of clay to be disintegrated, so that the knives upon the surface of the cylinder shall strike with hard blows the mass of clay and clip off or tear off from the mass presented to the cylinder bits of the clay and carry them into a receptacle below. In the first patent the element which fed the clay to the cylinder was a vibrating plate. In the second patent a slow-moving smooth roll was substituted for the vibrating plate, and this smooth roll slowly moved and fed the clay to be struck by the knives upon the rapidly-revolving cylinder. Now it may be that the other machines called 'disintegrators' accomplish the same result, but they accomplish it by the use of two cylinders, each armed with cutting, crushing, or disintegrating projections, which intermesh and which effect the disintegration in the same general method as crushing is effected by smooth rollers."

[The court of appeals held that the Moore, Rossi and Watson disintegrating machines, while they may have effected disintegration, did not do it in the same way and upon the same principle seen and employed in the Potts device. The court then said:]

"Conceding that disintegration of the clay sufficiently complete to introduce it at once into the pugging-mill or the brick-machine without having recourse to the soak-pit was accomplished before the Potts invention, we are nevertheless of opinion that the operation of the Potts device is so different from that of the prior devices and is so much more efficient than they are shown to be that it is still entitled to the reward of a limited monopoly. It is difficult at first to distinguish between the pulverizing and crushing operation and that of disintegrating. In a wide sense 'disintegration' necessarily takes place in the operation of crushing and pulverizing. The Supreme Court uses the term, however, in the sense of tearing apart, piece by piece, or shredding. In no clay-machine but the Potts do we find this kind of disintegration."

[Then passing upon the failure of the other machines to do the work, the court said that the Circuit Court had erred in the conclusion that the decision of the Supreme Court rested wholly on the pioneer or primary character of the Potts machine. In this case (as in others) is indicated the impression made upon the court by the fact that the defendant used the same structure, the court saying:]

"If, as contended by counsel for defendants, the Newell machine will disintegrate clay better with its intermeshing surfaces on the face of two rollers than the Potts machine, the defendants have the right to use the Newell machine."

[The court also referred to the danger in such cases of re-hearing:]

"That the exigencies of the case may lead witnesses to round out evidence beyond that which exact truth would permit. Such evidence must be taken with great caution and weighed in the light of this danger."

[Referring, then, to the sixth claim of the patent,—]

"In a clay-disintegrator, the combination with cylinder A, having a series of longitudinal grooves, of the scraping-bars c, and adjustably secured in said grooves, for the purpose specified,"

it was said that the Supreme Court in its decision had treated this as a combination claim, "or at least to have held that it was for the element in the clay-disintegrating machine to be used in combination with the opposing and other elements necessary to secure disintegration of the clay by the methods specified in the patent."

[Reference was also made to the intimation, in the opinion of the Supreme Court, that the substitution of the vibrating plate for a smooth roller did not involve invention.

The court then found the first patent valid and infringed and the second patent invalid because it showed no patentable improvement over the first. The effect of the decision, obviously, was to hold an infringement any machine in which the disintegration was accomplished by a cylinder having a series of longitudinal grooves, scraping bars adjustably secured in the grooves for the purpose of disintegrating the clay by the action of the armed cylinder in its rapid revolution clipping off or disintegrating piece by piece a mass of clay feed to the cylinder.]

92. BRIGGS v. DUELL, 93 Fed. 972, 36 C. C. A. 38 (1899, Second Circuit).
Lacombe, J.:

On July 26, 1887, a patent, No. 367,267, was granted to the complainant for new and useful improvements in apparatus for planing cakes of ice for storing. Upon this patent suit was brought against the Central Ice Company in the Northern District of New York to restrain infringement of its first claim. Judge Coxe, who heard the cause at circuit, held that there was no infringement. (54 Fed. Rep., 376.) An appeal was thereupon taken to this court. The claim there in question read as follows:

"1. The combination, with the cutter-head and the racks directly attached thereto, of the guides for both cutter-head and the racks, arranged perpendicularly to the plane of the elevator, the pinions mounted on said guides and engaging in said racks, and the levers or arms for operating said pinions, all constructed, substantially as described, so that the depth of the cut may be directly and positively regulated by means of the levers, as herein specified."

This court reviewed the state of the art, including patents to Chaplin, No. 271,220, Smith, No. 310,093, and Loring and Giles,

No. 329,400, and finding in a patent to Butterfield, No. 24,076, dated May 17, 1859, for a wood-plane attachment the "same combination found in complainant's patent of cutter-head, guides, racks, pinions, and levers," held that in contemplation of law (of course in fact Briggs had never heard of Butterfield) the patentee "merely transported the devices of Butterfield into the old elevator and cut away the useless feed-roller." The conclusion was that the claim was invalid for lack of invention. (Briggs v. Central Ice Co., 8 C. C. A., 480; 60 Fed. Rep., 87.)

The patentee thereupon applied for a reissue upon an application which contained several claims, of which the following only is now in controversy. For convenience of comparison the new matter inserted in the claim is italicized:

"3. The combination with the cutter-head and the racks directly attached thereto, of the guides for both cutter-head and the racks, arranged perpendicularly to the plane of the elevator, the pinions mounted on said guides and engaging in said racks, and the levers or arms for operating said pinions, *a cutter consisting of a number of points entering the ice in such a manner as not only to cut but to groove it at one operation and an ice-elevator adapted to positively force the ascending cakes of ice into contact with the cutter and groover,* all constructed substantially as described, so that the depth of the cut may be directly and positively regulated by means of the levers *and the ice at the same time properly grooved for storage.*"

It will be perceived that the phraseology of this claim calls for two elements not enumerated in the first claim of the original patent—the ice-elevator and the multipoint cutter and groover. It will be perceived from an examination of our former decision that the ice-elevator, although not specifically mentioned, was regarded as an element of the claim. It was also understood that some kind of a cutter was necessary to make the machine practically useful and to enable the operator to regulate the depth of the cut. In the proposed reissue the combination is restricted to a peculiar variety of cutter, which, however, was not in itself new. Briggs himself had shown it in the specification of his Patent No. 346,576, dated August 3, 1886, calling attention to the circumstance that such a cutter would groove the ice as well as cut it, and in the reissue of this earlier patent, Reissue No. 11,060, dated February 18, 1890, this double function of grooving and planing is made the subject of a specific claim.

The application for a reissue of No. 367,267, which application was filed July 16, 1894, was rejected by the patent office upon the authority of Briggs v. Central Ice Co., supra, as appears from the opinions of the examiners-in-chief and of the Commissioner of Patents. The patentee thereupon appealed to the Court of Appeals

of the District of Columbia, which affirmed the decision of the Commissioner of Patents. (76 O. G., 169.) Thereupon he filed a bill in equity for this decree in accordance with the provisions of United States Revised Statutes, section 4915. The cause came before Judge Townsend upon pleading and proofs, the bill was dismissed, (Briggs v. Duell, 87 Fed. Rep., 479), and from decree of dismissal this appeal is taken.

The argument has taken a somewhat wide range, embracing practically a re-argument of questions passed upon in our opinion upon the original patent. Upon this branch of the subject it will be sufficient to say that we see no reason to modify the opinion heretofore expressed. It will be necessary only to examine the new facts upon which complainant relies to make out a case not covered, as he contends, by the former opinion.

First. Attention is called to the circumstance that when the former opinion of this court was handed down (February 27, 1894,) the Supreme Court had not decided Potts v. Creager, 1895 (155 U. S., 597.) It is not thought, however, that that case lays down any new principles of law, nor that it has overruled the earlier decisions which were cited in Briggs v. Central Ice Co. On the contrary, it indicates quite clearly that the question of so-called "double use"—whether, that is to say, the new use is so nearly analogous to the former one that the applicability of the device to its new use would occur to a person of ordinary mechanical skill—is one dependent upon the peculiar facts of each case. It would be difficult to find uses more analogous than we have here. If the apparatus for raising and lowering had in its earlier use been applied, for instance, to the movement of ore-buckets in a shaft, it might, perhaps, be urged that the analogy was imperfect; but here in both applications the apparatus moves a cutter (which is itself to remove surplus material) to the place where the operator wishes it to cut. It would seem to make little difference that the workmen who plane wood do not plane ice. In Potts v. Creager the Supreme Court approved their former decision in Brown v. Piper, (91 U. S. 40,) where a patent for preserving fish for food purposes was held to be without patentable novelty in view of an earlier patent for a "corpse-preserver" used in the undertakers' art. (See also Stearns v. Russell, 85 Fed. Rep., 218; Rogers v. Fitch, 81 Fed. Rep., 959.)

Second. It is next contended that the new matter introduced in the claim removes it from the operation of the opinion in Briggs v. Central Ice Co. As already pointed out, the express inclusion of the ice-elevator as an element involves no change. It was read into the claim in our former opinion. The addition of the peculiar cutter and groover of the patentee, which had already by his own act in taking out Patent No. 346,576 (Reissue No. 11,060) been made a part of the prior art, does not change the situation. It adds noth-

ing new to the combination, which remains a combination of old devices just as it was in the original patent.

Third. It is contended that undue weight was given to the Butterfield patent in our former opinion. The model which was filled with application for that patent and which was damaged by the fire which occurred in the patent office in 1877 has been found, and the experts on both sides have testified as to the inferences which they draw from it. It exhibits a hole in the frame of the machine and a slot in the knife-carrying frame. There is no reference to these in the specification, nor are they shown in the drawings, nor is there anything in the patent to indicate what purpose they were intended to subserve. Complainant's expert draws the inference that they were devised so that a set-screw might be used to clamp the knife-bearing frame after the racks and pinions had raised or lowered the knife to its desired position. Defendant's expert suggests that we may quite as fairly infer that they were adapted to receive "a rod or stop which might brace the frame, or hold the knife-frame from falling upon the rollers at the bottom." In the absence of any reference to a set-screw either in the specification, claims, or drawings we are not inclined to give much weight to either of these inferences, nor does the evidence satisfy us that the machine of Butterfield would be inoperative without a set-screw. And even if irregularities in the boards to be planed would at times destroy the adjustment of the knife (unless a set-screw were used), as complainant's expert claims, by reason of the increased pressure of the plank against the feed-roller, causing the latter to rise and carry the rest of the frame with it, that difficulty would disappear with the disappearance of the feed-roller, and, as was stated in Briggs v. Central Ice Co., "it is obvious that the feed-roller would be unnecessary in an ice-planing machine," where the substance to be cut is fed forward by the moving base on which it rests.

The decree of the Circuit Court is affirmed, with costs.

93. BROWN v. CRANE CO., 133 Fed. 235, 66 C. C. A. 676 (1904, Seventh Circuit, Patent No. 513,998).

Before Jenkins, Grosscup, and Baker, Circuit Judges:

Baker, Circuit Judge (after stating the facts as above). Cores were made by hand from the beginning to the introduction of appellant's machine. The machines, as we understand, are not used to manufacture cores for sale, but are themselves sold to foundries to supersede therein the hand-making of the required cores. Down to 1903 appellant placed about 350. The advantages of the machine method are not questioned.

As early as 1859 Tiffany produced a tile-making machine, the description of which may be read upon appellant's claim 3 as follows:

"A tile-making machine consisting of a hopper, F, located adjacent to and supplying material to a tube, D, having within it a worm, E, for forcing material out through the tube, D, and a wire, G, held in a fixed position and terminating beyond the end of said worm, E, for the purpose of forming the hole in the body of the tile."

Neither Tiffany nor appellant's assignor specified the relative diameters of tube and wire. Some tiles have thicker walls and smaller internal diameters than others, but neither Tiffany nor another could claim invention in changing the relative diameters of tube and wire from those shown in Tiffany's drawings. Appellant's witnesses prove that appellant's machine makes holes in the cores larger than in hand-made cores, and that there is no fixed required relation between internal and external diameters, except that the walls shall be thick enough not to cave in of their own weight. Tiles are formed of clay in a plastic, coliesive condition. Cores are formed of a mixture of sand and flour in a plastic, cohesive condition. The difference in plasticity and coherence is one of degree only.

The machines, as machines, combinations of moving mechanical parts adapted to receive and to apply motion to produce mechanical results, are identical, element for element, function for function.

Are the arts analogous? Broadly, both relate to the shaping of tubular bodies. More closely, both cores and tiles are made from earthy substances, reduced by water to plastic, coherent conditions, then given their tubular shapes, and then baked to hardness for use. If closer analogy were required, it seems to us that nothing short of identity would suffice.

As a patent cannot rightfully be granted merely for a new use of an old machine, it matters not whether the intuitive flash came 35 years or 35 minutes after the disclosure of the original invention.

Grosscup, Circuit Judge (concurring). Two facts are undisputed. The first of these relates to the difference of purpose between rubber hose and clay tile, on one hand, and appellant's core on the other; as also the difference between the character of material out of which, respectively, they are made, and upon which the machines are meant to operate. The second fact is the existence of a commercial demand, during a long period, for machine made cores—a demand that the appellant was the first to supply.

The purpose of rubber hose and clay tile is to carry off fluids or gases, gathered from sources external to the tubes themselves. The purpose of the perforation through appellant's core is to carry off gases generated in its own sands by the hot surrounding iron. Rubber hose and clay tile, therefore, are tubes proper, performing the function of tubes; while the perforation through the core is a drainage opening only.

The material out of which rubber hose and clay tile are made, is firm and cohesive. The inventor, contemplating a machine to act on such material, was not concerned with the inquiry whether the material would collapse, or how collapse could be prevented. On the other hand, the material, out of which cores are made, is a sharp sand intermixed with flour, cohesive to a very small degree, fragile, and subject to collapse on slight jar or vibration. It was due to this quality of the material, perhaps more than to anything else, that before appellant's invention, no cores were actually made except according to the clumsy molding process. Thus it appears, that though the product of the core machine, and the product of the rubber hose and clay tile machines, are in form alike, varying chiefly in the diameter of the interior opening; and though the machines themselves operate mechanically much the same; the end to be subserved, and the material to be worked upon, are essentially different. To the mind seeking a way to make a core machine, a problem was presented essentially different from the problem presented to the minds that previously created the rubber hose and clay tile machines.

When, then, the second undisputed fact is also borne in mind—that though a real commercial demand existed for machine made cores, none appeared up to the time of appellant's invention—the real merit of appellant's claim to invention is made clear, viz.: That dealing with a material previously supposed to be insusceptible to manufacture into cores by machines, appellant discovered that a practical, efficient core machine could, in fact, be made; going to the allied arts, not for the generative thought, but for the mechanical means of carrying out the thought. Does not this constitute patentable invention?

The constitutional basis of the patent laws is to promote the progress of the useful arts by giving to him who creates something new and useful a property in the thing created; and, as I look at it, the life germ of any creation is not so much the mechanical form in which it finally becomes embodied, as the flash of inspiration that, out of the darkness in which it lay concealed, first revealed its possibility. The possibility of a thing once seen, it is of no great moment that a ready mechanical means of bringing it into form is at hand; nor that the mechanical means used are similar to those employed before in the allied arts; nor that any mind would have seen the adaptability, mechanically, of what already existed to what was now, for the first time, about to exist. The true inquiry is, Did any one before, in creative imagination, actually see this new thing? Did it not require invention to discern, in the first instance, that the new thing was possible? Is it not invention to bring out of what to others seems chaos the form and feasibility of the new and useful thing?

Invention is not, in my judgment, confined to the concrete mechanical form into which an idea ultimately evolves. Invention is the idea itself, the burst of new thought, the discovery; and patentable invention is the conjunction of these with appropriate and efficient mechanical means. Confessedly, an old idea, carried out mechanically in a new form, is patentable invention. To my mind a new idea, carried out mechanically in an old form, ought equally be regarded as patentable invention. To hold otherwise is to dethrone the head and enthrone the hands—to leave genuine genius unrecompensed, while placing the inventor's crown on mechanical skill.

But there is authority for the conclusion reached by the court, notably the recent case of Kokomo Fence Machine Co. v. Kitselman, 189 U. S. 8, 23 Sup. Ct. 521, 47 L. ed. 689, and, expressing my dissent on principle, I am compelled to follow that authority, and concur in the judgment reached.

The decree is affirmed.

94. MAST, ETC., CO. v. STOVER MFG. CO., 177 U. S. 485, 44 L. ed. 856, 20 Sup. Ct. 708 (1900, Patent No. 433,531).

[The features of the drawing are thus described in the patent:

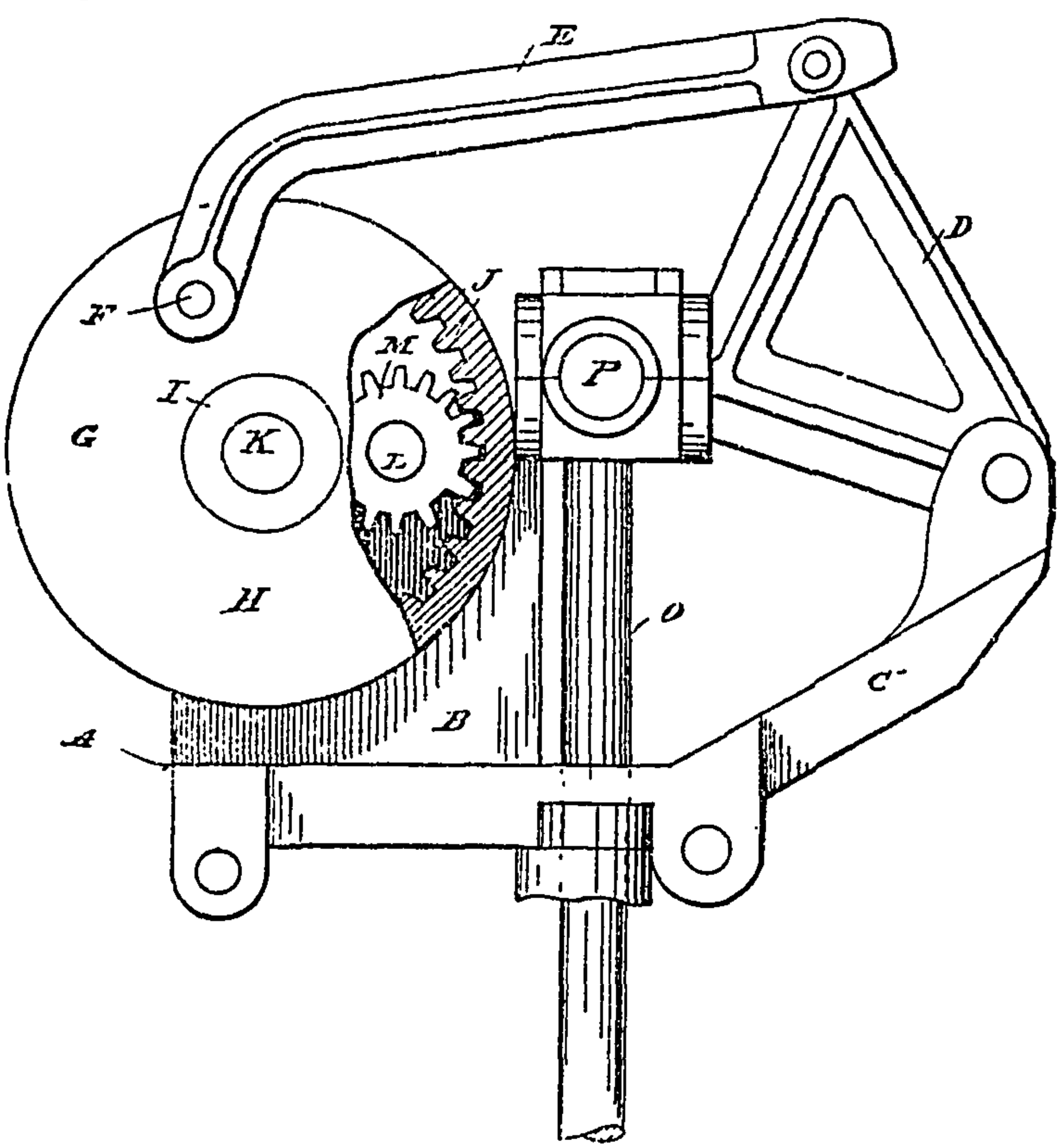
"The letter A designates a cast frame or structure carried by the upper part of the turn-table of a windmill, of which B refers to one of the bearing-blocks and C to an arm, to which is pivoted the pitman D. This pitman is triangular and of the type on the market in windmills manufactured by my assignees of this invention. To one extremity of this pitman is attached a pitman-bar E, the other end of which bar is fitted upon a wrist-pin F, carried by the internal gear G. This gear may be of any approved type, so long as it is provided with internal teeth. In the present case it is constructed with a disk II, having a hub I and a rim J. It is mounted upon a stud or shaft K, carried by the bearing-block B.

On the main shaft L is placed an external toothed pinion M. It will be observed from the drawing that the pinion is within the circumference of the rim J and is interneshed with the teeth of said rim. It will also be noticed that a plurality—three in the present instance—of the teeth of the pinion are engaged with the teeth of the gear-rim. This is due to the fact that the rim encircles the pinion. Thus it will be seen that when the main shaft is rotated with its pinion the internal gear-wheel G will also be rotated, though at a reduced speed, and as several of the teeth of the pinion are always engaged with the teeth of the rim no lost motion will occur as the wrist-pin passes the center, and the strains are changed from a pull to a push upon the pitman-bar

E. The actuating-rod O connects with the pitman D in any approved manner at P, and extends down from the tower to the appliances to be operated—say a pump."

In the patent the inventor also briefly sums the invention and its advantages as follows:

"The invention consists, essentially, of an improved back-gear organization involving an external-toothed pinion and an internal-toothed spur-gear, the pinion being mounted on the wheel-shaft and the gear having formed on or connected with it the wrist-pin, to which the operating-pitman is attached, whereby



the speed of the main shaft as applied to the wrist-pin and pitman is reduced, and whereby, also, all pounding and lost motion is prevented as the pitman-connection passes over the center and changes from a pushing to a pulling action. This object is accomplished by the fact that a plurality of the pinion-teeth are always engaged with the internal spur-gear, resulting in giving

a perfectly uniform and smooth and noiseless reciprocating motion to the actuating-rod thereby prolonging the life of the machine by saving it from constant jarring and preventing wear and tear.

* * *

The freedom of the organization from lost motion and sudden jerks as the wrist-pin passes over the center renders the operation of the pump smooth and regular. This increases the effectiveness of the pump and prevents undue wear and tear."]

Mr. Justice Brown delivered the opinion of the court.

* * *

The principal mechanism of an ordinary pumping-windmill is directed to the conversion of the rapid rotation of the wind-wheel into the perpendicular reciprocating movement of an ordinary pumping-shaft. This is accomplished in much the same way that the revolution of a water-wheel is made to operate an upright saw, namely, by means of a pitman—of different forms, but always with the object of converting one motion into another. In doing this the revolving wheel, during one-half of a complete revolution, pulls, and during the other half pushes, upon the pitman. This change from a pulling to a pushing motion is accompanied, as the pitman-rod passes over the center of motion by a pounding, which not only produces a peculiar noise, but a strain upon the mechanism, resulting in frequent breakages. These poundings naturally increase in force as the mechanism becomes worn, and are sometimes heavy enough to strip the cogs from the wheels. Before the Martin patent the device usually employed was a small external-toothed wheel or pinion mounted upon the shaft of the wind-wheel, the cogs of which interlaced with the teeth or cogs of a large spur-wheel, also externally toothed, and revolving at a greatly reduced speed, to which the pitman-bar was attached. As both wheels were fitted with teeth on the outer edge of the rim, the consequence was that as each wheel presented its convexity to the other, but one or two teeth of either wheel engaged with the corresponding teeth of its fellow, and fractures of the teeth were frequent. There was also a tendency of the two wheels to draw apart. Martin obviated this by providing the large or spur wheel with teeth fitted on the inner side of the rim, whereby the concavity of the rim was opposed to the convexity of the pinion, and a greater number of teeth on each wheel engaged with the corresponding teeth of the other, and the strain occasioned by the change of motion was greatly reduced. That the invention was a useful and popular one is shown by the fact that it went into immediate use, and over three thousand windmills containing the combination are said to have been manufactured and sold since 1890.

Prior to Martin's patent, windmills of this class had been driven

by externally-toothed spur-wheels, interlacing with externally-toothed pinions, and hence were subject to the pounding motion which proved so destructive to the mechanism, and which it was the object of the Martin patent to obviate. The defense to this case is largely based upon the fact that the prior art had shown a large number of instances of spur-wheels, provided with teeth on the inner side of the rim, operated by external-toothed pinions. They are shown to have existed as early as 1841, in a patent to Perry Davis, No. 2,215, for an improvement in windmills, in which cogs fixed upon the inner periphery of the rim, interlaced with an external-toothed pinion, although for a different purpose of keeping the wheel in the wind. They are shown in several numbers of other patents for harvesters, hay-tenders, churns, mowing and sewing machines, and other mechanical movements for the conversion of motion. It would appear from the opinion and dissenting opinion in the case against the Dempster Mill Manufacturing Company, (49 U. S. App., 508,) and from the opinion of the Circuit Court of Appeals in this case, that, while the combination of an external-toothed pinion and internal-toothed spur wheel was common in other mechanisms the only windmill patent in that case offered as an anticipation of Martin's was one granted to Edward Williams, September 19, 1876, No. 182,394, which showed a pitman actuated by two eccentric external-toothed gear-wheels; and that the majority of the court was of opinion that the transfer of the Martin device to windmills for the purpose named in the patent involved invention within the cases of the Western Electric Co. v. LaRue, 139 U. S. 601; Crane v. Price, Web. Pat. Cas. 393, and Potts v. Creager, 155 U. S. 597. In the present case, however, not only are there a large number of patents shown containing this combination, but several in which the combination is used for different purposes in the construction of windmills; for instance, in Patent No. 254,527, to George H. Andrews; in Patent No. 500,340, to S. W. Martin; in Patent No. 271,635, to William H. and Clifford A. Holcombe; in Patent No. 273,226, to Peter T. Coffield; in Patent No. 317,731, to Coleman and Turner; and in Patent No. 346,674, to Henry G. Newell, in all of which the system is employed for different purposes in connection with windmills—generally to keep the wheel in the direction of the wind.

It is admitted that in none of the instances in which an internal-toothed wheel is employed in windmills in connection with an external-toothed wheel, is the combination used for the purpose specified in the Martin patent of converting the revolving motion of the wind-wheel shaft into the p[illegible]ndicular motion of the pump-shaft, though what is known as th[illegible]ins mill presents the closest analogy. This mill is shown, by [illegible]table proof, to have been manufactured at Mishawaka, In[illegible].rly as 1885, and to have been

sold in considerable numbers. It does not appear to have been a pumping-mill; and the upright shaft, instead of having the reciprocating perpendicular movement of a pumping-shaft, revolved, and furnished, by means of a beveled gear at the lower end of the shaft, a revolving motion to a horizontal shaft used for various purposes upon farms. A large internal-toothed wheel was placed on the outer ends of the arms of the spider to which the wind-wheel arms were bolted, the internal gearing of which wheel engaged with a small gear-wheel or pinion placed on an independent shaft, at the other end of which shaft a beveled pinion was placed, interlacing with a corresponding bevel on the upper end of the upright revolving shaft. As there was no conversion or change of motion, the strain was uniform, and there was no interruption of a continuous motion or a pounding to be provided against. This is undoubtedly a different use from that to which the Martin combination was put; but the question is, whether there is not such an analogy between the several uses in which this combination was employed as to remove its adoption, in the use employed by Martin, from the domain of invention.

The case, then reduces itself to this: The Martin combination had previously been used in a large number of mechanical contrivances for the purpose of converting a rotary into a reciprocating motion, as is notably shown in Patent No. 421,533, to John Wenzin, for a reciprocating gearing; in Patent No. 399,422, to Edward Burke, for a means of converting motion; in Patent No. 89,217, to E. R. Hall, for a wood-sawyer; in reissued Patent No. 2,746, to Christopher Hodgkins, for a sewing-machine; in patent to Krum and Brokaw, for harvesters, and in what is known as Filer & Stowell Company's lath-bolter, a sketch of which is given in the record. The combination had also been used in windmills, but not for the purpose of converting rotary into reciprocating motion, although in the Perkins mill it was used in connection with the shaft of the wind-wheel to transfer power from a horizontal to an upright rotating shaft, which, at its lower end, transferred its own motion by a beveled gearing to another horizontal shaft. The combination of two externally-toothed wheels had also been used in windmills for the purpose of converting rotary into reciprocating motion.

Having all these various devices before him, and whatever the facts may have been, he is chargeable with a knowledge of all pre-existing devices, did it involve an exercise of the inventive faculty to employ this same combination in a windmill for the purpose of converting a rotary into a reciprocating motion? We are of opinion that it did not. The main advantage derived from it arose from the engagement of a large number of teeth in each wheel. This peculiarity, however, inured to the advantage of every machine in which the combination was used for the purpose of converting motion, al-

though the jar produced by the change of motion may not have been sufficient to endanger a small machine. So, too, a reduction of speed is involved wherever the cogs of a small wheel engage with the cogs of a large one. Martin, therefore, discovered no new function; and he created no new situation, except in the limited sense that he first applied an internal gearing to the old Mast-Foos mill, which was practically identical with the Martin patent, except in the use of an internal gearing. He invented no new device; he used it for no new purpose; he applied it to no new machine. All he did was to apply it to a new purpose in a machine where it had not before been used for that purpose. The result may have added to the efficiency and popularity of the earlier device, although to what extent is open to very considerable doubt. In our opinion this transfer does not rise to the dignity of invention. We repeat what we said in Potts v. Creager, (155 U. S. 597, 608)—

"if the new use be so nearly analogous to the former one that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use.

The line between invention and mechanical skill is often an exceedingly difficult one to draw; but in view of the state of the art as heretofore shown, we cannot say that the application of this old device to a use which was only new in the particular machine to which it was applied, was anything more than would have been suggested to an intelligent mechanic, who had before him the patents to which we have called attention. While it is entirely true that the fact that this change had not occurred to any mechanic familiar with windmills is evidence of something more than mechanical skill in the person who did discover it, it is probable that no one of these was fully aware of the state of the art and the prior devices; but, as before stated, in determining the question of invention, we must presume the patentee was fully informed of everything which preceded him, whether such were the actual fact or not. There is no doubt the patent laws sometimes fail to do justice to an individual who may, with the light he had before him, have exhibited inventive talent of a high order, and yet be denied a patent by reason of antecedent devices which actually existed, but not to his knowledge, and are only revealed after a careful search in the patent office. But the statute (sec. 4886) is inexorable. It denies the patent, if the device were known or used by others in this country before his invention. Congress having created the monopoly, may put such limitations upon it as it pleases.

The case in the Eighth Circuit was evidently decided upon a wholly incomplete showing on the part of the defendant. * * *

95. STEARNS v. RUSSELL, 85 Fed. 218, 29 C. C. A. 121 (1895, Sixth Circuit, Patent No. 389,485).

* * * Before Taft, Lurton, and Severens, Judges.

Taft, J., after stating the case as above, delivered the opinion of the court.

The first issue between the parties is whether the patent before us is to be regarded as a machine merely for lifting and holding pills or as an element of a larger mechanical combination of parts used in the process of pill-dipping. It seems to be the view of the defendant and appellee that other things required to be used in dipping pills can be implied as elements of the claims, and that thereby the novelty of the invention will become clear from the circumstance that no device of any form embodying the pneumatic principle of complainant's bar had ever before been used in combination with pills and a gelatin-bath. To imply as elements of a claim parts not named therein for the purpose of limiting its scope, so that it may be accorded novelty, is contrary to a well-settled rule of the patent law. It was proposed to limit a claim thus in McCarty v. Railroad Co., (160 U. S. 110, 116.) The patent there under consideration was for a car-truck bolster. Mr. Justice Brown, in delivering judgment for the Supreme Court, said (p. 116.) * * * [See infra.]

But it is said that the claims of the patent in question here do contain a suggestion of such a combination in the opening words, "In pill-dipping mechanism." We think these words are only used to define the useful purpose to which the patentee intended his device to be devoted and cannot bear the construction by which all the other substances and parts used in dipping pills may be considered as making up the combination claimed.

There is a still more serious objection to such a view in the fact that the other elements which it is sought to introduce into the claims do not, when taken in connection with the specified device, in any proper sense constitute a mechanism or arrangement of mechanical parts that can be patented as such. The complainant's patent is for a pill-holding device and nothing else. It is a tool for manual use. To the extent that the pump or fan, the flexible tube, the chambered bar, and the tubes or nipples of the bar co-operate to hold the pills upon the tube or nipple ends against the force of gravity they form a mechanism or machine; but when considered in relation to the dipping process this machine is merely a tool, exactly as a pin would be a tool used by hand to impale a pill and to dip it into gelatin. The gelatin and its receptacle are not coacting parts of a mechanism of which the bar is also a part. There is no relation between them at all, except as it is initiated and maintained by the voluntary manual and continuously-guiding act of the human operator. It is no more proper to describe the dipping-bar as a

co-element in dipping mechanisms with the pill and the gelatin-bath than it is to describe the ax as a co-element of the log and the chopping-block in mechanism for splitting wood. Mechanism may be defined to be the arrangement and relation of the parts in a machine, and a machine is defined by Professor Robinson in his work on patents (sec. 173) to be—

"an instrument composed of one or more of the mechanical powers, and capable, when set in motion, of producing, by its own operation, certain predetermined physical effects."

Again, he says (sec. 175) that—

"a machine differs from all other mechanical instruments in that its rule of action resides within itself."

Within these definitions the chambered dipping-bar, with its pill-seats and the exhaust-pump, is a machine for holding pills, and the bar, the chamber, the pump, and the hollow pill-seats are parts of the mechanism forming the machine operating upon the pills; but when the hand of the operator is needed to turn the bar over and to carry it to the bath and to dip the attached pills into the bath the function of the bar, so far as it has relation to the bath and the dipping process, is that of a tool. Of course we do not mean to say that various mechanical steps taken by means of different tools or machines in operating upon a substance to transform it from one thing to another may not be the subject of a patent; but in such a case the patent is for a process and not for a machine. (Cochrane v. Deener, 94 U. S. 780, 787, 788; Locomotive Works v. Medart, 158 U. S. 68, 75, 76.) Whether such a process patent might have been valid for the steps in pill-dipping pointed out in complainant's specification we need not discuss, because the complainant as a condition of getting the patent in suit expressly abandoned and withdrew an application for just such a process patent, and he is thereby estopped from contending for any construction of his present patent which would, in effect, secure him the same thing. (Sutter v. Robinson, 119 U. S., 530, 541; Shepard v. Carrigan, 116 U. S., 593, 6 Sup. Ct., 493; Leggett v. Avery, 101 U. S., 256.) What we have to determine in this case, therefore, is whether complainant's chamber-bar was a new invention. First, was the bar itself new? Second, if not, did its use for holding pills involve the inventive faculty on the part of the complainant, who is conceded to have first conceived such use?

The Campbell machine for making buttons and the much earlier devices of Walsh for making heads for trunk-nails, clearly disclosed the method of lifting, holding, and moving small articles like pieces of metal, cloth, wood, and paper from one place to another by attaching them to the ends of hollow tubes connected with an exhaust-chamber, from which the air was withdrawn by a pump, fan, or other exhausting device. Such devices were part of a larger ma-

chine and discharged their functions automatically and at regular intervals. Although the principle of their action, so far as lifting and holding these articles against the force of gravity was concerned, was exactly the same as that embodied in complainant's bar, their form was not precisely the same. The same principle was used in another art—that of the printing-press—for lifting and delivering paper to the press, and in this art we find the complainant's dipping-bar complete, with hardly a variation. It appears satisfactorily that what is called the "tubular carrier" of the paper-delivering device of Sanford C. Cox, patented several years before complainant's application was filed, is substantially in the same form as complainant's bar, operates upon exactly the same principle, and if removed from the Cox machine, as it can be easily, will hold, carry, and dip pills in the same way. It appears that no change is necessary whatever in the Cox carrier to make it suited to pill-dipping, except it may be a reduction in the size of the tubes or pill-seats. Differences between the two bars or carriers are suggested. First, the exhaust-chamber of complainant's bar is connected by a swivel-joint to the flexible rubber tube leading to the air-exhausting machine. This swivel-joint is not in Cox's carrier; but the tube connected to the chamber of the carrier is flexible, and it is quite manifest that the flexibility of the tube, if sufficiently long, would permit the performance of the same function—that of enabling the tube to be turned over—which is the office of the swivel joint in complainant's bar. Again, it is said that the ends of the Cox carrier-tubes are not made of a semi-globular form to form the pill-seats and have rubber rings about them; but it clearly appears that the model made according to the Cox carrier will hold the pills without such seats, and this, too, with or without the rubber rings, which of course were used to make the connection with the paper sheet more close. The very triviality of the differences dwelt upon only emphasizes the substantial identity of the two bars. The Comly carrier for sheets of paper, which is a much earlier device, also quite nearly resembles complainant's carrier in form and principle of operation; but the resemblance is not so close as that of the Cox carrier, and we need not further notice it.

The remaining question is, did it require the inventive faculty to conceive the use of the Cox carrier for pill-dipping and to apply it to that art? It has long been settled that a mere use or function is not the subject of a patent, and also that—

"the inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he conceived the idea of the use or not. (Roberts v. Ryer, 91 U S., 150, 157; Goshen Sweeper Co. v. Bissell Carpet Sweeper Co., 37 U. S. App., 555; 19 C. C. A., 13, and 72 Fed. Rep. 67, and cases there cited.)"

It would seem to follow as a corollary to these two propositions that where it requires substantially no change in the old device to

adapt it to the new use such adaptation cannot be the subject of a patent, no matter how remote and unthought of the new use may be, provided no new force or mode of application be necessary in carrying on such use. Otherwise in case the device has been patented the right of monopoly of the prior patentee is invaded by excluding him from a use of a machine which by the rule stated and the authorities cited above he is entitled exclusively to enjoy. If, however, the adaptation of the old machine to the new use involves a change in its form or operation. it may by the changes and very newness of the use or function become either a new machine or an improvement on the old machine and be patentable as such, or the new use of the old machine may result in a new product which is itself patentable, or the use may be a step in a new and patentable process. The general rule, however, is stated by Mr. Justice Gray, in delivering the judgment of the Supreme Court in Pennsylvania R. Co. v. Locomotive Engine Safety Truck Co., (110 U. S., 490, 494; 4 Sup. Ct., 220,) as follows:

"It is settled by many decisions of this court, which it is unnecessary to quote from or refer to in detail, that the application of an old process or machine to a similar or analogous subject, with no change in the manner of application, and no result substantially distinct in its nature, will not sustain a patent, even if the new form or result has not before been contemplated."

Tested by this rule we cannot think that the device of the complainant was patentable. Cox's machine was applied to the lifting of sheets of paper by exhausting the air in the hollow points of contact with the paper. Its subject was the lifting of the paper against the force of gravity without hooking or sticking devices. The same principle had been theretofore applied in lifting small articles like buttons, nail-heads, and their component parts. Complainant's machine is a reproduction of Cox's, and its use is to lift pills and hold them against the force of gravity without hooking or sticking devices. There is no change in the manner of operating the machine, and the result is not substantially distinct in its nature, because it is in each case the holding of the article against gravity while it is being lifted from one place to another—in the Cox machine from the pile of paper to the press. in the complainant's machine from pill-magazine to the bath and thence to the drier. We cannot think that such a use is not an analogous use, although never until the complainant did it had such a device been applied to holding up pills while being dipped. There would be more ground for maintaining that the use was non-analogous if it were not that small articles quite like pills had been held up in the same manner. It is quite possible that the conception of the machine by the complainant was a real exercise of the inventive faculty on his part, because he did not know of the Cox or Conly devices or of the Campbell and Walsh

patents; but in judicially estimating the amount of invention in a patented device the court is bound to assume that the history of prior patents and machines having a bearing on the subject-matter was known to the patentee.

The case upon which complainant's counsel most rely is that of Potts & Co. v. Creager, (155 U. S., 597.) In that case the patentee had taken the cylinder of a wood-polishing machine, containing a series of glass bars fitted into longitudinal grooves in the periphery of the cylinder, and, discarding the glass bars, had substituted others of steel and provided the cylinder thus changed with an abutting roller and then used it, not for wood-polishing, but for disintegrating clay. The Supreme Court held the patent valid. * * *

In the case at bar it is true that the complainant's device has been very useful in the art of pill-dipping, and if that alone is to determine whether a use is analogous or non-analogous when an old device is used in another art the complainant's device must be sustained as patentable; but it will be observed that Mr. Justice Brown in this very carefully and cautiously worded discussion of the subject includes as very large elements to be considered in reaching a conclusion in any case the changes in the old device required to adapt the old device to the new use and remoteness of the new use. (Schreiber Co. v. Grimm, 43 U. S. App., 10, 19; 19 C. C. A., 67, and 72 Fed. Rep., 671.) In the case he was considering the changes were marked. The old device would have been wholly inoperative if applied as it was to disintegrating clay. In the case before us no change was necessary at all except simple disengagement from other parts of a larger machine and a mere reduction in size of the holes in the contact tubes. In Potts & Co. v. Creager the old use was polishing wood: the new was disintegrating clay. They were obviously totally different and distinct purposes. Here the old use was lifting and holding paper and small articles, and the new was lifting and holding pills. We are of opinion that, notwithstanding the utility and success of the new application of the device to pill-dipping, the circumstances that no change of form was necessary in the new application and that the functions or purposes new and old were not wholly different and distinct, but were substantially the same, make this a different case from Potts & Co. v. Creager and lead to a different result. In Western Electric Co. v. La Rue, (55 O. G., 571; 139 U. S., 601; 11 Sup. Ct., 670,) referred to by Mr. Justice Brown above, the invention was of a combination of parts making up a telegraph instrument, the novel element in which was a torsional spring. Such a spring took the place of elements which required the most delicate adjustment and were always getting out of order. The spring had never before been an element in such a combination and had never before discharged the same function. The case has no likeness to the one before us. In Colgate v. Tele-

graph Co. (15 Blatchf., 365; Fed. Cas., No. 2,995,) it was held that the use by the patentee of an electric wire covered with gutta-percha to insulate it was not a double use, though gutta- percha had been used for protecting from abrasion or injury from without a metallic wire which was not used to conduct electricity. Here the new use involved a new force. The wire and the covering each discharged new functions, and the invention was manifestly a different one from that involved in merely covering wire to protect it. The cases of Williames v. McNeely, (64 Fed. Rep., 766,) and Williams v. Barnard, (41 Fed. Rep. 356,) cited for appellee, thrown little light on the case at bar, because in those cases the patents were sustained on the ground that ingenuity was shown in devising the mechanism needed to apply the principle of the old machine to the new use.

The cases in which it has been held that an old machine applied to a new purpose is not a new patentable machine are so numerous that it would take too much space to cite them all. In addition to those already cited may be mentioned Howe v. Abbott, (2 Story, 190; Fed. Cas., No. 6,766;) Bean v. Smallwood, (2 Story, 408; Fed. Cas., No. 1,173;) Knapp v. Morss, (15 U. S., 221; 14 Sup. Ct., 81;) Aron v. Railway Co., (132 U. S., 85; 10 Sup. Ct. 24;) Ansonia Brass & Copper Co. v. Electrical Supply Co., (144 U. S., 11, 18; 12 Sup. Ct. 601;) Busell Trimmer Co. v. Stevens, (137 U. S., 423; 11 Sup. Ct. 150;) Dunbar v. Tack Co., (4 Ban. & A., 518; Fed. Cas., No. 4,127a; Moffitt v. Rogers, (8 Fed. Rep. 147;) Miller v. Foree, (116 U. S., 22; 6 Sup. Ct. 204;) Lovell Manufacturing Co. v. Cary, (147 U. S., 623; 13 Sup. Ct. 472;) Kay v. Marshall, (2 Web. Pat. Cas., 36;) Harwood v. Railway Co., (11 H. L. Cas., 654.) The case of Manufacturing Co. v. Cary had some points of resemblance to the case before us. The patent there was for a process of restoring the resiliency of furniture springs by heating them to a great heat. The invention was said to have revolutionized the art; but it was held that the prior use of the same method for tempering wire clock-bells and blued hair-springs in marine clocks made the patented process only a double use, although the furniture and clock making arts would not seem to be very nearly allied. Following language used in McClain v. Ortmayer, (141 U. S., 419, 428; 12 Sup. Ct., 76,) the court said of the argument founded upon the extent to which the article had gone into use that—

"while in a doubtful case the fact that a patented article had gone into general use is evidence of its utility, it is not conclusive even of that, much less of its patentable novelty."

See, to the same point, Knapp v. Morss, (150 U. S., 221; 14 Sup. Ct., 81.)

Professor Robinson, in his valuable work on patents, (sec. 269,) states the rule which he conceives to be applicable to a case like this as follows:

"Where an invention consists of a specific force applied in a specified manner, but without reference to specific objects, diversity of use may arise from a change of objects, the diversity being double use if the substituted object were already known as capable of substitution, but being a new invention if this susceptibility of that object were first discovered by its use."

Even judged by this rule, which is certainly more liberal than that laid down in many of the authorities, we cannot see how any other conclusion than that already expressed can be reached in the case at bar. It was known that pills had the same susceptibility of being held up against the force of gravity by pneumatic pressure that other small articles and that paper sheets had. Of course pills had not been so held; but, assuming a knowledge that paper, buttons, small pieces of cloth, metal, cardboard, and nail-heads could be so lifted, there was nothing about a pill which would lead the ordinary observer to suppose that it was not equally susceptible to the same operation. Hence the use of the same device for holding pills was a double use and not a new invention.

A suggestion has been made that the pill, being rather soft and round, might suggest difficulties in the creation of a partial vacuum behind it that would be absent in hard bodies like buttons and nail-heads, because the latter would make a closer contact with the cupule or sucker-tube; but we cannot think that there is anything of substance in this suggestion. The question of a sufficient vacuum is only a matter of degree, and it was manifest that the difficulty, if any existed, might be obviated by a slight change in the form of the tubes at their ends and in the power of the suction. The conclusion we have reached makes it unnecessary to consider the question of infringement.

The decree of the Circuit Court is reversed, with directions to dismiss the bill.

96. IN RE EASTWOOD, 33 App. D. C. 291, 144 O. G. 821, 1909 C. D. 418 (1909).

* * * Robb, J.:

The patent office takes the position that one possessing the general knowledge of the use of a magnet to lift articles would easily see that he might lift a drop-weight as well with a magnet. This contention is met, however, by the affidavits of Clark and Burrell and by the dates of the references. Wellman's patent, covering the use of electromagnets for lifting articles, had been in force for ten years, while Wenrich's patent on a skull-cracker had been granted twenty-three years. If this was such an obvious thing to any one

having a knowledge of the use to which electromagnets had been put, it is somewhat remarkable, considering the utility and apparent demand for this device, that no one should have thought it worth while to construct it. While the skull-cracking art and the art of transporting finished iron products are somewhat analogous, it must be held, in view of the evidence in this record, that the combination of a metal or skull-cracking weight with a lifting-magnet and a traveling crane is new. * * *

"It is not sufficient," says Mr. Justice Brown, in Topliff v. Topliff (145 U. S., 161), "to constitute an anticipation that the device relied upon might, by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapted, nor actually used, for the performance of such functions."

It is a general rule that, if a new combination and arrangement of known elements is productive of a new and useful result, it is evidence of invention. (Loom Co. v. Higgins, 105 U. S., 580.) And, the argument advanced, after the combination has been effected and the new result obtained, that any one could have done the same thing ought not to receive great consideration in a case like this where ten years elapsed before the combination became an accomplished fact. Especially is this true when a material advance has been made in the art involved. Neither are we impressed with the argument that, because of the grant of a patent to appellant, no one possessing the right to use the lifting device of Wellman could use it as a skull-cracker. The obvious answer to this argument is that Wellman's device was neither designed for, nor used, as a skull-cracker. Indeed, without the co-operation of the weight it could not be used for that purpose.

Potts v. Creager, (155 U. S., 597), involved a patent covering a machine to disintegrate clay. The patent principally relied upon as anticipating the Potts patent was the one upon the device known as the "Creager wood-polishing machine." In that device there was a cylinder provided on its periphery with a series of projecting strips or bars of glass not materially differing in form from the scrapers on the Potts device. The Creager machine, however, was used for polishing boards. The court said: * * * [See Case No. 91.]

In this case the inventor has taken Wenrich's device and combined it with that of Wellman and has thereby produced a structure that will undoubtedly completely displace and supersede the device of the prior art. He has taken the cumbersome and expensively-operated device of the prior art and, by combining it with other devices in other arts, has added greatly to its efficiency, and at the same time materially reduced the cost of its operation. He has in fact as well as in law produced a new device, and it seems to us that the spirit and purpose of the patent laws will be subserved by

the grant of a patent to him for achieving this result. If the discovery was a trivial one following closely the issuance of patents upon the elements of the combination, we would view the case with less liberality, which is equivalent to saying that the facts of each case must control the decision upon the application.

Claims 3 and 4 include merely the form of the magnet disclosed in the prior Eastwood patent. If that patent is valid, appellant will be fully protected by the allowance of claims 1, 2 and 5. If it is invalid, it will add nothing to his protection to include claims 3 and 4 here.

For the reasons stated it is our opinion that the commissioner erred in rejecting claims 1, 2 and 5, and his decision to that extent is reversed; and the clerk of this court will certify this opinion and the proceedings in this court to the Commissioner of Patents, as required by law.

Mr. Chief Justice Shepard dissenting.

97. TANNAGE PATENT CO. v. ZAHN, 70 Fed. 1003, 17 C. C. A. 552 (1895, Third Circuit).

* * * Before Acheson, Dallas, and Butler, Judges.

Dallas, J.:

This suit was brought upon two patents (Nos. 291,784 and 291,785), granted to Augustus Schultz on January 8, 1884, for processes for tawing hides and skins. Each of these patents contains a single claim, as follows:

"No. 291,784: The within-described process for tawing hides and skins, said process consisting in subjecting the hides or skins to the action of compounds of metallic salts—such as a solution of bichromate of potash—and then treating the same with a compound containing hyposulphurous acid, (or, as it is otherwise called, 'thiosulphuric' acid), such as a solution of hyposulphite of soda or of potash in the presence of hydrochloric acid.

No. 291,785: The within described process for tawing hides and skins, said process consisting in subjecting the hides or skins to the action of a bath prepared from a metallic salt—such as bichromate of potash—and then to the action of a bath capable of evolving sulphurous acid—such as a solution of sulphite of soda—in presence of another acid—such as hydrochloric acid—substantially as described."

The defense mainly relied upon were, first, insufficiency of specification, and, second, want of novelty. The learned judge held the specifications to be sufficient, and his opinion amply supports that conclusion; but he dismissed the bill on the ground that the patents were invalid for lack of novelty of their subject-matter, and in this we think there was error. For the purposes of this case he properly treated the processes of the two patents as being "practically alike."

and directed his attention to determining "what was the exact discovery of Schultz." His understanding that it was of a process, of—
"a mode of treating certain material to produce a given result,"
was undoubtedly correct; but we are unable to acquiesce in the view which he took of the process itself. It is not a process for the treatment of any material whatever to produce a varying or indefinite result. It is a process solely for "tawing hides and skins" by subjecting them to a chemical action, with the definite object of converting them into leather. It may be conceded that, abstractly considered—
"saturation with acid, and the converting of that saturating acid into oxide by chemical reduction, must * * * be always the same—"
chemical operation; but it does not follow that when that operation is applied to different materials to accomplish dissimilar results the process must be in every instance identical. The question is not whether the agents employed and their influence each upon the other are the same, but whether the same practical result, or a sufficiently related one, is produced in the one case as in the other. Tried by this test one class of the references relied on to show anticipation was clearly without relevancy. In "dyeing and printing on fabrics" and in the "treatment of wools" the end finally accomplished is not at all analogous to that of manufactured leather. The same ingredients may be used to reach the one result as the other; but they are not used for a like purpose. They do not affect the different materials in the same way, and the product evolved in the one case is wholly unlike the change effected in the other. The fact that hides are substituted for fabrics or wool and that the thing produced is leather and not dyed fabric or treated wool distinguishes the two processes. The art of dyeing and of leather-making are wholly unallied, and therefore the doctrine of double use has no pertinency. Some of the observations made by the Supreme Court in Potts v. Creager, (155 U. S., 606), are directly in point. It was there said:

"On the other hand, if the transfer be to a branch of industry but remotely allied to the other, and the effect of such transfer has been to supersede other methods of doing the same work, the court will look with a less critical eye upon the means employed in making the transfer. * * * Indeed, it often requires as acute a perception of the relation between cause and affect, and as much of the peculiar intuitive genius which is characteristic of great inventors, to grasp the idea that a device used in one art may be made available in another, as would be necessary to create a device *de novo*."

See, also, National Cash Reg. Co. v. Cash Indicator Co., (156 U. S., 502.)

Of the remaining references it will suffice to mention the patent which was mainly discussed by the court below, and as to which

the defendant's expert testified that it more nearly resembles the process of the patent in suit than any other of the patents and publications referred to. The patent alluded to was granted December 15, 1856, to Joseph Wilson Swan for improvements in the treatment of gelatinous tissues of gelatine and gum and of compounds containing such substances. In his specification Swan said:

"My invention consists in the use of salts of sesquioxide of chromium, as, for example, sulphate of the sesquioxide of chromium, or the substance known in commerce as chrome-alum, as a means of rendering gelatine or gum (Senegal or Arabic), or compounds containing those substances, insoluble in water.

My invention is applicable to various uses, for example, to the fixing of pigments and dyes in printing and dyeing textile fabrics when the pigment or dye is thickened with gelatine or gum; to the tanning of skins and hides; to the fixing of photographs mounted with gelatine; to the fixing of prints produced in gelatinous ink; to the rendering insoluble of gelatine, used as a glaze or varnish, or for the purpose of waterproofing; to the production of sheets of insoluble gelatine, and to the preparation of photographic paper, sized with gelatine or gum.

* * *

In tanning I immerse the skins or hides in a solution containing about one per cent. of chrome-alum, or in a solution of chromate or bichromate of potash, or other suitable chromate or bichromate, and I decompose the said chromate or bichromate in the skin or hide by means of oxalic or other suitable acid, so as to produce by the decomposition and reduction of the said chromate or bichromate the required compound of chromic oxide."

Swan supposed that the process which he described might be applied to tanning, as well as to the other "various uses" which he enumerated; but it has been clearly proved that in this he was mistaken; and it is probable that he was led into this mistake by erroneously assuming that any treatment which would accomplish—what, apparently, was his primary and general object—the rendering of gelatine insoluble would also convert hides into leather; but leather never has been made by the Swan process, and it never can be, and this fact alone demonstrates its insufficiency as an anticipation, and of course indicates—as has, however, been independently shown—that the Swan process and that of the patents in suit are substantially different. Swan's description was not designed to suggest the Schultz method, and it certainly never did suggest it to any one.

As we have already said, we deem it unnecessary, as did the court below, to discuss the other patents which were introduced to defeat the patents of Schultz. Our examination of them has satisfied us that if the Swan patent was not an anticipation, and we are clearly of opinion that it was not, none of the others can be taken to con-

flict with the claims of Schultz or would justify the characterization of his performance as skillful merely and not inventive. To the art of leather-making he supplied a method which was new and highly useful, and which was far from being obvious.

The decree of the Circuit court is reversed.

98. TAYLOR v. SAWYER SPINDLE CO., 75 Fed. 301, 22 C. C. A. 203 (1896, Third Circuit, Patent 253,752).

Acheson, Wales, Green, Judges: * * *

The Cramer patent is only "a paper patent," and has never been put into practical use, and may be considered as an abandoned experiment. It belongs, however, to the same class as the other centrifugal machines which have been referred to as anticipations of the flexible devices of Atwood to show that the latter are only reproductions of the former. As we have seen, they are very different. The clamping-nut and rubber spring used by Cramer have little or no analogy to the spiral spring and the provision made for regulating its tension as described in the Atwood patent. The centrifugal machine must have a strong foundation to rest upon, and to which it is "securely and safely" fastened, while the spinning-spindle is sustained in mid-air by the rail on which it is loosely mounted; but, admitting the existence of a closer resemblance and analogy between the two classes of machines than have been shown, it by no means follows that the Atwood spindle would come within the rule of "a double use," and thus fall short of invention and patentability. In the recent case of Potts & Co. v. Creager, (155 U. S., 607,) Mr. Justice Brown, speaking for the Court, said:

"Indeed, it often requires as acute a perception of the relations between cause and effect, and as much of the peculiar inventive genius which is a characteristic of great inventors, to grasp the idea that a device used in one art may be made available in another, as would be necessary to create the device *de novo*. And this is not the less true if, after the thing had been done, it appears to the ordinary mind so simple as to excite wonder that it was not thought of before; but the decisive answer is that with dozens, and perhaps hundreds, of others laboring in the same field, it had never occurred to any one before. * * * As a result of the authorities upon the subject, it may be said that, if the new use be so nearly analogous to the former one that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use; but if the relations between them be remote, and especially if the use of the old device produce a new result, it may at least involve an exercise of the inventive faculty."

To the same effect are Du Bois v. Kirk, (158 U. S., 58,) and Tannage Patent Co. v. Zahn, (17 C. C. A., 552; 70 Fed. Rep., 1003.) In Topliff v. Topliff, (145 U. S., 156,) the Court held it—

"not sufficient, in order to constitute an anticipation of a patented invention, that the device relied upon might, by modification, be made to accomplish the function performed by that invention, if it were not designed by its maker, nor adapted, nor actually used, for the performance of such function." * * *

99. MODEL BOTTLING CO. v. ANHEUSER, 190 Fed. 573 (C. C. A. Eighth Circuit, 1911, Patent [mechanical] No. 607,304 and [process] No. 768,550).

Before Sanborn, Van Devanter Circuit Judges and Munger, District Judge:

Wm. H. Munger, D. J.:

* * *

We can perceive of no difference in the machine or apparatus of complainant and that of Leach, or in their operation, excepting that the receiving receptacle in Leach's is in form tubular, in which bottles would have to be placed horizontally, while in the complainant's apparatus the bottles can be placed perpendicularly. But such a change in form of the receptacle in these respects is one which would readily suggest itself to a person of ordinary mechanical skill.

The art of curing fish and pasteurizing beer to preserve it are analogous. Brown v. Piper, 91 U. S. 37, 23 L. ed. 200; Roberts v. Ryer, 91 U. S. 150, 23 L. ed. 267. Hence complainant's apparatus for pasteurizing beer is but a double use of Leach's apparatus for curing fish. For such reason, the first claim of complainant's patent No. 607,304, alleged to be infringed, is void. Crescent Brewing Co. v. Gottfried, 128 U. S. 158, 9 Sup. Ct. 83, 32 L. ed. 390; Aron v. Manhattan Ry. Co., 132 U. S. 84, 10 Sup. Ct. 24, 33 L. ed. 272; Thomson-Houston Electric Co. v. Rahway Electric L. & P. Co. (C. C.) 95 Fed. 660; W. F. Burns Co. v. Mills, 143 Fed. 325, 74 C. C. A. 525; American Brake Shoe & Foundry Co. v. Railway Materials Co. (C. C.) 143 Fed. 540.

* * *

100. SEABURY v. AM ENDE, 152 U. S. 561, 38 L. ed. 553, 14 Sup. Ct. 683 (1894, Patent No. 181,024).

* * *

Mr. Justice Shiras delivered the opinion of the Court.

The specification and claim of the patentee were in the following terms:

"This invention has for its objects to combine the various advantages of cotton-fiber with those possessed by boracic acid and glycerine for preserving animal and vegetable matter from decay.

"Heretofore boracic acid has been used as a preservative agent in a fluid state, and also as a powder. In use, the matter to be pre-

served had to be immersed in the solution of boracic acid, or completely covered with the powder. In either case, a very large quantity of boracic acid was used.

"My present invention, which consists in saturating cotton-fiber with boracic acid and glycerine in a manner hereinafter described, enables me to apply a very small proportion of boracic acid and glycerine to the cotton-fiber with fully as good an effect as though the matter to be preserved were entirely embedded in large quantities of the solution or powder. It enables me, at the same time, to utilize the germ-filtering properties of the cotton, and its elasticity as a superior material for packing or covering delicate tissue.

"I produce my improved borated cotton as follows: I first prepare a solution of boracic acid in the usual manner, and add thereto a small proportion of glycerine. For the preservation of tender substances, such as veal, I may also add from ten to forty per cent. of soda or potash, never sufficient, however, to reach neutrality. The cotton, either in bulk or wadding, is next immersed in the solution until well impregnated therewith, and then pressed, to discharge all surplus solution, or so much thereof as may be required. The cotton is then dried and ready for use.

"When applied to the material to be preserved, either as a covering or as a wrapping or packing, the cotton will constitute a filter for keeping germs of putrefaction from passing through, and the boracic acid absorbed by the cotton will, at the same time, preserve the surfaces from decay, and counteract all injurious influences of germs, or other elements of destruction, already in contact with such surfaces.

"The glycerine is added to increase the preserving power of the borated cotton. It renders the cotton slightly hygroscopic, thus aiding in the diffusion of the acid and in the preservative effect of the prepared cotton.

"I have found that the impregnated fiber shows, even under a good microscope, no difference from a fiber not impregnated with boracic acid, and that, therefore, although a very thin film of acid may adhere to the exterior surface of the fiber, the main proportion of the acid is absorbed by and diffused within the fibers. In consequence, the acid can, in use, be but gradually released from the fiber, and will thus produce a constant and lasting effect.

"I claim—

"The borated cotton, being cotton fiber which is saturated with boracic acid and glycerine, substantially as herein shown and described."

The first ground of defense relied on is that the patentee has failed to describe his invention in such full, clear, and exact terms as to enable persons reading the description of the invention to construct

and use it; and it is contended that the strength of the boracic-acid solution is not prescribed, nor the precise proportion of glycerine. In considering this objection it must be remembered that the description is addressed to persons skilled in the art to which it relates. The solution of boracic acid is referred to, not as anything new, but as an article well known to druggists and physicians, and when the patentee says that he "prepares a solution of boracic acid in the usual manner," he means as it has formerly and customarily been prepared. When he directs that a small proportion of glycerine shall be added, it is obvious that the quantity of the glycerine is to vary with the amount of cotton and boracic acid used, but that the merits of the invention will not depend on whether, in a given case, a little more or less glycerine is used. Such general directions are common in the arts, as appears in some of the very publications introduced by the defendant to show anticipation. Thus in the Druggists' Circular and Chemical Gazette it is stated that Doctor Edmunds had used "a solution of boracic acid;" and in the Journal de Pharmacie it is said that, in making his dressing, Professor Gubler saturated his wadding with "a certain quantity of glycerine," and his formula is thus given:

"It is only necessary to pour a small quantity of glycerine over the square sheet, etc."

We, therefore, agree with the court below in thinking that—

"an intelligent chemist, setting out properly to combine the enumerated ingredients into which the cotton is to be immersed, and with which it is to be impregnated, could hardly go astray."

It is also to be observed that neither the defendant, in making the infringing article, nor the several witnesses of eminence in the medical profession, who testified to the practical value of the patented dressing, seem to have had any difficulty in understanding and applying the description contained in the patent.

In Webster Loom Co. v. Higgins, 105 U. S. 580, where the sufficiency of a description was in question, it was held that a specification in Letters Patent is sufficiently clear and descriptive when expressed in terms intelligible to a person skilled in the art to which it relates.

The next contention is, that as the plaintiffs' patented dressing was composed of materials whose specific virtues and modes of operation were well known, there was no invention shown in combining them in the manner described. It is, indeed, true that the patentee did not claim to have been the first to suggest the use of cotton-fiber as a means of excluding germs from wounds or from the article to be protected. Nor did he claim to have first discovered the antiseptic qualities of boracic acid or the hygroscopic property of glycerine. But the patentee was the first to perceive that by combining these articles, in the manner he pointed out, there would be formed a convenient and permanent dressing with the desirable qualities of the several constituents. The complainant's evidence

satisfactorily shows that, in such a dressing, the cotton acts as a screen to exclude germs and as a vehicle to hold the other ingredients; that the boracic acid possesses marked antiseptic qualities, but is liable, if used alone, to dry on the cotton and to form crystals, which impair the antiseptic qualities of the acid, and which mechanically scratch or irritate the sensitive surface of a wound; and that the glycerine, owing to its property of absorbing moisture from the atmosphere, keeps the boracic acid from hardening or crystallizing, and besides adds somewhat to the healing and preservative power of the dressing.

The merits of the complainant's invention received immediate and widespread recognition, and the article came into use, not only to protect animal substances for alimentary purposes, but, and chiefly, to protect wounds from infection and suppuration. It was introduced into hospitals and into the private practice of physicians, and, in fact, has become a staple article for medicinal purposes.

But it is further contended that there was no novelty in complainant's invention, because it had been anticipated by others. To sustain this contention the defendant put in evidence an article published in the American Journal of Pharmacy for November, 1871, at page 516, where it is stated that Professor Gubler, at a recent meeting of the Academy of Medicine, had exhibited some specimens of wadding prepared by saturating it with a certain quantity of glycerine, which he had found to render it permeable to all medicinal liquids, without causing it to lose any of its suppleness and lightness. Also, an article in the same journal, for March, 1867, at page 149, wherein Doctor Adolphus stated that—

"applied to suppurating surfaces which are painful and produce an ichorous pus, glycerine dressings change the abnormal condition by arresting the degenerating process, through its antiseptic and astringent properties."

The defendant likewise put in evidence a copy of The Druggists' Circular and Chemical Gazette, for June, 1875, wherein there is an account of treatment by Doctor Edmunds, in the case of an amputated thigh, by a dressing of lint steeped in a hot solution of boracic acid, with most satisfactory results in preventing putrefactive discharge.

Undoubtedly this evidence shows that the specific qualities of glycerine and of boracic acid were known, and that those articles had been successfully used in the instances narrated. But we agree with the court below in thinking that—

"this evidence does not disclose that any one prior to Am Ende accomplished what he has described and claimed; that the fact that others had done something quite similar, and had used separately, or in different combinations, the ingredients of his claim, should not affect his patent. All that is described in the prior publications the

defendant may use with perfect immunity. They may use 'lint steeped in a hot saturated solution of boracic acid,' or 'wadding saturated with a certain quantity of glycerine,' or boracic acid dissolved in glycerine; but they should not be permitted to use cotton combined with a solution of boracic acid and glycerine in the manner described in the specification for that belongs to Am Ende." * * *

101. GANDY v. MAIN BELTING CO., 143 U. S. 587, 36 L. ed. 272, 12 Sup. Ct. 598 (1892, Patent No. 228,186).

* * *

This was a bill in equity for the infringement of letters patent No. 228,186, issued June 1, 1880, to Maurice Gandy, for an improved belt or band for driving machinery, and an improved mechanical process of manufacturing the same. * * *

The machinery for manufacturing the belting is also set forth in the specification, but the only claim alleged to be infringed in this case was the second, which reads as follows: "(2) The improved article of manufacture consisting of a hard, even-surfaced, rigid, impervious, non-elastic belt, composed of cotton canvas or duck having its warp thread larger than the weft, both warp and weft being hard spun, the fabric tight-woven and folded, stitched, and saturated with linseed oil."

Mr. Justice Brown, after stating the facts in the foregoing language, delivered the opinion of the court. * * *

It is true that the language of this section (4886) contains no restriction as to the place or country wherein the public use is made of the invention; but taken in connection with section 4887, providing that no person shall be debarred from receiving a patent by reason of the invention being first patented abroad, "unless the same has been introduced into public use in the United States for more than two years prior to the application," we think that the public use or sale contemplated by section 4886 must be limited to a use or sale in this country. That this was the intent of congress is also manifest from section 4923, providing that whenever it appears the patentee believed himself to be the original and first inventor of the thing patented his patent shall not be held void "on account of the invention or discovery, or any part thereof, having been known or used in a foreign country before his invention or discovery thereof, if it had not been patented or described in a printed publication." So, also, in section 4920, providing what the defendant may plead under the general issue in actions for infringement, there is included the defense "that it had been in public use or on sale in this country for more than two years before his application for a patent, or had been abandoned to the public."

Taking all these provisions of the patent law together, we think it was manifestly the intention of congress that the right of the patentee to his invention should not be denied by reason of the fact that he had made use of it, or put it on sale abroad, more than two years before the application, provided it were not so used or sold in this country.

3. The questions of novelty and utility may properly be considered together. There is much testimony tending to show that Gandy believed himself to be the inventor of a belting made of hard-woven canvas, stitched and saturated with oil, and that the importance of having the warp stouter than the weft was not fully appreciated by him, and hence was not made an element of the claim of his original British patent. The testimony, however, shows that the canvas or duck ordinarily used for sails is made with the weft as stout, if not stouter, than the warp, and that such canvas was found to be impracticable for belting on account of its liability to stretch or to crack in passing around the smaller pulleys. His first belts, made of ordinary soft canvas, proved to be wholly impracticable, owing to their apparently endless capacity for stretching. He next experimented with hard-spun and tight-woven canvas, specially manufactured for this purpose. This did not stretch, but developed another fault, of wrinkling and cracking when running around pulleys. This he obviated by saturating it with linseed oil; but found another objection in the unequal strain on the several thicknesses when passing around the pulleys, which tended to break the stitching and permitted the plies to separate. He then conceived the idea that by decreasing the thickness of the belt, without diminishing its tensile strength, he would bring the diameter of the exterior plies more nearly level with the inner plies next the pulley, and thus more nearly equalize the strain on all parts of the belt, increasing its effective strength, and diminishing the tendency of the plies to separate or wrinkle. It is obvious, even to a non-expert, that, if the belting be made very thick, there is a much greater strain upon the exterior plies, when passing around a small pulley, than upon the inner plies, and that the effect must be both to unduly strain the exterior plies, rendering them liable to break, and to wrinkle the inner ones, subjecting them to the danger of cracking; and that the ideal belting would be made as thin as would be consistent with the requisite strength and inflexibility. In view of the fact that previous attempts, of which there appear to have been several, to make a practical canvas belt, had been failures, and that Gandy had been experimenting with the subject for several years before he discovered that a change was necessary in the structure of the canvas itself, we do not think his improvement is a change in degree only, or such a one as would have occurred to an ordinary mechanic, and our opinion is that it does involve an exercise of the inventive faculty. The change is such as would only have occurred

to one familiar, not alone with the impossibility of making a practical belt out of the ordinary canvas, but to one who had bestowed considerable thought upon the method of overcoming the difficulty. While some of the testimony would seem to indicate that there is no great advantage in this method of construction, we think the fact that it has been largely adopted by manufacturers, and that all the modern improved belting ordered or made by Gandy, and in general use both in this country and in Europe, is made in this way, is, for the purposes of this case, sufficient evidence of its utility. Magowan v. Packing Co., 141 U. S. 332, 12 Sup. Ct. Rep. 71. * * *

102. ARLINGTON MFG. CO. v. CELLULOID CO., 97 Fed. 91, 338 C. C. A. 60 (1899, Third Circuit).

Before Dallas, Circuit Judge, and Buffington and Bradford, District Judges.

Bradford, District Judge. This is an appeal from an interlocutory decree sustaining letters patent No. 546,360, issued September 17, 1895, to Stevens & Harrison, and No. 542,452, issued July 9, 1895, to Thurber & Schaefer. Both patents are owned by the appellee. The defenses are lack of novelty and of invention and non-infringement. This appeal has twice been argued, by reason of the retirement of Judge Butler from the bench after the first hearing and before a conclusion was reached as to the disposition of the case.

The claims of patent No. 546,360 are as follows:

"1. The method of producing a pyroxyline compound in imitation of onyx, consisting, first, in forming the light-tinted parts in solidified strata; second, cutting through these strata across their edges; third, inserting coloring matter between the cut parts, and, fourth, solidifying the whole into blocks, shapes or masses, substantially as described.

"2. The method of producing a pyroxyline compound in imitation of onyx, consisting, first, in forming the light-tinted parts in solidified strata; second, cutting through these strata across their edges; third, inserting a pyroxyline composition of a different color between the cut parts, and, fourth, solidifying the whole into blocks, shapes or masses, substantially as described.

"3. A pyroxyline compound in imitation of onyx, consisting of two or more light tints in solidified strata with lines of a different color breaking through or crossing the edges of these light-tinted strata, substantially as described.

"4. A rod or sheet of pyroxyline composition in imitation of onyx, consisting of two or more light tints with streaks of a darker color breaking through or interspersed with the lighter tints, substantially as described."

This patent cannot be sustained on the ground merely that the production of a pyroxyline compound in imitation of onyx or its

production in the manner described in the specification was novel. It is necessary that such production should also have involved invention. As was said in Thompson v. Boisselier, 114 U. S. 1, 11, 5 Sup. Ct. 1047:

"It is not enough that a thing shall be new, in the sense that in the shape or form in which it is produced it shall not have been before known, and that it shall be useful, but it must, under the constitution and the statute, amount to an invention or discovery."

The properties and characteristics of celluloid and other pyroxyline compounds were understood long before the date of the alleged invention. It was known that they could be rendered plastic by heat and when in that condition moulded or pressed into such shapes or forms as might be desired. It was also known that by the introduction of coloring matter different colors or tints could be imparted to the finished product and that by subjecting, while plastic, two or more sheets or pieces of celluloid different in color or tint to a rolling or other kneading or mixing process the different colors or tints could be blended in such manner in the finished product as to present a variegated, veined, mottled or clouded appearance, and cause such product to imitate a variety of natural objects or substances. Indeed in the specification of the patent it is said:

"Solid or massive pyroxyline compounds, as is well known, owe their commercial importance largely to their susceptibility to coloring treatment and manipulation essential to the production of imitations of natural substances—like mottled amber, tortoise-shell, veined ivory, carnelian, etc. * * * Methods of coloring the pyroxyline compositions used are well known and it is unnecessary to describe the coloring-matter or pigments used."

In view of the prior state of the art as disclosed in the record, we do not think that either the production or the method of production of the onyx base involved invention, but rather the exercise of judgment and skill in the selection and combination of colors and in the regulation of the amount of rolling or kneading which the plastic celluloid should undergo in order to effect the desired blending of tints and shades. Was there patentable novelty or invention in the cutting of the layers or strata of the celluloid and the insertion between the cut parts of coloring matter for the imitation of the streaks or veins of the natural onyx? It appears that the complainant and its predecessor, The Celluloid Manufacturing Company, as early as 1884 manufactured and have since continued to manufacture from celluloid imitation agate and carnelian by the method described and claimed in the France application for a patent for "Improvements in Manufacture of Pyroxyline Compounds, such as Pyralin, Celluloid, etc." We quote from the application as follows:

"1. The method described for manufacturing pyroxyline compounds in imitation of agate and similar minerals, said method consisting in forming sheets of said compounds of suitable colors and mottling, attaching a colored veneer to the upper face of the upper sheets, cutting said sheets in strips, laying up said strips in the press with the veneers upon their edges and at suitable intervals, pressing the whole into a cake and cutting, or planing the finished sheets from said cake, substantially as described.

"2. The method described for producing pyroxyline compounds in imitation of agate, the same consisting in forming strips of said compound of suitable colors, attaching to a suitable number of such strips thin sheets of colored veneer, laying up said strips in a press with the veneers at stated intervals and arranged upon their edges, pressing the whole into a cake, and cutting the same into sheets, substantially as described.

"3. As a new article of manufacture, a sheet of pyroxyline compound in imitation of agate, consisting of suitably colored portions separated by lines of different colors, said lines being formed of thin portions of a similar compound of different color united in a homogeneous mass with the other parts, substantially as described."

By the method above described the veneer containing the coloring matter used for producing the veined or streaked effect in imitation agate is placed on and by pressure in the calendar rolls attached to the upper side of each alternate sheet of celluloid in a series of sheets from which the "cake" is to be formed. The sheets are then cut into strips and the latter are placed on edge in a press whereby substantially equal intervals are left between the veneering in the alternate sheets as contained in the strips. When the "cake" is thus formed the finished sheets are cut or planed from its top and disclose the veneer "as fine lines, or bands, of color running across the face of the sheet." By this method the veins are either lines substantially straight and parallel to each other or curved lines substantially corresponding in curvature and direction. The irregular veins or streaks *in the natural onyx, it is true, cannot be imitated by this* method. By the method of the patent in suit the imitation onyx base is formed before the insertion of the coloring matter representing the veins and streaks. By the France method the coloring matter representing the veins and streaks is applied before the formation of the imitation agate base. It is not necessary, however, to rest our conclusion that the Stevens & Harrison process lacks novelty and invention upon the France method alone. The specification in letters patent No. 211,860, dated February 4, 1879, issued to John A. Mehling, for "Improvements in Artificial Stone Veneer," discloses a method of making artificial marble and other stone which in its relation to the production of imitation veins, streaks or bands, we think is substantially identical with the method of the patent in suit.

That the Mehling method relates to cement while that in question relates to celluloid or other pyroxyline compounds is a wholly immaterial difference. The two methods cannot be distinguished from each other in their relation to the production of artificial veins, streaks or bands. In each the base is first formed. In each the base while plastic is then cut or has the required indentations stamped in it. In each the coloring matter is then inserted in the cuts or indentations, as the case may be, to produce the desired imitation. The solidification of "the whole into blocks, shapes or masses, substantially as described," after the insertion of the coloring matter in the cuts, clearly does not disclose either patentable novelty or invention. We feel constrained to hold that the presumption in favor of patent No. 546,360, has successfully been rebutted.

The Thurber & Schaefer patent, No. 542,452, relates to an "Improvement in Celluloid Articles and in the Process of Manufacturing the Same." The claims are as follows:

"1. The process of manufacturing articles of celluloid or similar material, consisting in, first, serrating, or otherwise irregularly forming, the edge of the blank, and then subjecting the said blank to the action of dies to form the flaring crinkled rim or border of the finished article, substantially as described.

"2. A finished dish or plate made of celluloid, or similar material, having a body and a flaring crinkled rim or border, the edge of said rim or border being serrated or otherwise irregularly formed, and having the same edge as that of the blank from which the dish or plate was formed, substantially as described."

The defendant as early as the summer of 1893 manufactured and sold celluloid boxes, baskets and trays with flaring and crinkled or fluted rims or borders. A sheet or blank of celluloid of the proper size was placed between the parts of a die, subjected to heat and rendered soft or plastic, and then pressed in the die, with the result that such portion of the sheet as was not in contact with the die became flaring and fluted or crinkled. The material upon cooling became hard and any superfluous material in the rim or border was trimmed off by the use of a knife or saw. By the method of the patent in suit the blank is given a serrated or irregular edge before it is placed and pressed in the die. By the defendant's former method whatever ornamentation or finishing was given to the edge was imparted after the action of the die upon the blank. In view of the prior state of the art we fail to discover invention either in the product or method of production claimed in patent No. 542,452. Exception is taken by the complainant to the first, second and third assignments of error as being too general, vague and indefinite. The nature of the decree appealed from is such as to render greater particularity unnecessary, if not impracticable. Having reached the conclusion that the patents in suit for the reasons given cannot be

sustained, no opinion is expressed on the contention by the defendant that the method described in claims 1 and 2 of patent No. 546,350, includes merely a series of mechanical manipulations and as such is not patentable. The decree below is reversed with costs.

103. THE INCANDESCENT LAMP PATENT, 159 U. S. 465, 40 L. ed. 221, 16 Sup. Ct. 75 (1895, Patent No. 317,676).

* * * Mr. Justice Brown delivered the opinion of the Court.

In order to obtain a complete understanding of the scope of the Sawyer and Man patent, it is desirable to consider briefly the state of the art at the time the application was originally made, which was in January, 1880.

Two general forms of electric illumination had for many years been the subject of experiments more or less successful, one of which was known as the arc light, produced by the passage of a current of electricity between the points of two carbon pencils, placed end to end, and slightly separated from each other. In its passage from one point to the other through the air, the electric current took the form of an arc, and gave the name to the light. This form of light had been produced by Sir Humphrey Davy as early as 1810, and by successive improvements in the carbon pencils and in their relative adjustment to each other, had come into general use as a means of lighting streets, halls, and other large spaces, but by reason of its intensity, the uncertain and flickering character of the light, and the rapid consumption of the carbon pencils, it was wholly unfitted for domestic use. The second form of illumination is what is known as the incandescent system, and consists generally in the passage of a current of electricity through a continuous strip or piece of refractory material, which is a conductor of electricity, but a poor conductor—in other words, a conductor offering a considerable resistance to the flow of the current through it. It was discovered early in this century that various substances might be heated to a white heat by passing a sufficiently strong current of electricity through them. The production of a light in this way does not in any manner depend upon the consumption or wearing away of the conductor, as it does in the arc light. A third system was a combination of the two others, but it never seems to have come into general use, and is unimportant in giving a history of the art.

For many years prior to 1880, experiments had been made by a large number of persons, in various countries, with a view to the production of an incandescent light which could be made available for domestic purposes, and could compete with gas in the matter of expense. Owing partly to a failure to find a proper material, which should burn but not consume, partly to the difficulty of obtaining a perfect vacuum in the globe in which the light was suspended, and partly to a misapprehension of the true principle of incandescent

lighting, these experiments had not been attended with success; although it had been demonstrated as early as 1845 that, whatever material was used, the conductor must be inclosed in an air-tight bulb, to prevent it from being consumed by the oxygen in the atmosphere. The chief difficulty was that the carbon burners were subject to a rapid disintegration or evaporation, which electricians assumed was due to the disrupting action of the electric current, and, hence, the conclusion was reached that carbon contained in itself the elements of its own destruction, and was not a suitable material for the burner of an incandescent lamp.

It is admitted that the lamp described in the Sawyer and Man patent is no longer in use, and was never a commercial success; that it does not embody the principle of high resistance with a small illuminating surface; that it does not have the filament burner of the modern incandescent lamp; that the lamp-chamber is defective, and that the lamp manufactured by the complainant and put upon the market is substantially the Edison lamp; but it is said that, in the conductor used by Edison, (a particular part of the stem of the bamboo lying directly beneath the silicious cuticle, the peculiar fitness for which purpose was undoubtedly discovered by him,) he made use of a fibrous or textile material, covered by the patent to Sawyer and Man, and is, therefore, an infringer. It was admitted, however, that the third claim—for a conductor of carbonized paper—was not infringed.

The two main defenses to this patent are, first, that it is defective upon its face, in attempting to monopolize the use of all fibrous and textile materials for the purpose of electric illumination; and, second, that Sawyer and Man were not in fact the first to discover that these were better adapted than mineral carbons to such purposes.

Is the complainant entitled to a monopoly of all fibrous and textile materials for incandescent conductors? If the patentees had discovered in fibrous and textile substances a quality common to them all, or to them generally, as distinguishing them from other materials, such as minerals, etc., and such quality or characteristic adapted them peculiarly to incandescent conductors, such claim might not be too broad. If, for instance, minerals or porcelains had always been used for a particular purpose, and a person should take out a patent for a similar article of wood, and woods generally were adapted to that purpose, the claim might not be too broad, though defendant used wood of a different kind from that of the patentee. But if woods generally were not adapted to the purpose, and yet the patentee had discovered a wood possessing certain qualities, which gave it a peculiar fitness for such purpose, it would not constitute an infringement for another to discover and use a different kind of wood, which was found to contain similar or superior

qualities. The present case is an apt illustration of this principle. Sawyer and Man supposed they had discovered in carbonized paper the best material for an incandescent conductor. Instead of confining themselves to carbonized paper, as they might properly have done, and in fact did in their third claim, they made a broad claim for every fibrous or textile material, when in fact an examination of over six thousand vegetable growths showed that none of them possessed the peculiar qualities that fitted them for that purpose. Was everybody then precluded by this broad claim from making further investigation? We think not.

The injustice of so holding is manifest in view of the experiments made, and continued for several months, by Mr. Edison and his assistants, among the different species of vegetable growth, for the purpose of ascertaining the one best adapted to an incandescent conductor. Of these he found suitable for his purpose only about three species of bamboo, one species of cane from the valley of the Amazon, impossible to be procured in quantities on account of the climate, and one or two species of fibers from the agave family. Of the special bamboo, the walls of which have a thickness of about three-eighths of an inch, he used only about twenty-thousandths of an inch in thickness. In this portion of the bamboo the fibers are more nearly parallel, the cell-walls are apparently smallest, and the pithy matter between the fibers is at its minimum. It seems that carbon filaments cannot be made of wood—that is, exogenous vegetable growth—because the fibers are not parallel and the longitudinal fibers are intercepted by radial fibers. The cells composing the fibers are all so large that the resulting carbon is very porous and friable. Lamps made of this material proved of no commercial value. After trying as many as thirty or forty different woods of exogenous growth, he gave them up as hopeless. But finally, while experimenting with a bamboo strip which formed the edge of a palm leaf fan, cut into filaments, he obtained surprising results. After microscopic examination of the material, he despatched a man to Japan to make arrangements for securing the bamboo in quantities. It seems that the characteristic of the bamboo which makes it particularly suitable is, that the fibers run more nearly parallel than in other species of wood. Owing to this, it can be cut up into filaments having parallel fibers, running throughout their length, and producing a homogeneous carbon. There is no generic quality, however, in vegetable fibers, because they are fibrous, which adapts them to the purpose. Indeed the fibers are rather a disadvantage. If the bamboo grew solid without fibers, but had its peculiar cellular formation, it would be a perfect material, and incandescent lamps would last at least six times as long as at present. All vegetable fibrous growths do not have a suitable cellular structure. In some the cells are so large that they

are valueless for that purpose. No exogenous, and very few endogenous, growths are suitable. The messenger whom he dispatched to different parts of Japan and China sent him about forty different kinds of bamboo, in such quantities to enable him to make a number of lamps, and from a test of these different species he ascertained which was best for the purpose. From this it appears very clearly that there is no such quality common to fibrous and textile substances generally as makes them suitable for an incandescent conductor, and that the bamboo which was finally pitched upon, and is now generally used, was not selected because it was of vegetable growth, but because it contained certain peculiarities in its fibrous structure which distinguished it from every other fibrous substance. The question really is whether the imperfectly successful experiments of Sawyer and Man, with carbonized paper and wood carbon, conceding all that is claimed for them, authorize them to put under tribute the results of the brilliant discoveries made by others.

It is required by Rev. Stats., sec. 4888, that the application shall contain—

"a written description of the device and of the manner and process of making, constructing, compounding, and using it in such full, clear, concise, and exact terms as to enable any person, skilled in the art or science to which it appertains or with which it is most nearly connected, to make, construct, compound, and use the same."

The object of this is to apprise the public of what the patentee claims as his own, the courts of what they are called upon to construe, and competing manufacturers and dealers of exactly what they are bound to avoid. (Grant v. Raymond, 6 Pet. 218, 247.) If the description be so vague and uncertain that no one can tell, except by independent experiments, how to construct the patented device, the patent is void.

It was said by Mr. Chief Justice Taney in Wood v. Underhill, (5 How. 1, 5,) with respect to a patented compound for the purpose of making brick or tile which did not give the relative proportions of the different ingredients:

"But when the specification of a new composition of matter gives only the names of the substances which are to be mixed together, without stating any relative proportion, undoubtedly it would be the duty of the court to declare the patent void. And the same rule would prevail where it was apparent that the proportions were stated ambiguously and vaguely. For in such cases it would be evident, on the face of the specification, that no one could use the invention without first ascertaining, by experiment, the exact proportion of the different ingredients required to produce the result intended to be obtained. * * * And if, from the nature and character of the ingredients to be used, they are not susceptible

of such exact description, the inventor is not entitled to a patent."

So in Tyler v. Boston, (*7* Wall. *327*,) wherein the plaintiff professed to have discovered a combination of fusel-oil with the mineral and earthly oils, constituting a burning fluid, the patentee stated that the exact quantity of fusel oil which is necessary to produce the most desirable compound must be determined by experiment. And the court observed:

"Where a patent is claimed for such a discovery it should state the component parts of the new manufacture claimed with clearness and precision, and not leave a person attempting to use the discovery to find it out 'by experiment.'"

See also, Béné v. Jeantet, (129 U. S. 683;) Howard v. Detroit Stove Works, (150 U. S. 164, 167;) Schneider v. Lovell, (10 Fed. Rep. 666;) Welling v. Crane, (14 Fed. Rep. 571.)

Applying this principle to the patent under consideration, how would it be possible for a person to know what fibrous or textile material was adapted to the purpose of an incandescent conductor, except by the most careful and painstaking experimentation? If, as before observed, there were some general quality, running through the whole fibrous and textile kingdom, which distinguished it from every other, and gave it a peculiar fitness for the particular purpose, the man who discovered such quality might justly be entitled to a patent; but that is not the case here. An examination of materials of this class carried on for months revealed nothing that seemed to be adapted to the purpose; and even the carbonized paper and wood carbons specified in the patent, experiments with which first suggested their incorporation therein, were found to be so inferior to the bamboo, afterward discovered by Edison, that the complainant was forced to abandon its patent in that particular, and take up with the material discovered by its rival. Under these circumstances, to hold that one, who had discovered that a certain fibrous or textile material answered the required purpose, should obtain the right to exclude everybody from the whole domain of fibrous and textile materials, and thereby shut out any further efforts to discover a better specimen of that class than the patentee had employed, would be an unwarranted extension of his monopoly, and operate rather to discourage than to promote invention. If Sawyer and Man had discovered that a certain carbonized paper would answer the purpose, their claim to all carbonized paper would, perhaps, not be extravagant: but the fact that paper happens to belong to the fibrous kingdom did not invest them with sovereignty over this entire kingdom, and thereby practically limit other experimenters to the domain of minerals.

In fact, such a construction of this patent as would exclude competitors from making use of any fibrous or textile material would probably defeat itself, since, if the patent were infringed by

the use of any such material, it would be anticipated by proof of the prior use of any such material. In this connection it would appear, not only that wood charcoal had been constantly used since the days of Sir Humphrey Davy for arc lighting, but that in the English patent to Greener and Staite of 1846, for an incandescent light, "charcoal, reduced to a state of powder," was one of the materials employed. So also, in the English patent of 1841 to De Moleyns, "a finely-pulverized box-wood charcoal or plumbago," was used for an incandescent electric lamp. Indeed, in the experiments of Sir Humphrey Davy, early in the century, pieces of well burned charcoal were heated to a vivid whiteness by the electric current, and other experiments were made which evidently contemplated the use of charcoal heated to the point of incandescence. Mr. Broadnax, the attorney who prepared the application, it seems was also of opinion that a broad claim for vegetable carbons could not be sustained because charcoal had been used before in incandescent lighting. There is undoubtedly a good deal of testimony tending to show that, for the past fifty or sixty years, the word "charcoal" has been used in the art, not only to designate carbonized wood, but mineral or hard carbons, such as were commonly employed for the carbon pencils of arc lamps. But we think it quite evident that, in the patents and experiments above referred to, it was used in its ordinary sense of charcoal obtained from wood. The very fact of the use of the word to designate mineral carbons indicates that such carbons were believed to possess peculiar properties required for illumination, that before that had been supposed to belong to wood charcoal.

We have not found it necessary in this connection to consider the amendments that were made to the original specification, upon which so much stress was laid in the opinion of the court below, since we are all agreed that the claims of this patent, with the exception of the third, are too indefinite to be the subject of a valid monopoly.

As these suggestions are of themselves sufficient to dispose of the case adversely to the complainant, a consideration of the question of priority of invention, or rather of the extent and results of the Sawyer and Man experiments, which was so fully argued upon both sides, and passed upon by the court below, becomes unnecessary.

For the reasons above stated the decree of the Circuit court is affirmed.

104. [Note—"The sharp distinction necessary to maintain in some cases between classes of invention is indicated in the cases of Underwood v. Gerber, 149 U. S. 224, 37 L. ed. 710, 13 Sup. Ct. 854, and Brigham v. Coffin, 149 U. S. 557, 37 L. ed. 845, 13 Sup. Ct. 939, in both of which cases the Supreme Court held that a claim for an article of manufacture could not

be given validity by the recitation of a composition of matter and that the composition of matter could be covered only by a claim directed to the composition itself. For example, it would not be invention to put a particular compound upon fly-paper even though the claim recited a compound which might be new. The composition itself, as a composition, would have nothing to do with the question of invention in the article of manufacture. That is, no more invention was required to put on one compound than another. These rulings have not, however, had a wide application and are generally confined to conditions according closely with those in these cases.]

105. [Note—There are certain classes of inventions which by their nature have presented a question of patentability under the statute. For example, in Jacobs v. Baker, 74 U. S. 295, 19 L. ed. 200, cited in Fond du Lac v. May, 137 U. S. 395, 34 L. ed. 714, 718—11 Sup. Ct. 98, it was held by the Supreme Court that certain improvements in the construction of a jail did not come under the denomination of a machine, manufacture, or composition of matter; and that it was doubtful whether such inventions could be placed under the term "art."

Of the same class are the statements in Fowler v. City of New York, infra.

In U. S. Credit, Etc., Co. v. American, 59 Fed. 139, 8 C. C. A. 49, patent No. 465,485, for preparing a sheet of paper with headings generally appropriate to classes of fact to be reported, was held invalid, the court saying that whatever peculiarity appeared in the patent resulted in the transactions themselves.

In Berry v. Wynkoop, etc., Co., 84 Fed. 646, 28 C. C. A. 505, patent No. 268,988 for an arrangement of figures to operate as a safety check to be used in postal orders was held not to involve invention.

In Hocks v. New York, etc., R. Co., 122 Fed. 467, 58 C. C. A. 627, patent No. 493,595, for an improved method of preventing and rectifying mistakes in railroad shipping, was held invalid as indicating only evidences of good business judgment upon the part of those experienced in the business.

In Hotel Security Co. v. Lorraine, 160 Fed. 467, 87 C. C. A. 451, patent No. 500,071, for a new and useful, and in fact popular, system of cash-registering and account checking, was held invalid for lack of patentability, especially in view of the elaborate and familiar systems of bookkeeping in restaurants and hotels. The court stated that there has not been a direct opinion upon whether or not in the absence of any prior art such a system might be patentable.

In Library Bureau v. Maey, 148 Fed. 380, 78 C. C. A. 194, in discussing patents Nos. 623,857 and 624,597, the court in one case held that the arrangement of color signals was not invention but that the system of tabs upon the cards did involve invention.

In John Kitchen Co. v. Levison (C. C. A. 9th Cir. 1911) 188 Fed. 658, the court sustained reissue patent No. 12,005. Its subject-matter is sufficiently indicated by the following claim of the three in issue.

"(3) A manifold book comprising in order a double carbon sheet, and a plurality of recording sheets, the record sheets outside the stubs being divided into three substantially equal separable parts, and the carbon sheet extending the width of two of said parts, said recording sheets having stubs to which they are attached along lines of perforations, said stubs and one side of the carbon sheet being all bound toegther to form a book, substantially as described."

See also No. 71, infra.

106. MITCHELL v. INTERNATIONAL TAILORING CO., 170 Fed. 91 (C. C. N. Y., 1909, Patent No. 861,747).

Ward, J.:

[The claim, which specifically describes the article, reads as follows:]

"1. The herein described advertising device comprising a cardboard sheet of substantially commercial letter paper form and size, scored transversely to form upper and lower flaps to fold upon the intermediate portion, the entire inner side of said sheet being adapted to bear a printed letter with proper letter head upon the upper flap portion and a signature at the bottom, one of said flap portions comprising a gift to be detached from the remainder, and means for sealing the free edges of the sheet, when folded for mailing, substantially as described."

[A demurrer to the bill was filed on the ground that the claim was invalid and void on its face for want of novelty and as for non-patentable subject-matter in view of common knowledge and information.

The court said:]

"The folded sheet seems to me to involve no invention; but the making of one of the folds a gift likely to preserve the name and address of the sender may do so. While the patent certainly seems very obvious, I cannot say, because of facts within common knowledge, that it is void on its face for lack of novelty or invention. Butler v. Bainbridge, (C. C.) 29 Fed. 142."

107. KUEHMSTED v. FARBENFABRIKEN, 179 Fed. 701, 103 C. C. A. 243 (Seventh Circuit, 1910, Patent No. 644,007).

* * *

Grosscup, J.:

The fact that the formulae are identical cuts little figure. A chemical formula is simply the symbolical expression of the composition or constitution of a substance; as the formula for water is H^2O. (Webster's New Unabridged International Dictionary.) Customarily, chemists who intend to produce a combination of two substances write the formula of the product in advance of making it. (Professor Haines, expert for the appellant.) "Without doubt, processes have been described in chemical publications which give products differing somewhat in their chemical structure and name from those which the writer supposed would be produced," or which give the formulated product "only in conjunction with other substances so that the total product obtained at the end of the process is not correctly represented or entirely represented by the structural formula or chemical name given." (Haines.) "It is quite customary for chemists to predict the structural constitution

of substances which they endeavor to produce, and they are often surprised when the result of their prediction exhibits quite a different and totally unexpected constitution, or when the process which they have ingeniously contrived fails to produce any satisfactory result whatever. * * * The great chemist Perkin started out over fifty years ago to produce quinine synthetically and was surprised to find that, instead of producing quinine, he produced a beautiful purple dye stuff, mauve, which laid the foundation for the great coal tar industry, and other great developments which grew from it." (Dr. Chandler, expert for appellee.) And, assuming that the formula actually expresses the constitution of the substance chemically, the substance physically, and in consequence therapeutically, may be widely different, as, for instance, the water of the seas, differ, in its physical body, from the water of certain springs, though the chemical formula for "water," whether of sea or spring, is H^2O. That is to say, two substances, having the same chemical formula, may differ widely, as to impurities, upon qualitative analysis.

So much for identity of formula. What about Kraut's body responding to the tests laid down in the patent? Aspirin, when boiled with water, is readily split up, acetic and salicylic acid being produced, this being one of its characteristics. On the contrary, according to Kraut's statements, if the Kraut product is boiled with water, even for a long while, acetic acid is not produced. But appellant insists, that notwithstanding this statement of Kraut, he (appellant) can take the Kraut body, and by subjecting it to a process in which boiling in water intervenes (as distinguished from the entirely dry process described in the patent), obtain a product responding to the characteristics of aspirin. But how does he do this? Enlightened by the disclosures of the Hoffmann patent that the product is decomposed by boiling in water, he avoids, as far as possible, this effect by hastening the process—dissolving in water already boiling, rapidly cooling by artificial means, and by pouring off the supernatant liquid (still containing over fifty per centum of the product) in order to rescue the product already crystallized from further contact with the water. This process was repeated from three to five times, in addition to hastening dissolution by finely dividing the crystalline mass and by stirring. Appellant thereby obtained a substantially pure product, amounting to less than half the original crystalline mass, or less than half the amount obtainable under the Hoffmann process. This, to our minds, is not proof that Kraut's body is Hoffmann's body, but only that Kraut's body can be so treated, apart from the dry process pure and simple, that it will yield some portions corresponding to Hoffmann's body.

But assuming that the compounds, chemically, are not different —that the two bodies are analytically the same—Hoffmann's re-crystallized product is therapeutically different from the Kraut and antecedent products in the following undisputed particulars: It was long known that salicylic acid was the best remedy for rheumatism, and was also anti-neuralgic and anti-pyretic; that when taken internally in a free state it was injurious to the stomachs of all patients, and particularly so to those the physiological action of whose stomachs were idiosyncratic; and that for a long time attempts were made to overcome this pernicious quality of salicylic acid and at the same time retain its beneficent effects, but without ultimate success until the discovery by Hoffmann of the resulting product of the patent in suit. In the Hoffmann product all the salicylic acid is held entirely in bond while passing through the stomach, where it would do harm, and is set free in the intestines, where its utility as a therapeutical agent is rendered effectual—the acetyl molecule or radical, unaffected by the acid fluids of the stomach, being split off or set free by the alkaline fluids of the intestines—thus making the Hoffmann product practically effective and safe in its therapeutical results as against what previously had been undesirable or unsafe, if effective at all, in therapeutics.

Hoffmann has produced a medicine indisputably beneficial to mankind—something new in a useful art, such as our patent policy was intended to promote. Kraut and his contemporaries, on the other hand, had produced only, at best, a chemical compound in an impure state. And it makes no difference, so far as patentability is concerned, that the medicine thus produced is lifted out of a mass that contained, chemically, the compound; for, though the difference between Hoffmann and Kraut be one of purification only—strictly marking the line, however, where the one is therapeutically available and the others were therapeutically unavailable—patentability would follow. In the one case the mass is made to yield something to the useful arts; in the other case what is yielded is chiefly interesting as a fact in chemical learning. Merrill v. Yeomans, 94 U. S. 569, 24 L. Ed. 235; Badische v. Kalle, 104 Fed. 802, 44 C. C. A. 201 (C. C. A. 2d Circuit); Badische v. Klipstein (C. C.) 125 Fed. 543.

Upon the question of infringement, appellant offered no explanation of how the product which he sold was obtained, but testified that he sold it as the same chemical product as aspirin and a substitute for aspirin. What the evidence before us shows is, that it is in chemical characteristics the exact article that appellee has patented. The fact that the "ear marks" showing this are chemical instead of physical, such as color, shape or the like, or some characteristic disclosed by taste, smell or the like, makes no difference. They are none the less, so far as the facts in this case have been

brought to our attention, true "ear marks" of aspirin—the product of appellee—and therefore, in the absence of explanation, at least, establish identity. In other words, aspirin stands, upon the facts before us, as a new article of manufacture produced by appellee's patent, and the product sold by appellant stands, upon the proof before us, as identical with it; wherefore, his sale of it is an infringement of appellee's product.

The decree of the Circuit Court is affirmed.

108. UNION CARBIDE CO. v. AMERICAN CARBIDE CO., 181 Fed. 104, 104 C. C. A. 402 (Second Circuit, 1910, Patent No. 541,138).

* * *

Before Lacombe, Coxe, and Noyes, Circuit Judges.

Noyes, Cir. J.:

The patentee states at the commencement of his specification:

"This invention relates to the production of a new form of crystalline calcium carbid.

Before my invention calcium carbid had existed in an amorphous condition, due either to the method of its preparation or the impurities contained in it.

By my invention herein described calcium carbid is produced in a new form, namely, in crystalline condition, having a bluish or purplish iridescence. The carbid so existing is in a condition particularly applicable, on account of its purity, for conversion into other compounds."

The specification then describes the process followed to obtain the product. The patentee states, in substance, that he takes mechanically-powdered coke and lime in the proportion of 35 per cent. of coke and 65 per cent. of lime, thoroughly mingles them by mechanical means, and subjects them to the action of an electric current in a furnace. He further states that the action of the current upon the material is a smelting action, and that the fused calcium carbid when allowed to cool crystallizes, and, when broken, shows iridescent surfaces.

The patent contains but a single claim, which is as follows:

"As a new product, crystalline calcium carbid existing as masses of aggregated crystals, substantially as described."

* * *

Concededly the Woehler compound was the highest development of the prior art in calcium carbid, and so we recur to the question whether with that compound in the art—assumed to be amorphous for the purposes of the present discussion—there was patentable novelty in the crystalline form.

In determining the question of patentable novelty, there can be no hard and fast rule. Each case must be decided upon its own facts. Mere change of form in and of itself does not disclose novelty.

A new article of commerce is not necessarily a new article patentable as such. But patentable novelty in a case like the present may be founded upon superior efficiency; upon superior durability, including the ability to retain a permanent form when exposed to the atmosphere; upon a lesser tendency to breakage and loss; upon purity, and, in connection with other things, upon comparative cheapness. So, as supplementing other considerations, commercial success may properly be compared with mere laboratory experiments.

* * *

And, if we turn specifically to the Woehler product as it was made before the application for the patent in suit, we reach similar conclusions. The Woehler publication is meager. All that is said about the preparation of calcium is contained in a single sentence. No information is given concerning the proportions of the ingredients, their preparation, or other similar matters necessary to an understanding of the process. Still it seems that, whenever before the time of the present patent the compound was prepared in accordance with what information the article did furnish, the result was a black pulverulent mass. This powdery material was worthless commercially, and was never commercially used. It would be unfit for use in gas-generators, and we are satisfied would rapidly deteriorate when exposed to the air. The product of the patent is more durable. It is hard, compact, and so unlike the powdery mass as almost to amount to a new body. Moreover, we think the complainant correct on its contention that the iridescent surfaces of the crystalline carbid would protect it to some—although perhaps slight—extent from atmospheric action.

It is also quite clear that Woehler published a mere result of a laboratory experiment which was put to no practical use. Crystalline carbid, on the other hand, has been a great commercial success and has furnished the foundation for important industries.

Taking the Woehler compound as it was made before Willson applied for his patent, we are satisfied that the product of the patent marked a patentable advance over it. * * *

We find experimental uses of the product before that time. We find that Lord Kelvin in a foreign country put some of the carbid in water, and lighted the gas which was generated. We find that the patentee gave samples of the product to different person for experimental purposes. But it is well settled that an inventor has the right to experiment in perfecting his invention and demonstrating its utility, and we are not satisfied that the patentee in this case did anything more. We think that the proof fails to establish that there was any public use of the invention more than two years prior to the application for the patent. * * *

109. DUNBAR v. MYERS, 94 U. S. 187, 24 L. ed. 34 (1876, Patent No. 16,-965. Third Circuit).

Clifford, J.: * * *

Operators of machines for sawing lumber, whether with circular or vertical saws, have long known that some means were useful, if not absolutely necessary, to spread the two parts of the lumber behind the saw, so as to prevent the lumber as sawed from binding against the two faces of the saw to such an extent as to endanger the saw and impede the progress of the work without an increase of the motive power. Wedges, in early times, were used by the operator to accomplish the object, and various other devices were employed before the deflecting plate came into use, which, it seems, has had the effect to supersede all other devices previously known to effect the described function. Such machines for sawing lumber, constructed with one deflecting plate, were well known and in general use years before the patentees in this case made their application for a patent; and the evidence satisfies the court that for most purposes the machine will operate as well and as successfully with one deflecting plate as with two. Two deflecting plates may be better than one, where it is desired to split thin stuff into two parts of equal thickness, as in that case the saw kerf may be enlarged by deflecting the stuff on each side of the saw.

Grant that two such plates are in certain cases better than one used alone, still the question arises whether it involves any invention to add the second plate to a machine already constructed with one plate. Beyond doubt, every operator who had used a machine having one deflecting plate knew full well what the function was that the deflecting plate was designed to accomplish, and the reasons for placing it at the side of the saw are obvious to the understanding of every one who ever witnessed the operation of a circular saw. Ordinary mechanics know how to use bolts, rivets, and screws, and it is obvious that any one knowing how to use such devices would know how to arrange a deflecting plate at one side of a circular saw which had such a device properly arranged on the other side, it being conceded that both deflecting plates are constructed and arranged precisely alike, except that one is placed on one side of the saw and the other on the opposite side. Both are attached to the frame in the same manner; nor is it shown, either in the specification or drawings, that there is any thing peculiar in the means employed for arranging the deflecting plates at the sides of the saw, or in attaching the same to the frame. Both are alike, except that the outer end of the one on the same side as the strengthening plate projects farther from the saw than the inner end, and that the other is rather smaller in diameter, and that the ends project about an equal distance from the saw.

Expert witnesses were examined upon the point, whether it required invention to attach a second deflecting plate to such a machine; and one of the most intelligent and learned of his class testified to the effect that the deflecting plate on one side of the complainant's machine performs precisely the same duty as the plate upon the other side of the saw, and that it required no invention to apply a second plate in such a case to perform exactly the same duty as the one previously applied on the opposite side of the saw,—that such second application is a mere duplication of the first; and he supports his conclusion by apt examples, which are both persuasive and convincing. * * *

Invention or discovery is the requirement which constitutes the foundation of the right to obtain a patent and it was decided by this court, more than a quarter of a century ago, that unless more ingenuity and skill were required in making or applying the said improvement than are possessed by an ordinary mechanic acquainted with the business, there is an absence of that degree of skill and ingenuity which constitute the essential elements of every invention. Hotchkiss v. Greenwood, 11 How. 267.

Ten years later, a case came before this court, in which the plaintiff claimed certain improvements in the construction of a machine for sawing lumber with the circular saw, including the manner of affixing and guiding the saw by allowing end play to its shaft, in combination with the means of guiding the device by friction-rollers and other appliances. Mills for sawing logs with a circular saw had been well known long before the supposed invention; and, in construing the claim of the patent, this court said that the claim is for the precise organization of the old machine, namely, the manner of affixing and guiding the circular saw by allowing end play to its shaft, in combination with the means of guiding it by friction-rollers, so as to leave the center entirely unchecked; adding, that there is nothing new in the combination, and assigning as the reason for the conclusion, that the improvement had long been known and used in the circular saw for sawing timber of smaller dimensions than ordinary saw-logs.

Enough appears to show that the machine in that case was larger than those of the kind which had preceded it; but the court remarked that that circumstance did not afford any ground in the sense of the patent law for a patent, for the reason that the ordinary mechanic was doing the same thing every day in making a working machine from the patent model.

In order to reach invention, say the court in that case, the patentee must carry his improvement further; he must contrive the means of adapting the enlarged old organization to the new use, namely, the sawing of saw-logs, and claim, not the old parts,

but the new devices by which he has produced the new results. Phillips v. Page, 24 How. 167.

Decisions by this court of later date have been made to the same effect; as, for example, the court decided that the claim of the patentee for making the cases of door-locks and latches double-faced, or so finished that either side of the case may be used for the outside, in order that the same lock or cased fastening may answer for a right or left hand door, was void, because the patentee did not show that he was the original and first inventor of the improvement, and intimated very strongly that the making of such a case, with two faces, just alike, and so finished off in point of style that either side was fit to be presented outwards, was not a matter which could be patented, even if no locks with such cases had ever before been made. Jones v. Morehead, 1 Wall. 162.

Patented improvements which are not new and useful, or which did not require any invention or discovery to make the same, as compared with what existed or was in use before, may be declared invalid by the court in an equity suit. Stimpson v. Woodman, 10 id. 121.

Mere change in a machine of one material for another, as wood or wood strengthened with iron for iron alone, is not invention in the sense of the Patent Act, and therefore is not the subject of a patent. Hicks v. Kelsey, 18 id. 670.

Old processes are sometimes applied to new subjects, and where that was so, in a case which did not require the exercise of the inventive faculty, and without the development of any idea which could be deemed new or original in the sense of the patent law, it was held that the supposed improvement was not the subject of a patent, and that courts of justice may take judicial notice of a thing in the common knowledge and use of the people throughout the country. Brown v. Piper, 91 U. S. 38.

Proof of the state of the art is admissible in equity cases, without any averment in the answer touching the subject, and in actions at law, without giving the notice required when evidence is offered to invalidate the patent. It consists of proof of what was old and in general use at the time of the alleged invention; and may be admitted to show what was then old, or to distinguish what is new, or to aid the court in the construction of the patent.

Meritorious inventors are entitled to protection; but it is settled law that a mere carrying forward of an original patented conception, involving only change of form, proportions, or degree, or the substitution of equivalents, doing the same thing as the original invention by substantially the same means, is not such an invention as will sustain a patent, even though the changes of the kind may produce better results. Smith v. Nichols, 21 Wall. 115.

Effective support to the proposition that nothing but invention or discovery will entitle an applicant to a patent is also found in the reported decisions of the circuit courts, as appears from the following citations. Judge Story held, many years ago, that the mere application of an old process, machine, or device to a new use was not patentable,—that there must be some new process or some new machinery to produce the result, in order that the supposed inventor may properly have a patent for the alleged improvement. Howe v. Abbot, 2 Story 194; Bean v. Smallwood, 2 id. 411; Glue Co. v. Upton, 6 Off. Gaz. 842; 7 id. 648.

Conclusive support to the proposition that an applicant for a patent is not entitled to the public protection, unless the supposed improvement involves actual invention or discovery, is found in the oft-repeated decisions of all the English courts having jurisdiction in such cases; and it is safe to remark, that the courts of that country apply the rule more readily, and with a much closer scrutiny, than do the courts of this country exercising the like jurisdiction. Ralston v. Smith, 11 H. L. C. 223; Harwood v. Railway Company, 11 id. 654; Jordan v. Moore, Law Rep. 1 C. P. 624; Kay v. Marshall, 8 Cl. & Fin. 245; Bush v. Fox, 5 H. L. C. 707; Tetley v. Easton, 2 C. B. N. S. 706; Horton v. Mabon, 12 id. 437; Ormson v. Clarke, 14 id. 475; Parkes v. Stevens, Law Rep. 8 Eq. 358; S. C. Law Rep. 5 Ch. App. 36; Envelope Company v. Seymer, 5 C. B. N. S. 164; White v. Toms, 17 Law Times, N. S. 319; Ralston v. Smith, 11 C. B. N. S. 471; Ormson v. Clarke, 13 id. 337; Ralston v. Smith, 9 id. 117; Saunders v. Aston, 3 Barn. & Ad. 881; Seed v. Higgins, 8 El. & Bl. 743.

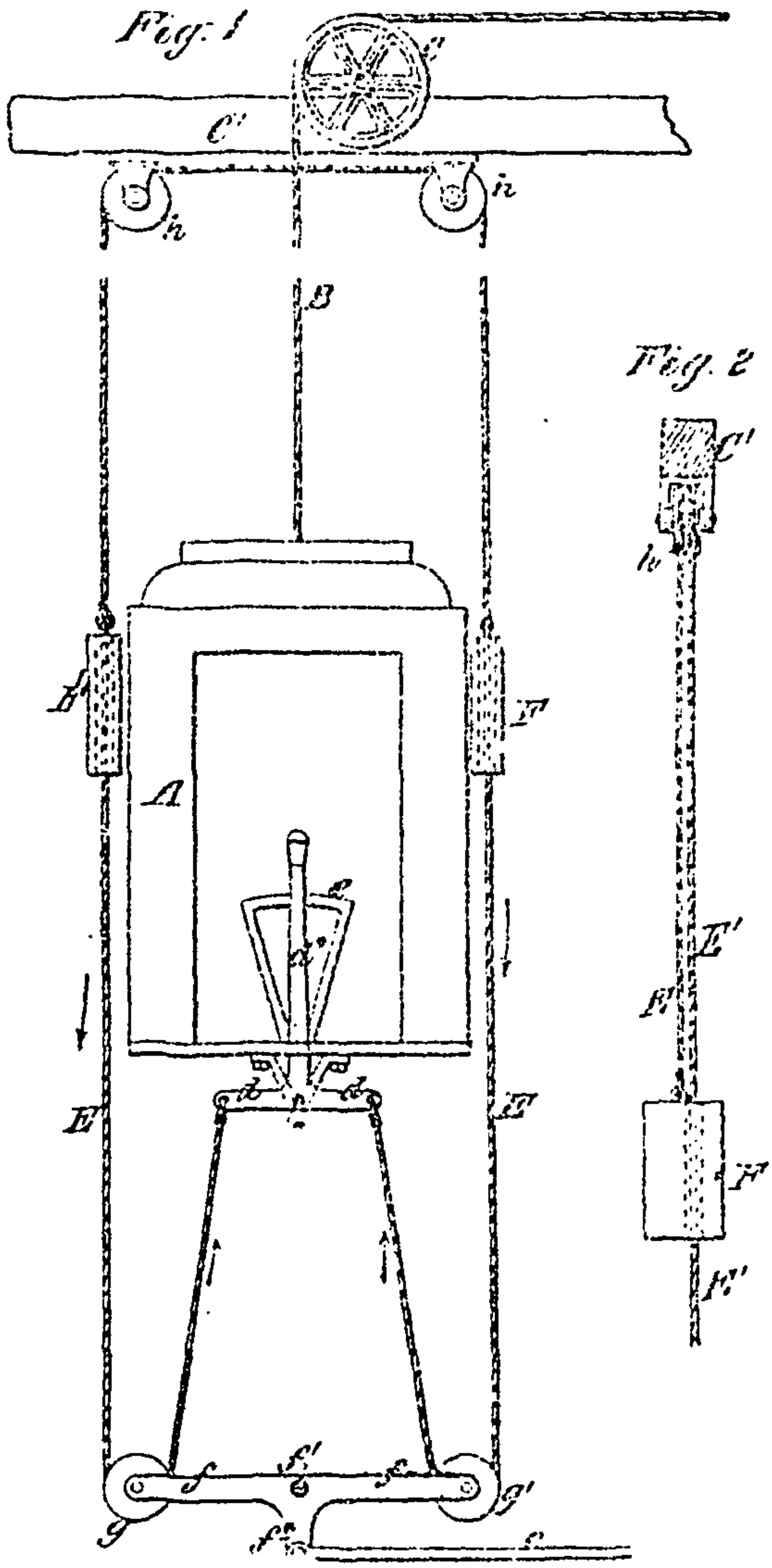
For these reasons, we are all of the opinion that the claim of the improvement described as the employment or use of two deflecting plates, one placed on each side of the circular saw, for the purposes set forth in the specification, is void, because it does not constitute a patentable invention. * * *

110. NATIONAL CO. v. BELCHER, 71 Fed. 876, 18 C. C. A. 375 (1896, Third Circuit).

[*The invention in this case is thus set forth in the statement* of invention and claims of the patent in suit, No. 317,202:

"My invention is applicable to the devices or hand-gear whereby the operation of the change or reversing valve in elevators is controlled by the attendant in the car or cab, and is applicable to hydraulic or steam elevators in which these devices are connected with and serve to shift the main change or reversing valve directly, and also to those hydraulic elevators in which the said devices are connected with an auxiliary or pilot valve, and by shifting the latter control the admission of water or other fluid to and its exhaust from a controlling cylinder or cylinders con-

taining a piston or pistons, on which the water or liquid acts to move the main valve.



"My invention relates to elevators in which the movement of the valve is accomplished by shifting a lever or hand gear, which is arranged on the car and which occupies a stationary position relatively to the car as the latter rises and falls.

1. The combination, with the car or cab and its controlling-valve, of a lever or hand gear on the car or cab, and occupying a stationary position relatively thereto as it travels, sheaves g g′, and bearings therefor arranged at the bottom of the shaft and adapted to move upward and downward, other sheaves, h h, at the top of the shaft, flexible connections passing around these sheaves from the top to the bottom of the shaft and connected at their one end with the said lever or hand gear on the car or cab, and connections between the valve and the movable bearings for the sheaves g g′ at the bottom of the shaft, through which the movement of the lever or hand gear on the car and the rising movement of one or other of the sheaves g g′ will effect the shifting of the valve, substantially as herein described.

2. The combination, with the car or cab, and its controlling valve, of a beam fulcrumed at the bottom of the elevator-shaft, connected with said valve and provided with sheaves g g′, sheaves h at the top of the elevator-shaft, a lever or hand gear occupying a stationary position on the car or cab as it travels, and flexible connections attached at their one end to said lever or hand gear and thence passed downward under the sheaves g g′, then upward over the sheaves hard weighted at their other end, substantially as herein described."]

Before Acheson, Circuit Judge, and Butler and Wales, District Judges.

Butler, District Judge. The suit was brought to recover compensation for the infringement of seven patents; three of them being Nos. 317,202, 456,122 and 458,917, granted to George H. Reynolds, another, No. 183,055, granted to Philip Hinkle, and another, No. 228,107, granted to Charles R. Otis, all for improvements in elevators and the means of operating them. The claim based on two other patents included was withdrawn.

The Circuit Court sustained the suit as respects the patent to Otis, and dismissed it as respects the others named. An appeal was taken to so much of the decree as relates to the three Reynolds patents. * * *

In considering the question of validity it is unnecessary to enter upon a description of elevators, the means employed to operate them or a historical review of the art to which they belong. Prior to the Reynolds patent No. 317,202, the operating devices employed consisted in some instances of a single stationary cable with its attachments, in others of two separate stationary cables with their attachments, and in others of a single traveling cable with the necessary attachments. None of these devices secured complete control of the car; and the object of Reynolds was to accomplish this important object. He sought to do it through the introduction of an additional traveling cable combined and worked in harmonious conjunction with the old one, by the means and in the manner he describes. That he was the first to introduce a double cable device,

describes. That he was the first to introduce a double cable device, so combined and arranged as to make the action of the one counterbalance and harmonize with that of the other, is, we think, clear. It is not seriously contended that such a device was ever used until he applied it. Two stationary independent cables, as before stated, and a single traveling cable, had been used, but neither device bore any material resemblance to Reynolds' either in arrangement or operative effect. There is no justification for the assertion that Baldwin's device, with a duplication of his cable, would anticipate Reynolds'. The duplication without the addition of Reynolds' lever and other elements of his device, would be useless. The value of Reynolds' invention arises from the unification of the cables and their harmonious and counterbalancing action, secured by the connecting device he employs. Baldwin himself acknowledged the novelty and superiority of Reynolds' device, in the interference proceedings referred to in the record; and while we do not attach much importance to this acknowledgment, we are satisfied that it was correct. It is urged, however, that a German patent granted to one Lampe describes Reynolds' invention. This patent shows a device with a single traveling cable; and suggests that it may be duplicated. A duplication would result, however, in two independent devices simply, just as would a duplication of Baldwin's device. He does not suggest a combination or any means of making one. In so far as appears the suggestion to duplicate was of no value; no one ever acted upon it; indeed, it does not appear that Lampe's device itself was ever used. It is earnestly contended, however, that any competent mechanic in carrying out the suggestion would combine the two cables as Reynolds has done, and thus produce a device identical with his. To sustain this contention the respondent relies on the testimony of his witness Noble, who says that by following Lampe's directions he made a device which is identical with Reynolds'. The device is before us, and it is substantially identical with that of Reynolds. Of course if the witness is accurate the respondent's contention is sustained. This evidence is somewhat startling; and should not be accepted lightly. If a valuable patent might be overthrown in this manner by the testimony of an expert, without careful inquiry into and virtual demonstration of its correctness, the rights of patentees would rest upon the testimony of such witnesses rather than the judgment of the court. Of course, as before remarked, if Noble is entirely accurate there is no escape from his conclusion. We cannot, however, accept his statements, notwithstanding their positiveness. We do not mean to cast doubt on his honesty; but it seems manifest from the face of Lampe's patent that it does not describe such a device as that produced; that the witness has not adhered to its terms, either in letter or spirit, but has introduced the suggestions of his own mind. He is a trained mechanic and an intelligent expert, familiar with the art involved.

It is difficult, at least, to believe that he was not aware of Reynolds' device, notwithstanding what he says on the subject. It cannot well be supposed that he was not abreast with the progress of this art; and being so it was quite natural that in duplicating Lampe's device he should unite the parts so as to make them co-operate and work as he knew they could be made to do. It is clear that if he did not follow Reynolds with knowledge of what Reynolds had done, he invented the parts which he has added to Lampe's device. Reynolds' lever, an essential element to his device, as well as other parts of his combination, shown in Noble's model, are not suggested in Lampe's patent; nor is any union, or means of uniting the duplications suggested. Of course it may justly be said that Lampe intended them to be united; but he suggests no way of doing it. In the light of our present knowledge on the subject it is easy to see how it should be done; and it was this knowledge, we believe, that guided Noble and induced him to follow Reynolds. If he had made his model before the date of Reynolds' patent it is improbable that the parts would be united as they are, and made to co-operate as they do. Skilled mechanics and inventors were then industriously working on the problem: How can the control of elevators be rendered more perfect? It was very imperfect, and the use of elevators was consequently unsafe; accidents were common and sometimes very serious. The most important step in solving the problem was that taken by Reynolds when he introduced the second cable and so connected it with the first that the two should combine, co-operate with, and counterbalance each other, in action, as he describes. Lampe's patent had been before the public for years, and yet no one of the numerous inventors engaged on the problem saw in it what Mr. Noble thinks he found.

What has been said applies as well to the subject of patentable novelty, as to priority.

111. GOSS PRINTING PRESS CO. v. SCOTT, 108 Fed. 253, 47 C. C. A. 302. (1901, Third Circuit.)

Before Dallas and Gray, Circuit Judges, and Buffington, District Judge.

Buffington, District Judge: The bill in this case charges infringement of claim 6 of patent No. 410,271, granted to Joseph L. Firm on September 3, 1889, for a rotary printing machine; of claim 7 of No. 415,321, to said Joseph L. Firm on November 19, 1889, for a rotary printing press; and of claims 11, 12, and 13 of patent No. 529,680, to Joseph L. Firm, assignor to the Goss Printing Company on November 20, 1894, for a printing machine. These patents relate to web-perfecting presses. * * *

We are then brought to the question whether the combination here shown was novel, useful, and patentable. That it was novel,

the court below found, and our research in the art leads us to the same conclusion. Was it useful? That it was not alone useful, but useful to a marked degree, the weight of the testimony, and a consideration of the practical results attained, show. Indeed, the contest waged in this case, its extent, expense, and warmth, are in themselves a reasonable measure of the opinion of all parties in that regard. It is improbable that men will render themselves liable to actions for infringement unless infringement be useful. And the fact that a patent has been infringed by a defendant is, as against such infringer, sufficient to establish its utility. Lehnbeuter v. Holthaus, 105 U. S. 96, 26 L. ed. 939; Vance v. Campbell, 1 Fish. Pat. Cas. 483, Fed. Cas. No. 16,837. Moreover, we regard the change made by Firm as both novel and useful to a marked degree. The defendant's own proofs show that, in estimating the product of printing presses, about 25 per cent. must be deducted for delays, and that one of the two principal causes of stoppage is web-breaking. When a web-break occurs, the sheet winds around the roller, the press must be stopped, and the web torn off the rolls and rethreaded. The serious results incident to such stoppage will appear when we realize that these presses are speeded to 200 revolutions a minute, and that a delay of five minutes means many thousand less papers, varying according to the press capacity. The marked tendency to print larger papers, to issue greater editions, and to sell the papers for less money, necessitates the use of a cheaper paper, and cheaper paper means greater liability to web-breaks. After a most careful examination and analysis (the details of which need not here be set forth) of the testimony of the witnesses, and with a due regard to the opportunities different witnesses had for observing presses in regular work, we have reached the opinion that web-breaks are much more frequent on angle-bar than on straight-line presses, and that inferior grades of paper, which could not be safely used on angle-bar presses, can be used on straight-run ones. The data given from actual observation in these respects is not only convincing, but is wholly in accord with our everyday observation, that, if the pull is evenly distributed over an entire sheet of paper, its tensile strength is much greater than when the strain is on one edge. It is, to our mind, clearly proven that Firm, by eliminating angle-bars, made an important improvement in lessening web-breaking. But this was not all. In dispensing with angle-bars, we are satisfied he lessened power requirements,—a fact which is not controverted in the proofs produced,—and made possible a simpler and more desirable type of mechanism; one in which there was less liability to break. A direct, forward, straight-line action from start to finish is mechanically preferable to a deflected, tangent-carried power. In addition to this, the facts proven show that straight-line presses can be built to occupy less

floor space than angle-bar machines,—an important feature in mechanism and appliances in city manufactories, on account of the value of city sites generally, and in newspaper plants especially so, from the fact that they are always located in the most prominent parts of a city, and where ground is much more valuable.

Such being the facts, does this device involve invention? In support of its patentability, we have the prima facies arising from the grant of the patent. Lehnbeuter v. Holthaus, 105 U. S. 94, 26 L. ed. 939. We have the fact that the device has gone into extensive use,—an element entitled to regard. Smith v. Vulcanite Co., 93 U. S. 486, 23 L. Ed. 952. It is contended the changes made by Firm were merely mechanical, and that in reality he but took the presses which he found standing side by side, and banked them one upon another; that the change involved was mere reconstruction, rearrangement, duplication. It is to be noted, however, that printing-press construction is mechanically a highly-developed industry. The complex and intricate details of these great presses; the calls upon them for speed, strength, and product; the constant demand upon builders for improvement; and the keen rivalry existing among such builders and the users of the presses,—are factors which brought the art to this high mechanical standard. The very fact that, with all these stimulating considerations, insuring the most rapid strides in mechanical advance, no such step as Firm's was taken in duplex presses, shows that Firm's change was not in the line of mechanical progress, but in the original, inventive sphere. Granted the change consisted in banking one press upon another, yet the two, when so combined, and in their new relation, so co-acted as to dispense with angle-bars, with a web-deflected course, and made possible a straight-line duplex press. A single straight-line press in itself was no novelty, so far as the straight-line printing of an individual web is concerned; but, when the product of two such presses were united, it was only through angle-bar agency. Firm's device, by placing the two in new relations, elminated the angle-bar, did away with the tangent-turning webs, and thus secured valuable results. The test in such cases is not whether duplication exists, but whether duplication produces, not mere duplication of product or function, but a new unitary, additional result, and not the mere aggregate of prior, separate mechanism. The mere elements of the combination are immaterial. In their individual relations they may be old, may be mere duplicates; but the test is not the character of the combining elements, but the result flowing from their being combined. "Duplication producing a new and a useful result, as it was here produced, may be patentable. It is often the material part of a discovery, because it may be that which renders useful what was previously useless." Parker v. Hulme, 1 Fish. Pat. Cas 44, Fed Cas. No. 10,740. Consideration of

another feature of the Globe-Democrat press referred to above will also show that the change Firm made was more than mechanical. As we have seen, that press was made up of a main duplex press, already described, and a second part used for printing a half-width web. When it was desired to make a 12-page paper, the main press was used to print 8 pages in the manner heretofore described, and the other 4 were printed in the supplemental press. In it but one pair of form and impression cylinders were used. These, however, were of such lengths as to carry four plates abreast on each semi-circumference. The plates at one end contained the matter for the outside, and those at the other for the inside, of the 4-page sheet. A two-plate width web passed between the plates at one end of the cylinder, and was printed on one side. It then, by means of rollers, passed down, over, across, and upward over a turner or angle-bar, which reversed the web and transferred it laterally a distance equal to its own width. The web was then made to pass between the form and impression cylinders at the other end, where its other side was printed. By this means the supplemental web was transferred from its own initial vertical plane, and brought into the vertical plane of the associated halves of the main web, and, by means not necessary to detail, was brought upward and run between these two associated halves, and in register with them. The three then pass together to the folding, cutting, and delivery mechanism. It is curious to note, but, in the light of subsequent development of the art, be it observed, that this machine might have been modified and re-created so as to embody Firm's device. If the supplemental press had been equipped with two sets of form and impression cylinders, it is quite clear the web could have been started on the same initial vertical line occupied by one-half of the web in the other or main press. This would have given straight-line work in both presses, where the supplemental press and one side of the main press alone were used. And, if the other side of the main press were banked above its fellow, all three would have been straight-line presses. But the all-sufficient answer to an imaginary machine such as this being an anticipation is the fact that no one either changed the Globe press, or suggested the possibility of such change. Its resemblance to Firm's device, and its use for several years without any one suggesting such a modification, make it all the more apparent that it required more than mechanical advance to make a straight-line press out of the doubly angled-barred Globe-Democrat press. It is not nearness to an unsolved problem, but a solution of it, that secures practical results, and benefits the public to the extent of earning the grant of a patent in return.

* * *

112. [Note.—In the celebrated and much quoted case of Reckendorfer v. Faber, 92 U. S. 347, 23 L. ed. 719, the Supreme Court had before it the familiar pencil with the rubber eraser fitted into a socket in the head of

the pencil, patent No. 19,783. The court held this an aggregation of two instruments having each the same purpose in the patented article which it had previously served. The court cited Hotchkiss v. Greenwood, 11 How. (U. S.) 248, 13 L. ed. 683 (infra), a case which involves substitution of material; Stimpson v. Woodman, 10 Wall. (U. S.) 117, 19 L. ed. 866, a case involving the engraving or stamping of a figure upon the surface of a roller for pebbling leather by pressure, a question of mechanical skill; Hailes v. Van Wormer, 20 Wall. (U. S.) 353, 22 L. ed. 241, holding the bringing together of old selected parts of stoves in one stove not invention; Rubber-Tip Pencil Co. v. Howard, 20 Wall. (U. S.) 498, 22 L. ed. 410, holding an aggregation only involved in putting the familiar round rubber cap about the top of a pencil; Smith v. Nichols, 21 Wall. (U. S.) 115, 22 L. ed. 566, on the suspender fabric, a mere "carrying forward" of previous inventions; Hicks v. Kelsey, 18 Wall. (U. S.) 670, 21 L. ed. 852, the substitution of an iron wagon reach for a wooden one, and also Seymour v. Osborne, 11 Wall. (U. S.) 516, 20 L. ed. 33, stating that case to be no exception. This case, Reckendorfer v. Faber, is not given the prominence here that it has had by way of citation because in recent years much doubt has been thrown upon the correctness of the decision in view of the admitted novelty and utility of the article which was the subject of the patent.]

113. PICKERING v. McCULLOUGH, 104 U. S. 310, 26 L. ed. 749 (1881).

Opinion by Mr. Justice Matthews:

This is a bill in equity, filed by the appellants, to restrain the appellees from infringing reissue letters patent No. 6166, dated December 8, 1874, to George Nimmo, for an improvement in moulding crucibles, and for an account, the patent having been reissued to the complainants as assignees of Nimmo, the inventor and original patentee.

The original patent, No. 49,140, granted to him, bears date August 1, 1865.

The subject of the alleged invention is an improvement in the manufacture of moulding crucibles and pots, made of a plastic material, composed of plumbago, or so-called black-lead and fire-clay, used principally in the manufacture of steel. They were formerly made by hand, on a common potter's wheel, the hand and eye of the skilled workman building them up in the desired shape, as the material revolved upon the wheel. It is recited in the original patent to Nimmo that they had also been made in a mould, by a pressing instrument, for which reference is made to letters-patent, granted October 26, 1852, to John Akrill. It is stated also by Nimmo, in the specification to his original patent, that "difficulty has heretofore been experienced in removing the crucibles from the mould, in consequence of the adhesive nature of the black-lead compound or mixture employed for such crucibles. The amount of water, also, that is required to make the mixture sufficiently plastic causes the material frequently to crack and break in shrinking as it dries."

The following is the description of the invention, as contained in the specification, referring to the drawing accompanying it:—

"The nature of my said invention consists in the manufacture of crucibles in a plaster mould, which gives shape to the pot externally and absorbs the moisture from the pot, causing it to dry uniformly and at the same time shrink away from the mould, preventing the air acting on the outside of the pot until after the moisture has been mostly absorbed, and prevents the pot from splitting or cracking from unequal contraction in drying. I mount my plaster mould in a revolving chuck, and employ a rib attached to a lever for spreading the plastic crucible material on the inside of the mould, and at the same time hardening, consolidating, and polishing the crucible on the inside by means of said rib." * * *

There is, however, no doubt whatever that Salvetat describes the operation of a rib, by means of a mechanism which directs it in the formation of the interior of a vessel, while in motion on a revolving wheel, and guides it when the vessel is formed, even when it has a bilge, so that, by bringing it into a proper relation with the axis of revolution, it can be withdrawn from the side of the vessel which it has shaped, and lifted through its mouth or top, without touching and injuring its sides. This is conceded by the appellants, and is admitted in the patent itself. It is also confessed that the use of the mould for supporting the ball, while the rib or former presses it on the inside, and thus shapes its corresponding outside, is old, and is not of itself claimed as the invention of Nimmo. The alleged invention, then, consists merely in supplying to the apparatus described by Salvetat a mould for supporting the ball and giving shape externally to the cruicible. * * *

In Nimmo's apparatus, it is perfectly clear that all the elements of the combination are old, and that each operates only in the old way. Beyond the separate and well-known results produced by them severally, no one of them contributes to the combined result any new feature; no one of them adds to the combination anything more than its separate independent effect; no one of them gives any additional efficiency to the others, or changes in any way the mode or result of its action. In a patentable combination of old elements, all the constituents must so enter into it as that each qualifies every other; to draw an illustration from another branch of the law, they must be joint tenants of the domain of the invention, seized each of every part, *per my et per tout*, and not mere tenants in common, with separate interests and estates. It must form either a new machine of a distinct character and function, or produce a result due to the joint and co-operating action of all the elements, and which is not the mere adding together of separate contributions. Otherwise it is only a mechanical juxtaposition, and not a vital union.

In the case of this apparatus the mould was known, and a rib or former was known, and their use in combination was known. Salvetat described a rib, so arranged that, after it had performed its function in shaping the interior of the vessel, it could be withdrawn, through the top of the vessel, so as not to produce injury by striking against its side. This rib Nimmo substituted for the old one in the same combination. And this is the whole of the invention. Upon the principle stated, there is no invention in it.

We are also of opinion that the invention claimed for Nimmo, as described in the reissued patent, is covered by the prior patents to Wise and to Smith.

Undoubtedly they both embody the principle of a former used in combination with a mould, for the purpose of manufacturing crucibles, connected so that the former can be withdrawn in the case of vessels having a bilge, without injury.

It is objected, however, that the machines described in these patents are mere paper machines, not capable of successful practical working. But on examination it sufficiently appears, we think, that the objections can be sustained only as to minor matters of detail in construction, not affecting the substance of the invention claimed, and could be removed by mere mechanical skill, without the exercise of the faculty of invention. In this view, the Wise and Smith patents are not rendered inefficient as defenses in this suit, by reason of the alleged imperfections of the machines described in them.

The bill of the appellants was dismissed by the court below, on the ground of the prior knowledge and use of the alleged invention at Kier's works in Pittsburgh. We are of opinion that the testimony sustains that finding. Decree affirmed.

114. DOUBLE-POINTED TACK CO. v. TWO RIVERS MFG. Co., 109 U. S. 117, 27 L. ed., 877, 3 Sup. Ct. 105, (1883).

* * *

Blatchford, J.: This is a suit in equity brought in the Circuit Court of the United States for the eastern district of Wisconsin, for the infringement of letters patent No. 147,343, granted February 10, 1874, to the plaintiff, the Double-pointed Tack Company, as assignees of Purches Miles, the inventor, for an "improvement in bail-ears." * * *

The gist of the invention set forth in the descriptive part of the specification, so far as the first claim is concerned, is to cut the two penetrating ends of the wire diagonally, and in such a way that, while the staple is being driven, the cut faces will both of them be on the lower side, and the two penetrating ends will both of them incline upwardly. It is shown to have been commonly known

that the effect of a bevel or a diagonal cut on a penetrating point was to force the point, in being driven, in a direction away from the bevel or cut. Double-pointed staples, with a diagonal cut on each point, but the diagonal cut on one point on the upper and outer side, and on the other point on the lower and outer side, as the staple was driven, were old. * * * In view of this state of the art, there was no patentable invention, and nothing more than mechanical skill, in putting the diagonal cuts or bevels on the same side of each leg of the staple, so as to give both points, in driving, an inclination in the same direction, that direction being one away from both bevels, and in using the device to fasten a bail. * * *

The second claim is for the washer in combination with the staple of the first claim. This is not a patentable combination. There is only an aggregation of parts when the staple is used with the washer. * * * It would have the same effect if it were fastened in some other way than by having the leg of the staple pass through it, and the staple would in such case have the same operation which it now has.

The decree of the Circuit Court is affirmed.

115. THATCHER HEATING CO. v. BURTIS, 121 U. S. 286, 30 L. ed. 942, 7 Sup. Ct. 1034 (1887.)

Matthews, J.: This is a bill in equity filed December 13, 1875, by the appellants, as assignees of John M. Thatcher, to restrain the alleged infringement of letters patent No. 104,376, dated June 14, 1870, granted to John M. Thatcher for certain new and useful improvements in fire-place heaters. There was a decree below dismissing the bill, from which the complainants prosecute the present appeal. * * *

Thatcher makes no claim in his patent for the fuel magazine, as long prior to the date of his application such a magazine was in common use in what are known as base-burning stoves. In construction and in position, with relation both to the burning mass in the pit of the stove and to the outer casing through which it opened, either on the top or at the side of the stove itself, the fuel magazine of the outstanding stove is the same as the fuel magazine when placed in the fire-place heater according to Thatcher's patent. It is admitted that what Thatcher did, and all that he did, was to transfer this well-known fuel magazine from its use in an outstanding base-burning stove to a fire-place heater, equally well known and in common use as to its arrangement, construction, position, and mode of operation. When this fuel magazine was thus transferred from one kind of stove to another, in its new situation it performed precisely the same function, with respect to the fuel and the fire, as it had always been accustomed to perform in its

old place, and the fire-place heater into which it was thus newly placed, so far as the generation and transmission of heat and heated air are concerned, operated precisely as it had habitually done before.

It is true that such a fire-place heater, by reason of the fuel magazine, was a better heater than before, just as the outstanding stove, with its similar fuel magazine, was a better heater than a similar stove without such a fuel magazine. But the improvement in the fire-place heater was the result merely of the single change produced by the introduction of the fuel magazine, but one element in the combination. The new and improved result in the utility of a fire-place heater can not be said to be due to anything in the combination of the elements which compose it, in any other sense than that it arises from bringing together old and well-known separate elements, which, when thus brought together, operate separately, each in its own old way. There is no specific quality of the result which can not be definitely assigned to the independent action of a single element. There is therefore no patentable novelty in the aggregation of the several elements, considered in itself.

If, however, to adapt these separate elements to each other, so that they can act together in one organization, required the use of means not within the range of mere mechanical skill, then it would be true that the invention of such means for effecting a mutual arrangement of the parts would be patentable. If, in the present case, owing to the necessary form, size, structure, and situation of a fire-place heater as ordinarily made and used, there were ascertained difficulties in uniting such a fuel magazine as Thatcher adopted from its known use in outstanding base-burning stoves, and those difficulties were overcome by something more than mere mechanical ingenuity, he might have been entitled to a patent, not for the combination, however made, of the fuel magazine and the fire-place heater, but for the means which he had invented for effecting it. Nothing of that, however, appears in this case. The invention described is not of any such device for effecting the combination; no claim is made of that character. The claim made is for the combination, no matter how or by what means it is or may be effected.

In this view of the case, it is impossible to distinguish it, so far as the rule of decision is concerned, from the cases of Hailes v. Van Wormer, 20 Wall. 353; Heald v. Rice, 104 U. S. 737, 754; Pennsylvania R. Co. v. Locomotive Truck Co., 110 U. S. 490; Morris v. McMillin, 112 U. S. 244; Hollister v. Benedict Manuf'g Co., 113 U. S. 59; Thompson v. Boisselier, 114 U. S. 1; Beecher Manuf'g Co. v. Atwater Manuf'g Co., 114 U. S. 523; Gardner v. Herz, 118 U. S. 180.

There is no escape, we think, from the conclusions reached by the Circuit Court. Its decree is therefore affirmed.

116. NATIONAL CASH REGISTER CO. v. AMERICAN CASH REGISTER CO.,53 Fed. 367, 3 C. C. A. 559, (1892, Third Circuit).

Appeal from the Circuit Court of the United States for the Eastern District of Pennsylvania.

In Equity. Bill by the National Cash Register Company, Michael Campbell, and Maria G. Wellbrock against the American Cash Register Company for infringement of a patent. The Circuit Court, following the decision of the Circuit Court for the district of Massachusetts in National Cash Register Co. v. Boston Cash Indicator & Recorder Co., 45 Fed. Rep., 481, held that there was no infringement, and dismissed the bill. 47 Fed. Rep. 212. Complainants appeal. Reversed.

Before Dallas, Circuit Judge, and Wales and Buffington, District Judges.

Dallas, Circuit Judge. This is an appeal from a decree dismissing a bill for alleged infringement of patent No. 253,506, for an improvement in cash registering apparatus, granted to Michael Campbell, and dated February 14, 1882. The only claim involved is:

"(3) In a cash registering apparatus, a series of keys to designate certain amounts, combined with the drawer, the drawer holder, D, mediately connected with said keys, and the spring to throw the drawer open when released by the drawer holder, substantially as described."

The defenses are that this claim is invalid, and that, even if valid, it is not infringed. It is insisted that it discloses no patentable invention whatever, but that, if it should be sustained, and as for a combination, the appellee's machine would not be an infringement, because it not only does not contain any of the specific devices of the appellants' apparatus, but also does not employ the combination alleged. The appellants, on the other hand, admit that all the specific devices were old, singly and in other combinations, but assert that what Campbell invented and claimed is a combination and nothing else. Accordingly, their counsel contend that the claim in question is valid, as disclosing a patentable invention of a new and useful combination, and that the appellee's machine is an infringement, not because of any real or supposed identity or equivalence of elements, but because it accomplished the same result as is accomplished by the Campbell machine, by substantially the same mode of operation. We have, then, no issue as to novelty or infringement of details, and therefore the only questions to be considered are: First. Is the claim for a combination, supported by invention? Second. Has the appellee infringed?

1. The claim is, in terms, for mechanism "combined with" other mechanism. It is true that certain particular mechanism is mentioned, but it does not necessarily result that the patentee intended to limit the claim to any special devices, or that the law will so restrict it. The question is one of construction; and as we are of opinion, upon grounds to be hereafter stated, that Campbell's invention was a primary one, it follows that the language of this claim should be as liberally interpreted as its fair import will allow, to the end that his conception shall be justly protected to its true extent, and in its broad and actual scope. The invention, says the specification, "relates to a cash registering apparatus to be employed in connection with a cash drawer," and the claim is for (in such apparatus) a series of keys to designate different amounts, combined with a drawer for receiving cash; a drawer holder, for holding the drawer closed against the tension of the spring, (presently mentioned); a mediate connection (of some kind, not designated) between the series of keys and the drawer holder, by which the latter will be disengaged from the drawer upon the operation of any one of the keys; and a spring to throw the drawer open when so disengaged. By this contrivance the cash drawer, which when closed is always locked, is, by the operation of any one of the keys of the series, thrown open by the spring; and none of the devices by which this object is accomplished, so far as they are designated in the third claim, were new. The series of keys, the cash drawer, and the spring were unquestionably old; and the drawer holder is but a pivot lever, differing from other levers of the same class in nothing but in form, and in the use to which the patentee applied it. Of any particular mechanism of mediate connection, nothing need be said at this point. None is specifically mentioned in the claim with which, alone, we are concerned; and for the present purpose it may be taken for granted that none which was new was contemplated. It is clear, then, that so to construe this claim as to confine it to specific details would be to invalidate it for lack of novelty: A consequence which certainly ought not to be accepted when, according to the natural and ordinary meaning of its language, it plainly appears to be a claim for a new combination of old devices,—a well known series of keys combined with the other familiar mechanism mentioned, and mediately connected, in some way not mentioned, with the drawer holder included in that mechanism. It cannot be restricted to all or any of the devices used in the mediate connection between the series of keys and the drawer holder, not only because they are not even specified in the third claim, but also because they are expressly claimed in the second claim, which is:

"(2) In a cash registering apparatus, a series of keys to designate certain amounts, a pawl-carrying bar, c, and a series of toggle

levers, x, intermediate between each key and the said pawl-carrying bar, the toggle lever, b, actuated by the bar, c, combined with the drawer holder, D, and drawer, C, substantially as described."

There is nothing upon this record which would warrant us in attributing to the patentee the folly of having presented, and to the patent office the improvidence of having allowed, two claims for the same thing. The distinction between them must be maintained, that both may be given effect.

The court, whose decree is the subject of this appeal, expressed no independent opinion, but merely followed the decision of the Circuit Court for the district of Massachusetts in a suit in which the same claim had been in controversy. National Cash Register Co. v. Boston Cash Indicator & Recorder Co., 45 Fed. Rep. 481-485. The course pursued in this regard was in conformity with the rule, well established in this circuit, to follow, unless under extraordinary circumstances, a prior judgment of any other of the circuit courts of the United States, wherever the patent, the question, and the evidence are the same in both suits. We do not question the propriety of this practice, as it has heretofore prevailed; but it cannot be extended to this court. The decisions of the several Circuit Courts, whenever pertinent, will be attentively considered by this tribunal; but because they are subject to appeal, and for other manifest reasons, it is not admissible for a court of review to accord them controlling effect. Accordingly, we have in this instance carefully examined the opinion of the learned circuit judge of the first circuit; but, though regarding it with sincere respect, we find ourselves unable to concur in it. This claim, as we read it, is, distinctly, exclusively, and broadly, for a new combination; and we know of no authority or principle of law which, so reading it, would warrant us in converting it, by construction, into a claim for details merely.

Thus far we have assumed that the actual invention was of a new and useful combination, and also (perhaps without necessity) that it was a primary one. We will now state the reasons by which these assumptions are supported. Whether or not the "connecting mechanism" between the drawer holder and the keys was new with Campbell is, in our opinion, apart from the question. That mechanism, or any part of it, was not, as we have shown, covered by the claim in controversy. The complainants' bill was not founded upon it; and this court is not called upon to deal with it, but solely with an alleged combination, which it is asserted, but denied, was invented by Campbell. Directing our investigation, therefore, to this distinct issue, we have, upon full examination of the proofs, become entirely satisfied that Campbell was in fact the original and first inventor of the combination claimed in his third claim. It is unnecessary to refer in detail to the several exhibits which were

introduced to show the prior state of the art, or to enter upon a discussion of the testimony. It is enough to say that, upon all the evidence, we do not doubt that Campbell was the first person who combined a series of keys with any other mechanism whatever, so as to attain the object which he proposed and accomplished. It nowhere appears that a combination of a series of keys with a drawer holder and other mechanism had ever before been conceived, by means whereof each key of the series, when and as operated, would or could unlock a drawer in a cash registering apparatus, and permit a spring to open it. This Campbell effected, not by new mechanism, but by a new combination, and in doing this he made a patentable invention.

We have not overlooked the suggestion of appellee's counsel that Campbell's conception and arrangement were merely of an aggregation of known elements, not amounting to a true combination, and that, therefore, he was not entitled to a patent for anything. This suggestion is based upon the allegation that each of the elments associated by Campbell does not qualify every other of them; but this is true only in the sense that each does not modify or change the characteristic mode of action, or method of operation, of the others. In doing its appointed share towards effecting the single result achieved by the co-operation of all, each element acts, of course, according to the law of its own being; but though of necessity so acting, it is still, none the less, combined with the others, and does "qualify" each and all of them, (not their distinctive methods of operation), in the sense that each is, by the co-operation of the others, capacitated to contribute, by acting in its own peculiar way, to the common end, which, without the co-operation of each and every other of the co-ordinated elements, it would be powerless to accomplish or advance. Some of the language used by Mr. Justice Matthews in delivering the opinion of the Supreme Court in Pickering v. McCullough, 104 U. S. 310, has been pressed upon our attention, as indicating, it is claimed, that in a patentable combination of old elements all the constituents must so enter into it that each changes the mode of action of every other, and that each element must not merely perform its own part in the combination, but must also, in some way, be directly and immediately concerned in the performance of their respective parts by every other of the elements. No such doctrine as is thus claimed to be deducible from the opinion in Pickering v. McCullough appears to have been essential to the judgment in that case, nor do we think it necessary to attribute to the particular language referred to (104 U. S. 318) the meaning ascribed to it by counsel. If, instead of an extract, the whole opinion be read, in connection with the authorities which are cited in it, it may be readily perceived that the substance of the doctrine intended to be

affirmed is that a combination, to be patentable, must produce a new and useful result, as the product of the combination, and not a mere aggregate of several results, each the complete result of one of the combined elements. There must be a new result produced by their union. That Campbell's invention was of a combination, as thus defined, we entertain no doubt; and that Mr. Justice Matthews should be understood as holding that no combination is patentable which does not fulfill the requirement which appellee's counsel insists is requisite, we cannot suppose. If it were essential to a valid patent for any combination whatever that the mode of action of every element included in the combination should be changed by each of the others, it would have been impossible to sustain several combination patents which have in fact been upheld, as, indeed, it would be difficult to conceive of any mechanical combination which would be both possible and patentable. A screw or a lever can act only in one way, yet a screw and a lever may so act in combination as to produce, in consequence of their combination, a single, new, and useful result. Moreover, there is no intimation in the opinion in Pickering v. McCullough of a purpose to overrule the earlier decisions with which (upon the view taken of it by counsel) it would appear to conflict, nor has it in later cases (which, of course, are to be followed) prevented the Supreme Court from declaring the law of this subject in accordance with our understanding of it. Blake v. Robertson, 94 U. S. 728; Parks v. Booth, 102 U. S. 96; Loom Co. v. Higgins, 105 U. S. 580; Clough v. Barker, 106 U. S. 166, 1 Sup. Ct. Rep. 188; Lake Shore & M. S. Ry. Co. v. National Car Brake Shoe Co., 110 U. S. 229, 4 Sup. Ct. Rep. 33; Lock Co. v. Sargent, 117 U. S. 536, 6 Sup. Ct. Rep. 934.

Campbell's invention was a primary one. The proofs abundantly establish that he was the first person who succeeded in effecting in any manner or form whatever, the opening of an automatically locked cash drawer, in a cash registering apparatus, upon the operation of any one or other of the keys of its series. In doing this he did not merely improve upon something which had been done before. What he produced was absolutely and entirely new. The result which he achieved was a distinct and single one, which had not, by any means, been previously attained. He entered upon barren territory in the domain of invention, and was the first to occupy and appropriate it. He was a pioneer. Machine Co. v. Lancaster, 129 U. S. 263, 273, 9 Sup. Ct. Rep. 299. That Campbell's invention was useful, we are also fully persuaded. The evidence of this is so complete as not to require detailed discussion. Indeed, the ocular proof of its practical utility, manifested by the operation of the apparatus in our presence, would of itself be suffi-

cient to require us to conclude that it does not lack this essential of patentability.

2. But little need be added with especial reference to the matter of infringement. In National Cash Registering Co. v. Boston Cash Indicator & Recorder Co., supra, it was held that the mechanism specifically designated in the third claim was old, but that the mechanism of mediate connection, which was not designated, was new, and that there was no infringement of the patent, because the defendants used a connecting mechanism which differed from that used by the plaintiffs. As we, however, have been constrained to view this claim as for a combination, the question of infringement must necessarily be considered by us as related to a subject quite distinct from that to which the same question was directed in the decision of the case to which we have referred. The correct inquiry, from our point of view, is not whether this appellee uses, in its mechanism of mediate connection, the same devices which are used by the appellants, or equivalents thereof, but whether the mediate connection employed by the appellee is not itself an equivalent of the mediate connection of the Campbell combination. It may be conceded that there are marked differences in the details by which this connection is made, and its purpose accomplished, in the one apparatus and in the other; but the manifestly well-founded expert testimony is that "a mediate connection," not the details thereof, is included among the elements of the Campbell machine. This element, as well as all others of the patented invention, are found in the appellee's apparatus. We attach no importance to the fact that in the appellants' machine the drawer is released upon downward pressure of the key, while in that of the appellee it is released as the finger leaves the key to which the pressure is applied. In both, the drawer is opened by what is substantially one and the same act,—the operation of a key of the series. Though some of the corresponding parts of the machinery are not the same, and, separately considered, could not be regarded as identical or conflicting, yet, having the same purpose in the combination and effecting that purpose in substantially the same manner, they are the equivalents of each other in that regard. Cochrane v. Deener, 94 U. S. 780. We are of opinion that the combination here claimed is infringed by the apparatus used by the appellees.

The decree of the Circuit Court is reversed, with costs, and it is ordered that this cause be, and the same is hereby, remanded to the said Circuit Court for further proceedings to be there taken in pursuance of this determination and judgment of this court, and in conformity with this opinion.

117. ANTISDEL v. CHICAGO CO., 89 Fed. 308, 32 C. C. A. 216, (1898, Seventh Circuit, Patent No. 486,113).

Woods, Showalter, Baker.

* * *

In answer to the objection that the patent is for an aggregation, it is insisted that the doctrine of aggregation does not apply because the patent is not for a machine, which has a law of action, but is for an article of manufacture, patentable for its peculiarities of construction "if each enters into the structure in such a way as to make it a new and useful device as a whole." Even by this rule the cabinet in question was not patentable, because it contains many old features or parts which in no way contribute to the novelty of the device as a whole, and whatever novelty there is in it is confined to one or two features of construction. But the proposition that the doctrine of aggregation is restricted in its application to machines as distinguished from articles of manufacture does not seem to be sustained by the decided cases. Hailes v. Van Wormer, 20 Wall. 353; Reckendorfer v. Faber, 92 U. S. 347; Trimming Co. v. Welling, 97 U. S. 7; Slawson v. Railroad Co., 107 U. S. 653; Bussey v. Manufacturing Co., 110 U. S. 146, 4 Sup. Ct. 38; Hill v. Wooster, 132 U. S. 693; Rob. Pat. §§ 154, 182, 185, note 1. See, also, Campbell v. Bayley, 11 C. C. A. 284, and 63 Fed. 463, and cases there cited.

Aside from the question of aggregation, this patent is invalid for the other reason urged that the device described is not an invention or discovery. To repeat the language used in Campbell v. Bayley, supra:

"Whether, within the meaning of the patent law, a device should be deemed a manufacture or a machine, in order to be patentable it must be novel; and by the decided cases the test of novelty would seem to be essentially the same in the one instance as in the other. 'Nothing short of invention or discovery will support a patent for a manufacture, any more than for an art, machine, or composition of matter,' said Justice Clifford, in Milligan & Higgins Glue Co. v. Upton, 4 Cliff. 237, 251, Fed. Cas. No. 9,607; and the same expression is repeated in Collar Co. v. Van Dusen, 23 Wall. 530, 563, in context with the following pertinent statement: 'Articles of manufacture may be new in the commercial sense when they are not new in the sense of the patent law. New articles of commerce are not patentable as new manufactures, unless it appears in the given case that the production of the new article involved the exercise of invention or discovery beyond what was necessary to construct the apparatus for its manufacture or production.'"

This patent perhaps shows some features not before combined in exactly the same way, but "it is not enough that a thing shall be new in the sense that in the shape or form in which it is produced it shall

not have been before known, and that it shall be useful, but it must, under the constitution and the statute, amount to an invention." Thompson v. Boisselier, 114 U. S. 1, 11, 5 Sup. Ct. 1042.

It is suggested that the margin of invention is certainly as great in this as in the recent case of Williams v. Wrapper Co., 30 C. C. A. 318, 86 Fed. 641, decided by this court. But it is only necessary to refer to the opinion there deliverd for the clear distinction between the cases. It was there said of the Williams' invention, but cannot be said of the device now in question:

"It is different from anything before it, and is not an obvious or natural suggestion of what had preceded it in the art. * * * Simple as it is, it was a happy thought, and we hold it to have been a patentable discovery, because it was not directly suggested by anything which preceded it in the art to which it belongs, and was not fairly or logically deducible from any or all of the prior forms of construction."

These expressions were carefully framed, and are believed to embody an accurate statement of the general rule by which, in respect to novelty, the patentable and the unpatentable are to be distinguished.

The decree below is reversed, with direction to dismiss the bill.

118. WESTERN ELECTRIC CO. v. NORTH ELECTRIC CO., 135 Fed. 79, 67 C. C. A. 553, (1905, Sixth Circuit, Patent No. 552, 5793).

Lurton, Severens, Richards.

* * *

Nothing in the prior art is shown to us which anticipates these claims. We might properly repeat the observations we have made regarding the conditions existing at the date of the other patents as correctly stating the conditions existing at the date of this invention; that is to say, no such combinations of means are to be found in the prior art. All three of these patents may well stand upon the rule which has several times been affirmed in this court, namely, that while the mere assembling in a new organization of parts of old structures to perform the same function in their new place that they did in the old is not invention, yet where they are so taken and are organized in a new and useful manner, so as to produce a more beneficial result, there may be invention; and when the combination displays the exercise of intuitive skill and genius beyond that possessed and exercised by those well skilled in the practice of their art, and the discovery is of something new and useful, invention should be recognized. As we have already indicated, we think that each of these patents shows a distinct advance in the progress of the art with which it is concerned. And the number of patents relating to this subject which had been taken out is strong evidence

that the results which had already been reached had already exhausted the common skill and learning of the craft.

119. DUNBAR v. EASTERN ELEVATING COMPANY, 81 Fed. 201. 26 C. C. A. 330, (1897, Second Circuit, Patent Reissue No. 10,521).

* * *

Before Wallace, Lacombe and Shipman, Judges.

Wallace, J. This appeal presents the question of the patentable novelty of the apparatus described and claimed in reissued Letters Patent No. 10,521, dated September 16, 1884, to Robert Dunbar. The subject of the patent is a portable elevator adapted for use in connection with an ordinary grain-elevator for unloading grain from vessels.

* * *

Concededly Dunbar is entitled to the credit of originating the conception of using a second elevator as an adjunct of the ordinary grain-elevator, which could be moved so as to reach the different hatches of the vessel and discharge into the main elevator; but his right to a patent cannot rest upon this conception alone. It must rest upon the novelty of the means which he contrived to embody the conception and to carry it into practical application. He effected a new organization of a portable elevator; but if this did not involve invention, but was that which could have been done by the skilled mechanic by selecting known devices, applying them to their appropriate uses, and introducing such modifications of detail to fit them for the new environment as would be dictated by experience and good judgment, the patent cannot be sustained.

It is manifest from what has been said of the prior state of the art that what Dunbar did was to adapt well-known devices to the special purpose to which he contemplated their application. The elevator, with all its equipment for reaching, raising, and transferring grain, was at hand. Various forms of portable elevators carried by wheels and moved upon tracks were at hand. To adapt his elevator to the new occasion, it was necessary that a track should be located in such relation to the warehouse that the elevator could be moved upon it back and forth to reach vessels lying at the dock and discharge their contents into the warehouse. The devices known to builders and in common use for moving similar structures were at hand, and it was only necessary for him to select them with reference to the particular structure to be moved. It was necessary to select a more powerful windlass and a stronger cable if he proposed to move an elevator of large size and weight than would be required to move one of smaller size and weight. It was necessary that appropriate fastening devices should be selected to secure the elevator to the warehouse when doing its work of discharging from the vessel, and these were at hand in great variety of forms. It

was also necessary that a receptacle for the grain at the warehouse should be provided which could be reached by the discharging-spout of the elevator.

We are unable to doubt that all these things were within the range of ordinary mechanical skill, and that they could have been suggested and constructed by any competent builder, and that what Dunbar did was merely to exercise the common skill of the calling in locating his track and selecting his moving and fastening devices and in arranging the proportions and subsidiary features of his portable elevator to correspond with those of the warehouse. The fastening devices which he employed have no special novelty, if, indeed, they are of any utility except when the movable elevator is a tall one. Hooks would have answered as well, and upon the tall elevator of the defendants hooks are used. Any intelligent man would have known that if a tall elevator were to be used it would be expedient to attach the structures together at the upper part. The trough which he placed along the front of the warehouse was the receptacle most obviously convenient and in common use in the grain-elevators for distributing the grain to different parts of a building. It certainly did not involve inventive skill to place it on the outside of the building, within reach of the spout of the portable elevator.

We are not unmindful of the advantages which have resulted from the new organization of the elevator described in the patent, but we are unable to doubt that the improvements of Dunbar were but the work of an intelligent builder. When in the evolution of grain-elevator construction their desirability became manifest, it did not require genius or inventive faculty to create them. As was said in Atlantic Works v. Brady, 107 U. S. 192; 2 Sup. Ct. 225, the process of development—

"creates a constant demand for new appliances, which the skill of ordinary head workmen and engineers is generally adequate to devise, and which, indeed, are the natural and proper outgrowth of such development."

The learned judge who decided the cause in the court below said:

"Unquestionably, the methods adopted by the inventor to carry out his conception, considered separately, were old, but the combinations were new. Wheels, tracks, spouts, windlasses, troughs, and guy-ropes were undoubtedly well known, but no one had ever assembled them in congeries producing a movable elevator-tower."

The circumstance that the same congregation of devices has never been assembled in a new location is not controlling and is often of little value in determining the question of patentable novelty. Their assemblage may be nothing but another instance of a double use, and when they require special adaptation to the

new arrangement and occasion it still remains to inquire whether this has required invention.

"It rarely happens that old instrumentalities are so perfectly adapted for a use for which they were not originally intended as not to require any alteration or modification. If these changes involve only the exercise of ordinary mechanical skill, they do not sanction the patent, and in most of the adjudged cases where it has been held that the application of old devices to a new use was not patentable there were changes of form, proportion, or organization of this character which were necessary to accommodate them to the new occasion. (Aron v. Railway Co., 132 U. S. 90.)

We conclude that the patent is void for want of novelty and that the decree should be reversed, with costs, and with directions to dismiss the bill.

120. RICHARDS v. CHASE ELEVATOR CO., 158 U. S. 299, 39 L. ed. 991, 15 Sup. Ct. 831.

* * *

Mr. Justice Brown delivered the opinion of the Court.

While patent cases are usually disposed of upon bill, answer and proof, there is no objection, if the patent be manifestly invalid upon its face, to the point being raised on demurrer, and the case being determined upon the issue so formed. We have repeatedly held that a patent may be declared invalid for want of novelty, though no such defense be set up in the answer. (Dunbar v. Myers, 11 O. G. 35; 94 U. S. 187; Slawson v. Grand Street R. R. Co., 24 O. G. 99; 107 U. S. 649; Brown v. Piper, 10 O. G. 417; 91 U. S. 37.)

The patent in question is for the combination of, first, a fixed or stationary building; second, two railway-tracks; third, an elevating apparatus; fourth, elevator hopper-scales, having a fixed or stationary hopper, provided with a valve or slide in its bottom; fifth, a discharge-spout, arranged for discharging the grain directly from the hopper into a car.

The second claim has the same combination duplicated, with the addition of a horizontal conveyer; the chutes J J having therein doors or valves, and the slides or doors O O.

It is not claimed that there is any novelty in any one of the elements of the above combination. They are all perfectly well known, and if not known in the combination described, they are known in combinations so analogous that the Court is at liberty to judge of itself whether there be any invention in using them in the exact combination claimed. We do not feel compelled to shut our eyes to a fact so well known as that elevators have, for many years, been used for transferring grain from railway-cars to vessels lying alongside, and that this method involves the use of a railway-track,

entering a fixed or stationary building; an elevator apparatus; elevator hopper-scales for weighing the grain; and a discharge-spout for discharging the grain into the vessel. There is certainly no novelty in using two railway-tracks instead of one, or in discharging the grain into a second car, instead of a storage-bin or a vessel. Unless the combination accomplishes some new result, the mere multiplicity of elements does not make it patentable. So long as each element performs some old and well known function, the result is not a patentable combination, but an aggregation of elements. Indeed, the multiplicity of elements may go on indefinitely without creating a patentable combination, unless by their collocation a new result be produced. Thus, nothing would have been added to the legal aspect of the combination in question by introducing as new elements the car from which the transfer was made; the engine that drew such car; the steam-shovel; the engine that operated the shovel and the elevator; as well as the locomotive which drew the loaded car from the building, though these are all indispensable features, since each of them is an old and well-known device, and performs a well understood duty.

Suppose, for instance, it were old to run a railroad track into a station or depot for the reception and discharge of passengers, it certainly would not be patentable to locate such station between two railroad tracks for the reception of passengers on both sides, and to add to the accommodations a ticket-office, a newspaper-stand, a restaurant, and cigar-stand, or the thousand and one things that are found in buildings of that character. It might as well be claimed that the man who first introduced an elevator into a private house, it having been previously used in public buildings, was entitled to a patent for a new combination.

Not a new function or result is suggested by the combination in question. The cars run into the building on railway-tracks, as they have done ever since railways were invented. The building is fixed and stationary, as buildings usually are. It is no novelty that it should contain an elevating device, and that the latter should raise the grain to the hopper-scale, and should discharge it either into a bin or a vessel, or into another car. In principle it makes no difference which.

In fact, the combination claimed is a pure aggregation, and the decree of the court dismissing the bill is, therefore, affirmed.

[Rehearing denied, 159 U. S. 477, 40 L. ed. 225.]

121. FOWLER v. NEW YORK, 121 Fed. 747, 58 C. C. A. 113, (1903, Second Circuit).

Before Wallace and Coxe, Circuit Judges.

Coxe, Circuit Judge: This is an equity action for the threatened infringement of letters patent, No. 570,451, granted November 3,

1896, to Benjamin F. Carpenter for a "bitransit railway system." The specification contains five double-column pages of description and ten claims. It explains with painstaking elaboration and minuteness the difficulties encountered in providing rapid transit in large cities and the remedies proposed by the patentee for overcoming these difficulties.

The defendants demurred upon the ground that the patent upon its face discloses an entire lack of patentable novelty and that the claims are not for combinations but for aggregations merely. The demurrer was sustained and the bill dismissed. The complainant appeals.

The first proposition argued is that the patent cannot be considered for the reason that it is not set out in extenso in the bill or attached thereto. [Overruled.] * * *

After describing generally what he proposes to accomplish the patentee says:

"From the above description it will be perceived that my invention furnishes a new method of handling the passengers to secure quick delivery at various points between the ends of an express route."

In other words, the patent describes a new plan for handling the large number of passengers who patronize the public vehicles provided for rapid transit in large cities. It is argued that this is patentable as a "machine" under the language of the statute just quoted.

If a scheme for handling the traveling public in congested districts can, for patent purposes, be regarded as a machine, it is by no means easy to perceive why a new plan for reorganizing the police force, or mobilizing the army or manipulating the guests at crowded public functions, may not also be aptly described as a machine and patented as such.

Conceding, arguendo, that a plan such as is disclosed in the Carpenter patent may, if new and useful, be patented as a machine, it is manifest that no mere abstraction, no idea, however brilliant, can be the subject of a patent irrespective of the means designed to give it effect.

* * *

After giving careful consideration to the arguments advanced on behalf of the complainant we find it impossible to discover any ground for sustaining the patent. The rapid transit problem has been for years a most serious one, especially in the city of New York where the principal obstacles have been lack of space and lack of money to complete such a tremendous undertaking as a suitable subway. Given a four-track road devoted wholly to the transportation of passengers and any competent railroad engineer would know at once how to manage it. He would know where to locate the

stations, loops and switches, and he would assuredly arrange for the ingress and egress of passengers so that they would not be compelled to cross the tracks at grade. To plan all these details would undoubtedly require ability of a high order, but not inventive genius. The organizer of such a system would have all the materials ready at his hand with nothing remaining but to adapt them to the new environment.

The court will take judicial knowledge of the fact that for a quarter of a century, at least, it has been customary for travelers living at small towns to take local trains to large cities, remain at the station and, upon the arrival of the express, cross the platform and board it. Even if it be true that, prior to 1895, the trains on either side of island platforms ran in opposite directions, it surely did not involve an exercise of the inventive faculties to run these trains in the same direction. As before pointed out the reason why this was not done before is that there was no necessity for it. The moment that a four-track passenger railroad was projected the wisdom of such an arrangement was obvious.

The case of Richards v. Chase Elevator Co., 158 U. S. 299, 15 Sup. Ct. 831, 39 L. ed. 991, is directly in point. The alleged invention consisted in apparatus for transferring grain from one car to another. The court held the patent void on demurrer and, in order to emphasize the absurdity of the complainant's contention, used language which seems almost prophetic of the "bitransit system." The court says:

"Suppose, for instance, it were old to run a railroad track into a station or depot for the reception and discharge of passengers, it certainly would not be patentable to locate such station between two railroad tracks for the reception of passengers on both sides, and to add to the accommodations a ticket office, a newspaper stand, restaurant, and cigar stand, or the thousand and one things that are found in buildings of that character."

Compare this language with the following quotation from the Carpenter patent:

"Safe and convenient access to the transfer platforms is then effected by extending staircases upward or downward to the street (as the case may be), and the platforms thus furnish not only the shortest and easiest means of transfer between the cars of the slow and fast trains, but may, when required, afford means of access to and from the street and accommodations for station purposes with ticket office and waitingroom."

We have considered each of the claims separately and find that the same difficulty is applicable to all, namely an entire lack of patentable novelty.

We are of the opinion that the decree of the Circuit Court is right and should be affirmed, with costs.

122. PELTON WATER WHEEL CO. v. DOBLE, 190 Fed. 760, (C. C. A.) (1911, Ninth Circuit).

Before Gilbert and Morrow, Circuit Judges, and Hanford, District Judge.

Gilbert, C. J.:

* * * It is contended that the claims of the Doble patent cover a mere aggregation of elements, and not a true combination. An aggregation is the mere assembling of separate elements without changing their respective separate functions or accomplishing any result other than the added results of those functions. In order to be patentable, a combination of elements must in their co-relation produce a different force, or effect, or result, from the sum of that which is produced by their separate parts. Reckendorfer v. Faber, 92 U. S. 347, 23 L. ed. 719. It is not necessary that each element in performing its own function shall also modify the function performed by the others. Hailes v. Van Wormer, 20 Wall. 353, 22 L. ed. 241. It is generally sufficient if there be such co-action that a result is produced which is new, and the result is new if it is substantially a better result than that which has been accomplished by other combinations. Loom Co. v. Higgins, 105 U. S. 580, 26 L. ed. 1177.

The fact that there is novelty in one of the elements, as in the present case in the change of the plane of the nozzle pivot, does not justify a claim to a combination of the elements; unless there is co-action between them to produce a new result, and a combination is not unpatentable merely because the result might have been accomplished by other combinations. The claims of the patent in suit cover a hydraulic apparatus consisting of an impact wheel with buckets, a nozzle pipe of double curved form for directing a stream of water upon the buckets, means for varying the amount of water discharged from the nozzle, and a supply pipe to which the nozzle is pivoted on an axis in the plane of its sinuosity, and substantially parallel to the axis of the wheel. We think there can be no question that the elements so described co-operate to produce a single result, which is the perfect regulation of the jet, together with the greatest practical economy of water. The means for varying the amount of water discharged from the nozzle is the needle valve, and this not only controls the volume of the jet, but through the action of the governor it also controls the direction of the jet. The nozzle pivoted to the pipe line in a plane at right angles to the plane of its curvature renders the nozzle sensitive to the deflecting power of the governor. The result is a successfully working combination, one that marks a distinct improvement upon any prior combination. This result would not be produced by the elements in their separated state, or as assembled in a mere aggregation without co-operation and functional relations to each other. In the oral argument coun-

sel for the appellant laid stress upon the fact that the needle valve does not act automatically, and contended that the necessity for manual operation thereof to increase or decrease the flow of water through the nozzle indicates lack of co-action of all the elements of the patented combination. It is the opinion of the court, however, that this is not a reliable test of a patentable combination applicable to this case, since the needle valve does by its action, in the combination, contribute to the production of the desired result.

* * *

123. ATLAS CEMENT CO. v. SANDUSKY CEMENT CO., 196 Fed. 385, 398 (C. C. A.) (1912, Seventh Circuit.)

Before Grosscup, Baker and Kohlsaat, Circuit Judges.

Baker, Circuit Judge:

* * *

Hurry and Seaman were the first to burn powdered coal with commercially successful results in rotary kilns. So were the patentees in Westinghouse v. Boyden, 170 U. S. 537, 18 Sup. Ct. 707, 42 L. ed. 1136, Kokomo Co. v. Kitselman, 189, U. S. 8, 23 Sup. Ct. 521, 47 L. ed. 689; Cimiotti v. Fur. Co., 198 U. S. 408, 25 Sup. Ct. 697, 49 L. ed. 1100, and many other cases, the first to achieve their disclosed results. But that fact is not sufficient to shut off the public from using the common knowledge and the common skill in adapting other devices to produce the same result by a different principle of operation, especially where every underlying concept is old and has been fully disclosed. The decree is affirmed.

124. COFFIN v. OGDEN, 85 U. S. 120, L. ed. 821. (Patent Reissue No. 1390.)

Opinion by Mr. Justice Swayne:

* * * The appellant was the complainant in the court below, and filed this bill to enjoin the defendants from infringing the patent upon which the bill is founded. The patent is for a door lock with a latch reversible, so that the lock can be applied to doors opening either to the right or the left hand. It was granted originally on the 11th of June, 1861, to Charles R. Miller, assignee of William S. Kirkham, and reissued to Miller on the 27th of January, 1863. On the 10th of June, 1864, Miller assigned the entire patent to the complainant. No question is raised as to the complainant's title, nor as to the alleged infringement by the defendants. The answer alleges that the thing patented, or a material and substantial part thereof, had been, prior to the supposed invention thereof by Kirkham, known and used by divers persons in the United States, and that among them were Barthol Erbe, residing at Birmingham, near Pittsburg, and Andrew Patterson, Henry Masta, and Bernard

Brossi, residing at Pittsburg, and that all these persons had such knowledge at Pittsburg. The appellees insist that Erbe was the prior inventor, and that this priority is fatal to the patent. This proposition, in its aspects of fact and of law, is the only one which we have found it necessary to consider.

Kirkham made his invention in March, 1861. This is clearly shown by the testimony, and there is no controversy between the parties on the subject.

It is equally clear that Erbe made his invention not later than January 1st, 1861. This was not controverted by the counsel for the appellant; but it was insisted that the facts touching that invention were not such as to make it available to the appellees, as against the later invention of Kirkham and the patent founded upon it. This renders it necessary to examine carefully the testimony upon the subject.

* * *

There is no proof that Erbe made any locks according to his invention here in question but those mentioned in his testimony. He applied for a patent in 1864, and failed to get it. Why, is not disclosed in the record.

The appellants called no witnesses at Pittsburg or elsewhere to contradict or impeach those for the appellees. Brossi was subjected to a rigorous cross-examination, but, in our judgment, it in nowise diminishes the effect of his testimony in chief. The counsel for the appellants asked with emphasis, in the argument here, why the defendants had not called Jones, of the firm of Jones, Wallingford & Co.? The question was well retorted, why was he not called by the other side? He does not appear in a favorable light. He prevented Erbe, who was in his employ from going to New York to testify in behalf of the defendants, and avowed a determination to prevent, if it were possible, their obtaining the testimony of Brossi, Masta, and Patterson. It is difficult not to regard him with a feeling akin to that which attends the presumptions *in odium spoliatoris*. We entertain no doubt that the testimony of all these witnesses is true in every particular, including the statement of Brossi as to putting the lock on the door. If that were false, doubtless Jones would have been called to gainsay it. His hostility to the defendants is a sufficient reason for their not calling him for any purpose.

The case arose while the Patent Act of 1836 was in force, and must be decided under its provisions. The sixth section of that act requires that to entitle the applicant to a patent, his invention or discovery must be one "not known or used by others before his invention or discovery thereof." The fifteenth section allowed a party sued for infringement to prove, among other defenses, that the

patentee "was not the original and first inventor of the thing patented, or of a substantial and material part thereof claimed to be new."

The whole act is to be taken together and construed in the light of the context. The meaning of these sections must be sought in the import of their language, and in the object and policy of the legislature in enacting them. The invention or discovery relied upon as a defense, must have been complete, and capable of producing the result sought to be accomplished; and this must be shown by the defendant. The burden of proof rests upon him, and every reasonable doubt should be resolved against him. If the thing were embryotic or inchoate; if it rested in speculation or experiment; if the process pursued for its development had failed to reach the point of consummation, it cannot avail to defeat a patent founded upon a discovery or invention which was completed, while in the other case there was only progress, however near that progress may have approximated to the end in view. The law requires not conjecture, but certainty. If the question relate to a machine, the conception must have been clothed in substantial forms which demonstrate at once its practical efficacy and utility. The prior knowledge and use by a single person is sufficient. The number is immaterial. (Beford v. Hunt, 1 Mason 302). Until his work is done, the inventor has given nothing to the public. In Gayler v. Wilder, the views of this court upon the subject were thus expressed: "We do not understand the Circuit Court to have said that the omission of Conner to try his safe by the proper tests would deprive it of its priority; nor his omission to bring it into public use. He might have omitted both, and also abandoned its use and been ignorant of the extent of its value; yet if it was the same with Fitzgerald's, the later would not, upon such grounds, be entitled to a patent; provided Conner's safe and its mode of construction were still in the memory of Conner before they were recalled by Fitzgerald's patent." Whether the proposition expressed by the proviso in the last sentence is a sound one, it is not necessary in this case to consider.

Here it is abundantly proved that the lock originally made by Erbe "was complete and capable of working." The priority of Erbe's invention is clearly shown. It was known at the time to at least five persons, including Jones, and probably to many others in the shop where Erbe worked; and the lock was put in use, being applied to a door, as proved by Brossi. It was thus tested and shown to be successful. These facts bring the case made by the appellees within the severest legal tests which can be applied to them. The defense relied upon is fully made out.

125. BRUSH v. CONDIT, 132 U. S. 39, 33 L. ed. 251, 10 Sup. Ct. 1 (1889).

* * *

Blatchford, J.: This is an appeal by the plaintiffs, Charles F. Brush and the Brush Electric Company, in a suit in equity brought by them in the circuit court of the United States for the southern district of New York, against C. Harrison Condit, Joseph Hanson, and Abraham Van Winkle, from a decree dismissing, with costs, their bill of complaint, so far as it relates to reissued letters patent No. 8,718, granted May 20, 1879, to Charles F. Brush, one of the plaintiffs, for "improvements in electric lamps," on an application for a reissue filed April 14, 1879, the original letters patent, No. 203,411, having been granted to said Brush, May 7, 1878, on an application filed September 28, 1877. The rights of the plaintiffs were finally rested upon an alleged infringement of claims 1, 3, 5, and 6 of the reissue. Another patent was sued on in the case, but at the final hearing the bill in regard to it was dismissed with costs, on motion of the plaintiffs. * * *

In this automatic arrangement the electric arc is established, and then, as the electrodes are consumed, the arc is regulated by causing the strength of the current and the length of the arc mutually to control each other. There is no clock-work or other extraneous power, but the action of the electric current alone effects the necessary movements. The electrodes tend to move towards each other at all times, and this tendency is opposed by the electro-magnetic action, which tends to separate them. These opposing forces are designed to be in equilibrium when the electrodes are at such a distance from each other as will produce the maximum development of light with a given electric current. It was to an electric arc lamp of this character that the invention of Brush was to be applied. * * *

Claims 1, 3, 5 and 6 of the reissue, on which alone recovery is sought, read as follows, there being eight claims in all in the reissue as granted: "(1) In an electric lamp, the combination, with the carbon holder and core, of a clamp surrounding the carbon holder, said clamp being independent of the core, but adapted to be raised by a liiter secured thereto, substantially as set forth." "(3) In an electric lamp, the combination of the core or armature, C, the clamp, D, and adjustable stop, D^1, or their equivalents, whereby the points of the carbons are separated from each other when an electrical current is established,—prevented from separating so as to break the current,—and gradually fed together as the carbons are consumed, substantially as described." "(5) In an electric lamp, the combination, with a carbon holder, of an annular clamp surrounding the carbon holder, said clamp adapted to be moved, and thereby to separate the carbon points by electrical or magnetic action, substantially as herein set forth. (6) In an electric lamp, an annular clamp adapted to grasp and move a carbon holder, substantially as shown."

What is called in these claims "the clamp, D," is the ring of metal which surrounds the rod or carbon holder. The specification of the reissue, as granted, contained the following paragraphs: "I do not limit myself narrowly to the ring, D, as other devices may be employed which would accomplish the same result. Any device may be used which, while a current of electricity is not passing through the helix, A, will permit the rod, B, to move freely up and down, but which, when a current of electricity is passing through the helix, will, by the raising of the core, C, operate both to clamp and to raise the rod, B, and thereby separate the carbon points, F, F′, and retain them in proper relation to each other." * * *

"Two facts are manifest: (1) That the Hayes clamp was the clamp of the Brush patent; and (2) that it became, after September 16th, a disused piece of mechanism in connection with carbon points. The question then is, was it a perfected and publicly known invention, the use of which was abandoned prior to the date of the Brush invention, or was its use merely experimental, which ended in an abandoned experiment on September 16th?" * * *

"But the facts that the anticipatory device was the device of the patent, and did do practical work, and was put to ordinary use, and that it does not appear that the Hayes clamp was the cause of the neglect with which Wallace & Sons treated the Hayes lamp, seem to me to outweigh the doubts which arise from the shortness of its existence, and its permanent disappearance from a carbon pencil lamp. The case is that of the public, well-known, practical use, in ordinary work, with as much success as was reasonable to expect at that stage in the development of the mechanism belonging to electric arc lighting, of the exact invention which was subsequently made by the patentee; and although only one clamp and one lamp were ever made, which were used together two and one-half months only, and the invention was then taken from the lamp, and was not afterwards used with carbon pencils, it was an anticipation of the patented device, under the established rules upon the subject. With a strong disinclination to permit the remains of old experiments to destroy the pecuniary value of a patent for a useful and successful invention, and remembering that the defendants must assume a weighty burden of proof, I am of the opinion that the patentee's invention has been clearly proved to have been anticipated by that of Hayes. Coffin v. Ogden, 18 Wall. 120; Reed v. Cutter, 1 Story 590; Pickering v. McCullough, 104 U. S. 310; Curt. Pat. §§ 89-92. The bill, so far as it relates to the clamp patent, is dismissed."

We have examined carefully the evidence, in this case, relied upon by the plaintiffs to show that the clamp arrangement of Hayes was not a perfected invention, but was merely an abandoned experiment, and we have arrived at the conclusion that Judge Shipman's

views on the subject are correct. They are well and accurately expressed, and we could not add to their force by a prolonged discussion of what is purely a question of fact. The cases of Coffin v. Ogden and Pickering v. McCullough, cited by Judge Shipman, are enforced by the case of Hall v. Macneale, 107 U. S. 90, 97. This latter case meets, also, the objection made by the appellants that the mechanism of the Hayes clutch was concealed from view, and the further objection that it would not operate as perfectly as that of the Brush invention. * * *

It is contended by the appellants that, notwithstanding the prior existence of the Hayes apparatus as a perfected invention, claims 5 and 6 of the reissue are sustainable, because each of them is limited to an "annular clamp." It is urged that the clamp of the patent is a ring which surrounds a cylindrical rod, and that the rod in the Hayes apparatus was square or rectangular, and was surrounded by a rectangular clamp. But it is quite apparent that claims 5 and 6 of the reissue would, if the patent were valid, be infringed by the manufacture and use of the patented apparatus with a rectangular carbon rod surrounded by a rectangular clamp. Such an apparatus might be inferior in perfection and utility to the cylindrical rod with the ring clamp, but it would still embody the principle of the invention, carried out by equivalent means. The improvement, if any, in the use of the circular clamp over the rectangular clamp was only a question of degree in the use of substantially the same means. We are of the opinion that the decree of the circuit court must be affirmed, and it is so ordered.

126. NATIONAL CASKET CO. v. STOLTS, 157 Fed. 392, 85 C. C. A. 300, (1907, Second Circuit, Patent No. 619,567).

Before Lacombe, Coxe, and Ward, Circuit Judges.

Coxe, Circuit Judge: The patent has been so thoroughly discussed in all aspects in the opinions heretofore delivered that it is unnecessary to review the testimony at length. Any one interested in the subject will find the salient features of the prior art, as it existed in the suit pending before Judge Hazel, described in his opinion together with a succinct statement of his reasons for holding the patent invalid. The opinion of Judge Ray presents the argument in favor of patentability briefly and clearly.

We are convinced that the evidence of prior use, presented for the first time in the case at bar, establishes the invalidity of the Hamilton patent. The claim is as follows:

"The combination with a burial casket, of a face-plate comprising a stretched sheet of transparent non-brittle gauze fabric."

The material may be "some comparatively transparent yielding non-brittle fabric, such as silk or wire gauze." The cover of the casket may be of any ordinary form and the face-plate may be at-

tached to the cover by a sliding connection or otherwise. It is manifest, therefore, that a face-plate of transparent non-brittle gauze fabric, whether of silk, cotton or wire, irrespective of the color of the fabric, the fineness of the mesh or the method of attachment, will infringe the claim, and such a structure, if found in the prior art, will anticipate.

Charles H. Magie, Charles Sutton, Knut Nelson, Aaron B. Riggins, William H. Estwick, Lottie Hallock, John D. Ripson and others, testify to having seen such structures long prior to the date of the application. Although the record in the former suit is not before us, it would seem that this testimony was taken for the first time in the present action. We understand the appellant's brief so to state, and the dates when the above named witnesses were sworn were, in each instance, subsequent to the former decision. It is unnecessary to review this testimony in its entirety, as that of Aaron B. Riggins clearly presents the prior use by Taylor & Co. which will serve as a sufficient illustration.

Riggins was sworn March 29, 1906. He was then 48 years old and his business was that of sexton of the Marble Collegiate Church, Fifth avenue, New York. He was also an undertaker, having been in that business over 20 years. He was first employed by Taylor & Co. in 1886 and remained till 1903. From 1886 to 1892 Taylor & Co. occasionally used illusion as a face covering. It was used by being tacked at one end and laid over the opening in the casket, and occasionally it was tacked all the way over the opening. The illusion used was black and white, cotton and silk. The caskets in which black silk illusion was stretched over the face opening and tacked all around were elliptic end caskets, three quarters of the frame being cut out. The cover was not in one piece but was cut through. The black silk illusion was drawn as perfectly smooth as it could be and was tacked all around, over the opening. This was done many times between 1886 and 1892. A small model, consisting of an infant's casket which is clearly within the claim, was presented to the witness and he testified that it showed the illusion tacked over the face opening, head, end and both sides, as in the caskets he had prepared from 1886 to 1892. The witness was subjected to a long and able cross-examination but we are unable to find that his testimony was shaken in any important particular. Unquestionably he swears to numerous instances of prior use. The question for us to determine is, are we warranted in rejecting his testimony as perjury; for there seems to be no middle course. We are clearly of the opinion that such a rejection would be unjustifiable for the following reasons:

First: The witness is a man occupying an important position in which mendacity would not be countenanced, and, so far as the record shows there is no stain upon his character.

Second: He is in the prime of life, of sound mind and memory,

and, therefore, likely to remember the important details of a business in which he has been engaged for over twenty years.

Third: He was a disinterested witness and when he imparted to Mr. Taylor his knowledge of the use of illusion as a face-plate in the past, he did not know of the pendency of this action.

Fourth: In view of the undisputed fact that long prior to the patent silk illusion, or veiling, had been tacked at the head of the casket and laid loosely over the face and upper part of the body, it does not appear at all extraordinary that, when occasion arose, the tacking should have extended to the sides and end; it seems the natural thing to have done.

Fifth: This is not the case, which so frequently occurs, where a witness, having no knowledge of the art in question, testifies as to the minute details of a complicated machine or a complex chemical process which he saw years before. We are now dealing with a witness, concededly familiar with the art, who narrates acts of his own, so simple in character that he can hardly be mistaken regarding them. A carpenter's description of a compound wound dynamo seen by him ten years before might well be received with grains of allowance, but if the question were whether a bookcase built by him at that time was provided with glass doors or curtains, his statement would probably be received without cavil. So it would seem that an undertaker who swears that he tacked silk illusion in a casket as a face-plate, cannot be laboring under a misapprehension. Either the face-plate was attached as he testifies or he is guilty of a deliberate falsehood. As before stated, we regard the latter supposition as an impossible alternative.

Sixth: Riggins is corroborated by a number of witnesses whose testimony though relating to different instances is, substantially, to the same effect as his.

Seventh: The only criticism of his testimony found in complainant's brief is, that he was unable to state definitely how the weave of the illusion used by him compared with that used by the complainant —a sample being shown him. He answered: "I could not testify that it was as fine a weave as that." We believe Riggins to be an honest truthful man, and we cannot resist the conclusion that the defense of prior use has been proved beyond a reasonable doubt.

It follows that the decree is reversed with costs and the cause is remanded to the Circuit Court with instructions to dismiss the bill.

127. **McFARLAND v. SPENCER, 23 Fed. 150 (1885, C. C. N. Y.).**

Coxe, J.: The complainants are the owners of letters patent No. 76,491, issued to William McFarland and John H. Campbell, April 7, 1868, for a metal tenon for blind-slats. The object of the invention is to provide tenons for blind-slats when the original tenons are broken off or injured so as to become inoperative. * * *

The advantages of the invention are economy, simplicity, symmetry, and durability. It is much cheaper to use the metal tenon than to remove the slat. A person possessed of a pocket-knife and a very limited amount of mechanical skill can make the repair. Prior to the invention, it was necessary to take down the blind, separate the frame, remove the broken slat, substitute the new slat, attach it to the hand-rod which operates the series of slats, and readjust the frame. All this required time and skill, was expensive and inconvenient, and when the work was done it was found almost impossible to make the new slat correspond in color with the old ones. The device is an exceedingly simple and unpretending one,—so simple that, to one who sees it now, the wonder is that it did not occur to some one long before the date of the patent. But it never did. Criticism that an invention is so plain that it must be perceived by all, comes with poor grace from those who did not themselves perceive it.

The answer is confined to specific denials of the allegations of the complaint; no affirmative defense is pleaded. The defendants introduced in evidence a patent granted to George R. Clark, March 5, 1867, for an "improved metallic blind-slat, clasp, and pivot." It consists of a metal cap, carrying a tenon, which fits on the end of the slat. The merits claimed for it are that it prevents longitudinal splitting, and furnishes a pivot of great durability for the slat to turn on. Should a tenon become broken, the frame must necessarily be dismembered, precisely as in the case of the wooden tenon, in order to repair it. The Clark device is wholly dissimilar from that of the complainants'. The defendants also, under objection, introduced testimony showing that in 1837 or 1838, 200 tenons were made, to fill a special order, out of 16-gauge strap-iron, the strap being bent so as to grasp the slat on both sides, and a pivot to swivel the slat being riveted to the bent end. These tenons could not be used for purposes of repair, except by taking the frame apart. It required mechanical skill to apply them, and they could be made only on special order, as it was necessary that they should exactly fit the slat. The defendants also proved that between 1849 and 1851 the iron shutter of a building on Reade street, New York, was repaired with a tenon like the complainants'; also that in 1844 and 1846, in Germany, similar tenons were used in the original construction of iron shutters, and that for 300 years shutters so made had been used in the tower of the church at Wittemberg, to the front door of which Martin Luther nailed his theses. It will be seen that even had the defendants pleaded prior use, as required by section 4920 of the Revised Statutes, there is nothing in this testimony which anticipates the complainants' invention. There is no allegation that the inventor or other persons here had knowledge of the alleged prior use in Germany; but in any view the evidence is wholly inadequate to defeat the patent. As showing the state of the art, the testimony, though

involved in obscurity and doubt, may be admissible, and, were the question one of infringement, such proof might require the narrow construction of a broad claim; but it is obvious that it cannot avail the defendants where they deal in the identical contrivance covered by the patent. No one, so far as the record shows, ever used, prior to the patent, tenon like the complainants', on wooden blind-slats, for the purposes of repair. This is what the invention covers.

There should be a decree for the complainants for an injunction and an account, with costs.

128. ELIZABETH v. AMERICAN PAVEMENT CO., 97 U. S. 126, 24 L. ed. 1000 (1878, Patent Reissue No. 2748).

Bradley, J.:

* * *

The next question to be considered is, whether Nicholson's invention was in public use or on sale, with his consent and allowance, for more than two years prior to his application for a patent, within the meaning of the sixth, seventh and fifteenth sections of the act of 1836, as qualified by the seventh section of the act of 1839, which were the acts in force in 1854, when he obtained his patent. It is contended by the appellants that the pavement which Nicholson put down by way of experiment, on Mill-dam Avenue in Boston, in 1848, was publicly used for the space of six years before his application for a patent, and that this was a public use within the meaning of the law.

To determine this question, it is necessary to examine the circumstances under which this pavement was put down, and the object and purpose that Nicholson had in view. It is perfectly clear from the evidence that he did not intend to abandon his right to a patent. He had filed a caveat in August, 1847, and he constructed the pavement in question by way of experiment, for the purpose of testing its qualities. The road in which it was put down, though a public road, belonged to the Boston and Roxbury Mill Corporation, which received toll for its use; and Nicholson was a stockholder and treasurer of the corporation. The pavement in question was about seventy-five feet in length, and was laid adjoining to the toll-gate and in front of the toll-house. It was constructed by Nicholson at his own expense, and was placed by him where it was, in order to see the effect upon it of heavily loaded wagons, and of varied and constant use; and also to ascertain its durability, and liability to decay. Joseph L. Lang, who was toll-collector for many years, commencing in 1849, familiar with the road before that time, and with this pavement from the time of its origin, testified as follows: "Mr. Nicholson was there almost daily, and when he came he would examine the pavement, would often walk over it, cane in hand, striking it with

his cane, and making particular examination of its condition. He asked me very often how people liked it, and asked me a great many questions about it. I have heard him say a number of times that this was his first experiment with this pavement, and he thought that it was wearing very well. The circumstances that made this locality desirable for the purpose of obtaining a satisfactory test of the durability and value of the pavement were: that there would be a better chance to lay it there; he would have more room and a better chance than in the city; and, besides, it was a place where most everybody went over it, rich and poor. It was a great thoroughfare out of Boston. It was frequently traveled by teams having a load of five or six tons, and some larger. As these teams usually stopped at the toll-house, and started again, the stopping and starting would make as severe a trial to the pavement as it could be put to."

This evidence is corroborated by that of several other witnesses in the cause; the result of the whole being that Nicholson merely intended this piece of pavement as an experiment, to test its usefulness and durability. Was this a public use, within the meaning of the law?

An abandonment of an invention to the public may be evinced by the conduct of the inventor at any time, even within the two years named in the law. The effect of the law is, that no such consequence will necessarily follow from the invention being in public use or on sale, with the inventor's consent and allowance, at any time within two years before his application; but that, if the invention is in public use or on sale prior to that time, it will be conclusive evidence of abandonment, and the patent will be void.

But, in this case, it becomes important to inquire what is such a public use as will have the effect referred to. That the use of the pavement in question was public in one sense cannot be disputed. But can it be said that the invention was in public use? The use of an invention by the inventor himself, or of any other person under his direction, by way of experiment, and in order to bring the invention to perfection, has never been regarded as such a use. Curtis, Patents, sec. 381; Shaw v. Cooper, 7 Pet. 292.

Now, the nature of a street pavement is such that it cannot be experimented upon satisfactorily except on a highway, which is always public.

When the subject of invention is a machine, it may be tested and tried in a building, either with or without closed doors. In either case, such use is not a public use, within the meaning of the statute, so long as the inventor is engaged, in good faith, in testing its operation. He may see cause to alter it and improve it, or not. His experiments will reveal the fact whether any and what alterations may be necessary. If durability is one of the qualities to be attained, a long period, perhaps years, may be necessary to enable the inven-

tor to discover whether his purpose is accomplished. And though, during all that period, he may not find that any changes are necessary, yet, he may be justly said to be using his machine only by way of experiment; and no one would say that such a use, pursued with a *bona fide* intent of testing the qualities of the machine, would be a public use, within the meaning of the statute. So long as he does not voluntarily allow others to make it and use it, and so long as it is not on sale for general use, he keeps the invention under his own control, and does not lose his title to a patent.

It would not be necessary, in such a case, that the machine should be put up and used only in the inventor's own shop or premises. He may have it put up and used in the premises of another, and the use may inure to the benefit of the owner of the establishment. Still, if used under the surveillance of the inventor, and for the purpose of enabling him to test the machine, and ascertain whether it will answer the purpose intended, and make such alterations and improvements as experience demonstrates to be necessary, it will still be a mere experimental use, and not a public use, within the meaning of the statute.

Whilst the supposed machine is in such experimental use, the public may be incidentally deriving a benefit from it. If it be a grist-mill, or a carding-machine, customers from the surrounding country may enjoy the use of it by having their grain made into flour, or their wool into rolls, and still it will not be in public use, within the meaning of the law.

But if the inventor allows his machine to be used by other persons generally, either with or without compensation, or if it is, with his consent, put on sale for such use, then it will be in public use and on public sale, within the meaning of the law.

If, now, we apply the same principles to this case, the analogy will be seen at once. Nicholson wished to experiment on his pavement. He believed it to be a good thing, but he was not sure; and the only mode in which he could test it was to place a specimen of it in a public roadway. He did this at his own expense, and with the consent of the owners of the road. Durability was one of the qualities to be attained. He wanted to know whether his pavement would stand, and whether it would resist decay. Its character for durability could not be ascertained without its being subjected to use for a considerable time. He subjected it to such use, in good faith, for the simple purpose of ascertaining whether it was what he claimed to be. Did he do anything more than the inventor of the supposed machine might do, in testing his invention? The public had the incidental use of the pavement, it is true; but was the invention in public use, within the meaning of the statute? We think not. The proprietors of the road alone used the invention, and used it at Nicholson's request, by way of experiment. The only

way in which they could use it was by allowing the public to pass over the pavement.

Had the city of Boston, or other parties, used the invention, by laying down the pavement in other streets and places, with Nicholson's consent and allowance, then, indeed, the invention itself would have been in public use, within the meaning of the law; but this was not the case. Nicholson did not sell it, nor allow others to use it or sell it. He did not let it go beyond his control. He did nothing that indicated any intent to do so. He kept it under his own eyes, and never for a moment abandoned the intent to obtain a patent for it.

In this connection, it is proper to make another remark. It is not a public knowledge of his invention that precludes the inventor from obtaining a patent for it, but a public use or sale of it. In England, formerly, as well as under our Patent Act of 1793, if an inventor did not keep his invention secret, if a knowledge of it became public before his application for a patent, he could not obtain one. To be patentable, an invention must not have been known or used before the application; but this has not been the law of this country since the passage of the act of 1836, and it has been very much qualified in England. Lewis v. Marling, 10 B. & C. 22. Therefore, if it were true that during the whole period in which the pavement was used, the public knew how it was constructed, it would make no difference in the result.

It is sometimes said that an inventor acquires an undue advantage over the public by delaying to take out a patent, inasmuch as he thereby preserves the monopoly to himself for a longer period than is allowed by the policy of the law; but this cannot be said with justice when the delay is occasioned by a *bona fide* effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended. His monopoly only continues for the allotted period, in any event; and it is in the interest of the public, as well as himself, that the invention should be perfect and properly tested, before a patent is granted for it. Any attempt to use it for a profit, and not by way of experiment, for a longer period than two years before the application, would deprive the inventor of his rights to a patent. * * *

129. EGBERT v. LIPPMANN, 104 U. S. 333, 26 L. ed. 755 (1881, Patent Reissue No. 5216).

Woods, J.:

* * *

The question for our decision is, whether this testimony shows a public use within the meaning of the statute.

We observe, in the first place, that to constitute the public use of an invention it is not necessary that more than one of the pat-

ented articles should be publicly used. The use of a great number may tend to strengthen the proof, but one well-defined case of such use is just as effectual to annul the patent as many. (McClurg v. Kingsland, 1 How. 202; Consolidated Fruit-Jar Co. v. Wright, 94 U. S. 92; Pitts v. Hall, 2 Blatchf. 229.) For instance, if the inventor of a mower, a printing-press, or a railway-car makes and sells only one of the articles invented by him, and allows the vendee to use it for two years, without restriction or limitation, the use is just as public as if he had sold and allowed the use of a great number.

We remark, secondly, that, whether the use of an invention is public or private does not necessarily depend upon the number of persons to whom its use is known. If an inventor, having made his device, gives or sells it to another, to be used by the donee or vendee, without limitation or restriction, or injunction of secrecy, and it is so used, such use is public, even though the use and knowledge of the use may be confined to one person.

We say, thirdly, that some inventions are by their very character only capable of being used where they cannot be seen or observed by the public eye. An invention may consist of a lever or spring, hidden in the running gear of a watch, or of a rachet, shaft, or cog-wheel covered from view in the recesses of a machine for spinning or weaving. Nevertheless, if its inventor sells a machine of which his invention forms a part, and allows it to be used without restriction of any kind, the use is a public one. So, on the other hand, a use necessarily open to public view, if made in good faith solely to test the qualities of the invention, and for the purpose of experiment, is not a public use within the meaning of the statute. Elizabeth v. Pavement Co., 97 U. S. 126; Shaw v. Cooper, 7 Pet. 292.

Tested by these principles, we think the evidence of the complainant herself shows that for more than two years before the application for the original letters there was, by the consent and allowance of Barnes, a public use of the invention, covered by them. He made and gave to her two pairs of corset-steels, constructed according to his device, one in 1855 and one in 1858. They were presented to her for use. He imposed no obligation of secrecy, nor any condition or restriction whatever. They were not presented for the purpose of experiment, nor to test their qualities. No such claim is set up in her testimony. The invention was at the time complete, and there is no evidence that it was afterwards changed or improved. The donee of the steels used them for years for the purpose and in the manner designed by the inventor. They were not capable of any other use. She might have exhibited them to any person, or made other steels of the same kind, and used or sold them without violating any condition or restriction imposed on her by the inventor.

According to the testimony of the complainant, the invention was completed and put to use in 1855. The inventor slept on his rights for eleven years. Letters-patent were not applied for till March, 1866. In the meantime, the invention had found its way into general, and almost universal, use. A great part of the record is taken up with the testimony of the manufacturers and venders of corset-steels, showing that before he applied for letters the principle of his device was almost universally used in the manufacture of corset-steels. It is fair to presume that having learned from this general use that there was some value in his invention, he attempted to resume, by his application, what by his acts he had clearly dedicated to the public.

"An abandonment of an invention to the public may be evinced by the conduct of the inventor at any time, even within the two years named in the law. The effect of the law is that no such consequence will necessarily follow from the invention being in public use or on sale, with the inventor's consent and allowance, at any time within two years before his application; but that, if the invention is in public use or on sale prior to that time, it will be conclusive evidence of abandonment, and the patent will be void." Elizabeth v. Pavement Company, supra.

We are of opinion that the defense of two years' public use, by the consent and allowance of the inventor, before he made application for letters-patent, is satisfactorily established by the evidence.

Decree affirmed.

Mr. Justice Miller, dissenting. * * *

130. HALL v. MACNEALE, 107 U. S. 90, 27 L. ed. 367, 2 Sup. Ct. 73 (1883, Patent 67,046).

Blatchford, J.:

* * * Within the meaning of sections 7 and 15 of the act of 1836, as modified by section 7 of the act of 1839, the invention covered by claim 3 of the patent in suit was in use and on sale more than two years before the appellant applied for that patent, and such use and sale were, also, with the consent and allowance of the appellant, and the use was a public use. It is contended that the safes were experimental, and that the use was a use for experiment. But we are of opinion that this was not so, and that the case falls within the principle laid down by this court in Coffin v. Ogden, 18 Wall. 120. The invention was complete in those safes. It was capable of producing the results sought to be accomplished, though not as thoroughly as with the use of welded steel and iron plates. The construction and arrangement and purpose and mode of operation and use of the bolts in the safes were necessarily known to the workmen who put them in. They were, it is true, hidden from view, after the safes were completed, and it required a destruction of

the safe to bring them into view. But this was no concealment of them or use of them in secret. They had no more concealment than was inseparable from any legitimate use of them. As to the use being experimental, it is not shown that any attempt was made to see if the plates of the safe could be stripped off, and thus to prove whether or not the conical bolts were efficient. The safes were sold, and, apparently, no experiment and no experimental use were thought to be necessary. The idea of a use for experiment was an afterthought. An invention of the kind might be in use and no burglarious attempt be ever made to enter the safe, and it might be said that the use of the invention was always experimental until the burglarious attempt should be made, and so the use would never be other than experimental. But it is apparent that there was no experimental use in this case, either intended or actual. The foregoing views, which are controlling to show that claim 3 of the patent in suit cannot be sustained, are in accordance with those announced by this court in Egbert v. Lippmann, 104 U. S. 333.

The decree of the Circuit Court dismissing the bill is affirmed, and the same decision is made in No. 165. (Hall v. Mosler and others, February 5, 1883.)

131. EASTMAN v. NEW YORK, 134 Fed. 844, 69 C. C. A. 628 (1904, Second Circuit).

Before Wallace, Townsend, and Coxe, Circuit Judges.

Coxe, Circuit Judge: This is an equity action for the infringement of letters patent, No. 42,920, granted May 24, 1864, to James Knibbs, assignor to himself and Marcus P. Norton, for "Improvements in Pumps for Steam Fire and other Engine Pumps."

The inventor conceived the invention April 21, 1860, and applied the device to a steam fire engine April 29, 1860. The application was filed May 13, 1864. * * *

The Law of Prior Public Use.

Before proceeding further it is well to ascertain what is the law as applicable to this situation. The patent was applied for and granted in May, 1864. At that time the act of 1839—explaining, supplementing and superseding the act of 1836—was in force. Act March 3, 1839, c. 88, 5 Stat. 354. The seventh section of that act is as follows:

"Sec. 7. * * * That every person or corporation who has, or shall have, purchased or constructed any newly invented machine, manufacture, or composition of matter, prior to the application by the inventor or discoverer for a patent, shall be held to possess the right to use, and vend to others to be used, the specific machine, manufacture, or composition of matter so made or purchased, with-

out liability therefor to the inventor, or any other person interested in such invention; and no patent shall be held to be invalid, by reason of such purchase, sale, or use prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public; or that such purchase, sale, or prior use has been for more than two years prior to such application for a patent."

The last clause of this section, which is particularly applicable to this controversy, has been condensed and tersely stated by Mr. Walker in his work on Patents (Fourth Ed. § 93) as follows:

"A patent is void if the invention covered thereby was in public use or on sale earlier than two years before the application for the patent."

The entire subject has been thoroughly examined and the conclusion of the Supreme Court stated in Andrews v. Hovey, 123 U. S. 267, 8 Sup. Ct. 101, 31 L. Ed. 160, and reaffirmed, after a second exhaustive examination, in the same case, 124 U. S. 694, 8 Sup. Ct. 676, 31 L. Ed. 557. The question now at issue was directly involved in that case. The court says, speaking of the numerous defenses:

"It is necessary to consider only one of them, which in our view, is fatal to the validity of the patent, and that is, that the invention was used in public at Cortland, in the State of New York, by others than Green (the inventor) more than two years before the application for the patent."

The court says, in construing the section quoted supra:

"The evident intention of Congress was to take away the right (which existed under the act of 1836) to obtain a patent after an invention had for a long period of time been in public use without the consent or allowance of the inventor; it limited that period to two years, whether the inventor had or had not consented to or allowed the public use."

After an examination of every reported case upon the rehearing the court was confirmed in its opinion that its former decision was correct and closes the elaborate discussion in the following language:

"The second clause of the seventh section seems to us to clearly intend, that, where the purchase, sale, or prior use referred to in it has been for more than two years prior to the application, the patent shall be held to be invalid, without regard to the consent or allowance of the inventor. Otherwise the statute cannot be given its full effect and meaning."

Among the authorities thus examined and overruled was Campbell v. The Mayor, 20 Blatchf. 67, 9 Fed. 500, which was the original decision holding the Knibbs patent valid.

Surreptitious Use.

As before stated the Phoenix was sold and delivered to the city of Hartford and paid for November 9, 1861. She was used by the city thereafter for many years publicly, as part of the Hartford fire department. It cannot be pretended that the Phoenix did not contain a perfect and complete development of the invention. The only contention as to the Phoenix is that this use of the relief mechanism was unknown to and unauthorized by the inventor and that the sale to and use by the city, though open and notorious, was "fraudulent, surreptitious and piratical."

In distinguishing the Driven Well Case from Kendall v. Winsor, 21 How. 322, 16 L. Ed. 165, the court, in Andrews v. Hovey, 124 U. S. 708, 8 Sup. Ct. 680, 31 L. Ed. 557, makes use of this language:

"It may be that a fraudulent, surreptitious, and piratical purchase or construction or use of an invention prior to the application for the patent would not affect the rights of the patentee under either clause of the seventh section."

The complainant seizes upon this language as creating a broad exception to the general rule and insists that the facts regarding the Phoenix establish such a use. The doctrine thus enunciated, though not advanced until the argument at the rehearing, may be a fair statement of the law where the facts justify a finding of fraud and piracy. The court, immediately after the statement quoted, says:

"But the present is not such a case as that which existed in Kendall v. Winsor."

The driven well was invented by Green in 1861. The application for the patent was filed in March, 1866. A public exhibition was made in 1861. More than two years prior to the application Suggett and Mudge put down nine wells having obtained their knowledge from Green and having acted without his knowledge, allowance and consent.

"There is nothing," says the court, "that indicates in regard to these wells fraud or piracy or surreptitiousness, in the sense of the decision in Kendall v. Winsor."

In other words, a person may obtain his knowledge of an invention direct from the inventor and may practice it publicly without his knowledge or consent and such use will invalidate a patent unless the application is filed within the statutory period thereafter. In order to relieve the inventor from the consequences of such use, assuming that relief is possible, it must appear that the knowledge was obtained by deception and that the use was fraudulent or piratical. The meaning of "fraudulent" is too well known to require definition, but it may be wise to recur to the meaning of the other adjectives used by the Supreme Court. "Surreptitious" means, "Fraudulently obtained. Falsely crept in. Obtained by

falsehood, fraud or stealth, by suppression or concealment of facts." "Piratical" means, "Acquired by piracy or robbery." It is entirely clear that when the courts have used these words in patent causes they intended them to apply to acts done mala fide, clandestinely, treacherously and by means of falsehood, fraud or breach of trust. It is equally clear that they have never been used to characterize knowledge obtained openly in the due course of business or applied to an act which is neither malum prohibitum nor malum in se.

Kendall v. Winsor was an action at law. The jury found for the plaintiff. The defendant sued out a writ of error. One of the instructions to the jury sustained by the Supreme Court was:

"That if Aldridge, under a pledge of secrecy, obtained knowledge of the plaintiff's machine—and he had not abandoned it to the public—and thereupon, at the instigation of the defendants, and with the knowledge, on their part, of the surreptitiousness of his acts, constructed machines for the defendants, they would not have the right to continue to use the same after the date of the plaintiff's letters patent."

There was testimony to show that the inventor did not work the patented machines in public and that he pledged his employes to secrecy. No one who did not take such a pledge was allowed to view the machines. One of these workmen was Aldridge who obtained his knowledge by promising not to divulge the inventor's secret and, thereafter, deserted his employer and entered into an arrangement with the defendants to copy the patented machine for them, and did so. In plain language Aldridge stole the invention and sold it to the defendants with their knowledge and procurement. At least the testimony warranted such a conclusion and the jury so found.

The controversy arose wholly under the first clause of the seventh section of the act of 1839, and it will be more and more manifest as we proceed that neither on the facts nor the law has the decision any but a remote bearing on the questions now in issue.

Pennock v. Dialogue, 2 Pet. 1, was decided before the act of 1836 and has no bearing upon the case at bar apart from the fact that Mr. Justice Story asserts, tentatively, what may for the purposes of this case be conceded, that "in respect to a use by piracy, it is not clear, that any such fraudulent use is within the intent of the statute; and upon general principles, it might well be held excluded."

Shaw v. Cooper, 7 Pet. 292, 8 L. Ed. 689, arose under the act of April 17, 1800, c. 25, 2 Stat. 37, and simply reiterates the opinion of Mr. Justice Story, just quoted. It throws little light upon the present controversy although it may not be inappropriate to note that the judgment for the defendant was affirmed although the plaintiff gave evidence that for the purpose of making experiments he im-

parted the secret of the invention to his brother who subsequently divulged it for a reward. The court observed:

"Whatever may be the intention of the inventor, if he suffers his invention to go into public use through any means whatsoever, without an immediate assertion of his right he is not entitled to a patent; nor will a patent obtained under such circumstances protect his right."

In Smith & Griggs Mfg. Co. v. Sprague, 123 U. S. 249, the court, at page 256, 8 Sup. Ct. 122, at page 126 (31 L. Ed. 141) says:

"The thing implied as excepted out of the prohibition of the statute is a use which may be properly characterized as substantially for the purposes of experiment. Where the substantial use is not for that purpose, but is otherwise public, and for more than two years prior to the application, it comes within the prohibition."

A not unreasonable construction of this language is that an experimental use is the only one excepted, the fair implication being that a surreptitious use is not excepted.

Pierson v. Eagle Screw Co., 3 Story, 402 Fed. Cas. No. 11,156, was an action at law, tried in 1844 before Mr. Justice Story and a jury. There was no dispute as to the facts; but what the facts were relating to the surreptitious use of the invention by the defendant's vendor, does not appear. It may be safe, however, to assume that he was guilty of grossly unfair conduct, otherwise the court would hardly have been justified, when explaining the law to the jury, in using such expressions as the following:

"A mere wrongdoer, who by fraud or artifice, or gross misconduct, had gotten knowledge of the patentee's invention."

"A person who pirates the invention of any party."

Again, in speaking of the first clause of section 7 of the act of 1839, the judge charged the jury that:

"It could never have been the intention of this clause to confer on a fraudulent purchaser, or a purchaser with full notice a right to use an invention pirated from the original inventor by wrong."

The question, what constitutes a fraudulent, piratical, or wrongful appropriation, sale or use of the invention, is left very much as the earlier authorities leave it, in obscurity. We have been referred to no case since the clear exposition of the law in Andrews v. Hovey where a plain case of public use early than two years before the application for the patent has been held to be ineffectual as a defense because the use was surreptitious. When the question is fairly presented it may be that the courts will hesitate to introduce exceptions to the rules broadly stated by the Supreme Court, with the confusion and uncertainty incident thereto.

If it be once understood that the object of the act "was to require the inventor to see to it that he filed his application within two years

from the completion of his invention, so as to cut off all questions of the defeat of his patent by a use or sale of it by others more than two years prior to his application," the courts will no longer be vexed by the perplexing questions which must frequently arise when the intent of the user and the bona fides of the use are questions to be determined on oral testimony. Isolated instances of injustice to inventors may result, but the remedy is certain and sure. The inventor is master of the situation and has it in his power by prompt action to make the defense of prior public use impossible. Surely two years after he has completed his invention is ample time in which to file his application. If he fails to take so simple and reasonable a precaution why should it not be said that the risk is his and that he cannot complain of the consequences of his own supineness?

Phoenix Use Not Fraudulent.

* * *

If the mere announcement of an intention to patent has the effect contended for by the complainant it will only be necessary to make the announcement general to extend indefinitely the monopoly of the patent. The patent law recognizes the rights of the public as well as of the inventor and at all stages of the proceedings requires that he act with reasonable promptness. The contention that the Amoskeag Company was debarred from doing what any other manufacturing company could have done with propriety cannot be maintained. It is not doubted that another manufacturer to whom the device had been explained by Knibbs could have placed it on a new engine without being subjected to a charge of fraud. It is argued that "a surreptitious use is a secret invasion of another's rights, and it is in evidence that Mr. Knibbs knew nothing of this misuse of his invention." But the Supreme Court has said not only that knowledge is unnecessary, but that proof of the absence of knowledge of the inventor does not render the use surreptitious.

The contention that the invention was not completed till February 13, 1863, and that a use prior to that date was during the experimental period, can be treated more appropriately when we come to consider the use of the Osgood.

Osgood Use Not Experimental.

* * *

The only question, therefore, regarding the use on the Osgood which is even debatable, is whether it was an experimental use or occurring within the experimental period.

Law of Experimental Use.

The law upon the question of experimental use is well settled and counsel do not disagree regarding it. It is the duty of the inventor to file his application within two years from the completion of his invention. He is permitted to take the time necessary to complete the invention and to make experiments for that purpose, but the moment the invention is completed the two-year period begins to run. The leading case is Elizabeth v. Pavement Company, 97 U. S. 126, 24 L. Ed. 1000. An experimental public use of six years was there held not to be unreasonable. The invention was for a pavement and durability was the principal object sought to be attained. An invention must not only be new, it must also be useful. A pavement that would not last six years was useless, no one would want it, no one would incur the expense of laying it down. There is but one way to ascertain whether a newly invented pavement is durable and that it is to test it by public use. A trial of two years will demonstrate nothing. It may stand the test for that period and then suddenly disintegrate. These were the considerations which induced the court to uphold the Nicholson patent. As we shall presently see there were no such problems to be solved in the case in hand.

Smith & Griggs Mfg. Co. v. Sprague, supra, is authority for the following propositions:

First. Where it is clearly shown that there was a public use of an invention by the inventor for more than two years prior to the application the burden rests on him to establish by convincing proof that the use was for the purpose of perfecting an incomplete invention by tests and experiments.

Second. Where the invention is one of many embodied in a single machine or where the device contains features not included in the invention or covered by the claims, experiments intended to produce more perfect working of these extrinsic features are not such as will prevent the running of the statutory limitation. In other words, the experiments must be made for the purpose of developing the invention as described and claimed and nothing else. When the invention is completed the time begins to run and it is of no moment that something else, not a part of the invention, is incomplete and requires tests and experiments to perfect it.

In Egbert v. Lippmann, 104 U. S. 333, 26 L. Ed. 755, the Supreme Court held that the use of one of the patented articles in public was sufficient to constitute public use. The court further observes that:

"Whether the use of an invention is public or private does not necessarily depend upon the number of persons to whom its use is known. If an inventor, having made his device, gives or sells it to

another, to be used by the donee or vendee, without limitation or restriction, or injunction of secrecy, and it is so used, such use is public, even though the use and knowledge of the use may be confined to one person."

When Egbert v. Lippmann was in the Circuit Court, Judge Blatchford said:

"The policy introduced by the act of 1839, and thus continued is, that the inventor must apply for his patent within two years after his invention is in such a condition that he can apply for a patent for it." 15 Blatchf. 295, 297, Fed. Cas. No. 4,306.

In Root v. Railroad, 146 U. S. 210, 13 Sup. Ct. 100, 36 L. Ed. 946, the court, while quoting at length from the Pavement Case and fully recognizing its doctrine, observes:

"It cannot be fairly said from the proofs that the plaintiff was engaged in good faith, from the time the road was put into operation, in testing the working of the structure he afterwards patented. He made no experiments with a view to alterations, and we are of opinion, on the evidence, that sufficient time elapsed to test the durability of the structure, and still permit him to apply for his patent within the two years. He did nothing and said nothing which indicated that he was keeping the invention under his own control."

In Worley v. Tobacco Co., 104 U. S. 340, 26 L. Ed. 821, the court says:

"The invention was made by Worley alone. He at once began using his invention in McCabe's factory. He testifies that it was complete, and he became satisfied with the results, in 1871. It is true that after that date he made experiments to decide upon the best mode of constructing his finishers so as to secure the requisite strength; but the finisher constituted no part of his patented invention. In 1871 his invention was complete, and in his opinion successful, and was adhered to from that date, without change."

In Perkins v. Paper Co., (C. C.) 2 Fed. 451, the court says:

"An improvement has now been made, but it is not described in the specification or shown in the model. At all events, a machine which, whether entirely satisfactory or not, has been run in the ordinary course of business for 20 or for 30 years, and which is patented precisely as it was used, cannot be properly called an experimental machine."

See, also, as bearing on the questions involved: Hall v. Macneale, 107 U. S. 90, 2 Sup. Ct. 73, 27 L. Ed. 367; Harmon v. Struthers, (C. C.) 57 Fed. 637; Swain v. Holyoke Co., 109 Fed. 154, 48 C. C. A. 265; Lettelier v. Mann, (C. C.) 91 Fed. 917.

From these authorities we deduce the following propositions, as applicable to the present controversy:

First. An inventor has a reasonable time in which to experiment for the purpose of perfecting the invention and demonstrating its utility.

Second. The time thus spent, if in good faith, is no part of the two-year statute of limitations.

Third. The experiments must be made in perfecting the invention as described and shown.

Fourth. Experiments made in testing parts of the machine not covered by the invention will not have the effect of extending the two-year period.

Fifth. As soon as the invention is completed, viz.: "in such a condition that the inventor can apply for a patent for it," the two-year period begins to run and the application must be made within this period.

Sixth. The fact that the invention has been improved since its original embodiment does not demonstrate that it was then embryonic or incomplete.

Seventh. When a clear case of prior public use is established the burden is on the inventor to prove by convincing proof that the use was experimental.

Long Period of Experimentation Unnecessary.

The Knibbs invention, though one of unusual merit, was an exceedingly simple one. All agree upon this proposition. One of complainant's counsel says of it:

"The device is undoubtedly a very simple one, but does not, on that account, any less exhibit invention of a high order."

Another counsel says:

"Mr. Knibbs' perfected invention resulted simply in a hole in the partition between the supply and discharge chambers of a pump. Nothing can be more easily understood than this."

And yet it is contended that it required over two years and nine months of experimentation to demonstrate its utility. Invention, in so far as it relates to machines, may, for the purposes of illustration, be divided into two general classes: First, where the invention is the result of a happy creative thought; and, second, where it is developed by arduous and patient toil. To the first class belong the safety lamp and the driven well; to the second the "Linotype" and the typewriter. The moment the idea of surrounding the lamp with wire gauze occurred to Davy and its practicability was demonstrated by a simple test, the invention stood revealed. Mergenthaler, on the other hand, was not rewarded so much for the inspiration and originality of his idea as for the ingenuity and skill with which he built up his intricate and marvelous machine. The invention of Knibbs belongs to the first class. Undoubtedly

his conception showed the genius of the inventor as distinguished from that of the mechanic. It did not, however, require a long series of laborious experiments to prove its efficacy. As soon as the two sections of the pump were connected by a hole on the inside or a tube on the outside and satisfactory tests demonstrated that the old difficulties were thus obviated, the invention was in a condition for patenting. That the application for the patent could have been made before the delivery of the Osgood, in January, 1862, is not disputed. Indeed, the patent as granted describes and shows the apparatus as originally placed on the Reade without, so far as we are able to see, the slightest change either in the details of the mechanism or the principles of its operation.

Ample Time for Experiments. * * *

But it is said that it was impossible to tell whether the device possessed the requisite utility until it had been tested by actual use at fires. This contention seems inconsistent with the complainant's position regarding the Reade where, as we have just seen, the two-inch pipe connection was attached one day and the next day after an experimental test, but no test at a fire, the invention was pronounced complete and ready for patenting. But even if this were not so the position seems to us untenable. When the question is whether a device on the inside of an engine's pump works successfully what possible difference can it make whether a fire is or is not burning in the immediate vicinity? Will not the result be precisely the same whether the water from the hose is discharged on a hot surface or a cold surface, a bank of fire or a bank of snow? If any difference at all can be suggested it would seem to be in favor of the experimental use when the conditions are entirely in the control of the engineer and when tests can be applied which the exigencies of a fire might make impossible.

But if tests at actual fires were necessary such tests were had. * * *

It thus appears that when the Osgood was delivered at Troy she was a complete and successful machine, embodying the invention in its most approved form, a form which has never been changed, and that every test which the ingenuity of counsel can suggest was applied without revealing a single imperfection. Two years passed after the last test was made and still no application was filed.

Automatic Valve no Part of Invention.

But it is said that Knibbs was experimenting upon an automatic valve to take the place of the hand valve and that this valve was not completed until placed by him upon the Reade in February,

1863. Several answers are suggested but a sufficient one is found in the fact that an automatic valve is no part of the invention. * * *

Concede it to be an improvement, the situation is not altered. Knibbs was not justified in delaying his application until the invention had reached a stage where improvements were no longer possible. Few inventions spring Minerva-like into instantaneous and absolute perfection. The inventive spirit engendered by the restless activity of competition in all the mechanical arts is ever watchful to suggest changes which will enable existing machines to do their work to better advantage. It is safe to say that in all the great mechanical inventions of the present day the primitive apparatus of the patent can hardly be recognized in the perfected machine which a few years of actual use has developed. To declare that the inventor may withhold his application until the last improvement has been made will extend his monopoly indefinitely and nulify the plain provisions of the statute. The period of experimentation must end at some time and that time arrives when the invention, as described and claimed in the patent, is complete.

Solicitor's Mistake.

Finally, it is suggested that Knibbs acted throughout under the direction of his solicitor and is not responsible for his solicitor's mistakes. That the advice thus received was unwise cannot be doubted. Having a complete embodiment of the invention on the Osgood there was no necessity for duplicating it on the Reade. It must be remembered, however, that this advice was given in the early part of 1862. Had it been followed promptly and had the application been filed within a reasonable time thereafter no question of prior public use could have arisen. But leaving out of view every other consideration it will hardly be contended that the mistaken advice of a patent solicitor can override a statute of the United States. We cannot resist the belief that to the inventor's procrastination and delay can be attributed the disaster which has overtaken his patent.

Conclusion.

We entertain no doubt as to the correctness of our conclusion that in at least two instances—the uses on the Phoenix and the Osgood—the invention was in public use for more than two years prior to the application and that the patent is therefore invalid.

The decree of the Circuit Court is reversed with costs and the cause is remanded to the Circuit Court with instructions to dismiss the bill with costs.

182. FULLER v. BERGER, 120 Fed. 274, 56 C. C. A. 588, (1903, Seventh Circuit).

Before Jenkins, Grosscup, and Baker, Circuit Judges.

Baker, Circuit Judge: Appellant, complainant below, unsuccessfully sought to enjoin appellees from infringing letters patent No. 613,844, on a bogus-coin detector for coin-operated vending machines. The letters were granted November 8, 1898, to the Mills Novelty Company, assignee of the inventor. While that company was the owner, the only practical use to which the detectors were put was to guard gambling machines, made and controlled by the company, from being operated by means of bogus coins. On December 8, 1899, the company assigned the patent to appellant, and, as a part of the same transaction, took from him a license to make and use the device. No one else used it by authority. Appellees, without license, applied it to gambling machines of their make. This suit was begun about a month after the assignment. The circumstances surrounding the assignment and attending the conduct of this litigation warranted the trial court in finding that the equities of the case should be determined as if the Mills Novelty Company had been complainant.

The defenses are two: That the patent is void for want of utility; and that, even if it is found not to be void, complainant has no standing because he comes into court with unclean hands, in this, that his suit is brought to enable the Mills Novelty Company to prevent another gambler from interfering with its illegal enterprises.

In support of their first contention, appellees cite Device Co. v. Lloyd, (C. C.) 40 Fed. 89, 5 L. R. A. 784; Novelty Co. v. Dworzek, (C. C.) 80 Fed. 902; Schultze v. Holtz, (C. C.) 82 Fed. 448; Rickard v. DuBon, 43 C. C. A. 360, 103 Fed. 868; and Mahler v. Animarium Co., 49 C. C. A. 431, 111 Fed. 530. In the Rickard Case, involving a process for spotting tobacco leaves, and in the Mahler Case, concerning a cure-all device, the clear purpose and the sole use of the respective inventions were found to be to deceive and defraud the public. In the Schultze Case, the fact that the invention had been used solely for gambling and could not be put to any other use was held to avoid the patent. In the two other cases, applications for injunctions were denied on showings that the device had been used only for gambling purposes. But the court, in each case, went further and held the device to be wanting in utility, saying: "The patent has been very recently issued, and it is possible that a useful application may yet be found for it; but, as the case now stands, the only use to which the invention has been put being for gambling purposes, I must hold that it is not a useful device within the meaning of the patent law." It may be doubted whether the latter holding, useableness (utility) and use (application) are not confounded; but, at all events, the courts in those

cases came to the same end as the others in deciding that the respective patents were not for useful devices within the meaning of the patent law.

With regard to the defense of no utility (available equally at law and in equity), we hold that the true inquiry is, Was the government improvident in making the grant? Does the opposing evidence, the grant itself being prima facie proof of utility, go to the extent of establishing not merely that the device has been used for pernicious purposes, but that it is incapable of serving any beneficial end? As the just criterion, we approve and adopt Mr. Walker's conclusion (section 82 [3d Ed.]), with the additions to his text which we note by parentheses:

"An important question, relevant to utility in this aspect, may hereafter arise and call for judicial decision. It is perhaps true, for example, that the invention of Colt's revolver was injurious to the morals, and injurious to the health, and injurious to the good order of society. That instrument of death may have been injurious to morals, in tending to tempt and to promote the gratification of private revenge. It may have been injurious to health, in that it is very liable to accidental discharge, and thereby to cause wounds, and even homicide. It may also have been injurious to good order, especially in the newer parts of the country, because it facilitates and increases private warfare among frontiersmen. On the other hand, the revolver, by furnishing a ready means of self-defense, may sometimes have promoted morals and health and good order. By what test, therefore, is utility to be determined in such cases? Is it to be done by balancing the good functions with the evil functions? Or is everything useful within the meaning of the law, if it is used (or is designed and adapted to be used) to accomplish a good result, though in fact it is oftener used (or is as well or even better adapted to be used) to accomplish a bad one? Or is utility negatived by the mere fact that the thing in question is sometimes injurious to morals, or to health, or to good order? The third hypothesis cannot stand, because if it could, it would be fatal to patents for steam engines, dynamos, electric railroads, and indeed many of the noblest inventions of the nineteenth century. The first hypothesis cannot stand, because if it could, it would make the validity of the patents to depend on a question of fact to which it would often be impossible to give a reliable answer. The second hypothesis is the only one which is consistent with the reason of the case, and with the practical construction which the courts have given to the statutory requirement of utility."

We deem the additions to the second hypothesis necessary to a complete statement of the acceptable test, for, to continue with Colt's revolver as an example, if at the time of a suit for infringement the defendant should prove that the only uses to which "that

instrument of death" had been put were vicious, the patent should not be held void for want of utility, if the court for itself should see, or be convinced by experts, that the instrument was susceptible of good uses, though in fact never put to such before the suit was begun. And, if utility is found, the cases seem to be uniform that courts will not set up a measure of utility which must be filled.

If the device here in question should be found insusceptible of other use than to guard gambling machines from being operated by means of bogus coins, we would be led to an outlook from which two interesting queries appear in view: (1) The statutes of Illinois, it is said, prohibit the use of coin-operated gambling machines, but not the manufacture or sale thereof. We are referred to statutes of other states, which, it is claimed, legitimate the use of such machines. Should a Circuit Court of the United States, sitting in Illinois, hold invalid a patent on such a machine and thereby destroy the monopoly of its manufacture and sale, because its use is forbidden in Illinois, though its manufacture and sale in Illinois and its use in certain other states are lawful? And (2) if the federal courts may properly hold patents on gambling machines void for lack of utility, because immoral, though countenanced by the legislation of particular states, is a device attached to such a machine likewise inimical to good morals, which prevents a gambler from being also a cheat?

But, returning to the main road, we have no difficulty, under the principles hereinabove asserted, in finding some degree of utility in this invention. In the specifications and claims the device is called a bogus-coin detector for coin-operated vending machines. The inventor's attention to the need of such a mechanism was not directed by the Mills Novelty Company or other maker of chance machines. A manufacturer of coin-operated banjo-playing instruments expressed a want for a bogus-coin detector. The invention in suit resulted. The parties failed to come to terms, not because the detector would not supply the need for which it was designed, but because the inventor asked more than the banjo manufacturer was willing to pay. Afterwards the application was assigned to the Mills Novelty Company, and by it the device was applied to gambling machines. There is no element of chance, however, in the operations of the detector. Its mechanism has no connection with that of the machine to which it is attached. The outlets of its coin chutes are placed in registration with the inlets of the chutes of the coin-operated machine. "The object of the invention," says the specification, "is to provide, as an attachment for use with coin-operated vending-machines generally, a device through which the coin for paying the purchase price of the article to be delivered, and for rendering the machine operative to produce the delivery, must be passed in view and shall remain in view until the machine has

been operated one or more times by another inserted coin or other such coins. * * * When the machine * * * is adapted to vend two or more articles, * * * the arrangement of the detector is such as to permit the coin or token last inserted previous to operating the machine to occupy a higher plane in its chute in the detector than the uppermost coin in the other detector chute or chutes, thereby to make it indisputably clear which of the array of coins or tokens was last inserted, so that the fraud, if any occurs, may be fastened with certainty upon the guilty person." The testimony of experts was not needed to show that the detector would perform its functions without regard to the character of the machine below its outlet. It is doubtless true that the detector would be more efficacious if an attendant were constantly beside it; but, without an attendant, the fact that the coin, instead of being dropped directly within the opaque case of the machine, remains in view during several subsequent operations, to reproach the cheat and expose him to the owner or other customers, would tend to act in some degree as a deterrent. And the facts that the inventor put the price beyond the willingness of good users to pay, that he assigned his invention to an evil user, and that appellant's suit is prosecuted with the ulterior aim of aiding the evil user, his sole licensee, go to the standing of appellant in equity, not to the legality of the grant. Colt's revolver is not in fault whether it comes to the hand of a policeman or a burglar.

The second defense amounts to this: The holder of a legal patent, who refuses to use or permit others to use his device for good purposes, and who prostitutes his invention in practice, will be given no relief in equity, though on the facts shown he could successfully maintain an action at law against the infringer. As counsel states it: "The court wholly disapproves of the complainant suitor, and declines to aid him, though the patent still retains its life. With that, the court's decree does not attempt to meddle. * * * There is ample chance ahead to efface the stain if the invention is really capable of worthy use and the patent owner seriously lends himself to accomplish the reform."

It seems clear that one who practices his invention in a noxious way only has no better standing in equity than one who declines to use the device for good purposes or to permit others to use it. And in Hoe v. Knap (C. C.) 27 Fed. 204, 212, there is a statement that "under a patent which gives a patentee a monopoly, he is bound to use the patent himself, or allow others to use it on reasonable terms." But this doctrine has been vigorously denied, and rightly, we think, in subsequent cases. Roller Mill Co. v. Coombs (C. C.) 39 Fed. 803; Campbell Printing Press & Mfg. Co. v. Manhattan R. Co. (C. C.) 49 Fed. 935; Heaton-Peninsular Button-Fastener Co. v. Eureka Specialty Co., 25 C. C. A. 267, 77 Fed. 294, 47 U. S.

App. 146. An extract from the last cited case, quoted in Bement v. National Harrow Co., 186 U. S. 70, 90, 22 Sup. Ct. 747, 46 L. Ed. 1058, will sufficiently indicate the general attitude:

"If he sees fit, he may reserve to himself the exclusive use of his invention or discovery. If he will neither use his device nor permit others to use it, he has but suppressed his own. That the grant is made upon the reasonable expectation that he will either put his invention to practical use, or permit others to avail themselves of it upon reasonable terms, is doubtless true. This expectation is based alone upon the supposition that the patentee's interest will induce him to use, or let others use, his invention. The public has retained no other security to enforce such expectations. A suppression can endure but for the life of the patent, and the disclosure he has made will enable all to enjoy the fruit of his genius. His title is exclusive, and so clearly within the constitutional provisions in respect to private property that he is neither bound to use his discovery himself nor permit others to use it. The dictum found in Hoe v. Knap (C. C.) 27 Fed. 204, is not supported by reason or authority."

So nonuse is not a defense in equity. Is misuse? Equity is not concerned with the general morals of a complainant; the taint that is regarded must affect the particular rights asserted in his suit. Saddle Co. v. Troxel (C. C.) 98 Fed. 620; Folding Box Co. v. Robertson (C. C.) 99 Fed. 985, and cases therein collated. A complainant asserts the validity of his patent (a question of law on the facts), and infringement by defendant (a question of law on the facts), and asks an injunction on account of continued and threatened trespasses (an equitable remedy to make up for the inadequacy of the legal). Though the defendant may not be able to deny the validity of the patent or the fact of infringement, he may defeat the application for an injunction if he can show that the complainant, in his dealings with or conduct towards the defendant in relations to the subject-matter of the litigation, has acted unfairly or oppressively, or has misled the defendant with respect to the validity of the patent or the fact of infringement, or if the complainant, to make his case, is compelled to bring forward and count upon his own wrong. But if the defendant can do no more than show that the complainant has committed some legal or moral offense, which affects the defendant only as it does the public at large, the court must grant the equitable remedy and leave the punishment of the offender to other forums. In the present case, there have been no dealings between the parties. Nothing has been done to mislead appellees. And appellant, to make his case, simply brings forward his patent and proves the continued and threatened infringement. Against this, appellees establish that appellant has been misusing the patented device. But how does this concern appellees more or

differently than it does others? Equity will aid the owner of a lawful patent if he puts the device to good uses, but will deny relief if he puts it to bad uses? The "reform," for the lack of which appellees contend that appellant must be kept out of a court of equity for the present and until the reform is accomplished, is the reform of the man.

The conclusion follows from the foregoing premises that appellant is entitled to injunctive relief. But another consideration leads more strongly to the same result. The inventor's right to make, vend, and use his device does not come from the patent law; it is his natural right. The government's grant to the patentee and his assigns is the right to exclude others from practicing the invention. As Mr. Chief Justice Taney said in Bloomer v. McQuewan, 14 How. 539, 548, 14 L. Ed. 532: "The franchise which the patent grants consists altogether in the right to exclude every one from making, using, or vending the thing patented, without permission of the patentee. This is all he obtains by the patent." And on this basis rests the decision in Patterson v. Kentucky, 97 U. S. 501, 24 L. Ed. 1115, that a state law which prohibits the use of a certain article, which is patented, is not in derogation of the inventor's grant under the patent law. That is, the state law operates wholly upon the inventor's natural right to the use of his property, and not at all upon the franchise which the patent grants, which consists altogether in the right to exclude. His right to use his property is destroyed, but his right to exclude others stands unimpaired. Now, if the complainant in a patent suit is seeking merely to enforce his right to exclude, according to the terms of the government's grant, an inquiry into what use (or lack of use) the inventor is making of his natural right would seem to be clearly collateral and irrelevant. And if the right to exclude is the substance of the grant, it is a legal right. And in determining legal rights, equity follows the law. And if a legal right is established beyond every defense, legal or equitable, available to the defendant or to the court on its own motion, equity must grant appropriate relief if there is no adequate remedy at law. Injunction, it is evident, is the only means equal to enforcing the right to exclude.

It is sometimes said that the granting of an injunction is a matter of discretion. But courts of equity may not exercise a mere arbitrary discretion. They must act within and according to definite and certain principles. The conscience of equity is not the conscience of the particular chancellor. But if the conscience of equity were the conscience of the individual chancellors of this court, who, for example, may think that the public sentiment against the liquor traffic would be vindicated by denying the writ of injunction to an habitual drunkard whose property by repeated trespasses was being illegally confiscated, the appeal made in this case

to deny the writ of injunction, on the ground that its issuance would aid crime and abet practices universally denounced, exhibits a misapprehension of the scope of this litigation. It is obvious that a denial of the writ would leave the defendants and all others perfectly free, so far as the power of this court is concerned, to follow the practices that are repugnant to the individual chancellors, while the maintenance of the complainant's right to exclude the defendants and all others would, to the extent that the patented device might otherwise be used by them to promote gambling, be a vindication of the public sentiment against gambling. It is equally obvious that, however the court may act upon complainant's asserted right to exclude, neither the grant nor the denial of the writ of injunction would operate upon complainant's practices or habits (which he did not acquire from the patent laws), and that the gambler, like the drunkard, is amenable to the municipal authorities alone for violations of the municipal law.

Grosscup, Circuit Judge (dissenting). * * *

133. CONSOLIDATED FRUIT JAR CO. v. WRIGHT, 94 U. S. 92, 24 L. ed. 68 (1876, Patent No. 102,913).

Swayne, J.:

This is a case in equity brought by the appellants to enjoin the appellee from infringing a patent issued by the United States to John L. Mason, on the 10th of May, 1870, "for an improvement in fruit jars," of which patent the complainant is the assignee. * * *

If the case stopped here, the facts we have adverted to would be fatal to the patent, upon the ground of the first objection. But there are further facts developed in the testimony which bear upon this as well as the other point.

The model remained in the possession of Reed, one of the glass manufacturers, unnoticed and uncalled for by Mason until 1867. Not knowing where to find Mason, Reed then sold it at auction. The jar Mason had given him was sold at the same time and in the same way. This utter neglect of the model for so long a time is full of significance, and has an important bearing upon the question of abandonment.

No sufficient reason is disclosed in the record why the application for the patent was not made earlier. It was not for want of the necessary pecuniary means on the part of Mason. * * *

In the mean time, large interests had grown up in the way of the manufacture and sale of jars substantially the same with Mason's, and of others more or less like it. He was stimulated to make his application by seeing such jars in the market. He had seen them before Fitzgerald advised him finally to get a patent. Even then he failed to give any directions upon the subject. He reached his conclusion subsequently. Large amounts of money must then have been invested in the business of making and selling

such jars by various persons. It is sufficient to mention the case of Rowley, who is defending this suit in the name of Wright, the appellee.

Rowley, in 1864, was selling jars known as the Excelsior. In the spring of 1866 he was called upon by Imlay, who charged that the Excelsior infringed a patent issued to him in 1865, which was for a jar such as the appellee is called to account in this case for selling. He bought from Rowley. Rowley took a license from Imlay, and thereupon commenced making and selling jars made according to Imlay's patent. These jars were nearly identical with those described in the Mason patent. A part of those sold had only glass tops, without the metallic covering, which Mason's patent called for. The residue had such covering. Prior to the beginning of the year 1868 he had sold of the jars with glass tops from two hundred and fifty to four hundred gross, making the minimum thirty-six thousand. Before the same period, he had sold a large number of those with the metallic top, and otherwise the same in construction. Thus, before Mason applied for his patent, and as early as 1866, the public was in possession of the invention in question from sources entirely independent of Mason.

It is enough to say, without recapitulating the facts, that in our judgment the defense of abandonment to the public is also clearly made out.

He who is silent when he should speak must be silent when he would speak, if he cannot do so without a violation of law and injustice to others.

The supineness of the patentee is unexplained and inexcusable. A principle akin to the doctrine of equitable estoppel applies.

Inventors are a meritorious class. They are public benefactors. They add to the wealth and comfort of the community, and promote the progress of civilization. A patent for an invention is as much property as a patent for land. The right rests on the same foundation, and is surrounded and protected by the same sanctions. There is a like larger domain held in ownership by the public. Neither an individual nor the public can trench upon or appropriate what belongs to the other. The inventor must comply with the conditions prescribed by law. If he fails to do this he acquires no title, and his invention or discovery, no matter what it may be, is lost to him, and is henceforward no more his than if he had never been in any wise connected with it. It is made thereupon as it were by accretion, irrevocably a part of the domain which belongs to the community at large. The invention here in question is within this category.

[Note.—In considering the older cases on this subject, it should be borne in mind that the law was somewhat different from the present law with respect to "renewing" rejected or "withdrawn" applications. The broad principles are, however, applicable.]

134. PLANING MACHINE CO. v. KEITH, 101 U. S. 479, 25 L. ed. 939 (1879, Patent, No. 138,462).

It has sometimes been said that an invention cannot be held to have been abandoned, unless it was the intention of the inventor to abandon it. But this cannot be understood as meaning that such an intention must be expressed in words. In Kendall v. Winsor (21 How. 322), this court said: "It is the unquestionable right of every inventor to confer gratuitously the benefits of his ingenuity upon the public, and this he may do either by express declaration or by conduct equally significant with language; such, for instance, as an acquiescence with full knowledge in the use of his invention by others; or he may forfeit his rights as an inventor by a willful or negligent postponement of his claims." To the same effect is Shaw v. Cooper, 7 Pet. 292. These were cases, it is true, where the alleged dedication to the public, or abandonment, was before any application for a patent, but it is obvious there may be an abandonment as well after such an application has been made and rejected, or withdrawn, [under former practice], as before, and evidenced in the same manner. In Adams v. Jones (1 Fish. Pat. Cas. 527), Mr. Justice Grier said, "a man may justly be treated as having abandoned his application if it be not prosecuted with reasonable diligence. But involuntary delay, not caused by the laches of the applicant, should not work a forfeiture of his rights."

The patent law favors meritorious inventors by conditionally conferring upon them for a limited period exclusive rights to their inventions. But it requires them to be vigilant and active in complying with the statutory conditions. It is not unmindful of possibly intervening rights of the public. The invention must not have been in public use or on sale more than two years before the application for a patent is made, and all applications must be completed and prepared for examination within two years after the petition is filed, unless it be shown to the satisfaction of the commissioner that the delay was unavoidable. All this shows the intention of Congress to require diligence in prosecuting the claims to an exclusive right. An inventor cannot without cause hold his application pending during a long period of years, leaving the public uncertain whether he intends ever to prosecute it, and keeping the field of his invention closed against other inventors. It is not unfair to him, after his application for a patent has been rejected, and after he has for many years taken no steps to reinstate it, to renew it, or to appeal, that it should be concluded he has acquiesced in the rejection and abandoned any intention of prosecuting his claim further. Such a conclusion is in accordance with common observation. Especially is this so when, during those years of his inaction, he saw his invention go into common use, and neither uttered a word of complaint or remonstrance, nor was stimulated by it to a fresh attempt

to obtain a patent. When in reliance upon his supine inaction the public has made use of the result of his ingenuity, and has accommodated its business and its machinery to the improvement, it is not unjust to him to hold that he shall be regarded as having assented to the appropriation, or, in other words, as having abandoned the invention.

There may be, it is true, circumstances which will excuse delay in prosecuting an application for a patent, after it has been rejected, such as extreme poverty of the applicant, or protracted sickness. Of such cases we are not now speaking. None of these ordinary and accepted reasons for Woodbury's inaction during the more than sixteen years that elapsed between 1854 and his presentation of the new petition upon which his patent was granted, are found in this case. * * *

No effort was made in the Patent Office to have the rejected application reinstated, though such an effort must have been successful had it been made, and apparently Woodbury acquiesced alike in the rejection and in the withdrawal, until December, 1870, when his new application was made. During all this time he was in frequent communication with the Patent Office, prosecuting, and successfully, other applications for patents. He was not pressed by poverty to such an extent as to hinder his renewal of his application. This is shown by direct evidence, and by the fact that he had means to sue for and obtain other patents. Nor was he unwarned of the danger of delay. Very soon after 1854, if not before, the use of planing machines containing pressure-bars in combination with rotary cutters and a solid bed, was general. The defendant's answer asserts that before Dec. 5, 1870, and since the withdrawal of Woodbury's rejected application, many thousand planing machines, containing his invention, had been constructed, sold, and used in the United States, and this assertion is accepted in the appellant's brief. This fact must have been known by him. Upon this subject the evidence is very full. As we have seen, the distinctive element of Woodbury's invention was the substitution of yielding pressure-bars for the rollers employed in the Woodworth patent. A machine patented to Joseph E. Andrews in 1845 had those pressure-bars, and Woodbury was engaged for years in selling those machines. Between 1852 and 1854 three Cornell machines of the Woodworth patent, rotary cutter, yielding pressure-bars combined with a solid bed were used by John F. Keating in his shop at Boston. Mr. Woodbury was repeatedly there while they were in use, and examined them, but he never suggested that he had any claim to the use of pressure-bars in planing machines. There is ample evidence also that hundreds of other machines containing the same device were manufactured and sold in Boston between the years 1854 and 1870, and were frequently seen by Mr. Woodbury, calling forth no

remark from him indicating that they were invasions of his rights. In view of all this, it is of little importance that from time to time he expressed a hope to his brother, and, perhaps, occasionally to some others, that he should some time, and in some way, obtain a patent. Such was not his language to the public. His inaction, his delay, his silence, under the circumstances, were most significant. Though not express avowals of abandonment, "to reason's ear they had a voice" not to be misunderstood. They spoke plainly of acquiescence in the rejection of his application for a patent. They encouraged the manufacture and sale of his invention.

And there is no sufficient explanation of Mr. Woodbury's conduct, nothing which can be regarded as an adequate excuse for it. The rule of the Patent Office was not a statutory rule. It was at most only a rule of practice in the office, and it was not inflexible. The action of the office exhibits many instances in which departures from it were made before the act of Congress of 1870 was passed, and even before Mr. Fisher, the Commissioner of Patents, abolished it. (Case of J. W. Cochran, Commissioner's Decision, 1869.) If Woodbury did not intend to acquiesce in the rejection of his application, the rule was no bar to a movement by him to have it reinstated after its withdrawal. So he might have applied for a re-examination, or might have appealed, or might have filed a new one. Thus, he would have given notice that he did not intend to give up his invention to the public.

There is a wide difference between this case and Smith v. Goodyear Dental Vulcanite Co., 93 U. S. 486. In the latter case it appeared that after three successive rejections, the last in 1856, the application was never withdrawn nor any portion of the fee claimed. Still the applicant did not remit his efforts. He was in ill-health and wretchedly poor. But he continued to assert his expectations of ultimately obtaining a patent; made frequent applications to his friends for advances to enable him to prosecute his claim; attempted to appeal; until finally, in 1864, eight years after the third rejection, the patent was obtained. The patentee had never relaxed his vigilance. He had left nothing undone which he could. He had kept his flag constantly flying. Nobody had been encouraged by any act or inaction of his to appropriate his invention. His patent was, therefore, sustained, and sustained only because he had been guilty of no laches. The conduct of Woodbury was in striking contrast with that we have described, and which is described more fully on page 491 of the report.

We are constrained, therefore, to hold that Woodbury's invention was abandoned by him before he obtained his patent. * * *

135. UNIVERSAL ADDING MACHINE CO. v. COMPTOGRAPH CO., 145 Fed. 981, 77 C. C. A. 227 (1906, Seventh Circuit, Patent No. 628,176).

Before Grosscup, Baker and Seaman, Circuit Judges.

Grosscup, Circuit Judge (after stating the facts): The claims relied upon are generic. If sustained they would exclude any other adding machine from using a lateral movement produced by the pressing of a key. The contention is that Felt was a pioneer in this particular improvement, and is entitled therefore not only to the broad claims set forth, but to the allowance of time said to have been necessarily taken—about eight years—to bring the improvement to perfection.

The patent was applied for May 31st, 1898, and allowed July 4th, 1899. Admittedly the adding machine, tabulating figures in single columns, was at that time in full use. The improvement was intended merely to embody the tabulations in parallel columns, thus introducing greater compactness, and greater convenience in the sheets containing the tabulated figures.

It turns out however, that at the time the Felt patent was applied for and allowed, there was another patent in existence—No. 580,863, applied for Sept. 16th, 1896, and issued April 20th, 1897, to Hiett and Cable; this earlier patent disclosing descriptively, though not claiming generically, all that is contained in claims one, two and four of the Felt patent in suit. Indeed, Felt's only escape from the Hiett patent, as an anticipating device, lies in the claim that though the Felt patent was not applied for until 1898, the idea was conceived, and put into process of mechanical development in 1889 and 1890—a conception and mechanical embodiment that at that date was entirely practical and operative, and only needed certain accessories to make it commercially a success. * * *

For anything the record shows, all of these accessories could have been added more than two years prior to the application for the patent. And the significance of this silence is emphasized by the fact that though the Hiett patent admittedly embodies them all, more than a year and a month elapsed after the issuance of that patent, before Felt incorporated them in his application for the perfected machine.

All this leads us up merely to the proposition upon which this case turns. The claims sued upon, as already stated, are generic. Felt seeks to monopolize, in his patent, the right to use a lateral movement to bring about the placing of the figures in parallel columns. Assuming that this concept of the patentee was complete when the patent was exhibited to the census office in 1890, so as to be practicable and operative, the machine was sufficiently completed to obtain a patent (if the feature were patentable at all) upon the broad feature claimed. The accessories subsequently developed

added nothing either to the concept, or to the operativeness of the mechanism embodying the concept. What followed, if anything, was not development or evolution, but improvement merely. And an inventor having grasped an idea, and put it in mechanical form, may not wait to secure a monopoly upon the broad thought until everything in the nature of mere accessory improvement that makes it commercially better has been run out and perfected. To so hold would put it in the power of a paientee to hold back his improvement from the world indefinitely, obtaining in the end a patent that would exclude everything relating to the art, although the whole world had contributed to the perfecting, commercially, of his conception.

One of two things in this case seems to us plain: Either the mechanism of 1890, upon which these broad claims are based, was a mere experiment, inoperative and impracticable, and as such supplanted by the Hiett patent coming some six years later; or else, for the purposes of the broad claims allowed, the mechanism of 1890 was operative and practical, and therefore abandoned or lost through the eight years of inaction that followed. And either view compels us to reverse the decree of the Circuit Court appealed from. The decree of the court below is reversed, and the case remanded with instructions to enter a decree dismissing the bill for want of equity.

[Note.—See Kellogg Switchboard and Supply v. International Tel. Mfg. Co., 158 Fed. 104 and Int. Tel. Mfg. Co. v. Kellogg (C. C. A. Seventh Circuit, 1909), 171 Fed. 651.]

136. SAWYER SPINDLE Co. v. CARPENTER, 143 Fed. 976, 75 C. C. A. 162 (1906, First Circuit).

Before Colt, Putnam and Lowell, Circuit Judges.

Lowell, Circuit Judge: This was a bill in equity to restrain the infringement of letters patent No. 363,425, issued to Sherman for an improved spindle spool. The answer set up the expiration of the patent before suit brought, by reason of the prior expiration of a British patent, No. 2,510, of 1883, alleged to have been issued to Sherman for the same invention.

The patent in suit was applied for July 3, 1882, and was issued May 24, 1887. The provisional specification of the British patent was filed by Clark, Sherman's agent, May 19, 1883, which is taken at the date of the British patent. This expired May 19, 1897.

* * *

At the time the patent in suit was issued section 4887 of the Revised Statutes [U. S. Comp. St. 1901, p. 3382] was in force in its original form. By virtue of that section, the patent was limited to expire with the British patent May 19, 1897. The complainant contended that since the passage of Act March 3, 1903, c. 1019, 32 Stat. 1225 [U. S. Comp. St. Supp. 1905, p. 663], every patent when-

ever granted is limited only by the term expressed in its grant, and is governed by Rev. St. § 4884 [U. S. Comp. St. 1901, p. 3381]. Under this contention, the patent expired May 24, 1904. In order to understand legislation under consideration it is here printed in full.

Revised statutes:

"Sec. 4887. No person shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been first patented or caused to be patented in a foreign country, unless the same has been introduced into public use in the United States for more than two years prior to the application. But every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent, or, if there be more than one, at the same time with the one having the shortest term, and in no case shall it be in force more than seventeen years."

Act March 3, 1897, c. 391, 29 Stat. 692 [U. S. Comp. St. 1901, p. 3382]:

"Sec. 3. That section forty-eight hundred and eighty-seven of the Revised Statutes be, and the same hereby is, amended by inserting on line one, after the words 'no person,' the words 'otherwise entitled thereto,' and on line three, after the words 'cause to be patented,' the words 'by the inventor or his legal representatives or assigns,' and by erasing therein all that portion of the section which follows the words 'in a foreign country,' on lines three and four, and substituting in lieu thereof the following: 'unless the application for said foreign patent was filed more than seven months prior to the filing of the application in this country, in which case no patent shall be granted in this country' so that the section so amended will read as follows:

"'Sec. 4887. No person otherwise entitled thereto shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid, by reason of its having been first patented or caused to be patented by the inventor or his legal representatives or assigns in a foreign country, unless the application for said foreign patent was filed more than seven months prior to the filing of the application in this country, in which case no patent shall be granted in this country.'"

"Sec. 8. That this act shall take effect January first, eighteen hundred and ninety-eight, and sections one, two, three, and four, amending sections forty-eight hundred and eighty-six, forty-nine hundred and twenty, forty-eight hundred and eighty-seven, and forty-eight hundred and ninety-four of the Revised Statutes, shall not apply to any patent granted prior to said date, nor to any application filed prior to said date, nor to any patent granted on such an application."

Act March 3, 1903, c. 1019, § 1, 32 Stat. 1225 [U. S. Comp. St. Supp. p. 663]:

"That section forty-eight hundred and eighty-seven of the Revised Statutes is amended by changing the word 'seven' to 'twelve,' and by inserting after the word 'months' the words 'in cases within the provisions of section forty-eight hundred and eighty-six of the Revised Statutes, and four months, in cases of designs,' and by adding the following words: 'An application for patent for an invention or discovery or for a design filed in this country by any person who has previously regularly filed an application for a patent for the same invention, discovery, or design in a foreign country which, by treaty, convention, or law, affords similar privileges to citizens of the United States shall have the same force and effect as the same application would have if filed in this country on the date on which the application for patent for the same invention, discovery, or design was first filed in such foreign country, provided the application in this country is filed within twelve months in cases within the provisions of section forty-eight hundred and eighty-six of the Revised Statutes, and within four months in cases of designs, from the earliest date on which any such foreign application was filed. But no patent shall be granted on an application for patent for an invention or discovery or a design which had been patented or described in a printed publication in this or any foreign country more than two years before the date of the actual filing of the application in this country, or which had been in public use, or on sale in this country for more than two years prior to such filing, so that the section so amended shall read:

"'Sec. 4887. No person otherwise entitled thereto shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid by reason of its having been first patented or caused to be patented by the inventor or his legal representatives or assigns in a foreign country, unless the application for said foreign patent was filed more than twelve months, in cases within the provisions of section forty-eight hundred and eighty-six of the Revised Statutes, and four months in cases of designs, prior to the filing of the application in this country, in which case no patent shall be granted in this country.

"'An application for patent for an invention or discovery or for a design filed in this country by any person who has previously regularly filed an application for a patent for the same invention, discovery, or design in a foreign country which, by treaty, convention, or law, affords similar privileges to citizens of the United States shall have the same force and effect as the same application would have if filed in this country on the date on which the application for patent for the same invention, discovery, or design was first filed in such foreign country, provided the application in this country is filed

within twelve months in cases within the provisions of section forty-eight hundred and eighty-six of the Revised Statutes, and within four months in cases of designs, from the earliest date on which any such foreign application was filed. But no patent shall be granted on any application for patent for an invention or discovery or a design which had been patented or described in a printed publication in this or any foreign country more than two years before the date of the actual filing of the application in this country, or which had been in public use or on sale in this country for more than two years prior to such filing.'"

Let us consider how the law stood regarding patents like that here in suit at every stage of the legislation, bearing in mind the necessary distinction between the validity of a patent and its term. Act July 4, 1836, c. 357, § 8, 5 Stat. 121, provided that prior foreign patenting within six months of the application here should not invalidate the domestic patent, which was left in force as expressed on its face. Act March 3, 1839, c. 89, § 6, 5 Stat. 354, did not affect patents validated by the act of 1836, but, in addition thereto, validated American patents for inventions which had been patented abroad more than six months before the application here. It first gave to foreign patenting an effect upon the term of an American patent for the same invention by reckoning the statutory term of the American patent from the foreign rather than from the American issue. The general codification of the patent laws in Act July 8, 1870, c. 230, 16 Stat. 201, materially changed the effect given to foreign patenting, and in this respect did not merely codify existing legislation. Bate Refrigerating Co. v. Sulzberger, 157 U. S. 1, 41, 15 Sup. Ct. 508, 39 L. ed. 601. The American patent was made to expire with the foreign patent of shortest term, and not at the usual statutory period reckoned from the date of the foreign application. The provisions of section 25 of the act of 1870 were substantially like those of Rev. St. § 4887 [U. S. Comp. St. 1901, p. 3382]. The latter was expressed in two sentences. In substantial accordance with the Acts of 1836 and 1839, as amended by the act of 1870, the first sentence declared that no patent should be deemed invalid because of prior foreign patenting. This sentence dealt with validity as affected by foreign patenting, and with that subject only. The second sentence dealt with the term of an American patent as affected by prior foreign patenting, and not at all with its validity, carrying out the radical alteration of the term which was introduced by the act of 1870.

When granted, the patent in suit fell within the purview of both sentences of section 4887. The first saved it from invalidation by the prior British patenting. The second limited its term by that of the British patent: i. e., May 19, 1897. Had the legislation re-

mained unchanged to the present day the defense to this bill would undoubtedly be complete.

The act of March 3, 1897, was passed before the expiration of the patent in suit. Section 3 amended both sentences of Rev. St. § 4887. The only important amendment to the first sentence invalidated American patents where the foreign application was filed more than seven months before the American application. The second sentence of section 4887 was stricken out altogether. As thus amended, section 4887 dealt solely with the invalidation of patents by reason of foreign patenting, and in no way affected their term. As no legislation remained to give to prior foreign patenting any effect upon the term of an American patent for the same invention, that term stood as fixed by the grant issued under Rev. St. § 4884.

In order to save earlier patents from the operation of the act of 1897 as to their term or validity, section 8 expressly provided that the amendment of Rev. St. § 4887, should not apply to patents granted before January 1, 1898. These were left to be governed by section 4887 in its original form. Therefore the patent in suit was left by the act of 1897 unaffected either as to its validity or as to its term, governed as to the latter by the second clause of section 4887, and not by section 4884. By this saving of rights, some patents were left valid which would have been invalidated had the act of 1897 been made retroactive; e. g., cases in which the foreign patent had been applied for more than seven months before the domestic application. Other patents were left invalid which would have been validated had the act of 1897 been made retroactive; e. g., cases in which the American patent had expired by reason of the expiration of the British patent. The general saving of rights to individuals and to the public made by section 8 applied alike to both cases. The patent in suit, therefore, expired May 19, 1897, as it would have done had the act of 1897 never been passed.

The act of 1903 amended section 4887 as amended. It did not purport to affect the term of patents in any respect but only the requisites of their validity. Before its passage, as has just been said, the patent in suit was controlled as to its term by section 4887 in its original form. The act of 1903 manifested no intention to change this control, or in effect to revive a patent which had expired six years before its passage. Complainant has referred to statutes which repealed earlier legislation imposing penalties or working forfeitures. These repealing statutes have often been given a retroactive effect. But the second sentence of Rev. St. § 4887, imposed no penalty, and worked no forfeiture. Moreover, the case does not stand as if the second sentence of Rev. St. § 4887, had been repealed without qualification. Legislation will not easily be construed to destroy by mere implication rights expressly saved to the public or to individuals in earlier legislation from its

retroactive operation. As the act of 1897 expressly left the patent in suit to expire in 1897, and as the act of 1903 manifested no contrary intention, it follows that the Sherman patent expired before this suit was brought.

We find no sufficient reason to vary the order of the court below respecting costs.

The decree of the Circuit Court is affirmed, and the appellee recovers his costs of appeal.

137. WELSBACH v. APOLLO, ETC., 96 Fed. 332, 37 C. C. A. 508, (1899, Second Circuit).

* * *

Before Wallace and Shipman, Circuit Judges.

Shipman, Wallace Judge (after stating the facts as above): The French patent for a term of 15 years was issued before the date of the application for the United States patent for the same invention, and was in full force at that date, but lapsed for the nonpayment of an annuity before the United States patent issued. The effect which the lapse had upon the life of the United States patent depends upon the proper construction of section 4887 of the Revised Statutes, which was the section in force when the patent was issued, and which was as follows:

"Sec. 4887. No person shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declared invalid by reason of its having been first patented or caused to be patented in a foreign country unless the same has been introduced into public use in the United States for more than two years prior to the application. But every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent, or, if there be more than one, at the same time with the one having the shortest term, and in no case shall it be in force more than seventeen years."

No one of the five decisions of the supreme court which may be supposed to bear upon a decision of this motion was based upon the facts of this case. In Bate Refrigerating Co. v. Hammond, 129 U. S. 151, 9 Sup. Ct. 225, the application for the United States patent was filed December 1, 1876, and the patent was issued on November 20, 1877. A Canadian patent had been issued for five years from January 9, 1877, and, in pursuance of Canadian law, was extended without interruption for two terms of five years each. The question being whether the United States patent expired at the end of five years or of fifteen years from its date, the supreme court said:

"We are of opinion that in the present case, where the Canadian statute under which the extensions of the Canadian patent were granted was in force when the United States patent was issued, and also when that patent was applied for, and where, by the Canadian statute, the extension of the patent for Canada was a matter entirely of right, at the option of the patentee, on his payment of a required fee, and where the fifteen years' term of the Canadian patent has been continuous and without interruption, the United States patent does not expire before the end of the fifteen years' duration of the Canadian patent. This is true although the United States patent runs, on its face, for seventeen years from its date, and is not, on its face, so limited as to expire at the same time with the foreign patent; it not being necessary that the United States patent should, on its face, be limited in duration to the duration of the foreign patent."

In Pohl v. Brewing Co., 134 U. S. 381, 10 Sup. Ct. 577, letters patent of the United States had been issued March 18, 1879, upon application filed in the preceding January. German letters patent for the same invention had been issued to the same inventor in September, 1877, which could run until December, 1891, but became forfeited in 1880 for neglect to pay the required annuities, and a French patent for the same invention began to run from September, 1877, for 15 years, but expired in 2 years by reason of the same neglect. The supreme court held that the potential term, and not the period of actual existence, was to govern, and said:

"There is nothing in the statute which admits of the view that the duration of the United States patent is to be limited by anything but the duration of the legal term of the foreign patent in force at the time of the issuing of the United States patent, or that it is to be limited by any lasping or forfeiture of any portion of the term of such foreign patent, by means of the operation of a condition subsequent, according to the foreign statute. In saying that 'every patent granted for an invention which has been previously patented in a foreign country shall be so limited as to expire at the same time with the foreign patent,' the statute manifestly assumes that the patent previously granted in a foreign country is one granted for a definite term; and its meaning is that the United States patent shall be so limited as to expire at the same time with such term of the foreign patent."

The decision in Commercial Mfg. Co. v. Fairbank Canning Co., 135 U. S. 176, 10 Sup. Ct. 718, has no appreciable bearing upon this case. An original United States patent was applied for December 13, 1873, and was issued December 30, 1873. A Bavarian patent was granted April 8, 1873, and expired April 8, 1876, by limitation of its term. An Austrian patent was granted October 31, 1869, and expired May 26, 1876, "on account of not being carried out"

in Austria. Application for a reissue of the United States patent was made in May, 1882, and was granted June 13, 1882. The great question before the circuit and the supreme courts was whether the foreign patents were identical with those of the United States, and the circuit court, upon finding that they were, said that the reissue was void, because "the application on which it was granted was not made until May 20, 1882." The supreme court found that the circuit court's findings of fact and conclusions of law were correct.

The decision in Bate Refrigerating Co. v. Sulzberger, 157 U. S. 1, 15 Sup. Ct. 508, was confined to the single point that the provisions of section 4887 "refer to foreign patents granted previously to the issue of letters patent for the same invention by the United States, and not to foreign patents granted previously to the application for the American letters."

The remaining case is that of Huber v. Manufacturing Co., 148 U. S. 270, 13 Sup. Ct. 603, which is thought to have an important bearing upon the question now at issue. Letters patent of the United States were granted to an assignee of the inventors on June 27, 1882. An English patent, dated April 7, 1874, for the same invention, had been granted to the inventors for 14 years, but expired on April 7, 1881, by reason of the non-payment of stamp duty. The application for the United States patent was filed more than seven months after the English patent had become void. The case was tried in the circuit court after the decision in the Bate Case and before that in the Pohl Case, and its opinion, based upon a widely extended misapprehension of the tenden[illegible] of the Bate decision, was to the effect that under section 4887 t[illegible]erm of the actual existence, and not the legal term, of the foreign patent, limited the duration of the United States patent, and that the section "presupposed that at the date of the United States patent there was in force a foreign patent for the invention, and that, if there was no such foreign patent in force when the patent was issued, but only one which had lapsed and become void, although theretofore granted for the invention, there was no authority in law for the United States grant." The circuit court decreed that the United States patent was issued without authority of law, and was void, upon reasoning which was decided in the Pohl Case to be without foundation. Judge Blatchford was careful not to affirm, although he quoted the theory upon which the decree of the trial court was based. He had previously said that the "decision was made upon the interpretation which the [circuit] court gave to" the Bate Case. Pohl v. Brewing Co., supra. His conclusion was, "We are of opinion that, as in the case at bar the foreign patent was not in force when the United States patent was issued, the latter patent never had any force or validity"; and gave as the apparent reason for the conclu-

sion that "the delay in applying for the United States patent until after the foreign patent expired amounted to an abandonment of the right to a United States patent. This is in accordance with the view of the commissioner of patents in Mushet's Case" (1870), which was an application for the extension of the term of a United States patent after the foreign patent for the same invention had expired,—an application which was at that time to be made to the commissioner of patents.

All the decisions of the supreme court upon section 4887 were intended to be limited to the question which arose upon the precise facts of the respective cases, and are to be so regarded, notwithstanding any general language which was used. The Huber Case is an authority only for the right to obtain a United States patent applied for seven months after a foreign patent had expired, and after its owners manifestly regarded it as of no importance, and consequently after the abandonment of the right to a United States patent. There has been no authoritative decision by that court upon the facts of the case at bar. The Pohl and Huber Cases simply suggest what may be their decision upon the facts as now presented. Section 4887 provided that prior foreign patenting should not be a bar to a United States patent, unless under certain circumstances, but that such patent should not extend beyond the term of the life of its foreign predecessor. If the invention or the right to a patent had been abandoned before the application for a United States patent, its issuance was prohibited under another section. If there had been no abandonment before application, but the issuance of the United States patent was delayed until the foreign patent had become forfeited by noncompliance with some statutory provision, the question is whether, when issued, its life had been destroyed, or whether its life was upon the declared or legal term of the foreign patent. If its life was destroyed, its destruction was effected while the application was under examination, and was delayed in the patent office. Such a result would be at variance with the spirit of the section, the intent of which was to make the United States term coterminous with the possible foreign term. If its life is a continuous one for 15 years, the construction makes the patent system a uniform one, and independent of mishaps occurring after the applicant was entitled to his patent, and which would have had no effect if the office could have been more prompt. The appellee's construction, in view of the effect of the decision in the Pohl Case, seems harsh and inequitable. Under that decision the legal term of a foreign patent in being when the United States patent was issued is the term of the life of the later patent, although the foreign patent should be forthwith forfeited. Under the construction asked for, if the foreign patent was forfeited pending the application for an American patent, its issuance is barred. It is

very probable that any difficulty which exists in the construction of the section is because it was drawn with reference only to the state of facts which ordinarily arise, and the conditions which we are now considering did not occur to the draftsman. The section is applicable to the case at bar because the foreign patent was "previously patented"; but there is no requirement that the foreign patent must be in force at the date of the United States patent, and in searching for the meaning of the section, as applied to this case, the words "to expire at the same time" should have the same construction in each set of circumstances, and should be taken to mean that the United States patent expires at the end of the term prescribed in the previous foreign patent.

The appellees make the point that a Rawson German patent of July 24, 1887, was void ab initio by reason of the publication of the specification of the Rawson English patent on July 23, 1887, because the German statute provides that an invention is not regarded as new if it has already been described in any printed publication, or publicly used in Germany, at the time of application for a patent, etc. The filing of the application must have been on July 23d, as appears from the testimony of one of the defendant's witnesses, and it does not appear that the English specification was published before July 23d. This point is without value as it is now presented.

The order of the circuit court is reversed, with costs.

138. WELSBACH LIGHT CO. v. AMERICAN, ETC., LAMP CO., 98 Fed. 613, 39 C. C. A. 185 (1899, Second Circuit, Patent No. 470,963).

Wallace, Shipman, Judges.

Shipman, J.: * * *

This is not the case of an interference in the Patent Office or of a contest in the courts between two original inventors for priority of invention, in which it is the established rule under section 4923 that an original inventor who applies for Letters Patent of the United States can not be deprived of his right to a patent by the fact that an inventor had made in a foreign country at a prior date the same original invention, but which had not been described at a prior date in a patent or in a printed publication. (Ireson v. Pierce, 39 Fed. Rep., 797; Roemer v. Simon, 95 U. S., 214; Elizabeth v. Pavement Co., 97 U. S., 126.) The subject of the practice in the Patent Office upon two applications by two original inventors in a foreign country of the same invention is stated in Lauder v. Crowell, (16 O. G., 405). Neither the practice under nor the established construction of section 4923 has a bearing upon this case, because Welsbach is not shown to have been in any country an inventor of the Rawson improvement; but if it was used in this country either before or after the date of the Rawson United States patent by a person not claiming under the Rawsons it was

used by an infringer. This question then arises: Can an infringer defeat Letters Patent of the United States to an original inventor in a foreign country by proof that a few days before the date of a prior foreign patent to the same inventor, but not before the date of the application for such patent and less than two years before the date of the application for a United States patent, the invention was used in this country by a person who did not invent it?

It is contended by the defendant that under section 4886 of the Revised Statutes the Rawson patent was void on the ground that the improvement was known and used in this country before the invention thereof, because the actual inventor is not permitted to show that the date of his invention was prior to the date of his foreign patent. The section is as follows:

"Any person who has invented or discovered any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement thereof, not known and used by others in this country and not patented or described in any printed publication in this or any foreign country before the invention or discovery thereof, or not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may upon payment of the fees required by law, and other due proceedings had, obtain a patent therefor."

The section gives to an inventor, foreign or domestic, the right to a patent unless certain conditions existed, neither of which in fact existed in this case. The Rawson invention had not been patented or described in any country before the patentees invented it, had not been in public use or on sale for more than two years prior to their application, had not been abandoned, and had not been known or used in this country by any one before the date of the invention.

If no other disabilities prevent, an inventor may obtain a patent of the United States for an invention made and previously patented in a foreign country unless the same has been introduced into public use in the United States for more than two years prior to the application (section 4887), which is, in substance, the qualification which exists in section 4886 as applicable to any invention, and it is not necessary that the introduction shall have been made with the consent of the inventor. (Andrews v. Hovey, 123 U. S. 267; 124 U. S. 694.) It is, however, said that the section requires that the invention must not have been known or used in this country before the date of the invention and that the date of the publication of the foreign Rawson patent is the date *de jure*. The section applies to all inventions irrespective of the place of their origin, and the term "date of invention" is used without discrimination between classes of inventions. The theory of the defendant is that as to the domestic inventor knowledge in

this country must precede the actual date of the invention, but that as to a foreign inventor knowledge in this country need only precede the date of the publication of his foreign patent. We are of opinion that the language of the section refers to the actual and not an artificial date, and that where there is no contest between inventors, if knowledge in this country did not precede the actual date of the invention, unless it had been used in this country for two years before the application, the inventor was entitled to a patent.

This question was before Judge Dallas in Hanifen v. Godschalk Co., (78 Fed. 811,) and before Judge Townsend in Hanifen v. Price, (96 Fed. 435) whose opinions are in conformity with those herein expressed. Our conclusion is that as against an infringer the patentee in a United States patent for an invention previously made by him and patented in a foreign country may, to avoid alleged use in this country by an infringer, before the date of the foreign patent, show the date of the application for the foreign patent for the purpose of showing the actual date of his invention in a foreign country.

Upon the facts shown in the record it is not, in our opinion, certain that the Rawson improvement was introduced into this country before July 23, 1887. It is true that Welsbach came to New York on April 24, 1887, for the purpose of organizing a corporation and manufacturing mantles and opened an office at No. 10 Wall street and paid rent for the months of June and July of that year. A sufficient number of witnesses testify that they worked in the office for a part of the month of June and, after an intermission of three or four weeks, in Warren street in July and used a process like the Rawson process. There are a variety of circumstances which throw doubt upon the credibility of the fact of the use of the improvement at that early period, although undoubtedly it was subsequently used. It is, however, unnecessary to recite the circumstances of this part of the case or to make a finding thereon.

The defendants also make the point that the English Rawson patent was confined by its terms to a hot process and that a cold process was a new invention and therefore was known in this country before Rawson made it. The conclusion that a cold process was a new invention made after the date of the English patent does not seem to us to rest upon sufficient evidence.

The effort which was made to show that William S. Rawson was the sole inventor of the invention of the Rawson's patent fails to convince the mind and was not persuasive.

The order of the circuit court is affirmed with costs.

139.

[Note: The International Convention for the protection of "Industrial Property" comprises a series of conventions or treaties beginning with one signed at Paris on March 20, 1883, and ratified by the United States on March 29, 1887. There have been subsequent treaties and conventions intended within the period of twelve months to give to an applicant in the subscribing countries the advantage of the filing date of his application for the same invention in any of the countries. The relation of these conventions to R. S. Sec. 4887 as amended March 3, 1903, has not yet been settled. The following are from Underwood's Digest:

"Article 4 bis, of the International Convention.

"Article 4 bis. inserted in the International Convention for the Protection of Industrial Property of March 20, 1883, by the additional convention or act of December 14, 1900, did not have the effect of changing the term of an existing United States patent as fixed by the statute at the time of its issuance. United Shoe Machinery Co. v. Duplessis Shoe Machinery Co., 155 Fed. 842 (1st Cir. 1907)."

International Convention—treaties—construction and effect—relation to Statutes.

Treaties and statutes of the United States have always been practically put in the same class, so far as judicial action is concerned, to the extent that a later treaty has the same effect on a prior statute that a later statute has, and may supersede it as a later statute may supersede a prior treaty. Nor is there any practical distinction as between a statute and a treaty with regard to its becoming presently effective without awaiting further legislation which depends entirely upon its terms. Id.

Convention of 1900, when ratified, self-executing—Article 4 bis.

(C. C. A. 3d Cir. 1909). By the convention concluded at Brussels December 14, 1900, by the International Conference for the Protection of Industrial Property, at which the United States was represented, it was among other things ordained: "Art. 4 bis. Patents applied for in the different contracting states by persons admitted to the benefits of the convention under the terms of articles 2 and 3 shall be independent of the patents obtained for the same invention in the other states, adherents or nonadherents to the Union. This provision shall apply to patents existing at the time of its going into effect. The same rule applies to the case of adhesion of new states to patents already existing on both sides at the time of the adhesion." This convention was ratified by the Senate March 7, 1901, and proclaimed by the President to go into effect September 14, 1902. (32 Stat. 1936.) Held that such treaty

was self-executing, and the effect of its ratification was a complete doing away with the interdependence of foreign and domestic patents, and of the limitation imposed on the term of domestic patents for inventions previously patented in foreign countries by Rev. St. § 4887, prior to its amendment in 1897 (U. S. Comp. St. 1901, p. 3382). (Per Archbald, District Judge, and Gray, Circuit Judge, concurring) (See Treaties, Cent. Dig. § 11; Dec. Dig. § 11). (Opinion of Judge Archibald, not the opinion of the court. See Union Typewriter Co. v. L. C. Smith Bros., 173 F. pp. 298, 299). Hennebique Const. Co. v. Myers et al., 172 F. 869.

Article 4 bis self-executing.

(C. C. A. 3d Cir. 1909). Article 4 bis "must be regarded as self-executing. A contrary opinion was given by the Attorney General as to the treaty of 1883. (19 Opinions, 275.) And this was followed by the Patent Office, as the correct construction, afterwards. (Ex parte Zwack & Co., 76 O. G. 1855; Butterworth v. Boral, 97 O. G. 1596.) It was accepted, also by the Court of Appeals of the District of Columbia in interference proceedings, carried up from the Commissioner of Patents. Parker v. Appert, 75 O. G. 1201; Rousseau v. Brown, 104 O. G. 1120. In United Shoe Company v. Duplessis Shoe Company, 155 Fed. 842, 84 C. C. A. 76, also, it was held by the Court of Appeals of the First Circuit, that, although article 4 bis on its face was self-executing, it was controlled by implication by the passage by Congress of Act March 3, 1903, c. 1019, 32 Stat. 1225 (U. S. Comp. St. Supp. 1907, p. 1003), to give effect to it. But neither of these views in my judgment can be sustained. Having respect to their terms, it can not be said that either the treaty of 1883 or the additional act of 1900 required legislation here to make it effective." (Opinion of Judge Archbald, not the opinion of the court, see Union Typewriter Co. v. L. C. Smith Bros., 173 F. pp. 298, 299). Hennebique Const. Co. v. Myers et al., 172 F. 869.

Term—Effect of International Convention—Art. 4 bis.

(C. C. N. Y., 1910). Article 4 bis. inserted in the International Convention for the Protection of Industrial Property of March 20, 1883, by the additional act of convention signed at Brussels December 14, 1900, proclaimed by the President August 25, 1902, 32 Stat. 1936, as controlled and construed by Act March 3, 1903, c. 1019, 32 Stat. 1225 (U. S. Comp. St. Supp. 1909, p. 1270), "to effectuate the provisions" of such additional act of convention, did not have the effect of changing the term of an existing United States patent as fixed by statute at the time of its issuance; and such a patent granted prior to January 1, 1898, and which is limited by the provisions of Rev. St. § 4887 (U. S. Comp. St. 1901, p. 3382), to the

term of a prior foreign patent, is not extended by such additional act. (For other cases, see Patents Cent. Dig. §§ 188½-191; Dec. Dig. § 132). Malignani et al. v. Hill-Wright Electric Co., 177 F. 430, 434.]"

[The following under this heading are brief extracts to complete the discussion].

140. TELEPHONE CASES, 126 U. S. 1, 31 L. ed. 863, 8 Sup. Ct. 778.

In doing this [applying the undulatory theory of sound] both discovery and invention, in the popular sense of those terms, were involved; discovery in finding the art, and invention in devising the means for making it useful. For such discoveries and such inventions the law has given the discoverer and the inventor the right to a patent as discoverer for the useful art, process, method of doing a thing he had found; and as inventor for the means he has devised to make his discovery one of actual value. Other inventors may compete with him for the ways of giving effect to the discovery, but the new art he has found will belong to him and those claiming under him during the life of his patent. If another discovers a different art or method of doing the same thing, reduces it to practical use, and gets a patent for his discovery, the new discovery will be the property of the new discoverer, and thereafter the two will be permitted to operate each in his own way without interference by the other. The only question between them will be whether the second discovery is in fact different from the first.

141. BURR v. DURYEE, 68 U. S. 531, 17 L. ed. 650.

Such inventions partake of the nature of discoveries, either found out by experiment or the result of a happy thought, which, when once expressed, is plain to all intelligent persons, who could point out at once many devices for making it effectual. Anyone can perceive the difference of such a case from the invention of a labor saving machine, which is a mere combination of certain mechanical devices to produce a desired manufacture in a cheaper or better manner.

[See dissenting opinion *infra*, No. 93, and caustic comment in opinion of majority.]

142. PHILADELPHIA, ETC., CO. v. STIMPSON, 14 Pet. (U. S.) 448, 10 L. ed. 535.

The invention itself is an intellectual process or operation; and like all other expressions of thought, can in many cases scarcely be made known, except by speech. The invention may be consumated and perfect and may be susceptible of complete description in words, a month or even a year before it can be embodied in a visible form, machine or composition of matter.

143. MAGOWAN v. NEW YORK, BELTING, ETC., CO., 141 U. S. 332, 35 L. ed. 781, 12 Sup. Ct. 71.

We think that Gately made a substantial discovery or invention, which added to our knowledge and made a step in advance in the useful arts.

144. COWLES ELECTRIC, ETC., ALUMINUM CO. v. LOWREY, 79 Fed. 331, 24 C. C. A. 616.

Discoveries of natural forces or of their laws are not the subjects of patents. It is only the employment of such forces by invented means, for useful purposes, which gives the inventor any standing ground.

145. MITCHELL v. TILGHMAN, 86 U. S. 287, 22 L. ed. 125.

Doubtless an invention may be good though the subject of it consists in the discovery of some principle of science or property of matter, never before known or used, by which some new and useful result is obtained, and such an invention or discovery may be the subject of a valid patent without including in the claim any new arrangement of machinery to accomplish the object, provided the inventor describes, as required in the patent law, the method, process or means of applying the invention to practical use and of obtaining the described new and useful result.

146. CARVER v. HYDE, 16 Pet. (U. S.) 513, 10 L. ed. 1051.

The end to be accomplished is not the subject of a patent. The invention consists in the new and useful means of obtaining it.

147. SEYMOUR v. OSBORNE, 78 U. S. 516, 20 L. ed. 33.

Improvements in machines protected by letters patent may also be mentioned, of a much more numerous class, where all the ingredients of the invention are old, and where the invention consists entirely in a new combination of the old ingredients, whereby a new and useful result is obtained, and many of them are of great utility and value, and are just as much entitled to protection as those of any other class.

* * * *

Improvements for which a patent may be granted must be new and useful, within the meaning of the patent law, or the patent will be void, but the requirement of the Patent Act in that respect is satisfied if the combination is new and the machine is capable of being beneficially used for the purpose for which it was designed, as the law does not require that it should be of such general utility as to supersede all other inventions in practice to accomplish the same object.

148. O'REILLY v. MORSE, 15 How. (U. S.) 62, 14 L. ed. 601.

Nor can its validity be impeached upon the ground that it is an improvement upon a former invention, for which the patentee had himself already obtained a patent. Any other inventor might do so; and there would be no reason, in justice or in policy, for refusing the like privilege to an original inventor.

He must stand on the same footing with any other inventor of an improvement upon a previous discovery. Nor is he bound in his new patent to refer specially to his former one. All that the law requires is that he shall not claim as new what is covered by a former invention, whether made by himself or any other person.

149. GOSHEN SWEEPER CO. v. BISSELL CARPET SWEEPER CO., 72 Fed. 67, 19 C. C. A. 13.

A patent is addressed to those familiar with the art. A new and useful improvement upon an old machine is just as much the subject of patent rights as a new machine. All that the inventor is required to do is to point out distinctly the part he claims as new, so as to advise the public as to the extent of his invention and what is thereby withdrawn from the public.

150. CANTRELL v. WALLICK, 117 U. S. 689, 29 L. ed. 1017, 6 Sup. Ct. 970.

The first defense is based on the theory that a patent can not be valid unless it is new in all its elements as well as in the combination. * * * But this theory can not be maintained. If it were sound no patent for an improvement on a known contrivance or process could be valid. And yet the great majority of patents are for improvements in old and well known devices or on patented inventions.

Two patents may be both valid when the second is an improvement upon the first, in which event, if the second includes the first, neither of the two patentees can lawfully use the invention of the other without the other's consent.

151. SMITH v. NICHOLS, 88 U. S. 112, 22 L. ed. 566.

But the mere carrying forward of new or more extended application of the original thought, a change only in form, proportions or degree, the substitution of equivalents, doing substantially the same thing in the same way by substantially the same means with better results, is not such invention as will sustain a patent. These rules apply alike, whether what preceded was covered by a patent or rested only in public knowledge and use. In neither case can there be an invasion of such domain and an appropriation of anything found there. In one case everything belongs to the prior patentee; in the other to the public at large.

152. THOMSON-HOUSTON ELECTRIC CO. v. LORAIN STEEL CO., 117 Fed. 249, 54 C. C. A. 281.

Where, of a number of independent inventors working in the same field, one takes the last step which accomplishes the result sought, a strong presumption of invention is raised in his favor. But where a number of workers in a single field, when confronted by an obstacle to the development of a device, naturally, and practically contemporaneously, independently substitute one well-known material for another, and, finding that it successfully overcomes such obstacles, use it publicly and privately without any claim of exclusive right, the presumption is raised that such workers rightly regarded the substitution as a mere improvement, a mere choice of material, such as would be adopted or selected by the skilled workman, or a double use.

153. ANDERSON v. COLLINS, 122 Fed. 451, 58 C. C. A. 669.

Where the advance in the art is gradual, and several inventors make valuable improvements and form different combinations, which accomplished the desired result with varying degrees of success, each is entitled to his own combination, so long as it differs from those of his competitors, and does not include theirs.

(National Hollow Brake-Beam Co. v. Interchangeable Brake-Beam Co., 106 Fed. 693, 712, 45 C. C. A. 544, 563; Railway Co. v. Sayles, 97 U. S. 554, 556, 24 L. ed. 1053; McCormick v. Talcott, 20 How. (U. S.) 402, 405, 15 L. ed. 930; Stirrat v. Excelsior Mfg. Co., 61 Fed. 980, 981, 10 C. C. A. 216, 217; Griswold v. Harker, 62 Fed. 389, 391, 10 C. C. A. 435, 438; Adams Electric R. Co. v. Lindell Ry. Co., 77 Fed. 432, 440, 23 C. C. A. 223, 231; Ide v. Trorlicht-Duncker, etc., Carpet Co., 115 Fed. 137, 143, 53 C. C. A. 341). [And in the nearly the same words Kinlock v. Western, 113 Fed. 659, 51 C. C. A. 369.]

154. NATIONAL, ETC., BRAKE-BEAM CO. v. INTERCHANGEABLE BRAKE-BEAM CO., 106 Fed. 693, 45 C. C. A. 544.

It must be remembered, however, that an improvement of an old device or a new combination of old elements not infrequently marks a greater advance in the art and discloses a more useful invention than the conception of the original machine or a knowledge of the old elements of the combination, and that such an improvement is equally entitled with the conception of the original device to the protection of a patent.

155. BULLOCK ELECTRIC MFG. CO. v. GENERAL ELECTRIC CO., 149 Fed. 409, 79 C. C. A. 229.

A thing or a combination of co-operating parts may be invented and the original embodiment of it be shown in a crude and imper-

fect form. The skill of the trained workman will develop the idea of the inventor in more refined, more delicate and more exactly suitable forms than the original. He may cut away needless bulk, he may increase the size of parts, he may make them stronger, if need be, by the substitution of one familiar material for another, make them lighter or heavier, he may divide one part into two, or combine two in one, or make any other transformation of details, so long as he is pursuing and working out the original discovery or invention by the exercise of the insight, good judgment, and expertness which he is expected to possess and apply. And this improvement may go on so long as any improvement in bringing the means already supplied to greater perfection can be made and yet it continues to be only an embodiment of the primal idea.

156. HOLLISTER v. BENEDICT, ETC., MFG. CO., 113 U. S. 59, 28 L. ed. 901, 5 Sup. Ct. 717.

[Detachable coupon revenue stamp.]

As soon as the mischief became apparent, and the remedy was seriously and systematically studied by those competent to deal with the subject, the present regulation was promptly suggested and adopted, just as a skilled mechanic, witnessing the performance of a machine inadequate by reason of some defect, to accomplish the object for which it had been designed; by the application of his common knowledge and experience perceives the reason of the failure and supplies what is obviously wanting. It is but the display of the expected skill of the calling and involves only the exercise of the ordinary faculties of reasoning upon the materials supplied by a special knowledge, and the faculty of manipulation which results from its habitual and intelligent practice; and is in no sense the creative work of that inventive faculty which it is the purpose of the Constitution and the patent laws to encourage and reward.

157. ESTEY v. BURDETT, 109 U. S. 633, 27 L. ed. 1058, 3 Sup. Ct. 531.

Our conclusion is that the absolute length and size of the valve opening was a matter of judgment in view of the state of the art shown, and that there was no invention in making its length and size greater or less in a reed board of a given width, or where the reed board was made wider or narrower or had more or less sets of reeds in it, either full or partial.

158. EAMES v. WORCHESTER POLYTECHNIC INSTITUTE, 123 Fed. 67; 60 C. C. A. 37.

The mere change of size or form of a simple structure, or of an element in a combination, made for the purpose of accommodating it to its work within the sphere of its contemplated uses, does not amount to invention.

159. WINANS v. DENMEAD, 15 How. (U. S.) 330, 14 L. ed. 717.

To change the form of an existing machine, and by means of such change to introduce and employ other mechanical principles or natural powers, or, as it is termed, a new mode of operation, and thus attain a new and useful result, is the subject of a patent.

160. WERNER v. KING, 96 U. S. 218, 24 L. ed. 613.

But where form is of the essence of the invention, it is necessarily material; and, if the same object can be attained by a machine different in form where that form is inseparable from the successful operation of the instrument, there is no infringement.

161. STANDARD OIL CO. v. SOUTHERN PACIFIC CO., 54 Fed. 521, 4 C. C. A. 491.

Is this invention a mere aggregation or is it a patentable combination? What is the distinction between mere aggregation and a patentable combination? A combination of well-known separate elements, each of which when combined operates separately and in its old way, and in which no new result is produced which can not be assigned to the independent action of one or the other, of the separate elements, is an aggregation of parts, merely and is not patentable. But if to adapt the several elements to each other in order to effect their co-operation in one organization demands the use of means without the range of ordinary mechanical skill, then the invention of such means to effect the mutual arrangement of the parts would be patentable. The parts need not act simultaneously, if they act unitedly to produce a common result. It is sufficient if all the devices co-operate with respect to the work to be done, and in furtherance thereof, although each device may perform its own particular function only.

162. MORRIS v. McMILLIN, 112 U. S. 244, 28 L. ed. 702, 5 Sup. Ct. 218.

In view of these facts, which are either matters of common knowledge or well established by the evidence, the only field of invention left for the patent to cover was the application by the old and familiar arrangement of shafts and cog-wheels, of the power of an auxiliary engine to a capstan instead of a windlass. A capstan differs from a windlass in this respect only that its barrel or shaft is vertical, while that of a windlass is usually horizontal. It is plain, therefore, that no such ingenuity as merited the issue of a patent was required for this improvement, but only the ordinary judgment and skill of a trained mechanic.

163. GOODYEAR, ETC., RUBBER CO. v. RUBBER TIRE WHEEL CO., 116 Fed. 363, 53 C. C. A. 583.

To combine old parts in such manner as to produce a new result by their harmonious co-operation may be patentable; but it is equally true that where the combination is not only of old parts, but of old results, without the addition of any new and distinct function, the combination is not patentable.

164. ROGERS v. FITCH, 81 Fed. 959, 27 C. C. A. 23.

Complainants seek to eliminate the Elston patent from the case by the suggestion that the workmen who make mattresses for beds do not make seats for railroad cars. That circumstance, however, is immaterial when an old contrivance is applied in an old way, to an analogous subject, without any novelty in the mode of applying such old contrivance to the new purpose.

165. HEAP v. TREMONT, ETC., MILLS, 82 Fed. 449, 27 C. C. A. 316.

It is true as already stated, that nearly all, if not all, the elements of Grosselin's combination were so common in the practical arts that their use anywhere must be regarded as analogous to previous uses; and especially is this true of the cone pulleys. But this does not wholly settle the matter.

166. JONES v. CYPHERS, 126 Fed. 753, 62 C. C. A. 21.

Whether houses and incubators are or are not in the same class is unimportant. The patent in suit deals with the problem of ventilating an incubator; the two earlier patents, with the problem of ventilating a house or a room; and we are clearly of the opinion that the devising of systems of ventilation belongs to a single art, whether such systems are to be applied to a hospital, a sewer, a ship's hold, a cold-storage box, an incubator, or any other structure where circulation of air is sought to be secured.

167. CONSOLIDATED ELECTRIC MFG. CO. v. HOLTZER, 67 Fed. 907, 15 C. C. A. 63.

In the case at bar it can not be said that there has been a transfer to a "branch of industry remotely allied," of the use of solid in lieu of jointed work, because this substitution has been practiced in every industry, unless it be in the particular one at bar; and it can not be said that the latter is remotely allied to all others, though it may be to some. Whatever has become free and common to the field of practical arts, as a whole, must be free to every part of that field, except under extremely exceptional circumstances.

168. SCHREIBER v. GRIMM, 72 Fed. 671, 19 C. C. A. 67.

It is simply the case of an employment for a new use, and nothing more, and falls within the general doctrines of those cases in which it has been so many times held that the mere extension of a well-known device into another field of usefulness, where the transfer does not involve the faculty of inventive genius, will not support a patent.

169. GENERAL ELECTRIC CO. v. BULLOCK ELECTRIC MFG. CO., 152 Fed. 427, 81 C. C. A. 569.

Obviously, the relation between the mechanical and electric arts was not so close and apparent that it would follow as a matter of course that the invention of a method of bolting a bedstead together, or of securing a wooden covering to an iron pulley, would, of itself, furnish a suggestion for solving the problem of detachably fastening the laminated pole pieces of a field magnet to the solid yoke thereof.

170. RIES v. BARTH MFG. CO., 136 Fed. 850, 69 C. C. A. 528.

Ries got together a collection of old elements, motors, circuits, switches to close circuits, levers, resistance coils, solenoids, and other actuating mechanisms for moving an arm over contact points, dashpots, and (if we look to the Stanley patent and concede appellee's contention) adjustable dashpots, were all old. The prior patents proved this. They show these elements severally, and some in combinations. But none exhibits Ries's combination for any purpose and none foreshadows Ries's thought. That is, Ries disclosed to the world a new desirable result to be attained, and devised a new means by which the new idea could be put to use. Than this, there is no higher quality of invention.

171. JAMES v. CAMPBELL, 104 U. S. 356, 26 L. ed. 786.

A patent for a process and a patent for an implement or a machine are very different things. * * * Where a new process produces a new substance, the invention of the process is the same as the invention of the substance, and a patent for the one may be reissued so as to include both, as was done in the case of Goodyear's vulcanized rubber patent. But a process and a machine for applying the process are not necessarily one and the same invention. They are generally distinct and different.

172. CHEMICAL RUBBER CO. v. RAYMOND RUBBER CO., 71 Fed. 179, 18 C. C. A. 31.

Merely to describe the use of heated acid without any information whatever as to the extent of the required dilution of the

acid, was to add nothing to the stock of common knowledge. Mitchell's invention, it will be observed, rested upon an original discovery, and he was bound to disclose fully to the public, in and by his patents, his modus operandi. Upon this point the provisions of section 4888 of the Revised Statutes are imperative.

173. APPLETON MFG. CO. v. STAR MFG. Co., 60 Fed. 411, 9 C. C. A. 42.

The utterances of the Supreme Court upon the question whether or not a mechanical process is patentable are not in clear harmony, * * * it would seem to follow that processes, which are to be effected wholly by mechanical means, in order to be patentable must be capable of being distinguished from the method of operation or mere function of the mechanism necessary for their accomplishment.

174. DAYTON, ETC., MOTOR CO. v. WESTINGHOUSE, ETC., MFG. CO., 118 Fed. 562, 55 C. C. A. 390.

That method may be practiced by the employment of any means adapted to the purpose, and then known to the art, or which might thereafter become known. To be sure, if the mechanical means employed are the subject of a patent, the party who uses the process must have or secure the right to use the patented method. Assuming for the moment that claim two, just mentioned, was for a combination of generic means, such a claim would cover all known means of the kind enumerated. And it would cover all equivalents which might thereafter be discovered by the ordinary skill of the art, and were not the fruit of invention; and it would dominate the latter, if the latter was of an improvement merely of the means covered by the former invention. But the invention of means hitherto unknown would be an independent invention, not covered by the patent, and, according to the well-settled rule would of itself be entitled to a patent.

175. AMERICAN LAVA CO. v. STEWARD, 155 Fed. 731, 84 C. C. A. 157.

The first and second claims are for a process or processes. They seem to us to be nothing else than claims for the function of the apparatus described. No doubt it is competent, when the circumstances permit it, for an inventor in describing a machine or apparatus which he has devised, to make a claim for a process which his patented device is capable of carrying out. But to entitle him to do this the process must be one capable of being carried out by other means than by the operation of his patented machine, and, unless such other means are known or within the reach of ordinary skill and judgment, the patentee is bound to point them out; for unless the public are informed by what other means the process

can be carried out, the process is to them nothing else than the operation of the machine—in other words the exercise of its functions. In the present case no other means or way of practicing the process are suggested by the patentee than the particular device on which his claim for the apparatus rests. And it is impossible for us to see how the process which is the subject of these claims could be worked by any other means than the particular means described by the apparatus. Certainly it is not explained how else it could be done. Moreover, if the apparatus is not new its functions are not new.

176. UNITED STATES, ETC., GUARANTY CO. v. STANDARD PAVING CO., 95 Fed. 137, 37 C. C. A. 28.

There is, in fact, a difference in the material of the two pavements, and we are inclined to differ from the Circuit Court, and to regard the Perkins patent as patentable, because it was an application of an old process of intense heating, by means of a movable furnace, to different and dissimilar materials. The two processes were not exactly alike. Crochet treated the surface by vivid heat, removed the damaged part, roughened the remaining surface, and added new material. Perkins heated in the same way, reduced the old material to a soft, pliable state, agitated it with a rake, and mixed it with enough new material to fill up the spot to be repaired.

177. PENN., ETC., MFG. CO. v. CONROY, 159 Fed. 943, 87 C. C. A. 149.

The hand and machine methods of chipping glass are essentially the same. The fact that in one case the work is done by a hand tool, and in the other by a machine, does not influence, much less control, the decision of the question. The complainant did not discover a new method of chipping glass. It is rather the old method performed by a new tool. As already suggested, it is impossible to demonstrate wherein the claims of this patent set forth anything not methodically pursued in the hand operation.

178. CAMERON, ETC., TANK CO. v. SARATOGA, 159 Fed. 453, 86 C. C. A. 483.

We, however, are satisfied that Cameron was the first one to subject a flowing current of sewage to the action of anaerobes and aerobes under conditions which secured their separate and successive action. * * * This certainly involved "the use of one of the agencies of nature for a practical purpose." The process is one which puts a force of nature into a certain specified condition and then uses it in that condition for a practical purpose. [Valid.]

179. MAURER v. DICKERSON, 113 Fed. 870, 51 C. C. A. 494.

The patent also describes a process for making it which was new, and up to the present time is the only known process by which it can be produced. Since, then, there was novelty both in the process and product, Hinsberg might have had one claim for the process and another claim for the product.

180. MOSLER, ETC. LOCK CO. v. MOSLER, 127 U. S. 354, 32 L. ed. 182, 8 Sup. Ct. 1148.

After a patent is granted for an article described as made by causing it to pass through a certain method of operation to produce it, * * * the inventor can not afterwards, on an independent application , secure a patent for the method or process, * * * which article was described in that patent as produced by the method or process sought to be covered by taking out the second patent.

181. COCHRANE v. BADISCHE, ETC., SODA FABRIK, 111 U. S. 293, 28 L. ed. 433, 4 Sup. Ct. 455.

While a new process for producing it was patentable, the product itself could not be patented, even though it was a product made artificially for the first time, in contradistinction to being eliminated from the madder root. Calling it artificial alizarine did not make it a new composition of matter, and patentable as such, by reason of its having been prepared artificially for the first time from anthracine, if it was set forth as alizarine, a well known substance.

182. NATIONAL, ETC., FERTILIZER CO. v. SWIFT, 104 Fed. 87, 43 C. C. A. 421.

Given, through such publication of the processes in the prior patents, like ingredients, with coagulation of the albuminoids and resultant product clearly set forth, there was surely no pioneer discovery in chemistry on the part of Van Ruymbeke to authorize a patent for the identical product, however meritorious his advance may have proved in the process to that end.

183. MAURER v. DICKERSON, 113 Fed. 870, 51 C. C. A. 494.

That claim, in terms, is for the described product, having certain distinguishing characteristics which are set forth in the claim with great fullness. In our judgment it is very clear that the claim is not restricted to the product made by the described process, but covers the chemical individual, however produced. We know of no rule requiring a construction limiting a claim for a chemical product to the described process, because the evidence shows that it cannot be made in any other way than by the process recited. No warrant for such a rule is to be found either in the statute or in the decisions.

184. WEATHERHEAD v. COUPE, 147 U. S. 322, 37 L. ed. 188, 13 Sup. Ct. 312.

The argument that a machine must be automatic in order to be patentable is not sound. A piano is not automatic, nor is any tool or implement intended for use by hand. But improvements in any such tool used in an art or industry are patentable.

185. THOMSON-HOUSTON ELECTRIC CO. v. ELMIRA, ETC. R. CO., 71 Fed. 396, 18 C. C. A. 145.

A machine or structure may embody several different inventions. There may be subcombinations in a machine which are new and useful, and operate conjointly to perform some subordinate function. Such a subcombination, if not patented by a claim, might be appropriated by another without infringing a patent for the machine. Being for a different invention, it is the proper subject of a distinct patent.

186. CAMPBELL v. BAYLEY, 63 Fed. 463, 11 C. C. A. 284.

But whether, within the meaning of the patent law, a device should be deemed to be a manufacture or a machine, in order to be patentable, it must be novel; and by the decided cases the test of novelty would seem to be essentially the same in the one instance as in the other.

187. MILLIGAN, ETC., GLUE CO. v. UPTON, 97 U. S. 3, 24 L. ed. 985.

A distinction must be observed between a new article of commerce and a new article which, as such, is patentable. Any change in form from a previous condition may render the article new in commerce; as powdered sugar is a different article in commerce from loaf sugar, and ground coffee is a different article in commerce from coffee in the berry. But to render the article new in the sense of the patent law, it must be more or less efficacious, or possess new properties by a combination with other ingredients; not from a mere change of form produced by a mechanical division. It is only where one of these results follows that the product of the compound can be treated as the result of invention or discovery and be regarded as a new and useful article.

* * *

Where certain properties are known to belong generally to classes of articles there can be no invention in putting a new species of the class in a condition for the development of its properties similar to that in which other species of the same class have been placed for similar development; nor can the changed form of the article from

its condition in bulk to small particles, by breaking or bruising or slicing or rasping or filing or grinding or sifting, or other similar mechanical means, make it a new article, in the sense of the patent law.

188. NATIONAL, ETC., STAMPING CO. v. NEW ENGLAND ENAMELING CO., 151 Fed. 19, 80 C. C. A. 485.

It is only when a new process introduces new characteristics into the manufactured article by which it can be identified and distinguished from all preceding manufactures that the article itself becomes patentably new.

189. WOOD v. UNDERHILL, 5 How. (U. S.) 1, 12 L. ed. 23.

But when the specification of new composition of matter gives only the names of the substances which are to be mixed together, without stating any relative proportion, undoubtedly, it would be the duty of the court to declare the patent to be void. And the same rule would prevail when it was apparent that the proportions were stated ambiguously and vaguely. For in such cases it would be evident on the face of the specification that no one could use the invention without first ascertaining by experiment the exact proportions.

190. UNDERWOOD v. GERBER, 149 U. S. 224, 37 L. ed. 710, 13 Sup. Ct. 854.

As patent No. 348,073 does not claim the composition of matter, although it describes it, that composition must be regarded as disclaimed, and as being public property, and there was no invention in applying it to paper, as claimed in said patent. [See also Brigham v. Coffin, 149 U. S. 557, 37 L. Ed. 845.]

191. BUTTE CITY v. PACIFIC, ETC., R. CO., 60 Fed. 90, 8 C. C. A. 484.

The appellant contends that it is not a patentable combination. We do not think the contention is supportable. All the parts of the device operate to produce one result, and it is easily distinguishable from that claimed in Rockendorfer v. Faber, 92 U. S. 347, and Adams v. Stamping Co., 141 U. S. 539. * * * In the former case the pencil and rubber performed different and independent things. In the latter, the hinge attachment to the lantern was a substitute for a detachable fastening, and went no further.

192. SANDERS v. HANCOCK, 128 Fed. 424, 63 C. C. A. 166.

It is not necessary to a valid combination that all the parts should co-operate all the time. It is enough that, in the normal and progressive use of the machine, they do so some of the time.

193. INTERNATIONAL TIME RECORDING CO. v. DEY, 142 Fed. 736, 74 C. C. A. 68.

It is true that these elements do not act synchronously, but this is not necessary, simultaneous action being frequently absent from patentable combinations.

194. UNITED, ETC., COLLAR CO. v. BEATTIE, 149 Fed. 736, 79 C. C. A. 442.

The elements of the claims, considered separately or in different environments, were, speaking generally, all old. The question here is was the combination old? That the claim covers a combination, and not an aggregation, we have no doubt, even though the operations of the separate elements do not synchronize.

195. NATIONAL v. AIKEN, 163 Fed. 254, 91 C. C. A. 114.

The argument that the straightening press does not act simultaneously with the other devices included in the combination, if true, is not enough to defeat the patent. If that device is so arranged with the other devices made elements in the combination as that each part co-operates to produce a single practical and beneficial result, it is not important that that final result shall have been produced by a simultaneous or successive action of the combined elements.

* * *

If, however, the adaptation of old and separate elements, so that they co-act with each other in a unitary organization, involves the exercise of something more than the skill of an ordinary mechanic, the result may be patentable, if a more beneficial result is effected than by the separate operation of the parts. * * * So if a new combination and arrangement of old elements produces a new and beneficial result, as to greatly increase the productive efficiency of a machine, it is evidence of invention.

196. MAIMEN v. UNION SPECIAL MACHINE CO., 165 Fed. 440, 91 C. C. A. 384.

It is true that the elements of the combination do not act simultaneously; but that is immaterial, since they are nevertheless so arranged that the action of each is necessary and contributes to the general result.

197. MANVILLE MACHINE CO. v. EXCELSIOR NEEDLE CO., 167 Fed. 538, 93 C. C. A. 216.

The fact that a completed product is developed by successive steps in the same machine does not prevent the organized mechanism which produces this result, from being considered a combination. Forbush

v. Cook, 2 Fish. Pat. Cas. 669 Fed. Cas. No. 4,931; Natural Cash Reg. Co. v. American Co., 53 Fed. 367, 3 C. C. A. 559. * * *

A construction of the claims requiring such simultaneous action would relegate even such a marvelous organized machine as the Mergenthaler linotype to the unprotected and defenseless class of aggregations. Mergenthaler Linotype Co. v. Press Pub. Co., 57 Fed. 502.

198. COLUMBUS WATCH CO. v. ROBBINS, 64 Fed. 384, 12 C. C. A. 174.

Drawings and a model have been submitted, showing how easy it is to unite the Colby stem arbor with the Wheeler patent. In our view, this is but wisdom after the fact. We cannot concur in the view that, even if it were known that a combination of the Wheeler patent with the Colby stem arbor would have an advantageous result, mere mechanical skill would enable one to make the combination. The combination shown in the drawings and model submitted is a combination suggested by the Church patent, and which, but for the Church patent, would seem much more difficult than it now does. More than this, it involved patentable invention to see that a union of the elements of the Wheeler patent with those of the Colby patent would have a beneficial result.

199. FAIRBANKS v. STICKNEY, 123 Fed. 79, 59 C. C. A. 209.

Even if it be conceded that the individual elements composing the combination are to be found in the prior art, yet to make the selection of these parts from the prior art, and to combine them, as Hobart did, so as to produce a clutch which is at the same time simple, compact, effective and useful, required, as we think, more than ordinary mechanical skill.

200. DUNN MFG. CO. v. STANDARD COMPUTING SCALE CO., 163 Fed. 521, 90 C. C. A. 331.

It is not of consequence that the elements of each claim may be old, for the claims are for a combination, and if the combination be new, or if by a new mode of organization new or better results are obtained, the patent may be sustained.

201. WARREN STEAM PUMP CO. v. BLAKE, ETC., PUMP WORKS, 163 Fed. 263, 91 C. C. A. 19.

In looking at the prior pump art as illustrated in this record, it may seem a comparatively simple thing to take the old twin bucket air pump of the Coryell patent and combine with it a direct-acting engine located above it. It may also seem a comparatively simple thing, in view of the prior art, to supply a reliable and efficient valve

movement for this structure. But it must be remembered that Whiting & Wheeler were the first to devise such a structure, and that Hall & Gage were the first to devise a valve mechanism specially adapted to that structure, and that it was by these means that the problem of a high-grade air pump was successfully solved.

In an art so highly advanced as the pump art, where all the elements which enter into the construction of a pump may be said to be old, where most conceivable conditions of use have been presented to engineers, and where the art exhibits the greatest variety of form and structure, it is impossible, in many cases, as an abstract proposition, to draw the line between invention and the skill of the designer. There is, however, strong evidence of invention, where we have presented the circumstances such as exist with respect to the patents in suit, namely, a demand for a more efficient air pump, the failure of previous efforts to meet this demand, the immediate success of the patented device, and its great utility. It may also be observed that, if the construction of a successful independent vertical bucket air pump by the elimination of the crank and fly-wheel and the circulating pump as means of control was within the knowledge of any skilled pump designer, it is remarkable that such a pump was not built as soon as it appeared that the existing pumps were unsatisfactory. Again, it may be said that these patents belong to the class which the patent law was designed to protect, inasmuch as they cover a device which is new and useful, and which immediately met a public want. For these reasons we are of the opinion that these patents involved the exercise of the inventive faculty, as distinguished from mere mechanical skill. If, however, in view of the prior art, there is any doubt upon this question of invention, that doubt must be resolved in favor of the patents by reason of the utility, efficiency, and extensive commercial use of this air pump.

202. FLORSHEIM v. SCHILLING, 137 U. S. 64, 34 L. ed. 574, 11 Sup. Ct. 20.

[Quoting Pickering v. McCullough and citing numerous cases.]

"The combination of old devices into a new article, without producing any new mode of operation [result] is not invention."

203. IDE v. TRORLICHT, 115 Fed. 137, 53 C. C. A. 341.

A new combination of old elements, whereby an old result is attained in a more economical and efficient way may be protected by a patent.

204. ANDERSON v. COLLINS, 122 Fed. 451, 58 C. C. A. 669.

His device may not have been a great improvement, but it was certainly a marked advance in the art, and, in view of the numerous

less successful attempts to take the step he took which were rewarded with patents by the government, and in view of the evident inability of those inventors and of the proprietors of mere mechanical skill to reach the point to which Collins attained, the title of inventor ought not to be denied him. His invention is one of those intermediate steps in the gradual progress of a useful art toward perfection which are evidenced by the great majority of patented inventions, and it falls within the familiar rules that a new combination of old elements by which an old result is attained in a more facile, economical and efficient way may be protected by a patent. (National Hollow Brake-Beam Co. v. Interchangeable Brake-Beam Co., 106 Fed. 693, 707, 45 C. C. A. 544, 557; Seymour v. Osborne, 11 Wall. (U. S.) 516, 542, 20 L. ed. 33; Gould v. Rees, 15 Wall. (U. S.) 187, 189, 21 L. ed. 39; Thompson v. Citizens' Nat. Bank, 53 Fed. 250, 252, 3 C. C. A. 518, 520; Ide v. Trorlicht etc., Carpet Co., 115 Fed. 137, 143, 53 C. C. A. 341.)

205. RAILROAD CO. v. DU BOIS, 79 U. S. 47, 20 L. ed. 265.

Undoubtedly a patentee may claim and obtain a patent for an entire combination or process, and also for such parts of the combination or process as are new and useful, or he may claim and obtain a patent for both.

206. THOMSON-HOUSTON ELECTRIC CO. v. BLACK RIVER TRACTION CO., 135 Fed. 759, 68 C. C. A. 461.

Many subcombinations, although new, are not useful, except to perform their appropriate functions in the machine of which they are a part. The description in the patent of the whole machine, and of the means or mode by which the subcombination is brought into co-operative relation with the other parts usually indicates how the subcombination may effect a useful result. When this is so, the combination need not be operative alone, because (to use the language of Mr. Walker), "utility is justly ascribed to things which have their use in co-operating with other things to perform a useful work."

207. GILL v. WELLS, 89 U. S. 1, 22 L. ed. 699.

Cases arise where a patentee, having invented a new and useful combination consisting of several ingredients, which, in combination, compose an organized machine, also claims to have invented new and useful combinations of fewer numbers of the ingredients and, in such cases, the law is well settled that, if the several combinations are new and useful and will severally produce new and useful results, the inventor is entitled to a patent for the several

combinations, provided that he complies with the requirement of the Patent Act and files in the Patent Office a written description of each of the alleged new and useful combinations and of the manner of making, constructing and using the same.

He may give the description of the several combinations in one specification and, in that event, he can secure the full benefit of the exclusive right to each of the several inventions, by separate claims referring back to the description in the specification.

208. KINLOCH TEL. CO. v. WESTERN ELECTRIC CO., 113 Fed. 659, 51 C. C. A. 369.

A plausible and persuasive argument may be made that this combination falls under either class of cases [Atlantic Works v. Brady, 107 U. S. 192, or Loom Co. v. Higgins, 105 U. S. 580], that it might have been and was produced by the skill of the trained mechanic or by the intuitive genius of the inventor. The patent which describes it, however, raises a presumption in favor of its novelty and its patentability. It was a new combination. No such separate yet uniform grouping of corresponding annunciators and answering jacks with a multiple switchboard had ever been made or used before Seeley conceived and described it. That combination was not a pioneer; perhaps it was not a great invention. But it discharged the functions of the multiple switchboard, its annunciators, and switches more speedily and efficiently than they had ever been performed without it, and a new combination of old elements by which an old result is attained in a more facile, economical, and efficient way may be protected by a patent.

209. YAWMAN, ETC., MFG. CO. v. VETTER, DESK WORKS, 159 Fed. 443, 86 C. C. A. 473.

The invention is not a generic one, far from it. Every element of the claims, considered separately and in different environment, was old, but Yawman was the first to assemble them in the combinations in controversy. By so doing he made an advance, which, though it did not go far, entitled him to protection.

210. WILLCOX, ETC., MACHINE CO. v. MERROW MACHINE CO., 93 Fed. 206, 35 C. C. A. 269.

When the increase of speed is so great as it appears to be in this instance and that, too, in an art where increase of speed (efficiency being preserved) is of such practical importance, we are disposed to consider the changes in parts and arrangement of parts as showing meritorious invention. This capacity for high speed is not an afterthought, for at the beginning of the specification, is found the statement, "The machine has been contrived with reference to running at a very high speed."

211. DOIG v. MORGAN MACH. CO., 122 Fed. 460, 59 C. C. A. 616.
[Box—mailing machine].

It is an improvement because it saves time. How much time is thus saved is not entirely clear. * * * But whether it were greater or less, the majority of the court are of the opinion that the device employed to effect it is a simple and obvious mechanical contrivance, quite within the intelligence of the ordinary skilled workman to produce, and that it does not disclose patentable invention.

212. HOUGHTON v. WHITIN MACH. WORKS, 153 Fed. 740, 83 C. C. A. 84.
[Thread-guide for spinning machine.]

In a very considerable sense, and from the very nature of things, every patent so far as the fact of invention is concerned, is to stand, if it stands at all, upon its own inherent merit, and therefore a given situation is not much aided by authorities otherwise than by the relative measure of merit ascertained under somewhat unsatisfactory methods of comparison; but if the ingenious barbed wire twist, which "turned a failure into a success" was invention, surely what Houghton accomplished through a successful substitution of metal parts for wood and by way of an ingenious adaptation of hard-tempered wire and sheet metal parts, so assembled as to be easily adjustable to old and new machines alike, ought to be accepted as invention.

[See for striking example of small point held patentable.]

213. THOMSON-HOUSTON ELECTRIC CO. v ELMIRA, ETC., R. CO., 71 Fed. 396, 18 C. C. A. 145.

Various expedients for switching with such conductors have been resorted to by experts in the art. The fact that they overlooked devices like the patented device, and resorted to clumsy or inconvenient means, cannot be ignored. It was not a great invention, but that it was an invention requiring a degree of ingenuity somewhat beyond the ordinary skill of the calling we are unable to doubt.

214. WESTINGHOUSE v. BOYDEN POWER-BRAKE CO., 170 U. S. 537; 42 L. ed. 1136, 18 Sup. Ct. 707.

The greater simplicity of the Boyden patent certainly entitles it to a favorable consideration. [See, infra.]

215. COMPUTING SCALE CO. v. AUTOMATIC SCALE CO., 204 U. S. 609; 51 L. ed. 645, 27 Sup. Ct. 307.

It is true that many valuable inventions seem simple when accomplished, and yet are entitled to protection. The books abound

in cases showing inventions involving only small departure from former means, yet making the difference between a defective mechanism and a practical method of accomplishing results. In such cases a decision in favor of invention as distinguished from mere mechanical improvement has not infrequently resulted, in view of the fact that the device has made the difference between an impracticable machine and a useful improvement displacing others theretofore occupying the field. Krementz v. S. Cottle Co., 148 U. S. 556, 37 L. ed. 558, 13 Sup. Ct. 719; Consolidated Brake-Shoe Co. v. Detroit, etc., Spring Co., 47 Fed. 894; Star Brass Works v. General Electric Co., 111 Fed. 398, 49 C. C. A. 409.

216. ELDRED v. KIRKLAND, 130 Fed. 342, 64 C. C. A. 588.

Chambers succeeded. Eastman failed. The one produced a lamp having both these characteristics. The other a lamp having but one. Instead of anticipating or seriously limiting the scope of the patent, Eastman offers mute but persuasive tribute to Chambers' skill and ingenuity.

217. OLMSTED v. ANDREWS, 77 Fed. 835, 23 C. C. A. 488.

Utility is not an infallible test of originality. There must be original thought or inventive skill, not mere mechanical change of what was old.

218. DECECO v. GILCHRIST, 125 Fed. 293, 60 C. C. A. 207.

[Patent No. 425,416, Water-Closet.]

It can not be denied that a mere simplification of a very substantial character, disposing of parts which have long been in use, expensive and burdensome in their nature, and which the trade has found no method of dispensing with, may amount to patentable invention. To obtain absolute simplicity is the highest trait of genius.

219. REGENT MFG. CO. v. PENN., ETC., MFG. CO., 121 Fed. 80, 57 C. C. A. 334.

[Patent No. 631,033, Mirror.]

But its very simplicity, in such an old field, should be a warning against a too ready acceptance of the *ex post facto* wisdom of the bystander.

220. PACKARD v. LACING STUD CO., 70 Fed. 66, 16 C. C. A. 639.

It is also probably true that by selecting from the various known machines of that character, and indeed by selecting only from those devised with reference to lacing hooks, including especially the Palmer machine, all the elements of the patented ma-

chine in suit could be brought together. This, however, on well-settled rules, falls far short of demonstrating that appellee's device contains no patentable qualities, though it compels us to regard them as of a limited and restricted character.

221. MILWAUKEE CARVING CO. v. BRUNSWICK-BALKE COLLENDAR CO., 126 Fed. 171, 61 C. C. A. 175.

[Patent 443,802, Carving Machine.]

The elements appear severally, in one or another of such prior patents, but are not all united in either. These patents furnish evidence of the prior state of the art, but do not deprive the new combination of patentable novelty.

222. NEW YORK, ETC., PACKING CO. v. SIERER, 158 Fed. 819, 86 C. C. A. 79.

The Watts patent is a design patent. It illustrates and describes an interlocking tile of precisely the form of one of the figures in the Furness patent. The tiles manufactured under this patent were of pottery ware, and were used for wainscoting. Watts, the inventor, is the assignee of one-third of the present patent. Furness had seen this Watts pottery tile before he applied for his patent. It is apparent, therefore, that what Furness did—and all that he did—was to make the Harland yielding but not interlocking tile in the form of the Watts unyielding but interlocking tile. * * * Was it invention to apply the old interlocking device to yielding tile? Was it invention to change the material of the old interlocking tile and make it yielding? * * * From whatever point of view we examine the present case no patentable invention is to be found. There was no original conception in applying the old interlocking device to yielding tiles. Conversely, there was no invention in changing the material of the old interlocking tiles.

223. O'ROURKE ENGINEERING CONST. CO. v. McMULLEN, 160 Fed. 933, 88 C. C. A. 115.

To assert that Moran's invention [air-locks for caissons] is anticipated by freight elevators which pass through several stories of a building, the openings on each floor being closed by two-part doors, is tantamount to asserting that he who solves the problem of aerial navigation will be entitled to no credit because similar vehicles with the same motive power have traveled successfully over the land and through the water.

224. TELEPHONE CASES, 126 U. S. 1, 31 L. ed. 863, 8 Sup. Ct. 778.

As was said in Loom Co. v. Higgins, 105 U. S. 580, 586, "when the question is whether a thing can be done or not, it is always easy to find persons ready to show how not to do it." If one succeeds, that is enough, no matter how many others may fail.

225. SAUNDERS v. ALLEN, 60 Fed. 610, 9 C. C. A. 157.

Every invention disclosed in a patent, and not claimed, is dedicated to the public, and no one may thereafter appropriate it. It becomes thenceforth as much a part of the art as does the invention disclosed in the same patent and also claimed therein. The question whether an individual is or is not, an original and first inventor or discoverer, can only be determined by comparing what he did or discovered with that body of information upon the subject with which he and all the world are chargeable, and which is called the "state of the art."

226. ROEMER v. SIMON, 95 U. S. 214, 24 L. ed. 384.

Proof of such foreign manufacture and use, if known to the applicant for a patent, may be evidence tending to show that he is not the inventor of the alleged new improvement; but it is not sufficient to supersede the patent if he did not borrow his supposed invention from that source, unless the foreign inventor obtained a patent for his improvement, or the same was described in some printed publication

227. BADISCHE, ETC. SODA FABRIK v. KALLE, 104 Fed. 802, 44 C. C. A. 201.

Much time and space have been devoted to an effort to establish "prior use" in Germany. Since such prior use if established, would be no defense under section 4923, it is difficult to understand why the record is thus encumbered.

228. MAST, ETC., CO. v. DEMPSTER MILL MFG. CO., 82 Fed. 327, 27 C. C. A. 191.

An abandonment is a dedication and like any other dedication it should be clearly proved. It rests upon the intention of the inventor. If he expressly declares, or by his acts clearly shows, his intention to dedicate his invention to the public, a finding of abandonment would be warranted. But such a dedication should not be lightly presumed, because it surrenders a vested right of property.

229. IDE v. TRORLICHT, ETC., CARPET CO., 115 Fed. 137, 53 C. C. A. 341.

Clear evidence of an intention to dedicate an improvement to the public is indispensable to establish an abandonment. * * * The patent in suit and the application upon which it is based are persuasive proof that Ide never intended to dedicate, and never did dedicate, the improvement they secure to the public.

230. UNITED STATES, ETC., CARTRIDGE CO. v. WHITNEY ARMS CO., 118 U. S. 22, 30 L. ed. 53, 6 Sup. Ct. 950.

There may be an abandonment of an invention to the public, as well after an application has been rejected or withdrawn, as before any application is made. Such abandonment may be proved either by express declarations of an intention to abandon, or by conduct inconsistent with any other conclusion.

231. HAYES-YOUNG TIE PLATE CO., v. ST. LOUIS TRANSIT CO., 137 Fed. 80, 70 C. C. A. 1.

There is a wide difference between the abandonment of an invention and the abandonment of an application for it. An abandonment of an application is not necessarily an abandonment of the invention, and after the application has been abandoned a valid patent for the invention may nevertheless be secured upon a new application, provided the invention has not gone into public use or been upon sale for more than two years prior to the filing of the latter. In cases where the first application has not been abandoned, subsequent applications and amendments constitute a continuance of the orgiual proceeding, and the two years' public use or sale which may avoid the patent must be reckoned from the presentation of the first application, and not from the filing of subsequent applications or amendments.

* * *

[Original application abandoned for want of prosecution within statutory period. Applicant attempted to revive the application, but failed. He then filed a second application, but did not file the statutory oath.] The unavoidable conclusion is that the first application of Hayes was abandoned; that the second application was not a continuation of the original solicitation, but the institution of a new and independent proceeding; that the patent is founded on the second application alone; and that the absence of any averment that the invention was not in public use or on sale in this country for more than two years before the latter application was presented to the commissioner is fatal to the cause of action for an infringement of the patent. * * *

But the abandonment of an application destroys the continuity of the solicitation of the patent. After abandonment a subsequent application institutes a new and independent proceeding, and the two years' public use or sale which may invalidate the patent issued upon it must be counted from the filing of the later application.

232. GODFREY v. EAMES, 68 U. S. 317, 17 L. ed. 684.

In our judgment, if a party chose to withdraw his application for a patent and pay the forfeit, intending at the time of such withdrawal to file a new petition, and he accordingly do so, the two petitions are to be considered as parts of the same transaction, and both as constituting one continuous application, within the meaning of the law.

233. AGAWAM CO. v. JORDAN, 74 U. S. 583, 19 L. ed. 177.

Undoubtedly an inventor may abandon his invention, and surrender or dedicate it to the public, but mere forbearance to apply for a patent during the progress of experiments, and until the party has perfected his invention and tested its value by actual practice, affords no just grounds for any such presumption.

234. FROST CO. v. COHN, 119 Fed. 505, 56 C. C. A. 185.

His long delay in making application for the patent creates a strong countervailing presumption, but is reasonably and adequately explained by the surrounding facts and circumstances, and thus explained, ought not to prevail against the very convincing evidence which has been adduced by the complainants.

235. WOODBURY PLANING MACH. CO. v. KEITH, 101 U. S. 479, 25 L. ed. 939.

It has sometimes been said that an invention cannot be held to have been abandoned, unless it was the intention of the inventor to abandon it. But this cannot be understood as meaning that such an intention must be expressed in words.

* * *

His inaction, his delay, his silence, under the circumstances, were most significant. Though not express avowals of abandonment, "to reason's ear they had a voice" not to be misunderstood. They spoke plainly of acquiescence in the rejection of his application for a patent. They encouraged the manufacture and sale of his invention.

236. UNITED STATES RIFLE AND CARTRIDGE CO., ET AL. v. REMINGTON & SONS, 118 U. S., 22, 30 L. ed., 53 (1886).

The renewal of Cochran's application on December 5, 1870, was under the provision of the Act of July 8, 1870, Chap. 230, Sec. 35, which allowed any inventor whose application for a patent had been rejected or withdrawn before the passage of that Act to renew it within six months after its passage; and provided that upon the hearing of such renewed application abandonment should be considered as a question of fact. 16 Stat. at L., 202

The rules of law which must govern this case are clearly established by the judgment of this Court in Planing Machine Co. vs. Keith, 101 U. S., 479. The decision of the commissioner in favor of the application, upon the question of whether the invention has been abandoned, is not conclusive, but may be contested and reviewed in a suit brought for the infringement of the patent. There may be an abandonment of an invention to the public, as well after an application has been rejected or withdrawn, as before any application is made. Such abandonment may be proved, either by express declaration of an intention to abandon, or by conduct inconsistent with any other conclusion. An inventor whose application for a patent has been rejected, and who, without substantial reason or excuse, omits for many years to take any step to reinstate or renew it, must be held to have acquiesced in its rejection, and to have abandoned any intention of further prosecuting his claim.

237. CROWN, ETC., SEAL CO. v. ALUMINUM STOPPER CO., 108 Fed. 845, 48 C. C. A. 72.

Where there is an entire abandonment of all expectation of succeeding in an invention and securing a patent under circumstances that justifies the formation of the expectation that the ideas of the inventor will be always free to the public, and the inventor clearly manifests his intentions to relinquish any rights thereto, the inchoate right to the patent thus abandoned cannot be resumed. But the law does not favor forfeiture, and, it being a question of fact whether there has been abandonment, all reasonable doubts must be resolved in favor of the patent.

238. THOMSON-HOUSTON ELECTRIC CO. v. BLACK RIVER TRACTION CO., 135 Fed. 759, 68 C. C. A. 461.

The original patent in the present case was a division of the application of Van de Poele of April 1, 1890, required by the Patent Office; consequently the description of the unitary structure or mechanism of the original patent, together with claims for combinations embracing the whole structure or apparatus, or combina-

tions of the elements of the reissue with additional elements, such as the tension device, did not work an abandonment or disclaimer of the combination specified in the reissue.

239. CROWN, ETC., SEAL CO. v. ALUMINUM STOPPER CO., 108 Fed. 845, 48 C. C. A. 72.

Experimental use for the purpose of testing the qualities of an invention is never public use, nor is there any proof that the delay operated to mislead others into taking up the invention and with greater diligence perfecting it. The case would be presented in a different aspect if another inventor had entered the field, induced by the supposed abandonment and misled by the delay. It is of no advantage to the public that an inventor should apply for his patent before he satisfies himself as to the best form in which to embody his invention, and the statute which provides that two years' public use shall not work a forfeiture clearly has no application to a case of merely uncompleted experimentation.

240. ELECTRIC GAS LIGHTING CO. v. BOSTON ELECTRIC CO., 139 U. S. 481, 35 L. ed. 250, 11 Sup. Ct. 586.

What he described in the specification of that patent and did not claim is presumed to have been old.

241. KINLOCH TEL. CO. v. WESTERN ELECTRIC CO., 113 Fed. 652, 51 C. C. A. 362.

It is true that the statute requires the inventor to particularly point out and distinctly claim the improvement or discovery which he seeks to secure (R. S., Sec. 4888), and that when he has made his claims he has thereby disclaimed and abandoned to the public all other combinations and improvements that are not mere evasions of the device, combination, or improvement which he claims.

242. SHAW v. COOPER, 7 Pet. (U. S.) 292, 8 L. ed. 689.

The right of the plaintiff to his invention is compared to his right to other property, which cannot be divested by fraud or violence; and the case of Miller v. Taylor (4 Burr. 2303), where seven judges against four held, that at common law an author by publishing a literary composition does not abandon his right, is referred to as illustrative of the principle.

243. SMITH, ETC., MFG. CO. v. MELLON, 58 Fed. 705, 7 C. C. A. 439.

The invention was one which the inventor could have tested in his own home, and by use in his own family. He did not sell simply one or two and wait to see how they satisfied the purchasers or

what defects were discovered by them; but the firm of which he was a member invited the public to buy, representing the beds to be unequaled, and continued to manufacture and sell them from month to month and from year to year, in the same manner as any other article in their stock was manufactured and sold; and each sale was made at a profit and with the contemplation of a profit. The experiment was not a testing for the purpose of discovering defects and perfecting the invention, but a testing of the market, and to see how the article would sell, or, as the inventor said, "to see how it would take with the trade." It was a trader's and not an inventor's experiment. Such a use does not carve an exception out of the statute.

244. WESTERN ELECTRIC CO. v. SPERRY ELECTRIC CO., 58 Fed. 186, 7 C. C. A. 164.

So long as it was not in public use, and no one else had made and procured a patent for the same discovery, his right to apply for a patent was subject to no restriction. Even if he had forgotten the invention, or laid it aside as worthless,—abandoned it,—he had the right to take it up again, and to proceed as if he had then first made the discovery. * * * Even if he did acquire earlier knowledge of Sperry's patent before his own patent was granted, it was only natural and right, as the quotation from the decision of the Supreme Court recognizes, that he should be stimulated to a fresh attempt to obtain a patent, it being clear beyond dispute that he was the first discoverer. [Quoting Planing Mill v. Keith, 101 U. S. 479; and citing United States, etc., Cartridge Co. v. Whitney Arms Co., 118 U. S. 22, 30 L. ed. 53, 6 Sup Ct. 950.] [But compare Nos. 135, 236, 384.]

245. BARR CAR CO. v. CHICAGO, ETC., R. CO., 110 Fed. 972, 49 C. C. A. 194.

Both were free men. White, with the consent of the railway company, could discharge Barr at any time, and Barr was at all times at liberty to leave his employment. It would be carrying the rule a great way and to a dangerous extent to hold that anyone occupying a subordinate position is not to be bound by his acts, as between himself and his superior, because of a supposed fear upon the part of the clerk that, should he protest, he might lose his employment. * * * His conduct under the circumstances, if he was in fact, or deemed himself in fact to be the inventor of this car, is inexplicable, and runs counter to the general conduct of responsible human beings.

246. PARKS v. BOOTH, 102 U. S. 96, 26 L. ed. 54.

Inventors may, if they can, keep their inventions secret, but if they do not, and suffer the same to go into public use, for a period exceeding what is allowed by the patent act, they forfeit their right to a patent.

247. MANNING v. CAPE ANN, ETC.,CYCLE CO., 108 U. S. 462, 27 L. ed. 793, 2 Sup. Ct. 860.

Norwood and his son were allowed by the inventor the unrestricted use of the patent during the period mentioned, without injunction of secrecy or other condition. This is sufficient to constitute a public use. Egbert v. Lippmann, 104 U. S. 333.

PART III.

WHO MAY OBTAIN A PATENT.

248. Sec. 4886 R. S., U. S. Any person who has invented or discovered etc. [See Part II., No. 46.]

Sec. 4888. Before any inventor or discoverer shall receive a patent for his invention or discovery he shall make application therefor, in writing. * * * The specification and claim shall be signed by the inventor and attested by two witnesses. [See Part II, No. 48.]

Sec. 4892. The applicant shall make oath that he does verily believe himself to be the original and first inventor or discoverer. * * * [See Part I.]

Rule 24. A patent may be obtained by any person who has invented or discovered, * * * (repeating Sec. 4886 R. S.).

249. EXECUTORS AND ADMINISTRATORS. Rev. Stat., sec. 4896.

Rule 25. In case of the death of the inventor, the application will be made by and the patent will issue to his executor or administrator. In such case the oath required by Rule 46 will be made by the executor or administrator. In case of the death of the inventor during the time intervening between the filing of his application and the granting of a patent thereon, the letters patent will issue to the executor or administrator upon proper intervention by him. The executor or administrator duly authorized under the law of any foreign country to administer upon the estate of the deceased inventor shall, in case the said inventor was not domiciled in the United States at the time of his death, have the right to apply for and obtain the patent. The authority of such foreign executor or administrator shall be proved by certificate of a diplomatic or consular officer of the United States.

250. INSANE PERSON. Act. of Feb. 28, 1899.

In case an inventor becomes insane, the application may be made by and the patent issued to his legally appointed guardian, conservator, or representative, who will make the oath required by Rule 46. Rev. Stat., sec. 4895.

251. PATENTS TO ASSIGNEES; TO INVENTORS AND ASSIGNEES JOINTLY. Rev. Stat., sec. 4895.

Rule 26. In case of an assignment of the whole interest in the invention, or of the whole interest in the patent to be granted, the patent will, upon request of the applicant embodied in the assignment, issue to the assignee; and if the assignee hold an undivided part interest, the patent will, upon like request, issue jointly to the inventor and the assignee; but the assignment in either case must first have been entered of record, and at a day not later than the date of the payment of the final fee (see Rule 200); and if it be dated subsequently to the execution of the application, it must give the date of execution of the application, or the date of filing, or the serial number, so that there can be no mistake as to the particular invention intended. The application and oath must be signed by the actual inventor, if alive, even if the patent is to issue to an assignee (see Rules 30, 40); if the inventor be dead, the application may be made by the executor or administrator.

252. PATENTS GRANTED TO ASSIGNEE.

Sec. 4895. Patent may be granted and issued or reissued to the assignee of the inventor or discoverer; but the assignment must first be entered of record in the Patent Office. And in all cases of an application by an assignee for the issue of a patent, the application shall be made and the specification sworn to by the inventor or discoverer; and in all cases of an application for a reissue of any patent, the application must be made and the corrected specification signed by the inventor or discoverer, if he is living, unless the patent was issued and the assignment made before the eighth day of July, eighteen hundred and seventy.

Rule 200. In every case where it is desired that the patent shall issue to an assignee, the assignment must be recorded in the Patent Office at a day not later than the day on which the final fee is paid.
* * * [See Part XI.]

253. WHEN AND ON WHAT OATH EXECUTOR OR ADMINISTRATOR OR GUARDIAN OF AN INSANE PERSON MAY CLAIM PATENT. (Amended May 23, 1908.)

Sec. 4896. When any person, having made any new invention or discovery for which a patent might have been granted, dies before a patent is granted, the right of applying for and obtaining the patent shall devolve on his executor or administrator, in trust for the heirs at law of the deceased, in case he shall have died intestate; or if he shall have left a will disposing of the same, then in trust for his devisees, in as full manner and on the same terms and conditions as the same might have been claimed or enjoyed by him in his lifetime;

and when any person having made any new invention or discovery for which a patent might have been granted becomes insane before a patent is granted the right of applying for and obtaining the patent shall devolve on his legally appointed guardian, conservator, or representative in trust for his estate in as full manner and on the same terms and conditions as the same might have been claimed or enjoyed by him while sane; and when the application is made by such legal representatives the oath or affirmation required to be made shall be so varied in form that it can be made by them. The executor or administrator duly authorized under the law of any foreign country to administer upon the estate of the deceased inventor shall, in case the said inventor was not domiciled in the United States at the time of his death, have the right to apply for and obtain the patent. The authority of such foreign executor or administrator shall be proved by certificate of a diplomatic or consular officer of the United States.

The foregoing section, as to insane persons, is to cover all applications now on file in the Patent Office or which may be hereafter made.

254. RENEWAL OF APPLICATION IN CASES OF FAILURE TO PAY FEES IN SEASON.

Sec. 4897. Any person who has an interest in an invention or discovery, whether as inventor, discoverer, or assignee, for which a patent was ordered to issue upon the payment of the final fee, but who fails to make payment thereof within six months from the time at which it was passed and allowed, and notice thereof was sent to the applicant or his agent, shall have a right to make an application for a patent for such invention or discovery the same as in the case of an original application. But such second application must be made within two years after the allowance of the original application. But no person shall be held responsible in damages for the manufacture or use of any article or thing for which a patent was ordered to issue under such renewed application prior to the issue of the patent. And upon the hearing of renewed applications preferred under this section, abandonment shall be considered as a question of fact.

255. JOINT INVENTORS.

Rule 28. Joint inventors are entitled to a joint patent; neither of them can obtain a patent for an invention jointly invented by them. Independent inventors of distinct and independent improvements in the same machine can not obtain a joint patent for their separate inventions. The fact that one person furnishes the capital and another makes the invention does not entitle them to make an application as joint inventors; but in such case they may become joint patentees, upon the conditions prescribed in *Rule 26*.

256. SIGNATURE TO SPECIFICATION. Rev. Stat., sec. 4888.

Rule 40. The specification must be signed by the inventor or by his executor or administrator, and the signature must be attested by two witnesses. Full names must be given, and all names, whether of applicants or witnesses, must be legibly written.

Rule 46. The applicant, if the inventor, must make oath or affirmation that he does verily believe himself to be the original and first inventor. * * * This oath must be subscribed by the affiant. [See Part VI.]

257. DeLAVAL SEPARATOR CO. v. VERMONT FARM MACH. CO., 135 Fed. 772, 68 C. C. A. 474, (1904, Second Circuit).

Before Wallace, Lacombe and Townsend, Circuit Judges.

Wallace, J.:

* * * Giving due weight to the presumptions of validity, which arise from the grant of the patent, the convincing force of the proof that Melotte was the sole inventor cannot be disregarded, notwithstanding the proof consists of his own testimony and the corroboration which it derives from the fact that the foreign patents were obtained by him alone. Although he was produced as a witness by the defendant, it is apparent from his testimony that he was a reluctant witness, not trying to defeat the patent which he and Reuther had sold to the complainant, but stating facts which his conscience would not allow him to deny. He was an intelligent and candid witness, and, although he was careful not to volunteer any explanatory statements in elucidation of those elicited by his examination, his testimony was full and explicit. It proved beyond any fair doubt that the improvements claimed in the patent were his sole invention, and that Reuther was the inventor of certain other improvements described in the patent and illustrated by some of the drawings in modification of the improvements specifically claimed. It is true that the testimony of an inventor in derogation of the validity of his own patent is usually open to suspicion; and in a case like this, where he has made oath, for the purpose of obtaining a joint patent, that he and another inventor were the joint inventors of the subject-matter, the court should reject his subsequent testimony to the contrary, unless it carries a clear conviction that he did not intend to falsify originally, but made the oath under misapprehension or mistake. In this case the applicants were foreigners, supposedly unfamiliar with our law of patents; and they had agreed to be joint owners of the patent. Each had devised improvements which were within its general scope, and those which had been the work of Reuther were disclosed and illustrated in the specification and drawings, as well as were those which were the work of Melotte. Thus both had contributed to the invention in its entirety. Under these

circumstances it is not strange that they did not discriminate between the things devised and the things which were not necessarily covered by the claims, and that they should have considered themselves joint inventors of the entirety, although some of the improvements were independently devised by one and some of them by the other.

The argument for the appellant has rested exclusively upon the controlling weight to be given to the oath of the patentees when applying for the patent, and, indeed, it has been urged that the testimony of Melotte was incompetent upon the theory that he is estopped as against the bona fide owners of the patent from contradicting the oath. We are not aware of any rule of evidence or any principle of estoppel which precludes a witness who has testified incorrectly, or even falsely, on a former occasion, from telling the truth later. Melotte and Reuther might be estopped from asserting that they were not joint inventors in a suit against them by the owner to enforce the patent, but a third party, who is in no way in privity with them or with the owner, cannot be affected by an estoppel. It appears in the record that Reuther was living and accessible when the proofs were taken, and declined to be interviewed by a representative of the defendant. Melotte previously, upon the advice of a representative of the complainant, had refused to be interviewed by a representative of the defendant. It would seem that it would have been wiser for the complainant to produce Reuther if his testimony would have been favorable, or explain the reason why he was not produced, than to rest its case solely upon the presumption raised by the oath of the patentees when applying for the patent.

We think the court below reached a correct conclusion, and that the decree should be affirmed.

Decree affirmed, with costs.

258. UNITED SHIRT, ETC., CO. v. BEATTIE, 149 Fed. 736, 79 C. C. A. 442 (1906, Second Circuit).

Before Wallace, Lacombe and Coxe, Circuit Judges.

Coxe, *J.*:

* * * The foregoing are the principal patents relied on to defeat the patent in suit. If singly or combined they are ineffectual to accomplish this result the other patents in evidence, which are still more remote, will not aid the defendants. The Pine patent is for a combination and it is enough to say that this combination is not, in our judgment, disclosed by any of the prior patents in evidence.

It is said that Garry J. Dormandy was the sole inventor or the joint inventor with Pine. The Patent Office, after full hearing, granted the patent to Pine which is at least prima facie evidence that he was the inventor. The court must be convinced by strong and satisfactory proof that Dormandy was sole or joint inventor before destroying the patent. Pine, having disclosed his invention to Dor-

mandy, in the spring of 1893, and, having employed the latter as his machinist to construct the machine, the presumption is strong against Dormandy's contention that he supplied the brains which made the machine operative, especially after the Patent Office on interference had decided in favor of Pine and against Dormandy.

The question is at best a technical abstraction. No rights of rival inventors are involved, as the complainant, the Shirt & Collar Company, was assignee of both Pine and Dormandy, and that company, with full knowledge of the facts, took the patent, in accordance with what appeared to them to be the truth, in the name of Pine. A decision against Pine now will benefit infringers but will be no benefit to Dormandy. We think the testimony fails to establish the defendants' contention; on the contrary it shows that Pine first conceived the invention and employed Dormandy to carry it out. Read as a whole, in connection with the position, character and intelligence of the two men, respectively, as disclosed by the record, the history of the invention makes it quite clear that the inventive faculty was Pine's, the mechanical skill Dormandy's. "Every machine before it can be used must be constructed as well as invented. If one man does all the inventing and another does all the constructing, the first is the sole inventor." Walker on Patents, § 46; Agawam Co. v. Jordan, 7 Wall. 583, 602, 603, 19 L. ed. 177. We think the proof sufficient to connect the defendants with the machine known as "Complainants' Exhibit Defendants' Machine." * * *

259. *EX PARTE WEIL & GRANT.* 173 O. G. 1081, 1911 C. D., 249.

Tennant, Assistant Commissioner:

This is a petition that an amendment be admitted substituting a new petition, specification, drawing, and oath signed by William A. Weil, one of the joint inventors, in the place of the original application, which was duly signed and executed by William A. Weil and John W. Grant as joint inventors. The record contains an affidavit by Grant that the execution by him as a joint inventor with William A. Weil was due to a misapprehension of facts; that he is not a joint inventor, but merely a financial partner. It is alleged that as soon as Grant became aware that it was not proper for him to prosecute the application as a joint inventor he instructed his attorney to take the necessary steps to correct the informality.

It is urged that in view of the affidavit filed by Grant the substitute papers filed in behalf of Weil should be accepted and the joint application changed to a sole application of William A. Weil. It is contended that the present case is analogous to a misjoinder of parties in a suit before the courts and that permission should be given to correct the same in accordance with the true state of facts.

This contention is believed to be without substantial foundation.

In suits of equity it is of course necessary to include either as parties complainant or as parties defendant all parties who have an interest in the subject-matter of the proceeding. If the analogy should be applied to applications for patents, it would require the joinder of inventors and assignees as applicants. Joint applications, however, differ from joint complainants or defendants in a suit in equity. Two or more persons who jointly make an invention constitute a different entity from a sole inventor who makes a similar invention. As stated in the case of Snyder v. Kanneberg, 58 O. G. 1840; 1892, C. D., 71:

"It appears to be settled by the weight of authority that where a patent has issued to two or more persons as joint inventors, and an application is subsequently made by one of them as sole inventor for a patent for the same invention, an interference will be declared. (See Lovrein v. Banister et al., C. D., 1880, 152; ex parte Crocker, MS. Appeal Cases, vol. 4, 269; ex parte Barsaloux, James, and Lyon, C. D., 1878, 154; 16 Op. A. G., 116.)

"It is also well settled that an invention alleged to be made by two persons jointly is one thing and an invention by one of those persons alone is another. The inventions in such a case are to be considered as if made by two different persons, the two joint inventors constituting one entity on the one hand and one of them alone the second entity on the other hand. (See Kohler v. Kohler and Chambers, C. D., 1888, 19; 43 O. G., 247; Mead v. Brown, C. D., 1889, 173; 48 O. G., 397; ex parte McLay, C. D., 1889, 220; 49 O. G., 1043.)

"It is clear, therefore, that in disposing of the present case Snyder is to be considered as a different person from Snyder and Belding jointly."

Since joint inventors constitute a different entity from either of them alone, the filing of a joint application cannot be considered a constructive reduction to practice of an invention made by either of the joint inventors. It therefore follows that even if Weil was the sole inventor of the application disclosed herein he is not entitled to the benefit of the filing date of this joint application as a constructive reduction to practice of that invention. (Haskell & Miner v. Ball, 109 O. G., 2170.) On the other hand, the application could not be entered as a complete application in the name of Weil as of the date when the new petition, specification, drawing, and oath were filed, since this would virtually be a return of the fee filed with the joint application, and no such mistake in the payment of that fee has been shown as would justify such action. Ex parte Harris, 118 O. G., 1682, and ex parte Olsen, 101 O. G., 2079.

The petition is denied.

[The following under this heading are brief extracts to complete the discussion.]

260. WATSON v. BELFIELD, 35 O. G. 1112, 1886 C. D. 238, (C. C. N. J.)

It is always a difficult question to determine how far the suggestions made to an inventor deprive him of the claim to originality in the invention thereof. The rule in such cases is concisely stated by Judge Story in Alden v. Dewey, (1 Story, 338). One of the defenses in that case was that one Draper had substantially imparted to the patentee the patented improvement. In charging the jury the learned judge asked whether enough had been communicated to enable the inventor to apply it without the exercise of more inventive power. This he regarded as the true test. "It was not enough," he said, "that Draper gave a hint, nor, on the other hand, was it necessary that he should communicate every minute thing about the invention; but he must have communicated the substance."

261. WELSBACH LIGHT CO. v. COSMOPOLITAN, ETC., LIGHT CO., 104 Fed. 83, 43 C. C. A. 418.

The patent contains two claims, the first which is in suit, is for a single thought,—the described improvement in strengthening incandescent mantles, consisting in coating a completed mantle with paraffine or other suitable material. * * * It is difficult to apprehend how two could have shared in the conception.

262. STANDARD, ETC., SCALE CO. v. COMPUTING SCALE CO, 126 Fed. 639, 61 C. C. A. 541.

Sanderson and Ozias at the time the application was made were going into a partnership, and it appears most probable that they conceived the idea of having the patent vest a joint interest to conform to their interest in the business. If these are the facts, the patent was not properly issued to them jointly.

262a.

[Note.—The presumption is that invention is sole or joint in accordance with the terms of the oath made by the applicant and with the grant of the patent. Hall Signal Co. v. Union Switch, etc., Co., 115 Fed. 638; Armat Moving Picture Co. v. American Mutoscope Co., 118 Fed. 840; Vrooman v. Penhollow, 179 Fed. 296, 308.

It is not necessary that the idea of invention should occur simultaneously to each of the joint inventors, but it is sufficient if one conceives and another makes a suggestion essential to its success, and where there is joint invention it is immaterial in what order the

conceptions or suggestions are made so that the inventors work together to the common end of completing a single invention. Worden v. Fisher, 11 Fed. 505; Gottfried v. Best, 5 Bann & Ard. 4, Fed. Cas. No. 5,633; 17 O. G. 675; Chase v. Chase, 4 O. G. 4; Thomas v. Weeks, 2 Paine 92, Fed. Cas. No. 13,914; Consolidated, etc., Apparatus Co. v. Woerle, 29 Fed. 449, 38 O. G. 1015; Sawyer v. Edison, 25 O. G. 597; Carter v. Perry, 8 O. G. 518; Barrett v. Hall, 1 Mason 447, Fed. Cas. No. 1,047.

To rebut the presumption that the invention was either sole or joint, as indicated on the face of the patent, there must be clear and convincing evidence. Rover v. Coupe, 29 Fed. 358 and Welsbach v. Cosmopolitan, 100 Fed. 648, cited in Eastern Paper Bag Co. v. Continental, 142 Fed. 479,500.

In Quincey Mining Co. v. Krause, 151 Fed. 1012, 1017, 81 C. C. A. 290, it was said that if a claim covered but a single idea it would be difficult to conceive how it could be patented by two; but when a claim covers a series of steps or a number of elements in a combination, the invention may well be joint, though some of the steps or some of the elements may have come as the thought of but one.

In Sieber Mfg. Co. v. Chicago Co., 177 Fed. 439, it was said that the defense of improper joinder of applicants is a purely technical one and should not be favored especially after the patent has been assigned.

In American Patent Co. v. Wood, 189 Fed. 391, 395, it was said that the fact that one of two joint patentees alone invented certain of the elements of the patented combination does not invalidate the patent.

For details of procedure by executors and administrators applying for patent, see order No. 1792 of January 20, 1909, 138 O. G. 970, as modified by order No. 1827 of October 22, 1909, 148 O. G. 837, and order No. 1838, 151 O. G. 453. See also Pilgrim Paper Co., 125 O. G. 993; Ex parte Rogers, 125 O. G. 2766; Ex parte Niedenfuhr, 130 O. G. 981.

It should be observed that joint patentees need not be joint *inventors* for the inventor may join the assignee as a "patentee," that term referring only to the parties in whose name the patent is issued, and who are, prima facie, the owners. A joint patent on a joint application where the invention is sole being void, and vice versa, as indicated by the cases excerpted, it is important to carefully consider the question before filing.

This is indicated also by the case of Mills v. Darlington v. Elliott, 178 O. G. 321, 38 App. Cas. D. C. 95, that the burden of proof is upon the junior party to an interference and where such junior party consists of joint applicants, the burden is upon them to establish that they jointly conceived the invention at or about the time alleged in their preliminary statement.]

PART IV.

THE PATENT OFFICE—ITS ORGANIZATION AND FUNCTIONS.

263. ESTABLISHMENT OF THE PATENT OFFICE.

Sec. 475. There shall be in the Department of the Interior an office known as the Patent Office, where all records, books, models, drawings, specifications, and other papers and things pertaining to patents shall be safely kept and preserved. Sec. 476. [Creating Commissioner, Assistant Commissioner, three Examiners-in-Chief, and other employes.] Sec. 477. [Salaries.] Sec. 440. [Detailing what employes of the Department of Interior shall serve in the Patent Office.]

264. DUTIES OF SECRETARY.

Sec. 441. The Secretary of the Interior is charged with the supervision of public business relating to the following subjects:

* * *

FIFTH, PATENTS FOR INVENTIONS.

Sec. 478. [Seal.] Sec. 479. [Bonds of Commissioner and Chief Clerk.]

265. RESTRICTIONS UPON OFFICERS AND EMPLOYES.

Sec. 480. All officers and employes of the Patent Office shall be incapable, during the period for which they hold their appointments, to acquire or take, directly or indirectly, except by inheritance or bequest, any right or interest in any patent issued by the office.

266. DUTIES OF COMMISSIONER. Ibid., s. 7, p. 199.

Sec. 481. The Commissioner of Patents, under the direction of the Secretary of the Interior, shall superintend or perform all duties respecting the granting and issuing of patents directed by law; and he shall have charge of all books, records, papers, models, machines, and other things belonging to the Patent Office.

267. DUTIES OF EXAMINERS-IN-CHIEF.

Sec. 482. The examiners-in-chief shall be persons of competent legal knowledge and scientific ability, whose duty it shall be, on the written petition of the appellant, to revise and determine upon the validity of the adverse decisions of examiners upon applications for patents, and for reissues of patents, and in interference cases; and when required by the Commissioner, they shall hear and report upon claims for extensions, and perform such other like duties as he may assign them.

268. ESTABLISHMENT OF REGULATIONS.

Sec. 483. The Commissioner of Patents, subject to the approval of the Secretary of the Interior, may from time to time establish regulations, not inconsistent with law for the conduct of proceedings in the Patent Office.

Sec. 484. [Arrangement of exhibits and models, etc.] Sec. 485. [Disposal of models of rejected applications.] Sec. 486. [Library.]

269. PATENT-AGENTS MAY BE REFUSED RECOGNITION.

Sec. 487. For gross misconduct the Commissioner of Patents may refuse to recognize any person as a patent-agent, either generally or in any particular case; but the reasons for such refusal shall be duly recorded, and be subject to the approval of the Secretary of the Interior.

Sec. 488. [Commissioner may require papers to be printed.] Sec. 489. [Printing copies of claims, laws, decisions, etc.] Sec. 490. [Printing specification and drawings.] Sec. 491. [Additional specifications and drawings.] Sec. 492. [Lithographing and engraving.] Sec. 12. [Volumes of drawings, etc., furnished departments; also Patent Office printing and patents issued; also Official Gazette and Commissioner's Report: also monthly volume of patents issued; also rules of practice, decisions, indexes; also lithography.] Sec. 493. [Price of copies of specifications and drawings.] Sec. 494. [Annual report of the Commissioner.] Sec. 496. [Disbursements for Patent Office.] Sec. 7, Act of March 3, 1897. [Requests by heads of department to make applications special.] Sec. 892. [Copies of records, etc., to be certified by Commissioner or Acting Commissioner. (See Part XVI.)] Sec. 4893. [To cause examination and issue patent. (See Part VI).] Sec. 4894. [Commissioner to decide when delay in prosecuting of application unavoidable. (See Part VI.)] Sec. 4903. [Commissioner to notify applicant of rejection. (See Part VI.)] Sec. 4905. [Commissioner to establish rules for taking affidavits and depositions. (See Part X.)] Sec. 4910. [To hear appeals from the Examiners-in-Chief. (See Part VI.)]

270. BUTTERWORTH, COMR., ETC., v. UNITED STATES EX REL. HOE, 112 U. S. 50, 28 L. ed. 656, 5 Sup. Ct. 25 (1884).

Matthews, J.:

[In an interference contest between Scott and R. Hoe & Co., as assignees of Gill, the Secretary of the Interior had reversed on appeal the decision of the Commissioner of Patents.

Until 1881 it had been held, in pursuance of decisions and opinions of the Attorney General, that the Secretary of the Interior had no legal authority to review the judicial opinions and decisions of the Commissioner of Patents. In an opinion of August 20, 1881, however, the Attorney General had reversed these opinions, reaching the conclusion that the final discretion in all matters relating to the grant of patents was lodged in the Secretary of the Interior. The then Secretary (Kirkwood) concurred in that opinion and from time to time appeals from the Commissioner of Patents were heard by the Secretary. In this instance Commissioner Butterworth refused to issue the patent to the party adjudged by the Secretary to be the prior inventor and this case therefore arose as a writ of error prosecuted for the purpose of reviewing and reversing the judgment of the Supreme Court of the District of Columbia, awarding a peremptory mandamus commanding the plaintiff in error, the Commissioner of Patents, to receive the final fee tendered by the relators, that is, by the assignees of the party to whom the Secretary had awarded priority.

The Supreme Court states the grounds upon which the Secretary of the Interior had based his authority and power as under sections of the statutes, 441, 483, 487 and 4883, and upon the analogy of other departments in which the Secretary is supreme. The Supreme Court said that this argument would be apt to be misleading, unless particular regard is had to the nature of the duties intrusted to the several bureaus, and critical attention is given to the language of the statutes defining the jurisdiction of the chief and his subordinates, and the special relation of subordination between them respectively.

The court then proceeds:]

We are led, therefore, immediately to inquire whether such a construction of phrases, employed in establishing the organization of the patent-office as a bureau in the department of the interior, is justified by a view of the whole legislation *in pari materia*, and consistent with the integrity of the system of the statutes in relation to letters patent for new and useful inventions. The general object of that system is to execute the intention of that clause of the constitution, art. 1, § 8, which confers upon congress the power "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." The legislation based on this

provision regards the right of property in the inventor as the medium of the public advantage derived from his invention; so that in every grant of the limited monopoly two interests are involved: that of the public, who are the grantors, and that of the patentee. There are thus two parties to every application for a patent, and more, when, as in case of interfering claims or patents, other private interests compete for preference. The questions of fact arising in this field find their answers in every department of physical science, in every branch of mechanical art. The questions of law necessary to be applied in the settlement of this class of public and private rights have founded a special branch of technical jurisprudence. The investigation of every claim presented involves the adjudication of disputed questions of fact, upon scientific or legal principles, and is, therefore, essentially judicial in its character, and requires the intelligent judgment of a trained body of skilled officials, expert in the various branches of science and art, learned in the history of invention, and proceeding by fixed rules to systematic conclusions.

[The Supreme Court then recites the course of examination of an application and the line of appeals.]

Congress has thus provided four tribunals for hearing applications for patents, with three successive appeals, in which the Secretary of the Interior is not included, giving jurisdiction, in appeals from the commissioner, to a judicial body, independent of the department, as though he were the highest authority on the subject within it. And to say that, under the name of direction and superintendence, the secretary may annul the decision of the Supreme Court of the district, sitting on appeal from the commissioner, by directing the latter to disregard it, is to construe a statute so as to make one part repeal another, when it is evident both were intended to co-exist without conflict. The inference is that an appeal is allowed from the decision of the commissioner refusing a patent, not for the purpose of withdrawing that decision from the review of the secretary, under his power to direct and superintend, but because, without that appeal, it was intended that the decision of the commissioner should stand as the final judgment of the patent office, and of the executive department, of which it is a part. As already stated, the case of interferences is expressly excepted by section 4911 from the appeals allowed to the Supreme Court of the district. Further provision, covering such and also all other cases in which an application for a patent has been refused, either by the Commissioner of Patents or by the Supreme Court of the district, is found in Revised Statutes, § 4915. It is thereby provided that the applicant may have remedy by bill in equity. This means a proceeding in a court of the United States having original equity jurisdiction under the patent laws, according to the ordinary course of

equity practice and procedure. It is not a technical appeal from the patent-office, like that authorized in section 4911, confined to the case as made in the record of that office, but is prepared and heard upon all competent evidence adduced, and upon the whole merits. Such has been the uniform and correct practice in the circuit courts. Whipple v. Miner, 15 Fed. Rep. 117; Ex parte Squire, 3 Ban. & A. 133; Butler v. Shaw, 21 Fed. Rep. 321. It is provided that the court, having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim, or for any part thereof, as the facts in the case may appear.

[After reviewing the course of the statutes, the court said:]

It thus appears that, as, in cases of other applications for a patent refused by the commissioner, the judgment, on a direct appeal, of the Supreme Court of the district is substituted for, and becomes the decision of, the patent-office, so here, in cases of interference, where the commissioner has rejected an application for a patent, the decree of the Circuit Court of the United States governs the action of the commissioner, and requires him, in case the adjudication is in favor of the complainant, to issue the patent as decreed to him. It certainly cannot be successfully claimed that, to a writ of mandamus issued out of a court of competent jurisdiction, commanding the commissioner of patents to record and execute the judgment of the Supreme Court of the district, reversing on an appeal his decision refusing a patent in any case other than an interference, or the decree of a Circuit Court of the United States in any case under section 4915, Rev. Stat., requiring a patent to be issued to the claimant, it would be a sufficient answer that he had been directed by the Secretary of the Interior not to do so. If not, it must be and is because the decision of the commissioner, as originally rendered, or that correction of it, required by the judicial proceedings, specified in the two sections of the statutes referred to, is final and conclusive upon the department. This conclusion is strengthened by the provisions of section 4918, Rev. Stat. It is there enacted that in case a patent is actually, though erroneously, issued, interfering with another, any person interested in any one of them, or in the working of the invention claimed under either of them, may have relief against the interfering patentee, and all parties interested under him, by suit in equity against the owners of the interfering patent; and the court, on notice to adverse parties and other due proceedings had according to the course of equity, may adjudge and declare either of the patents void in whole or in part, or inoperative or invalid, in any particular part of the United States, according to the interest of the parties in the patent or the invention patented; of course, without prejudice to the rights of

any person, except the parties to the suit, and those deriving title under them, subsequent to the rendition of the judgment. Thus, every case is fully provided for, both when the commissioner wrongfully refuses to issue a patent, and when, in case of interference, he erroneously issues one; and that, by means of judicial proceedings, through tribunals distinct from and independent of the patent-office, the integrity and force of whose judgments would be annulled, if not regarded as conclusive upon the commissioner, notwithstanding any power of direction and superintendence on the part of the secretary, which is therefore necessarily excluded.

The law gives express appeals from the decision of the commissioner, or, in cases where technical appeals are not given, other modes of review by judicial process. It gives no such appeal from him to the secretary. If it exists, it is admitted it is only by an implication which discovers an appeal in the power of direction and superintendence. That power does not necessarily, *ex vi termini*, include a technical appeal; and the principle applies that where a special proceeding is expressly ordained for a particular purpose it is presumably exclusive. It is clear that when the appeal is expressly authorized from the commissioner to the court, either directly or by means of an original suit in equity, another appeal to the secretary on the same matter is excluded; and no reason can be assigned for allowing an appeal from the commissioner to the secretary in cases in which he is by law required to exercise his judgment on disputed questions of law and fact, and in which no appeal is allowed to the courts that would not equally extend it to those in which such appeals are provided, for all are equally embraced in the general authority of direction and superintendence. That includes all, or does not extend to any. The true conclusion, therefore, is that in matters of this description, in which the action of the commissioner is quasi judicial, the fact that no appeal is expressly given to the secretary is conclusive that none is to be implied.

The conclusion is confirmed by a review of the history of legislation on the point.

[In summing up the court said:]

"It thus appears, not only that the discretion and judgment of the commissioner, as the head of the patent office, is substituted for that of the head of the department, but also that that discretion and judgment are not arbitrary, but are governed by fixed rules of right, according to which the title of the claimant appears from an investigation, for the conduct of which, ample and elaborate provision is made and that his discretion and judgment, exercised upon the material thus provided, are subject to a review by judicial tribunals whose jurisdiction is defined by the same statute. In no event could the direction of the Secretary of the Interior extend

beyond the terms in which it is vested, that is, to the duties to be performed under the law by the commissioner. The supervision of the secretary cannot change those duties nor require them to be performed by another, nor does it authorize him to substitute his discretion and judgment for that of the commissioner, when, by law, the commissioner is required to exercise his own, and when that judgment, unless reversed in the special mode pointed out by judicial process, is, by law, the condition on which the right of the claimant is declared to depend. The conclusion cannot be resisted that, to whatever else supervision and direction on the part of the head of the department may extend, in respect to matters purely administrative and executive, they do not extend to a review of the action of the Commissioner of Patents in those cases in which, by law, he is appointed to exercise his discretion judicially. It is not consistent with the idea of judicial action that it should be subject to the direction of a superior, in the sense in which that authority is conferred upon the head of an executive department in reference to his subordinates. Such a subjection takes from it the quality of a judicial act. That it was intended that the Commissioner of Patents, in issuing or withholding patents, in re-issues, interferences and extensions, should exercise quasi judicial functions, is apparent from the nature of the examinations and decisions he is required to make, and the modes provided by law, according to which, exclusively, they may be reviewed.

"Such has been the uniform construction placed by the department itself upon the laws defining the relation of its executive head to the Commissioner of Patents. No instance has been cited in which the right of the secretary to reverse such action of the commissioner in granting or withholding a patent has been claimed or exercised prior to that based upon the opinion of Attorney General MacVeagh in 1881. The jurisdiction had been previously expressly disclaimed, in 1876, by Secretary Chandler, 9 O. G., 403, and by his immediate successor, Mr. Schurz, in 1877, 1878 and 1879; 12 O. G., 475; 13 O. G., 771; 16 O. G., 220."

270a.

[Note.—Since the decision of Butterworth v. U. S. there have been many cases before the Secretary of the Interior asking for a review of the acts of the Commissioner of Patents. The distinction has been made between those acts of the Commissioner which are judicial or quasi-judicial and those which are ministerial. For definition and distinction see Houston v. Banker v. Bannister v. Eastman, 44 O. G. 697, quoted in opinion of Assistant Attorney General Hall in Ex Parte Cote Co., 65 O. G. 1915.

That the Commissioner, with reference to recording assignments, is a ministerial officer, see Ex Parte Church, 82 O. G. 1987.

The relations between the Primary Examiners and the Commissioner of Patents are, perhaps, *sui generis*. The Primary Examiner passes first upon the patentability of an invention and the rule of the office makes his decision in favor of patentability final. See in Part X, Newcomb v. U. S. ex rel. Commissioner. Many decisions (see Underwood's Digest) illustrate the supervisory authority of the Commissioner in the ordinary course of procedure in the office. The different views which have hitherto obtained as to the force and effect to be given a decision of the Primary Examiner are well illustrated in two decisions published within one week of each other, namely,—Fowler v. Dodge, 85 O. G. 1584 by the Assistant Commissioner, the other Bender v. Hoffman, 85 O. G. 1737, by the Commissioner. The first maintains it to be the best policy to sustain a favorable decision of the Primary Examiner. The second directs the Examiner in the particular case to reject the claim.

The Assistant Commissioner in his judicial opinion and decision is the Commissioner or Acting Commissioner.

Formerly in the absence of both the Commissioner and the Assistant Comissioner, the Chief Clerk (who is the "business" officer) became the acting Commissioner but the opinion of the Assistant Attorney General of June 4, 1890 holds that in such case the "Chief Clerk has no authority to act as Commissioner, but that the President must designate some officer whose appointment is vested in him by and with the advice and consent of the senate, to perform the duties of the vacant office."

The duties of the Examiners-in-Chief are sufficiently set forth in the Statute, Sec. 482.

As has been indicated, the Primary Examiner in, in effect, a lower tribunal and ordinarily his judicial actions cannot be reviewed by the Commissioner except on appeal. It is, however, a theory of the statute that the Commissioner examines all applications and that, in the exercise of his supervisory authority, while he may not direct a particular opinion or decision, he may refuse to grant a patent though the application may have been allowed by the Primary Examiner or the Examiners-in-Chief.

R. S. Sec. 4893; Stone v. Greaves, 17 O. G. 397; Hull v. Commissioner, 9 O. G. 1339. This does not qualify the judicial independence of the Examiner-in-Chief nor the practical freedom of action and judgment of the primary examiners.

The duty of the Examiner of Interferences is to hear and try contests of priority, that is, interferences and accompanying motions, but not such as relate to the patentability of the issue or the right to make a claim, which first must go to the Primary Examiner, though they afterwards may proceed through the Examiner of Interferences and the full line of appeals upon testimony taken in the case.]

[For further discussion of the relations between the primary examiners and the commissioner and the authority of the commissioner. See United States ex rel. Steinmetz v. Allen, 192 U. S. 543, 48 L. ed. 555, 24 Sup. Ct. 416; United States ex rel. Lowry v. Allen, 203 U. S. 476, 51 L. ed. 281, 27 Sup. Ct. 141; United States ex rel. Newcomb Motor Co. v. Moore, 30 App. Cas. D. C., 464; writ of error dismissed by Supreme Court for want of jurisdiction, 54 L. ed. 636.]

PART V.

THE APPLICATION—PROCEEDINGS IN THE PATENT OFFICE ON APPEAL THEREFROM.

General Requisites—Drawings—Models—Specimens, etc.—Specification—Claims—Oath—Examination—Division—Meeting an Objection or Rejection—Amendments and Actions by Applicant—Rule 70—"New Matter"—Rule 75—Overcoming a Disclosure—Appeals and Petitions—Bill in Equity Under R. S., U. S., Sec. 4915, Issue, Forfeiture and Renewals—Abandonment—Date and Form of Grant—Delivery—Assignments, Assignees and Assignors.

271. REQUISITES OF APPLICATION, DESCRIPTION, SPECIFICATION, AND CLAIM.

Sec. 4888. Before any inventor or discoverer shall receive a patent for his invention or discovery, he shall make application therefor, in writing, to the Commissioner of Patents, and shall file in the patent office a written description of the same, and of the manner and process of making, constructing, compounding, and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of a machine, he shall explain the principle thereof, and the best mode in which he has contemplated applying that principle, so as to distinguish it from other inventions; and he shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery. The specification and claim shall be signed by the inventor and attested by two witnesses.

272. DRAWINGS, WHEN REQUISITE.

Sec. 4889. When the nature of the case admits of drawings, the applicant shall furnish one copy signed by the inventor or his attorney in fact, and attested by two witnesses, which shall be filed in the patent office; and a copy of the drawing, to be furnished by the patent office, shall be attached to the patent as a part of the specification.

273. SPECIMENS, OF INGREDIENTS, ETC.

Sec. 4890. When the invention or discovery is of a composition of matter, the applicant, if required by the commissioner, shall furnish specimens of ingredients and of the composition, sufficient in quantity for the purpose of experiment.

274. MODEL, WHEN REQUISITE.

Sec. 4891. In all cases which admit of representation by model, the applicant, if required by the commissioner, shall furnish a model of convenient size to exhibit advantageously the several parts of his invention or discovery.

275. OATH REQUIRED FROM APPLICANT.

Sec. 4892. The applicant shall make oath that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition or improvement for which he solicits a patent; that he does not know and does not believe that the same was ever before known or used; and shall state of what country he is a citizen. Such oath may be made before any person within the United States authorized by law to administer oaths, or, when the applicant resides in a foreign country, before any minister, charge d'affaires, consul, or commercial agent holding commission under the government of the United States, or before any notary public, judge, or magistrate having an official seal and authorized to administer oaths in the foreign country in which the applicant may be, whose authority shall be proved by certificate of a diplomatic or consular officer of the United States.

276. EXAMINATION AND ISSUING PATENT.

Sec. 4893. On the filing of any such application and the payment of the fees required by law, the Commissioner of Patents shall cause an examination to be made of the alleged new invention or discovery; and if on such examination it shall appear that the claimant is justly entitled to a patent under the law, and that the same is sufficiently useful and important, the commissioner shall issue a patent therefor.

277. LIMITATION UPON TIME OF COMPLETING APPLICATION.

Sec. 4894. All applications for patents shall be completed and prepared for examination within one year after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within one year after any action therein, of which notice shall have been given to the applicant, they shall be

regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable.

278. NOTICE OF REJECTION OF CLAIM FOR PATENT TO BE GIVEN TO APPLICANT.

Sec. 4903. Whenever, on examination, any claim for a patent is rejected, the commissioner shall notify the applicant thereof, giving him briefly the reasons for such rejection, together with such information and references as may be useful in judging of the propriety of renewing his application or of altering his specification; and if, after receiving such notice, the applicant persists in his claim for a patent, with or without altering his specifications, the commissioner shall order a re-examination of the case.

279. APPEALS FROM PRIMARY EXAMINERS-IN-CHIEF.

Sec. 4909. Every applicant for a patent or for the re-issue of a patent, any of the claims of which have been twice rejected, and every party to an interference, may appeal from the decision of the primary examiner, or of the examiner in charge of interferences in such case, to the board of examiners-in-chief; having once paid the fee for such appeal.

280. FROM EXAMINERS-IN-CHIEF TO COMMISSIONER.

Sec. 4910. If such party is dissatisfied with the decision of the examiners-in-chief, he may, on payment of the fee prescribed, appeal to the commissioner in person.

281. FROM THE COMMISSIONER TO THE COURT OF APPEALS, D. C.

Sec. 4911. If such party, except a party to an interference, is dissatisfied with the decision of the commissioner, he may appeal to the Supreme Court of the District of Columbia, sitting in banc. [See sec. 9, act of February 9, 1893, Part V, giving this jurisdiction to the Court of Appeals of the District of Columbia. This applies also to the next three sections.]

282. NOTICE OF SUCH APPEAL.

Sec. 4912. When an appeal is taken to the Supreme Court of the District of Columbia, the appellant shall give notice thereof to the commissioner, and file in the patent office within such time as the commissioner shall appoint, his reasons of appeal, specifically set forth in writing.

283. PROCEEDINGS ON APPEAL TO COURT.

Sec. 4913. The court shall, before hearing such appeal, give notice to the commissioner of the time and place of the hearing, and on receiving such notice the commissioner shall give notice of such time and place in such manner as the court may prescribe, to all parties who appear to be interested therein. The party appealing shall lay before the court certified copies of all the original papers and evidence in the case, and the commissioner shall furnish the court with the grounds of his decision, fully set forth in writing, touching all the points involved by the reasons of appeal. And at the request of any party interested, or of the court, the commissioner and the examiners may be examined under oath, in explanation of the principles of the thing for which a patent is demanded.

284. DETERMINATION OF SUCH APPEAL AND ITS EFFECT.

Sec. 4914. The court, on petition, shall hear and determine such appeal, and revise the decision appealed from in a summary way, on the evidence produced before the commissioner, at such early and convenient time as the court may appoint; and the revision shall be confined to the points set forth in the reasons of appeal. After hearing the case the court shall return to the commissioner a certificate of its proceedings and decision, which shall be entered of record in the patent office, and shall govern the further proceedings in the case. But no opinion or decision of the court in any such case shall preclude any person interested from the right to contest the validity of such patent in any court wherein the same may be called in question.

285. PATENTS OBTAINABLE BY BILL IN EQUITY.

Sec. 4915. Whenever a patent on application is refused, either by the Commissioner of Patents or by the Supreme Court of the District of Columbia [Court of Appeals of the District of Columbia] upon appeal from the commissioner, the applicant may have remedy by bill in equity; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim, or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the commissioner to issue such patent on the applicant filing in the patent office a copy of the adjudication, and otherwise complying with the requirements of law. In all cases, where there is no opposing party, a copy of the bill shall be served on the commissioner; and all the expenses of the proceeding shall be paid by the appli-

cant, whether the final decision is in his favor or not. [See § 629, ¶ 9.]

[The act of February 9, 1893, as previously indicated, established a Court of Appeals of the District of Columbia and gave to that court the appellate jurisdiction which had formerly been had by the Supreme Court. The Judicial Code, as indicated in Part V, has modified the provisions for appeals from that court to the Supreme Court of the United States so that there is no longer, in any patent case, an appeal to the Supreme Court of the United States. There remains, however, the provision for writ of certiorari.]

286. REQUESTS BY HEADS OF DEPARTMENTS TO MAKE APPLICATIONS SPECIAL.

Sec. 7, Act of March 3, 1897. That in every case where the head of any department of the government shall request the Commissioner of Patents to expedite the consideration of an application for a patent it shall be the duty of such head of a department to be represented before the comissioner in order to prevent the improper issue of a patent.

287. RULES OF PATENT OFFICE PRACTICE.

[Rules 1-13 relate to correspondence; 14-16, to information to correspondents; 17-23, to attorneys; 24-29, to applicants (and are covered in Parts II and III); 30-32, to the formal preliminary requirements of an application; 33-40, to the petition and specification.]

288. JOINDER OF INVENTIONS.

41. Two or more independent inventions can not be claimed in one application; but where several distinct inventions are dependent upon each other and mutually contribute to produce a single result they may be claimed in one application.

289. DIVISION OF APPLICATION.

42. If several inventions, claimed in a single application, be of such a nature that a single patent may not be issued to cover them, the inventor will be required to limit the description, drawing, and claim of the pending application to whichever invention he may elect. The other inventions may be made the subjects of separate applications, which must conform to the rules applicable to original applications. If the independence of the inventions be clear, such limitation will be made before any action upon the merits; otherwise it may be made at any time before final action thereon, in the discretion of the examiner.

290. CROSS-REFERENCES IN CASES RELATING TO SAME SUBJECT.

43. When an applicant files two or more applications relating to the same subject-matter of invention, all showing but only one claiming the same thing, the applications not claiming it must contain references to the application claiming it.

291. RESERVATION CLAUSES NOT PERMITTED.

44. A reservation for a future application of subject-matter disclosed but not claimed in a pending application, but which subject-matter might be claimed therein, will not be permitted in the pending application.

[Rule 45. Legible writing required. Based on R. S., sec. 4888.]

292. OATH OF APPLICANT.

[Compare Statute Sec. 4892.],

46. The applicant, if the inventor, must make oath or affirmation that he does verily believe himself to be the original and first inventor or discoverer of the art, machine, manufacture, composition, or improvement for which he solicits a patent; that he does not know and does not believe that the same was ever before known or used, and shall state of what country he is a citizen and where he resides, and whether he is a sole or joint inventor of the invention claimed in his application. In every original application the applicant must distinctly state under oath that the invention has not been patented to himself or to others with his knowledge or consent in this or any foreign country for more than two years prior to his application, or on an application for a patent filed in any foreign country by himself or his legal representatives or assigns more than twelve months prior to his application. If any application for patent has been filed in any foreign country by the applicant in this country, or by his legal representatives or assigns, prior to his application in this country, he shall state the country or countries in which such application has been filed, giving the date of such application, and shall also state that no application has been filed in any other country or countries than those mentioned, and if no application for patent has been filed in any foreign country, he shall so state; that to the best of his knowledge and belief the invention has not been in public use or on sale in the United States, nor described in any printed publication or patent in this or in any foreign country, for more than two years prior to his application in this country. This oath must be subscribed to by the affiant.

The commissioner may require an additional oath in cases where the applications have not been filed in the patent office within a reasonable time after the execution of the original oath.

293. OATH BY EXECUTOR OR GUARDIAN. OFFICERS AUTHORIZED TO ADMINISTER OATHS.

47. If the application be made by an executor or administrator of a deceased person or the guardian, conservator, or representative of an insane person, the form of the oath will be correspondingly changed.

The oath or affirmation may be made before any person within the United States authorized by law to administer oaths, or, when the applicant resides in a foreign country, before any minister, charge d'affaires, consul, or commercial agent holding commission under the government of the United States, or before any notary public, judge or magistrate having an official seal and authorized to administer oaths in the foreign country in which the applicant may be, whose authority shall be proved by a certificate of a diplomatic or consular officer of the United States, the oath being attested in all cases in this and other countries, by the proper official seal of the officer before whom the oath or affirmation is made, except that no acknowledgment may be taken by any attorney appearing in the case. When the person before whom the oath or affirmation is made is not provided with a seal, his official character shall be established by competent evidence, as by a certificate from a clerk of a court of record or other proper officer having a seal.

When the oath is taken before an officer in a country foreign to the United States, all the application papers must be attached together and a ribbon passed one or more times through all the sheets of the application, and the ends of said ribbon brought together under the seal before the latter is affixed and impressed, or each sheet must be impressed with the official seal of the officer before whom the oath was taken, or, if he is not provided with a seal, then each sheet must be initialed by him.

294. SUPPLEMENTAL OATH FOR MATTER NOT ORIGINALLY CLAIMED.

48. When an applicant presents a claim for matter originally shown or described but not substantially embraced in the statement of invention or claim originally presented, he will file a supplemental oath to the effect that the subject-matter of the proposed amendment was part of his invention, was invented before he filed his original application, was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application, was not patented to himself or to others with his knowledge or consent in this or any foreign country on an application filed more than twelve months prior to his application, was not in public use or on sale in this country for more than two years before the date of his applica-

tion, and has not been abandoned. Such supplemental oath must be attached to and properly identify the proposed amendment.

[Rules 49-55 relate to requirements for drawings based on R. S., Secs. 4889, 4895; 56-62, to models and specimens based on R. S., Secs. 4891, 4895 and 4896; 63-64, to order to examination and to the procedure, rule 64 requiring the merits to be treated throughout and matters of form to be insisted upon only at the conclusion; 65-66, require the examiner to give notice of rejection with information and references, to re-examine the case and upon rejection for want of novelty to cite the best references previously cited, and in some cases to file an affidavit to facts within the personal knowledge of an employe; 67 provides for reconsideration in case of adverse decisions in ex parte cases; 68-69 provide for the right of amendment by the applicant, the requisites of certainty and reasons for the amendment, for amendment after claims are ready for appeal to put the case in better form, and request for reconsideration.]

295. AMENDMENTS TO CORRESPOND TO ORGINAL MODEL, DRAWING, OR SPECIFICATION.

70. In original applications which are capable of illustration by drawing or model all amendments of the model, drawings, or specifications, and all additions thereto, must conform to at least one of them as it was at the time of the filing of the application. Matter not found in either, involving a departure from the original invention, can be shown or claimed only in a separate application.

[Rules 71-74 provide for amendment to cure inaccuracies or prolixity; that a change in the drawings may be made only on permission and after the filing of a photograph of the drawings; that the specification is not to be returned in any case; that either the model or drawing, but not both at the same time, may be withdrawn for correction under certain restrictions; that amendments must be specific, and that to secure clear statement an amendment may be required to be rewritten.]

296. PATENTS SHOWING BUT NOT CLAIMING INVENTION.

75. When an original or reissue application is rejected on reference to an expired or unexpired domestic patent which substantially shows or describes but does not claim the rejected invention, or on reference to a foreign patent or to a printed publication, and the applicant shall make oath to facts showing a completion of the invention in this country before the filing of the application on which the domestic patent issued, or before the date of the foreign patent, or before the date of the printed publication, and shall also make oath that he does not know and does not believe that the invention has been in public use, or on sale in this

country, or patented or described in a printed publication in this or any foreign country for more than two years prior to his application, and that he has never abandoned the invention, then the patent or publication cited will not bar the grant of a patent to the applicant, unless the date of such patent or printed publication is more than two years prior to the date on which application was filed in this country.

297. APPLICATION REJECTED ON REFERENCES SHOWING BUT NOT CLAIMING INVENTION—AFFIDAVITS.

76. When an application is rejected on reference to an expired or unexpired domestic patent which shows or describes but does not claim the invention, or on reference to a foreign patent, or to a printed publication, or to facts within the personal knowledge of an employe of the office, set forth in an affidavit (when requested) of such employe (Rule 66), or when rejected on the ground of public use or sale, or upon a mode or capability of operation attributed to a reference or because the alleged invention is held to be inoperative or frivolous or injurious to public health or morals, affidavits or depositions supporting or traversing these references or objections may be received, but affidavits will not be received in other cases without special permission of the commissioner. (See Rule 141.)

[Rule 77 provides for abandonment of an application under Sec. 4894 if an applicant neglect to prosecute his application for one year after the date when the last official notice of any action was mailed to him, and for the suspension of an application for a specified term under certain conditions.]

298. AMENDMENT AND JURISDICTION AFTER NOTICE OF ALLOWANCE.

78. Amendments will not be permitted after the notice of allowance of an application, and the examiner will exercise jurisdiction over such an application only by special authority from the commissioner.

299. AMENDMENT WITHOUT WITHDRAWAL FROM ISSUE.

Amendments may be made after the allowance of an application, and after payment of the final fee, if the specification has not been printed, on the recommendation of the primary examiner, approved by the commissioner, without withdrawing the case from issue. (See Rule 135.)

[Rules 79-84, Designs are practically paraphrases of the Revised Sections given in Part VII; rules 85-92 relate to reissues. See Part X; Rules 93-132 relate to interferences. See Part VIII.]

300. APPEAL TO EXAMINERS-IN-CHIEF.

133. Every applicant for a patent, any of the claims of whose application have been twice rejected for the same reasons, upon grounds involving the merits of the invention, such as lack of invention, novelty, or utility, or on the ground of abandonment, public use or sale, inoperativeness of invention, aggregation of elements, incomplete combination of elements, or, when amended, for want of identity with the invention originally disclosed, or because the amendment involves a departure from the invention originally presented; and every applicant who has been required to divide his application, and every applicant for the reissue of a patent whose claims have been twice rejected for any of the reasons above enumerated, or on the ground that the original patent is not inoperative or invalid, or if so inoperative or invalid that the errors which rendered it so did not arise from inadvertence, accident, or mistake, may, upon payment of a fee of $10, appeal from the decision of the primary examiner to the examiners-in-chief. The appeal must set forth in writing the points of the decision upon which it is taken, and must be signed by the applicant or his duly authorized attorney or agent.

301. PREREQUISITES

134. There must have been two rejections of the claims as originally filed, or, if amended in matter of substance, of the amended claims, and all the claims must have been passed upon, and except in cases of division all preliminary and intermediate questions relating to matters not affecting the merits of the invention settled, before the case can be appealed to the examiners-in-chief.

302. EXAMINER'S STATEMENT OF GROUNDS OF DECISION.

135. Upon the filing of the appeal the same shall be submitted to the primary examiner, who, if he find it to be regular in form, and to relate to an appealable action, shall, within five days from the filing thereof, furnish the examiners-in-chief with a written statement of the grounds of his decision on all the points involved in the appeal, with copies of the rejected claims and with references applicable thereto. The examiner shall at the time of making such statement furnish a copy of the same to the appellant. If the primary examiner shall decide that the appeal is not regular in form or does not relate to an appealable action, a petition from such decision may be taken directly to the commissioner, as provided in Rule 145.

[Rules 136-138 relate to the brief, the oral hearing and the order of the argument.]

303. DECISION OF EXAMINERS-IN-CHIEF—DISCOVERY OF GROUND—APPEAL—AMENDMENT.

139. (a) The examiners-in-chief in their decision will affirm or reverse the decision of the primary examiner only on the points on which appeal shall have been taken. (See Rule 133.) Should they discover any apparent grounds not involved in the appeal for granting or refusing letters patent in the form claimed, or any other form, they will annex to their decision a statement to that effect, with such recommendation as they shall deem proper.

(b) From an adverse judgment of the primary examiner on points embraced in the recommendation annexed to the decision, appeal may be taken on questions involving the merits to the board of examiners-in-chief and on other questions to the commissioner as in other cases.

(c) The commissioner may, when an appeal from the decision of the examiners-in-chief is taken to him, remand the case to the primary examiner, either before or after final judgment, for consideration of any amendment or action which may be based on the recommendation annexed to the decision of the examiners-in-chief.

(d) If the commissioner, in reviewing the decision of the examiners-in-chief, discovers any apparent grounds for granting or refusing letters patent not involved in the appeal, he will, before or after final judgment, and whenever in his opinion substantial justice shall require it, give reasonable notice thereof to the parties; and if any amendment or action based thereon be proposed, he will remand the case to the primary examiner for consideration.

(e) From the decisions of the primary examiner, in cases remanded as herein provided, appeal will lie to the board of examiners-in-chief, or directly to the commissioner, as in other cases.

[Rules 140-141 relate to appeals to the commissioner and the examiners-in-chief and the remanding of an application to the primary examiner for reconsideration.]

304. REHEARINGS.

142. Cases which have been heard and decided by the commissioner on appeal will not be reopened except by his order; cases which have been decided by the examiner-in-chief will not be reheard by them, when no longer pending before them, without the written authority of the commissioner; and cases which have been decided by either the commissioner or the examiners-in-chief will not be reopened by the primary examiner without like authority, and then only for the consideration of matters not already adjudicated upon, sufficient cause being shown. (See Rule 68.)

305. JURISDICTION.

143. Contested cases will be regarded as pending before a tribunal until the limit of appeal, which must be fixed, has expired, or until some action has been had which waives the appeal or carries into effect the decision from which appeal might have been taken.

Ex parte cases decided by an appellate tribunal will, after decision, be remanded at once to the primary examiner, subject to the applicant's right of appeal for such action as will carry into effect the decision, or for such further action as the applicant is entitled to demand.

[Rule 144 restricts reconsideration of cases decided by former commissioner to basis of new trial.]

306. PETITION TO COMMISSIONER WITHOUT FEE.

145. Upon receiving a petition stating concisely and clearly any proper question which has been twice acted upon by the examiner, and which does not involve the merits of the invention claimed, the rejection of a claim or a requirement for division, and also stating the facts involved and the point or points to be reviewed, an order will be made fixing a time for hearing such petition by the Commissioner, and directing the examiner to furnish a written statement of the grounds of his decision upon the matters averred in such petition within five days after being notified of the order fixing the day of hearing. The examiner shall at the time of making such statement furnish a copy thereof to the petitioner. No fee is required for such a petition.

[Rules 146-148 relate to appeals to the various tribunals in interference cases as in ex parte cases; to briefs in appeal cases and to appeal to the Court of Appeals according to the rules of that court.]

307. NOTICE TO COMMISSIONER OF APPEAL TO COURT.

149. When an appeal is taken to the court of appeals of the District of Columbia, the appellant will give notice thereof to the Commissioner, and file in the Patent Office, within forty days, exclusive of Sundays and holidays, *but including Saturday half holidays*, from the date of the decision appealed from, his reasons of appeal specifically set forth in writing.

[Rule 150 forbids pro forma proceedings for the purpose of securing an appeal; 151-153 relate to hearings, interviews and notice of motion, proof of service, etc.; 154-163 to testimony in interferences and other contested cases, and to requirements of printing (thirty-one copies that enough may be supplied in case of an appeal to the Court of Appeals), briefs, size and time of filing, etc.; 164-

159, to issue, date, duration and form of patents, following substantially Rev. Stat. 4885, 4893, 4897, and 4935; 170, to correction of mistakes incurred through the fault of the office and to reissues. (There is no specific statutory foundation for this provision); 171-174, to abandoned, forfeited and revived applications, following substantially the provisions of Rev. Stat., Sec. 4894.]

308. NEW APPLICATION AFTER NON-PAYMENT OF FINAL FEE.

175. When the patent has been withheld by reason of nonpayment of the final fee, any person, whether inventor or assignee, who has an interest in the invention for which such patent was ordered to issue may file a renewal of the application for the same invention; but such second application must be made within two years after the allowance of the original application. Upon the hearing of such new application abandonment will be considered as a question of fact.

309. RENEWAL. OLD APPLICTION PAPERS MAY BE USED.

176. In such renewal the oath, petition, specification, drawing, and model of the original application may be used for the second application; but a new fee will be required. The second application will not be regarded for all purposes as a continuation of the original one, but must bear date from the time of renewal and be subject to examination like an original application.

[Rules 177-179 provide that forfeited and abandoned application shall not be cited as references, that no notice of the filing of subsequent applications will be given to applicant while the case remains forfeited and to conditions under which copies may be obtained of the files of forfeited and abandoned applications; 180 relates to extensions of patents which can be only by act of Congress under R. S., Sec. 4924; 181, to disclaimers under the provision of R. S., Sec. 4917, 4922; 182, calls attention to the distinction between the form of disclaimers referred to by the statute and the form of disclaimer used to abandon to another some part of an application to avoid the continuance of an interference; 183-194, relate to caveats which are now obsolete, the law having been repealed by the law of July 1, 1910; 195-201 relate to assignments. (See Part XII); 202-207, to office fees and provision for orders for copies and for the weekly issue of patents; 208, to the repayment of money paid by mistake; 209-210, to publications and library regulations; 211, to amendments of rules; 212 puts all cases not specifically defined and provided for in these rules under the authority of the commissioner; 213 provides that questions arising in applications filed prior to January 1, 1898, shall be governed by the rules of

June 18, 1897. This is because the act of March 3, 1893, provided that it should not take effect until January 1, 1898.]

[The following cases are confined to special features of practice. The opening cases treat of claims from the Patent Office standpoint. A fuller consideration of claims runs through many cases, especially in Parts II and IX, and the Introduction.]

310. EX PARTE KNUDSEN, 72 O. G. 589, 1895 C. D. 29.

Fisher, Acting Commissioner:

This is a petition "that the examiner in charge of said application be advised that the said claim is in proper form for consideration on its merits and directed to proceed to examine said application upon its merits."

The claim in question is as follows:

"1. The combination, with a suitable valve for controlling passage of fluid under pressure, of differential spring mechanism for said valve, said spring mechanism being arranged to exert a materially greater pressure in resisting the initial movement of said valve from its normal position than said spring mechanism exerts in the initial return movement of said valve toward its normal position after it has been forced to a considerable distance from said normal position, whereby when said valve has been moved to a considerable distance from its normal position by fluid pressure it will remain in the position to which it has been so moved until said fluid pressure has materially decreased below the amount of pressure necessary to effect the initial movement from its normal position, substantially as described."

On May 8, 1894, this claim was rejected by the examiner on the ground that it set forth "merely the function or mode of operation of applicant's device," and on May 23, 1894, it was again rejected as covering "merely the function of the device."

In the examiner's statement Ex parte McClellan, 59 O. G., 1763, is cited as authority for this rejection.

Strictly speaking, the examiner's action being a rejection ought not to be reviewed at the present time by me; but on account of the many petitions that have recently been brought involving functional claims and those indefinite through functional phraseology it is deemed desirable to consider such claims somewhat in detail, and the present case offers an opportunity for such a discussion.

Claims of this character may be divided into four classes: first, those covering a function or a result or effect, (excepting when such result is a product or composition of matter,) and nothing more; second, those covering the function of a machine or apparatus; third, those which are indefinite, in that they recite the functions of certain elements named in the claim to the exclusion of

proper structural definition, and, fourth, those which cover sets of mechanism by setting forth the results which such sets of mechanism severally produce.

Claims of the first class are usually participial in form. They are not for substantive mechanism, but for the result which such mechanism produces. Examples of this class are given in Ex parte Simonds, C. D., 1870, 23, where the claim was—

"producing in cutting-presses a successive change in the point of contact of the cutting-block with the cutting-die—"

and in Ex parte Halm, C. D., 1875, 107. These, with many other decisions, both of the patent office and courts, (see the cases cited in connection with section 518 of Robinson on Patents, vol. 2,) have held such claims to be invalid. As the ground of these decisions is that the claims are for a function or for an effect, and that they are therefore not patentable, the action pertains to the merits, and the examiner's action should be a rejection.

Claims of the second class, for the function of a machine, are expressed in the form of a method or process or else in such terms that they may be construed to cover a method or process. These claims are also invalid. (See Corning v. Burden, 15 How., 252, and the cases cited in connection with section 529, Robinson on Patents, vol. 2.) As the action in this class goes to the merits, these claims should be rejected.

Claims of the third class, that are indefinite in that they define the construction sought to be covered by the use of such terms as "means," "mechanism," and "devices," for effecting certain results, as set forth in ex parte Pacholder, 51 O. G., 295, or that recite the functions of certain named elements of a combination or of the device as a whole, to the exclusion of proper structural definition, are the claims which cause the most trouble, as frequently it is a matter of great difficulty to decide whether such claims are subject to objection or to rejection or to both. The difficulty, too, is often increased by the fact that a broader construction ought to be given the claim, if it covers a new departure in the art, (Morley Sewing Machine Co. et al. v. Lancaster, C. D., 1859, 380; 47 O. G., 267,) than if it is for an invention in an already developed art.

The use of the above-noted phraseology does not of necessity render a claim objectionable, for where the idea is clearly stated and the combination or relation of parts to produce a desired end is plainly expressed the breadth of the statement of the claim is no reason for objecting to it. It is only necessary that these expressions shall clearly distinguish what is new from what is old in the art or from fair equivalents thereof. If they do this, the question is then one of patentable novelty—that is to say, claims of this order are not objectionable in form on the ground that they are too broad, but only because they are vague or indefinite. (Ex parte

Halfpenny, 53 MS. Dec., 489.) When indefinite, they should be objected to; but they can only be rejected on references when these disclose both the complete combination and the functional qualifications covered by the claim.

In the present case the examiner states that the invention covered is in a highly developed art, and that while he has at his command references which show the combination he is unable to find a reference which shows the combination having the functional qualifications mentioned in the claim under consideration. Such being the case he was wrong in rejecting the claim, since breadth is not, generally speaking, a proper ground for rejection in the absence of references except in unusual cases—as, for instance, when a claim is broader than the invention, as was the claim considered in Ex parte Opdyke, C. D., 1890, 39; 50 O. G., 1293. Furthermore, the reason given by the examiner—that the claim covers the "function of the machine"—is not thought to be correct. The claim is not a process claim, nor can it be fairly construed to cover a process. It is clearly for a combination of two elements, one of which is expressed by the term "differential spring mechanism," followed by a description of the arrangement of said mechanism. It is not for controlling a fluid-pressure valve by differential spring mechanism, etc., and is neither functional nor for the function of the machine. It is the evident intention of the claim to cover not only the specific subordinate means for producing certain motions of the valve, but to cover certain devices without regard to the special means by which they produce these motions. The language of the claim seems to me to be definite, and the only objection to be urged against it is that it is too broad in view of the art. Rejection of claims of this class should always be accompanied by citation of references and such citations should be made at the time of the first office action.

Claims of the fourth class set forth sets of mechanism by stating the results which they severally produce. A good example of such claims is given in Smith & Egge Manufacturing Co. v. Bridgeport Chain Co., C. D., 1891, 486; 56 O. G., 1449. Such claims are in bad form and should therefore be objected to by the examiner; but such action should also be accompanied, where possible, by the citation of references and rejection on merits.

The petition is granted.

311. EX PARTE HALFPENNY, 73 O. G. 1135, 1895 C. D. 91.

Fisher, Assistant Commissioner:

This is a petition from the action of the primary examiner objecting to claims 1 to 7, inclusive, 29, and 33 as being indefinite and vague.

Claim 3, which may be taken as an example of the claims objected to, is as follows:

"3. The combination of bobbin-feeding, bobbin-separating, and stick-filling mechanisms co-operating to feed and separate bobbins and fill bobbin-sticks therewith, substantially as and for the purpose specified."

It will be noted that this claim is for a combination of bobbin-feeding, bobbin-separating, and stick-filling mechanism.

The examiner states that —

"such an aggroupment of mechanism does not picture to the human mind anything whatever, but leaves it with the indefinite, indistinct, and unsatisfactory impression that when a certain operation is performed upon bobbins this claim may possibly cover it. It is, in effect, a claim which, though really and legally covering only a well-defined structure, 'will apparently and *ex impudentia* cover all mechanism now known or hereafter invented that will accomplish substantially the same result.'"

It is the well-settled policy of this office to allow inventors to claim their inventions as broadly as possible in view of the state of the art. At the same time the statute requires that the—

"applicant shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery."

If the above claim is vague or indefinite, it is because of the use of the term "mechanism," limited only by the functions which such mechanism performs, to designate the specific devices and equivalents thereof which the applicant has grouped together as the elements of his combination; but similar claims have of late been uniformly held to be in proper form, so far as I am aware, unless the only novelty in the invention was in the specific mechanism, in which case it has been held that the applicant should be required to specify the novel features and not depend on the phrase "substantially as described" to save his claim. (Ex parte Pacholder, C. D., 1890, 55, and decisions therein cited; Ex parte Ambler, 41 MS. Dec., 209; Ex parte Pearson, 50 MS. Dec., 25.)

Now, whether or not the only novelty in the claim resides in the specific mechanism can only be determined by reference to the state of the art. The question therefore resolves itself into one of novelty upon which the applicant is entitled to an appeal to the board of examiners-in-chief. The objection of "indefiniteness" or "vagueness" commonly urged against claims, when such objection is based on the fact that the claims include as elements "means" or "mechanism," limited only by the function which such means or mechanism performs, is inaccurate. Those terms do not, under such circumstances, render the claims indefinite or vague. It would be more accurate to say of those terms, when only limited in the man-

ner above stated, that they render the claims too broad—an objection which goes to the merits of the claims and which calls for a rejection. (Ex parte Opdyke, C. D., 1890, 39.)

In accordance with the above conclusion, this petition should be, and it is hereby, dismissed and the case remanded to the primary examiner, who, if he thinks the claims for the reason above discussed are too broad, will reject them on that account, at the same time assigning all other reasons that he may have for rejection, and thus lay a basis for an appeal to the examiners-in-chief.

312. HULETT v. LONG, 15 App. Cas. D. C. 284, 89 O. G. 1141, 1899 C. D. 446.

Alvey, J.: * * *

The amendments objected to, related to some of the details of the machine and the mode of the operation thereof.

This question was substantially involved in the motion to dissolve the interference, for it being alleged as one of the grounds of the motion that there was, in fact, no interference and that Long had no right to make the claim involved in the interference as declared the question was disposed of in denying the motion to dissolve the interference; but we think there is no substantial ground for the contention of the appellant, and especially not on this appeal. The amendments allowed did not disclose a wholly different invention from that claimed in the original application nor change the construction and operation of an invention that had been fully described and shown, nor did the amendments allowed to be made present a different or preferable form of invention from that originally presented, and while an applicant will not under the form or guise of amendment be allowed to introduce into his application a new and different claim to an invention from that originally made nor to change the construction and operation of an invention which has been fully described and explained in his original application and specification, yet it is a well-settled and long-established practice in the patent office to allow amendments to be made under proper circumstances to supply omissions and defects in the original specification and claims as filed which have occurred by mistake, oversight, or inadvertence, or even in the want of the requisite skill in the preparation and presentation of the case to the office, and the making of such amendments should not be allowed to operate to the prejudice of the claim or claims of the applicant if made in due and reasonable time and in good faith. In many cases the necessity for amendments to supply omissions and defects is not discovered until the application and specification have been subjected to the critical examinations of the experts of the office, and both the statute law and the Rules of Practice contem-

plate the making of all necessary amendments and alterations to supply defects and omissions in the presentation of the case, and where amendments have been allowed it should be presumed that they were properly allowed and upon satisfactory showing to the office that it was by mistake, oversight, inadvertence, or want of sufficient skill in the preparation of the application that the omission or defects had occurred and not by design to present a new and essentially different claim to invention from that described in the original application made for the purpose of overreaching and defeating a rival invention.

The subject of amendment, with its proper limitations, is treated in very clear terms in the case of Ex parte Snyder, 22 O. G., 1975, 1882.

In that case it was said by Mr. Commissioner Marble that—

"the applicant will not be permitted, under the guise of an amendment, to introduce into his application a wholly different invention, nor to change the construction and operation of an invention which has been fully described and shown, nor to present a different or preferable form of his invention. He may be permitted, upon proper occasion, to supply suitable connections, to add a spring to a pawl, a handle to a crank, a belt to a pulley, teeth to a wheel, an outlet to a closed receptacle, or other manifest defects or omissions in features essential to the operation of the invention or to the completeness of the disclosure and which were caused by a clerical error of the draftsman or the unfamiliarity of the inventor with official forms. These amendments, supplemental in their nature, may be made as completing the invention imperfectly shown and described. They add to the invention disclosed some part or feature which agrees with the construction and operation already presented."

See also Railway Co. v. Sayles, 97 U. S. 563.

The amendments allowed in the present case would seem to be clearly embraced within the principle and illustrations furnished by the case from which we have quoted. Such amendments as were allowed in this case did not present the case of new and essentially independent claims to invention, such as were inadmissible under the general power of amendment. * * *

[See also, for example, In re Dilg. 25 App. Cas. D. C. 9, 115 O. G. 1067, 1905 C. D. 620.]

[For interesting discussion of power of commissioner and that a requirement of division is action on the merits and reviewable through regular line of appeals. See United States ex rel. Steinmetz v. Allen, 192 U. S. 543, 48 L. ed. 555, 24 Sup. Ct. 416; and for interesting history of the renewal statutes and reversal of long continued practice limiting to one renewal and providing that there may be any number if all within two years, see Ex parte Lambert, 135 O. G. 1581, 1908 C. D. 187, and In re Lambert, 135 O. G. 1584, 1908 C. D. 303.]

313. SNIDER v. BUNNELL, 101 O. G. 2572, 1902 C. D. 460.

Allen, Commissioner:

When this case came on to be heard upon an appeal from the decision of the Examiners-in-Chief on the question of priority of invention, it was found that attention had been called by them to the fact that in their opinion:

1. Snider has no right to make the claim in issue;
2. There is no interference in fact, and
3. There was irregularity in the declaration of interference.

There are preliminary questions which should be determined before proceeding to decide the question of priority of invention. Oliver v. Felbel, 100 O. G. 2384.

In addition to the above questions, counsel for Bunnell have raised the question whether Snider's application was altered after being sworn to, in violation of Rule 31, and have asked that this matter be referred to the Primary Examiner for consideration. Snider is the junior party to the interference, and since no decision on priority in his favor can be based upon his filing date, but only upon evidence of prior invention by him, the question whether his application was altered is an ex parte one, which can affect only his rights. He may be the prior inventor and entitled to receive a patent upon a formal application, even if his present application is informal. In other words, the objection does not go to the merits of the interference or of Snider's claim.

The question of striking Snider's application from the files because altered after being sworn to is furthermore not a matter for action by the Primary Examiner, but is exclusively within the jurisdiction of the Commissioner. If the interference proceeds and he is found to be the prior inventor, the question whether or not it will be necessary for him to file a new application to secure the claims will be considered.

Proceedings are suspended, and the interference is remanded to the Primary Examiner, under Rule 126, to consider the matters to which attention has been called by the Examiners-in-Chief.

[The following under this heading are brief extracts to complete the discussion.]

314. *DOBSON v. LEES, 137 U. S. 258, 34 L. ed. 652, 11 Sup. Ct. 71.*

The court could not distinguish between the patentee and his counsel as to what occurred during the pendency of the application for the patent, and, as to the acceptance by the latter, the patentee must be regarded as bound by the acts of his counsel.

315. EASTMAN v. NEW YORK, 134 Fed. 844, 69 C. C. A. 628.

It will hardly be contended that the mistaken advice of a patent solicitor can override a statute of the United States.

316. BOYDEN v. BURKE, 14 How. (U. S.) 575, 14 L. ed. 548.

The defendant [Commissioner of Patents] was not justified in refusing this demand on account of the former misconduct of the plaintiff or to enforce an apology by withholding rights. Ill manners or bad temper do not work a forfeiture of men's civil rights.

317. JENNER v. BOWEN, 139 Fed. 556, 71 C. C. A. 540.

[In December, 1893, the inventor became insane.] At this crisis there remained three months' time during which an application might have been filed, if there had been any one legally capable of making an application. The trouble was that there was then no law authorizing the guardian to file an application for a patent upon an invention made by an insane person. The law which for the first time took cognizance of such a situation was passed Feb. 28, 1899, c. 227, 30 Stat. 915. * * * The act of that date amended section 4896, Rev. St., which authorizes the administrator or executor of a deceased inventor to file an application for an invention, made by his intestate or testator, by providing that the guardian of an insane person might file an application upon an invention made by such person before his insanity. The last clause of that act provides that it "is to cover all applications now on file in the Patent Office or which may be hereafter made." Jenner, as guardian, at date of this act had on file an application for a patent upon Biedinger's invention. * * * There was no authority of law for its filing at the time it was filed, but that trouble, we shall assume, was cured by the retroactive effect of the act of 1899. But as the date of that application was November 20, 1895, we are confronted with the fact that at that date the invention of Biedinger had been in public use for more than three years. * * * Congress having created the monopoly, may put such restrictions upon it as it pleases. Having made no exception in favor of an insane person, we can make none.

318. KIRCHBERGER v. AMERICAN, ETC., BURNER CO., 128 Fed. 599, 64 C. C. A. 107.

(1) The amendment was filed within three months after the filing of the original specifications, and before, so far as appears, other inventors whose rights had been prejudiced had entered the field. Railway v. Sayles, 97 U. S. 554, 24 L. ed. 1053. (2) The original drawings and specification sufficiently show and suggest the claims finally made, or at least are not inconsistent therewith. Hobbs v. Beach, 180 U. S. 383, 45 L. ed. 586. (3) Subject to the foregoing rules, an inventor may amend his specification so as to include therein all of the advantages within the scope of his invention. Singer Mfg. Co. v. Cramer, 109 Fed. 652, 658, 48 C. C. A. 588.

319. EAGLETON MFG. v. WEST, ETC., MFG. CO., 111 U. S. 490, 28 L. ed. 493, 4 Sup. Ct. 593.

In view of the entire change in the specification, as to the invention described, the patent, to be valid, should have been granted on an application made and sworn to by the administratrix. * * * The specification, as issued, bears the signature of Eagleton and not of the administratrix, and it is sufficiently shown that the patent was granted on the application and oath of Eagleton, and for an invention which he never made.

320. AMERICAN LAVA CO. v. STEWARD, 155 Fed. 731, 84 C. C. A. 157.

The changes made in the application were manifestly to develop the newly conceived theory of the mode of operation, and to add claims for the process. If this was to be accomplished and the theory were to be embodied in practical means, the specifications should have been made to distinctly point out such means, as we have already pointed out. But in that regard the former specifications were retained. If the application as amended were to be construed as embodying such an invention as is now claimed, it was another and different invention from that for which the patent was originally sought, and, if an amendment having that consequence were permissible it should have been verified by the oath of the inventor.

321. HILL v. WOOSTER, 132 U. S. 693, 33 L. ed. 502. 10 Sup. Ct. 228.

The provision of section 4915 is that the circuit court may adjudge that the applicant "is entitled according to law, to receive a patent for his invention, as specified in his claim or for any part thereof, as the facts in the case may appear;" and that, if the adjudication is in favor of the right of the applicant, it shall authorize the commissioner to issue the patent. It necessarily follows that no adjudication can be made in favor of the applicant, unless the alleged invention for which a patent is sought is a patentable invention. The litigation between the parties on this bill cannot be concluded by solely determining an issue as to which of them in fact first made a cabinet creamery. A determination of that issue alone, in favor of the applicant, carrying with it, as it does, authority to the commissioner to issue a patent to him for the claims in interference would necessarily give the sanction of the court to the patentability of the invention involved.

322. WESTERN ELECTRIC CO. v. NORTH ELECTRIC CO., 135 Fed. 79, 67 C. C. A. 553.

The full six months are allowed by the statute to the applicant, and it can hardly be supposed that Congress intended that this

period could be cut short by the exigencies of the Patent Office. * * * Again, the statute declares that, if the final fee is not paid within the six months, the patent shall be withheld, but it does not declare that, if not dated as directed, the patent shall not issue, or, if issued, shall be void. [See Part IX.]

323. KENNEDY v. HAZELTON, 128 U. S. 667, 32 L. ed. 576, 9 Sup. Ct. 202.

The patent law makes it essential to the validity of a patent that it shall be granted on the application, supported by the oath of the original and first inventor (or of his executor or administrator) whether the patent is issued to him or to his assignee. A patent which is not supported by the oath of the inventor, but applied for by one who is not the inventor, is unauthorized by law, and void, and whether taken out in the name of the applicant or of any assignee of his, confers no rights as against the public.

324. ECONOMY, ETC., HEATER CO. v. LAMPREY BOILER, ETC., CO., 65 Fed. Rep. 1000, 13 C. C. A. 271.

The final fee for a patent must be paid as prescribed by R. S. sec. 4897 within six calendar months.

[Upon the many points of practice in the Patent Office see Underwood's Digest. In the majority of cases the Rules of Practice themselves set forth the broad lines of procedure. A few cases which have been excerpted cover some of the broad principles of construction which have guided the Patent Office.

It will be observed that the office deals with the inventor, except where there has been an assignment of the entire interest or an assignment of an undivided part.

The rules specifically provide for the procedure in case of the death of the inventor or applicant and for the issuance of a patent to an assignee or to the heirs or representatives of an applicant.

All applications are kept in secrecy under the Rules of Practice (15). Provision, however, has been made for access to such applications upon a reasonable suggestion of necessity, but the general rule is that the Commissioner is not obliged to disclose the secret of a pending application.

Upon the matter of division there has been a wide range of procedure, the present practice resting almost solely upon the classification of claims. Since Steinmetz v. Allen, supra, however, the requirement of division has been considered an action upon the merits upon v[illegible]ch appeal may be taken.

In [illegible]ecent works on patents the authors have stated that the Paten[illegible] provides for the admission of new matter into an application[illegible]ppported by supplemental oath. Nothing could be furthe[illegible] the mark. It is an important feature of the Patent

Office practice that no new matter is permitted to be inserted in the application and that even claims for subject-matter clearly shown and described must, if they are upon a different line from the claims originally filed, be supported by a supplementary oath.

The kind of amendment which is within the rule was well stated by Commissioner Marble in Ex parte Snyder, 22 O. G. 1975, 1882 C. D. 22, as follows:

"The applicant will not be permitted under the guise of an amendment to introduce into his application a wholly different invention, nor to change the construction and operation of an invention which has been fully described and shown, nor to present a different or preferable form of his invention. He may be permitted, upon proper occasions, to supply suitable connections, to add a spring to a pawl, a handle to a crank, a belt to a pulley, teeth to a wheel, an outlet to a closed receptacle, or other manifest defects or omissions in features essential to the operation of the invention or to the completeness of the disclosure, and which were caused by a clerical error of the draughtsman or the unfamiliarity of the inventor with official forms."

Under Rule 75 has grown up a specific practice by which references showing and describing but not claiming an invention may be overcome by a verified showing. Some of the older decisions cover this matter clearly.

"It will be noted that this rule calls not for opinions, but for a showing of facts. If an applicant made sketches during invention or prior to the date purposed to be overcome, he should so state and produce and describe them; if the sketches were made and lost, and their contents remembered, they should be reproduced and furnished in place of the original. The same course should be pursued if the disclosure was by means of models. If neither sketches nor models are relied upon, but it is claimed that verbal disclosures sufficiently clear to indicate definite conception of the invention were made, the witness should state as nearly as possible the language used by the inventor in imparting knowledge of the invention to others. Ex parte Donovan, 52 O. G. 309, citing Gasser, 1880 C. D. 94; Saunders, 1883 C. D. 23; and Hunter, 1889 C. D. 218. See also Hurlbut, 52 O. G. 1062; and for special points, Boyer, 49 O. G. 1895; Eddleblute, 52 O. G. 751; Bonna, 52 O. G. 751; Reed v. Landman, 55 O. G. 1275; Keller, 61 O. G. 1790.

The object of this rule is to be distinguished from that of rule 94 (2), which requires that an applicant rejected on a patent claiming the same invention shall file an affidavit that he made the invention before the patentee's application was filed. Such affidavit is preliminary to a contest of priority and therefore need not be an oath to facts. Under rule 75 there is no contest. The application claiming the invention is examined ex parte, and the showing is therefore

required in the only form feasible, that of an affidavit offering evidence that the applicant invented the subject-matter of the claims prior to the date of the publication or the disclosure of the invention to the office. While the decisions are exacting in requiring the best evidence, it is not necessary to prove actual "reduction to practice." The filing of an allowable application is a constructive reduction to practice, and an applicant may, in the oath required by rule 75, show that he had "completed" the invention; that is, that he reduced it to practice, or had such drawings, sketches, description, etc., of the invention as would constitute a full and clear disclosure of the completed invention, or had conceived and disclosed the invention and been reasonably diligent in perfecting it by filing his application."

For many years the rules permitting the Commissioner of Patents to revive abandoned applications upon a showing of unavoidable delay has been thought to be a matter of discretion wholly within the power of the Commissioner. In the case of In re Mattullath, 38 App. Cas. D. C. 497, 179 O. G. 853 (1902), however the Court of Appeals of the District of Columbia, have held that the action of the Commissioner was in effect a rejection and was reviewable by the court.]

PART VI.

COURT OF APPEALS, D. C.

325. APPEALS FROM COMMISSIONER OF PATENTS. R. S. D. C., § 780 (R. S. U. S. Sup., Vol. 2 C. 74, Feb. 9, 1893).

Sec. 9. That the determination of appeals from the decision of the Commissioner of Patents, now vested in the general term of the supreme court of the District of Columbia, in pursuance of the provisions of section seven hundred and eighty of the Revised Statutes of the United States, relating to the District of Columbia, shall hereafter be and the same is hereby vested in the court of appeals created by this act.

And in addition any party aggrieved by a decision of the Commissioner of Patents in any interference case may appeal therefrom to said court of appeals. [For procedure see Secs. 4911-4914, Part VI.]

Sec. 250, Judicial Code. Any final judgment or decree of the court of appeals of the District of Columbia may be re-examined and affirmed, reversed, or modified by the Supreme Court of the United States, upon writ of error or appeal, in the following cases:

First. In cases in which the jurisdiction of the trial court is in issue; but when any such case is not otherwise reviewable in said Supreme Court, then the question of jurisdiction alone shall be certified to said Supreme Court for decision.

Second. In prize cases.

Third. In cases involving the construction or application of the Constitution of the United States, or the constitutionality of any law of the United States, or the validity or construction of any treaty made under its authority.

Fourth. In cases in which the constitution, or any law of a State, is claimed to be in contravention of the constitution of the United States.

Fifth. In cases in which the validity of any authority exercised under the United States, or the existence or scope of any power or duty of an officer of the United States is drawn in question.

Sixth. In cases in which the construction of any law of the United States is drawn in question by the defendant.

Except as provided in the next succeeding section, the judgments and decrees of said court of appeals shall be final in all cases arising under the patent laws, the copyright laws, the revenue laws, the criminal laws, and in admiralty cases; and, except as provided in the next succeeding section, the judgments and decrees of said court of

appeals shall be final in all cases not reviewable as hereinbefore provided.

Writs of error and appeals shall be taken within the same time, in the same manner, and under the same regulations as writs of error and appeals are taken from the circuit courts of appeals to the Supreme Court of the United States. [Succeeding section provides for writ of certiorari.]

326. IN RE HIEN, 166 U. S. 432, 41 L. ed. 1066, 17 Sup. Ct. 624. (1897)

Mr. Chief Justice Fuller delivered the opinion of the Court.

The Commissioner of Patents, in an interference proceeding between Philip Hien and one William A. Pungs, awarded priority of the invention in controversy to Pungs, June 9, 1894. Hien gave notice to the Commissioner, March 12, 1896, of an appeal from his decision, under section 4912 of the Revised Statutes, to the Court of Appeals for the District of Columbia, and filed his petition of appeal in that court, June 2, 1896, which was dismissed on the third day of the following December because the appeal was not taken within the time prescribed by the rules of the court. 77 O. G. 1600, 24 Wash. L. Rep. 827. December 12, 1896, Hien moved that his appeal be reinstated on the ground that the Court of Appeals had no authority to make the rules in question, which was denied. 78 O. G. 484, 25 Wash. L. Rep. 8. Hien then applied to this Court for leave to file a petition for a writ of mandamus; leave was granted; the petition filed; and a rule to show cause entered, to which return was duly made.

Section 780 of the Revised Statutes of the District of Columbia, approved June 22, 1874, reads:

"Sec. 780. The Supreme Court, sitting *in banc*, shall have jurisdiction of and shall hear and determine all appeals from the decisions of the Commissioner of Patents, in accordance with the provisions of sections forty-nine hundred and eleven to section forty-nine hundred and fifteen, inclusive, of chapter one. Title LX, of the Revised Statutes, "Patents, Trade-Marks, and Copyrights."

The sections of the Revised Statutes thus referred to are as follows: * * * [Recited Secs. 4911-4915. See Part V.]

Sections 6 and 9 of the act to establish the Court of Appeals for the District of Columbia, approved February 9, 1893 (26 Stat. 434, c. 74), provided:

"Sec. 6. That the said Court of Appeals shall establish a term of the court during each and every month in each year excepting the months of July and August, and it shall make such rules and regulations as may be necessary and proper for the transaction of the business to be brought before it, and for the time and method of the entry of appeals and for giving notice of appeals thereto from the Supreme

Court of the District of Columbia, and such other rules and regulations as may be necessary and proper in the premises.

"Sec. 9. That the determination of appeals from the decision of the Commissioner of Patents, now vested in the general term of the Supreme Court of the District of Columbia, in pursuance of the provisions of section seven hundred and eighty of the Revised Statutes of the United States, relating to the District of Columbia, shall hereafter be and the same is hereby vested in the Court of Appeals created by this act; and in addition, any party aggrieved by a decision of the Commissioner of Patents in any interference case may appeal therefrom to said Court of Appeals."

By the act of July 30, 1894, 28 Stat. 160, c. 172, section 6 was amended so as to read as follows:

Sec. 6. That said Court of Appeals shall establish by rule of court such terms of the court in each year as to it may seem necessary: Provided, however, That there shall be at least three terms in each year, and it shall make such rules and regulations as may be necessary and proper for the transaction of its business and the taking of appeals to said court. * * *

The Court of Appeals, June 5, 1893, promulgated a set of rules, among which were these:

"Rule IX.—1. No order, judgment, or decree of the Supreme Court of the District of Columbia, or of any justice thereof, shall be reviewed by the Court of Appeals, unless the appeal shall be taken within twenty days, Sundays excluded, after the order, judgment, or decree complained of shall have been made or pronounced.

"Rule XIX.—6. The appeals from the Commissioner of Patents shall be subject to all the rules of this court provided for other cases therein, except where such rules, from the nature of the case, or by reason of special provisions inconsistent therewith, are not applicable."

The Commissioner of Patents issued an order May 16, 1894, that—

"all Examiners are hereby directed to withhold from issue the application of the prevailing party in interference cases for thirty days from the date of final issue in order that an appeal may be taken to the Court of Appeals of the District of Columbia, if desired."

This order was published in The Official Gazette of June 5, 1894 (67 O. G. 1195.)

The Court of Appeals promulgated a new set of rules September 29, 1894, of which Rule XX related to appeals from the Commissioner of Patents, the second subdivision reading thus:

"XX.—2. The appellant, upon complying with the preceding section of this rule, shall file in the case a petition, addressed to the court, in which he shall briefly set forth and show that he has complied with the requirements of sections 4912 and 4913 of the Revised

Statutes of the United States, to entitle him to an appeal, and praying that his appeal may be heard upon and for the reasons assigned therefor to the Commissioner; and said appeal shall be taken within forty days from the date of the ruling or order appealed from, and not afterward."

The order of May 6, 1894, was modified by the Commissioner, April 27, 1896, so as to direct the Examiners to withhold from issue the application of the prevailing party in interference cases for forty-five days from the date of the final decision.

The contention is that the Court of Appeals of the District of Columbia was without authority to promulgate a rule limiting the time of taking appeals from the decisions of the Commissioner of Patents; and that, by analogy, two years were allowed therefor in view of section 4894 of the Revised Statutes.

The general rule undoubtedly is that courts of justice possess the inherent power to make and frame reasonable rules not conflicting with express statute; but apart from that we think it clear that the Court of Appeals was duly authorized by section 6 of the act creating the court, as well as by section 6 as amended by the act of July 30, 1894, to make rules limiting the time of taking appeals to the court from the decisions of the Commissioner of Patents. Since by section 9 the Court of Appeals was vested with authority to review such decisions, we do not think it can properly be held that under the original act the authority in respect of appeals was limited only to appeals from the Supreme Court of the District of Columbia, or to the conduct of appeals after they had come before the appellate court.

Of the rules of June 5, 1893, Rule XIX is to be read with Rule IX, as limiting the time of appeals to the court from the decisions of the Commissioner to twenty days, exclusive of Sundays, which time was enlarged to forty days by Rule XX, promulgated September 29, 1894, the rule specifically declaring that such appeals could not be taken after the expiration of the time prescribed.

And if the original act were not so comprehensive as above indicated, the result would be the same under the amendatory act, in respect of the power imparted by which there can be no question. The petitioner complied neither with the rule of June 5, 1893, nor with the rule of September 29, 1894, and if not governed by the former was certainly subject to the latter, for although this was promulgated after the decision of the Commissioner of Patents in the case, the Court of Appeals was quite right in holding that—

"the right of appeal is not a vested right that may not be altered by statute, or by rule of court made in pursuance of statutory authority to enact such rules."

In compliance with section 4912 of the Revised Statutes, Hien gave notice to the Commissioner of Patents, under date May 12,

1896, of an appeal from his decision to the Court of Appeals, and filed his petition, under the rule, on June 2. These proceedings, if they had been in time, amounted to the taking of an appeal, but as they were not initiated and prosecuted within the time limited, they were ineffectual. We have no doubt that the Court of Appeals had authority, in regulating the taking of appeals, to limit the time in which the conditions of such taking had to be performed; and that there was no restriction thereon by reason of section 4894 of the Revised Statutes as contended.

That section is as follows:

"Sec. 4894. All applications for patents shall be completed and prepared for examination within two years after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within two years after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable."

This has no relation to the limitation on appeals under section 4911, but has reference solely to the abandonment of an application by failure to prosecute it.

In Gandy v. Marble, 39 O. G. 1423, 122 U. S. 432, which was a bill in equity under section 4915 of the Revised Statutes, to obtain an adjudication in favor of the granting of a patent, we held that while such a proceeding was a suit according to the ordinary course of equity practice and procedure, and not a technical appeal from the Patent Office, confined to the case as made in the record of that office, yet that the requirement of section 4894 that the application should be regarded as abandoned if the applicant failed to prosecute the same within two years after any action therein, of which notice should have been given him, unless it were—

"shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable—"

was applicable, and that the Court could not adjudge that the applicant was entitled, "according to law, to receive a patent," unless he showed to the satisfaction of the Court that the delay of two years "was unavoidable, under an allegation to that effect in the bill." It was held that the bill in equity was *sub modo* a branch of the application for the patent, and was governed by the rule as to laches and delay declared by section 4894. But this had nothing to do with the time within which an appeal from the Commissioner of Patents must be taken, but merely decided that a bill in equity under section 4915 would be defeated where the application had been abandoned in the Patent Office under section 4894.

The bill in equity provided for by section 4915 is wholly different from the proceeding by appeal from the decision of the Commissioner

under consideration in this case. The one is in the exercise of original, the other, of appellate, jurisdiction.

The court under section 4914, on petition, is to hear and determine the appeal and to revise the decision appealed from in a summary way—

"upon the evidence produced before the Commissioner, at such early and convenient time as the court may appoint; and the revision shall be confined to the points set forth in the reasons of appeal."

Section 4915 provides, as to the remedy by bill in equity, that—"the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention as specified in his claim, or for any part thereof, as the facts in the case may appear."

In Butterworth v. Hoe, 29 O. G. 615, 112 U. S. 150, 161, this court distinguished the proceeding by bill in equity under section 4915 from an appeal under section 4911, and said:

"This means a proceeding in a court of the United States having original equity jurisdiction under the patent laws, according to the ordinary course of equity practice and procedure. It is not a technical appeal from the Patent Office, like that authorized in section 4911, confined to the case as made in the record of that office, but is prepared and heard upon all competent evidence adduced and upon the whole merits."

This being so, section 4894 was inapplicable, and the power of the Court of Appeals to limit the time of appeal was not affected thereby.

Writ denied.

PART VII.

DESIGNS.

Statutes and Rules of Practice—Comparison of Statutes—General Definitions, etc.

STATUTES.

327. PATENTS FOR DESIGNS AUTHORIZED.

Sec. 4929. Any person who has invented any new, original, and ornamental design for an article of manufacture, not known or used by others in this country before his invention thereof, and not patented or described in any printed publication in this or any foreign country before his invention thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law and other due proceedings had, the same as in cases of invention or discoveries covered by section forty-eight hundred and eighty-six, obtain a patent therefor.

328. MODELS OF DESIGNS.

Sec. 4930. The Commissioner may dispense with models of designs when the design can be sufficiently represented by drawings or photographs.

329. DURATION OF PATENTS FOR DESIGNS.

Sec. 4931. Patents for designs may be granted for the term of three years and six months, or for seven years, or for fourteen years, as the applicant may, in his application, elect.

[Sec. 4932 provides for extension of design patents prior to March 2, 1861.]

330. PATENTS FOR DESIGNS SUBJECT TO GENERAL RULES OF PATENT LAW.

Sec. 4933. All the regulations and provisions which apply to obtaining or protecting patents for inventions or discoveries not inconsistent with the provisions of this Title, shall apply to patents for designs.

331. UNAUTHORIZED USE OF PATENTED DESIGN UNLAWFUL—PENALTY—SUITS.

Chap. 105.—An act to amend the law relating to patents, trade-marks, and copyrights. Act Feb. 4, 1887, U. S. Stat., XXIV, pp. 387, 388.

Be it enacted, etc., That hereafter, during the term of letters patent for a design, it shall be unlawful for any person other than the owner of said letters patent, without the license of such owner, to apply the design secured by such letters patent, or any colorable imitation thereof, to any article of manufacture for the purpose of sale, or to sell or expose for sale any article of manufacture to which such design or colorable imitation shall, without the license of the owner, have been applied, knowing that the same has been so applied. Any person violating the provisions, or either of them, of this section, shall be liable in the amount of two hundred and fifty dollars; and in case the total profit made by him from the manufacture or sale, as aforesaid, of the article or articles to which the design, or colorable imitation thereof, has been applied, exceeds the sum of two hundred and fifty dollars, he shall be further liable for the excess of such profit over and above the sum of two hundred and fifty dollars; and the full amount of such liability may be recovered by the owner of the letters patent, to his own use, in any circuit court of the United States having jurisdiction of the parties either by action at law or upon a bill in equity for an injunction to restrain such infringement.

332. REMEDY BY EXISTING LAW NOT IMPAIRED.

Sec. 2. That nothing in this act contained shall prevent, lessen, impeach, or avoid any remedy at law or in equity which any owner of letters patent for a design, aggrieved by the infringement of the same, might have had if this act had not been passed; but such owner shall not twice recover the profit made from the infringement.

RULES OF PRACTICE.

[Rules 79-84 substantially follow the statutes with suggestions similar to the procedure for mechanical applications.]

333. SMITH v. WHITMAN SADDLE CO., 148 U. S. 674, 37 L. ed. 606, 13 Sup. Ct. 768 (1893, Design Patent No. 10,844).

Mr. Chief Justice Fuller, after stating the facts, delivered the opinion of the court: * * *

The first three of these classes [recited in the statute] plainly refer to ornament, or to ornament and utility, and the last to new shapes or forms of manufactured articles; and it is under the latter clause that this patent was granted.

In Gorham Manufacturing Co. v. White, 14 Wall. 511, 524, it was said by this court, speaking through Mr. Justice Strong, that the acts of congress authorizing the granting of patents for designs contemplated "not so much utility as appearance, and that, not an abstract impression or picture, but an aspect given to those objects mentioned in the acts. * * * And the thing invented or produced, for which a patent is given, is that which gives a peculiar or distinctive appearance to the manufacture or articles to which it may be applied, or to which it gives form. The law manifestly contemplates that giving certain new and original appearances to a manufactured article may enhance its salable value, may enlarge the demand for it, and may be a meritorious service to the public. It therefore proposes to secure for a limited time to the ingenious producer of those appearances the advantages flowing from them. Manifestly the mode in which those appearances are produced has very little, if anything, to do with giving increased salableness to the article. It is the appearance itself which attracts attention, and calls out favor or dislike. It is the appearance itself, therefore, no matter by what agency caused, that constitutes mainly, if not entirely, the contribution to the public which the law deems worthy of recompense." This language was used in reference to ornamentation merely, and, moreover, the word "useful," which is in section 4929, was not contained in the act of 1842, under which the patent in Gorham Mfg. Co. v. White was granted; so that now where a new and original shape or configuration of an article of manufacture is claimed, its utility may be also an element for consideration. Lehnbeuter v. Holthaus, 105 U. S. 94.

But, as remarked by Mr. Justice Brown, then district judge for the eastern district of Michigan, in Northrup v. Adams, 12 O. G. 430, 2 Ban. & A. 567, which was a bill for the infringement of a design patent for a cheese safe, the law applicable to design patents "does not materially differ from that in cases of mechanical patents, and 'all the regulations and provisions which apply to the obtaining or protection of patents for inventions or discoveries * * * shall apply to patents for designs.' Section 4933." And he added: "To entitle a party to the benefit of the act, in either case there must be originality, and the exercise of the inventive faculty. In the one there must be novelty and utility; in the other, originality and beauty. Mere mechanical skill is insufficient. There must be something akin to genius,—an effort of the brain as well as the hand. The adaptation of old devices or forms to new purposes, however convenient, useful, or beautiful they may be in their new role, is not invention." Many illustrations are referred to,—as, for instance, the use of a model of the Centennial building for paper weights and ink stands: the thrusting of a gas pipe through the leg and arm of the statue of a shepherd boy, for the purpose of a drop light; the painting upon

a familiar vase of a copy of Stuart's portrait of Washington,—none of which were patentable, because the elements of the combination were old. The shape produced must be the result of industry, effort, genius, or expense, and new and original as applied to articles of manufacture. Foster v. Crossin, 44 Fed. Rep. 62. The exercise of the inventive or originative faculty is required, and a person cannot be permitted to select an existing form, and simply put it to a new use, any more than he can be permitted to take a patent for the mere double use of a machine. If, however, the selection and adaptation of an existing form is more than the exercise of the imitative faculty, and the result is in effect a new creation, the design may be patentable.

In Jennings v. Kibbe, 10 Fed. Rep. 669, 20 Blatchf. 353, Mr. Justice Blatchford, when circuit judge, applied the rule laid down in Gorham Mfg. Co. v. White, supra, stating it thus: That "the true test of identity of design is sameness of appearance,—in other words, sameness of effect upon the eye; that it is not necessary that the appearance should be the same to the eye of an expert, and that the test is the eye of an ordinary observer, the eyes of men generally, of observers of ordinary acuteness, bringing to the examination of the article upon which the design has been placed that degree of observation which men of ordinary intelligence give." Ripley v. Glass Co., 49 Fed. Rep. 927.

In this case it appeared from the evidence that among other trees and saddles that were old in the prior art was one called the "Granger" tree, which had a cut-back pommel, and a low, broad cantle, and was well known; and another called the "Jenifer tree," or "Jenifer-McClellan" saddle, which was also well known, and had a high, prominent pommel, and a high-backed cantle, or hind protuberance, in the shape of a duck's tail.

The exhibits embrace, among others, a slotted Granger saddle, the Jenifer-McClellan, the Sullivan-Black-Granger tree, and the saddle sold by defendants; the latter being substantially the Granger saddle with the Jenifer cantle.

The saddle design described in the specification differs from the Granger saddle in the substitution of the Jenifer cantle for the low, broad cantle of the Granger tree. In other words, the front half of the Granger and the rear half of the Jenifer, or Jenifer-McClellan, make up the saddle in question, though it differs also from the Granger saddle in that it has a nearly perpendicular drop of some inches at the rear of the pommel, that is, distinctly more of a drop than the Granger saddle had.

The experienced judge by whom this case was decided conceded that the design of the patent in question did show prominent features of the Granger and Jenifer saddles, and united two halves of old trees, but he said: "A mechanic may take the legs of one stove,

and the cap of another, and the door of another, and make a new design which has no element of invention; but it does not follow that the result of the thought of a mechanic who has fused together two diverse shapes, which were made upon different principles, so that new lines and curves and a harmonious and novel whole are produced, which possesses a new grace, and which has a utility resultant from the new shape, exhibits no invention." And he held that this was effected by the patentee, and that the shape that he produced was, therefore, patentable. But we cannot concur in this view.

The evidence established that there were several hundred styles of saddles or saddletrees belonging to the prior art, and that it was customary for saddlers to vary the shape and appearance of saddletrees in numerous ways, according to the taste and fancy of the purchaser. And there was evidence tending to show that the Granger tree was sometimes made up with an open slot and sometimes without, and sometimes with the slot covered and padded at the top and sometimes covered with plain leather; while it clearly appeared that the Jenifer cantle was used upon a variety of saddles, as was the open slot. Nothing more was done in this instance (except as hereafter noted) than to put the two halves of these saddles together in the exercise of the ordinary skill of workmen of the trade, and in the way and manner ordinarily done. The presence or the absence of the central open slot was not material, and we do not think that the addition of a known cantle to a known saddle, in view of the fact that such use of the cantle was common, in itself involved genius or invention, or produced a patentable design. There was, however, a difference between the pommel of this saddle and the pommel of the Granger saddle, namely, the drop at the rear of the pommel, which is thus described in the specification: "The pommel, on its rear side, falls nearly perpendicularly for some inches, when it is joined by the line forming the profile of the seat. The straight inner side of the pommel (marked b) is joined at c by the line, C, of the seat." The specification further states: "The line from the front of the pommel, B, includes outward for some distance in a nearly straight line, m, before being rounded toward the rear to join the line, h, at the point where the stirrup strap is attached, to thus define the bottom line of the saddle, the outline given by line, m, from the pommel being the general form of the English saddletree known as the 'cut back.'"

The shape of the front end being old, the sharp drop of the pommel at the rear seems to constitute what was new and to be material. Now, the saddles of the defendants, while they have the slight curve drop at the rear of the pommel, similar to the Granger saddle, do not have the accentuated drop of the patent, which "falls nearly perpendicularly several inches," and has a "straight inner side." If, therefore, this drop were material to

the design, and rendered it patentable as a complete and integral whole, there was no infringement. As before said, the design of the patent had two features of difference as compared with the Granger saddle,—one the cantle, the other the drop; and unless there was infringement as to the latter there was none at all, since the saddle design of the patent does not otherwise differ from the old saddle with the old cantle added,—an addition frequently made. Moreover, that difference was so marked that in our judgment the defendants' saddle could not be mistaken for the saddle of the complainant.

There being no infringement, the decree must be reversed, and the cause remanded with a direction to dismiss the bill, and it is so ordered.

334. ROWE v. BLODGETT, ETC., CO., 112 Fed. 61, 50 C. C. A. 120, (1901, Design Patent No. 26,587).

[Horse-shoe calk.]

* * * Before Wallace and Lacombe, Circuit Judges.

Per Curiam. Several defenses were urged, but Judge Townsend at circuit held as follows:

"I decide this case upon the broader ground that patents for designs are intended to apply to matters of ornament, in which the utility depends upon the pleasing effect imparted to the eye, and not upon any new function. The advantage claimed by complainant for the increased flat surface afforded by the curved line, which is the essential feature of his patent, is to enhance the mechanical utility of the calk by thus making a stouter shoulder, which would not so readily become bruised out of shape, and which, therefore, could be more easily removed with a wrench, when worn, from the shoe. It is significant, in this connection, that the patentee first applied for this essential feature of downward projecting curved lines on the sides of the base, as a mechanical invention, which application was rejected, and that he then attempted to cover the same feature by a design patent. Design patents refer to appearance, not utility. Their object is to encourage works of art and decoration which appeal to the eye, to the aesthetic emotions, to the beautiful. A horseshoe calk is a mere bit of iron or steel, not intended for display, but for an obscure use, and adapted to be applied to the shoe of a horse for use in snow, ice, and mud. The question an examiner asks himself while investigating a device for a design patent is not 'What will it do?' but 'How does it look?' 'What new effect does it produce upon the eye?' The term 'useful,' in relation to designs, means adaptation to producting pleasant emotions. There must be 'originality and beauty. Mere mechanical skill is not sufficient.' Northrup v. Adams, 2 Ban. & A. 567, Fed.

Cas. No. 10,328, approved in Smith v. Saddle Co., 148 U. S. 679, 13 Sup. Ct. 768, 37 L. ed. 606; Ex parte Parkinson, (1871) Dec. Com. Pat. 251."

We prefer to rest our affirmance on concurrence with these views. The practice of the patent office in issuing design patents seems not to have been uniform. Prior to 1871 it was "not only liberal, but lax," until, in a carefully considered opinion, Commissioner Leggett (Ex parte Parkinson [1871] Dec. Com. Pat. 251) conformed it to a construction of the law which subsequently found approval in the cases above cited. In another case, in 1873 (In re Seaman, 4 O. G. 691), the same commissioner indicated the test to be applied by examiners when an article of manufacture is presented with request for a design patent:

"Is its form, without reference to the function of the article, intended to be ornamental, and is the article itself a thing which may, for any practical purpose, have a merely ornamental, configuration, and therefore have, in that sense, sufficient utility to warrant the grant of a patent?"

It would seem from the patent in suit that this test is no longer applied, and that the practice of the office has again become "not only liberal, but lax."

There is nothing in the record to indicate that there is anything attractive about the appearance of the complainant's calk, or that the downward projecting curved lines appeal in any way to the eye, or serve to commend the article to purchasers, except for the suggestion that, seeing those lines, they will know the calk on which they appear is the product of the patentee, and not of some other maker. But the designers of articles of manufacture not otherwise entitled to receive design patents cannot justify the issuance of such patents on any theory that the design is a trade-mark.

The decree of the circuit court is affirmed, with costs.

335. ROBERTS v. BENNETT, 136 Fed. 193, 69 C. C. A. 533 (1905, Design Patent No. 25,927).

* * *

Before Wallace, Lacombe, and Townsend, Circuit Judges.

Townsend, Circuit Judge. The decisive question herein was raised by defendant's exception to the denial of his request to instruct the jury to render a verdict for defendant upon the ground, inter alia, that the patent in suit showed no such invention as is requisite to sustain a design patent, and was not ornamental. * * *

The patent is invalid for the following reasons:

1. Plaintiff's prior patent, No. 541,805, described, claimed and illustrated a metal basket, which, he says:

"Is designed to form a desirable substitute for the ordinary willow basket now used, * * * adapted to contain about one bushel,

* * * with a curved, upwardly extending bottom, * * * with an annular exterior flange (at) the extreme upper end of the receptacle. * * * Large handles may be secured by rivets or other means to the receptacle near the upper end thereof. The object of the invention is to provide a new and improved basket, which combines durability and strength with lightness," etc.

The drawings show a basket almost identical in shape, barring some negligible corrugations, with that shown in the design patent. If the plaintiff was entitled to any patent for the advantages claimed for such a construction, they were covered by the prior mechanical patent. "Functional utility entitled the patentee to the mechanical patent already discussed, but mere functional utility did not entitle him to a design patent for the same article." Christopher C, Bradley v. Richard Eccles, 126 Fed. 945, 61 C. C. A. 669; Royal Metal Mfg. Co. v. Art Metal Works (C. C.) 121 Fed. 128; Id. (C. C. A.) 130 Fed. 778.

2. There is nothing in the shape or construction of the basket of the patent in suit which "appeals in any way to the eye, or serves to commend it to purchasers and users as a thing of beauty." Bradley v. Eccles, supra. It is not useful as a design. "The term 'useful' in relation to designs means adaptation to producing pleasant emotions. There must be originality and beauty. Mere mechanical skill is not sufficient.'" Rowe v. Blodgett & Clapp Co. (C.C.) 103 Fed. 873, 874; Bevin Bros. Mfg. Co. v. Starr (C. C.) 114 Fed. 362; Eaton v. Lewis (C. C.) 115 Fed. 635, affirmed 127 Fed. 1018, 61 C. C. A. 562.

3. Irrespective of the fact that prior metal baskets of the same general shape shown were introduced at the trial, the court may take judicial notice of the conventional bushel basket, which the design patent is evidently intended to simulate in general shape, inwardly curved bottom, and handles. Black Diamond Coal Mining Co. v. Excelsior Coal Co., 156 U. S. 611, 616, 15 Sup. Ct. 482, 39 L. ed. 553, and cases cited. In these circumstances it is unnecessary to discuss plaintiff's contention that the questions of novelty and patentability are not open for review in this court. Where the patent is void upon its face, or is shown to have been anticipated by prior patents, or when the presumption of novelty arising from the grant is overcome by proof of the prior art, and, as in this case, by facts of which the court may take judicial notice, it is the duty of the court to instruct the jury to that effect. Black Diamond Coal Mining Co. v. Excelsior Coal Co., supra; Market Street Cable Railway Co. v. Rowley, 155 U. S. 621, 15 Sup. Ct. 224, 39 L. ed. 284, and cases cited.

The judgment is reversed, with costs.

336. WILLIAMS CALK CO. v. KEMMERER ET AL., 145 Fed. 928, 76 C. C. A. 466 (1906, Design Patent No. 29,793 and Patent No. 666,583).

Before Dallas and Gray, Circuit Judges, and Cross, District Judge:

Cross, District Judge: On December 13, 1898, design letters patent No. 29,793, were issued to one John R. Williams for a new, useful, and original shape or configuration of a horseshoe calk, and on January 22, 1901, letters patent No. 666,583 were granted to said Williams for certain new and useful improvements in horseshoe calks, both of which patents were subsequently assigned to the complainant. The complainant has filed a bill alleging infringement of both of these patents, and asking the usual relief in such cases. The Circuit Court, on final hearing, dismissed the bill, with costs, both on the ground of the invalidity of the patents and because they had not been infringed.

We think the design patent is invalid. Section 4922 of the Revised Statutes [U. S. Comp. St. 1901, p. 3396] was not intended to embrace a patent for such a design as is set forth in the design letters patent under consideration. It was intended, in order that a design might be patentable, that it should of itself, as an artistic configuration, present something new and useful from an aesthetic point of view. Within the meaning of the act, there is nothing artistic, ornamental, or decorative in the design of a horseshoe calk; it is essentially a mechanical, and not an aesthetic, device. It is impossible to suppose that it should be bought or used because of its aesthetic features. Its success as a calk would depend upon its useful, and not its artistic, character. As was well said in Rowe v. Blodgett & Clapp Co. (C. C.) 103 Fed. 873:

"Design patents refer to appearance, not utility. * * * [See No. 334. There must be 'originality and beauty. Mere mechanical skill is not sufficient'."

The views thus expressed by Judge Townsend were affirmed by the Circuit Court of Appeals for the Second Circuit in 112 Fed. 61, 50 C. C. A. 120, and fully express our own as to this patent. * * *

337. CALDWELL v. POWELL, 73 Fed. 488, 19 C. C. A. 592 (1896).

Before Acheson, Circuit Judge, and Wales and Green District Judges.

Green, District Judge: This bill was filed to restrain the defendant from infringing a patented design. The design itself is for a badge or pin, and is of gold (or other metal) and enamel, triangular in shape, like a guidon, having upon the face a combination of red and blue colors, in two horizontal stripes or bars, and bearing the letters "U. P." embossed thereon. This badge or pin was intended

mainly for the students in attendance at the University of Pennsylvania, and the colors on the badge are the well-known colors of that university. There is no question made as to the infringement of the design by the defendant. It is admitted.

The bill of complainant is in the usual form of such bills. * * * The bill concludes with the usual prayer for injunction and other relief. To this bill the defendant has interposed a general demurrer; and, for causes of demurrer; the want of invention and of novelty in the conception and production of the design were assigned. On the argument of the cause in the court below, the demurrer was sustained, and the bill dismissed. From that decree this appeal is taken.

It is a general principle of equity pleading that, as a demurrer proceeds upon the ground that, admitting the facts stated in the bill to be true, the complainant is not entitled to the relief he seeks, all matters of fact which are stated in the bill are admitted by the demurrer, and can not be disputed in arguing the question whether the defense thereby made be good or not, and such admission extends to the whole manner and form in which it is here stated; or, to state the principle more concisely, every charge in the bill, well pleaded, is absolutely admitted by the demurrer. Treating the issue raised by the bill and demurrer simply as one of pleading, it would be difficult indeed to find the slightest ground for the justification of the demurrer. The bill is full, complete, and orderly in its statements of facts upon which the prayer for relief is based. It is not necessary to repeat again the averments and allegations, which have been already quoted at some length. The effect of the demurrer is to admit their truth. If so, stronger reasons for equitable relief could hardly be advanced.

But the defendant claims that the design itself, as described in the patent, shows absolutely no invention whatever. His insistment is that the badge or pin in question is in shape, or form, or general appearance, a mere copy of a well-known style of flag, commonly called a "guidon," and that the court will take judicial notice of this fact; and,(having such knowledge, it can not grant to the complainants any relief, for they utterly fail to show any cause for the interference of a court of equity. But can it be said by this court, upon demurrer, if it should find that a flag of the shape of a guidon is common and well known, that a badge or a pin, molded into a similar shape, bearing upon it, in combination, certain colors and letters, is not novel, and does not show invention? The statute which protects inventors requires the production of a new and pleasing design. The invention demanded consists in the conception and production of a design which can be so characterized. The design in this case is not to be found alone in the triangular shape, but rather in a conception which combines shape, colors, and letters. As

was pertinently said by Mr. Justice Bradley in New York Belting & Packing Co. v. New Jersey Car Spring & Rubber Co., 137 U. S. 446-450, 11 Sup. Ct. 193:

"Whether or not the design is new, is a question of fact, which, whatever our impressions may be, we do not think it proper to determine, by taking judicial notice of the various designs which may have come under our observation. It is a question which may and should be raised by answer, and settled by proper proofs."

We think, under the circumstances, the defendant should have been put to his answer in this case, and hence the decree below is reversed.

338. BRITTON v. WHITE, 61 Fed. 93, (1894, C. C. Conn. Design Patent No. 20670).

Townsend, District Judge. The bill in equity herein is brought for the infringement of design letters patent No. 20,670 granted April 14, 1891, to the complainants, for a design for a carriage lamp. The defenses are want of novelty, lack of patentable invention, and denial of infringement. The specification states that the invention relates to a design to be imparted to lamps, and consists of a novel shape and configuration. The complete lamp represents a tulip; the sides of the body part being so shaped as to represent the petals, the lower portion the calyx, and the downwardly extending portion the stem, of the flower. The cover of the lamp, by upwardly and outwardly extending projections, surmounted by a central spherical form, represents the pistil of the flower, or, taken alone, represents the tulip after its leaves have fallen; the projections resembling the calyx, and the spherical form the pistil. The claims of the patent are as follows:

(1) The design for lamps, consisting of the body part, A, substantially as shown. (2) The design for lamps, consisting of the upper part or cover, D, substantially as shown. (3) The design for lamps, consisting of the body part, A, and the upper part or cover, D, substantially as shown.

Complainants' lamp fitly embodies the design of a tulip. It consists of two parts, which represent a graceful, harmonious whole. That it found great favor in the eyes of the public, and had a large sale, is abundantly proved. The question is, has it the degree of novelty required to protect a patent for a design?

The file wrapper shows that the patent office rejected four of the original five claims, on the ground that an inventor could only have a claim for a unitary design, and subordinate claims for segregable and distinctive features; and that counsel for complainants amended the claims, and requested their allowance in the present shape, on the ground that the public would be readily deceived, either by a design consisting of the exact cover and a body slightly resem-

bling the body of the patented design, or by an exact copy of said body combined with a different cover. Defendant claims that these statements limit the second claim of the patent to a construction containing both features exactly, or the exact body and any style of cover, or the exact cover and a somewhat similar body. The patent office has allowed the separate claims. It does not seem that a mere statement by counsel of a reason why it was desirable to include them in a single patent should estop the patentee to claim what was clearly granted him under said patent. Separate claims for the entire design and for its separate parts were properly allowed. Dobson v. Carpet Co., 114 U. S. 439, 446, 5 Sup. Ct. 945.

Defendant further claims that, admitting the novelty of the complete design, the state of the art shown by certain exhibits limits the construction of the patent to a claim for the design as an entirely. Defendant's exhibit, "L'Ecluse Lamp," shows a glass body of the exact shape covered by the first claim of the patent in suit, but without the metal calyxes at the base, and with downwardly extending ornaments not found in the patented design. This drawing is not accompanied by any printed description, but is contained in a pamphlet, which appears to be a mere trade circular of "Ch. De L'Ecluse, Paris." and which had been in the possession of one of defendant's witnesses since November, 1888. There is no evidence that it was ever actually published or intended for general use, or accessible to the public. Complainants objected to its introduction, on the ground that it was not such a printed publication as would anticipate a patent. The objection is well taken. Rob. Pat. §§ 325, 326; Reeves v. Bridge Co., 5 Fish. Pat. Cas. 467, 468; Fermentation Co. v. Koch, 21 Fed. 587; Parsons v. Colgate, 15 Fed. 600; In re Atterbury, 9 O. G. 640.

Defendant's exhibit, "Saladee Lamp," is a rough wood cut of a carriage lamp, having the outlines of, and bearing a general resemblance to, a tulip, and having curved engraved lines at its base, printed in a bound volume entitled "The Coachmaker's Monthly Magazine. C. W. Saladee, Proprietor. New York, April, 1855," which had been in the possession of one of defendant's witnesses since 1873. The complainants objected to this exhibit also, on the ground that it was not a printed publication; and, furthermore, because it was not set up in the answer. I think the Saladee Coachmaker's Monthly Magazine is admissible as a printed publication, to show the state of the art. The number containing this lamp in question has printed on it, "New York, April, 1855," is bound up with other numbers for the years 1855 and 1856, and refers to its advertisements and gives terms therefor. It purports to be printed for general circulation, and is characterized as a publication by the witnesses for defendant. These circumstances furnish sufficient prima facie evidence of publication. Rob. Pat. § 328; Reeves v.

Bridge Co., supra; In re Atterbury, supra. While, therefore, the defendant could not derive any advantage from this evidence in support of a claim of lack of patentable novelty, the court may, in the light of said evidence, determine what, in the state of the art, was open to the patentee, and what his patent must, therefore, be construed to claim. Rob. Pat. § 1006; Grier v. Wilt, 120 U. S. 412, 429, 7 Sup. Ct. 718; Seymour v. Osborne, 11 Wall. (U. S.) 539; Railroad v. Dubois, 12 Wall. (U. S.) 47, 65; Eachus v. Broomall, 115 U. S. 429, 434, 6 Sup. Ct. 229.

Defendant's "Exhibit Beitschrift" shows a top whose general outlines suggest the top of the patent in suit. It does not embody either calyx or pistil, and is only material, if at all, upon the question of the novelty of the second claim.

It is unnecessary to consider the other exhibits introduced by defendant, except to say that those not excluded under the objections already considered show that upwardly extending covers of carriage lamps, and bodies resembling in outline the general shape of complainants' body, but not embodying the specific design, were known to the art prior to said patent. The indefinite, unsubstantiated evidence of prior use is insufficient to affect the validity of the patent. Zane v. Peck, 9 Fed. 101; Lalance & G. Manuf'g Co. v. Habermann Manuf'g Co., 53 Fed. 375.

The objection to certain of defendant's exhibits that they are merely drawings, unaccompanied by a written description, and therefore not relevant upon the question of anticipation, is not well taken. The objection affects the weight of the evidence, not its admissibility. The decisions referred to by complainants were not rendered in cases of patents for designs. In the latter cases, the effect upon the eye being the chief thing to be considered, there is no reason why a mere drawing, in a proper case, should not be sufficient. Ex parte Crouch, 57 O. G. 845; Dobson v. Dornan, 118 U. S. 10, 6 Sup Ct. 946. In the case of Untermeyer v. Freund (decided by the circuit court of appeals for the second circuit, October 17, 1893) 7 C. C. A. 183, 58 Fed. 205, the drawings considered by the court in determining the question of patentable invention were not accompanied by any description.

The idea of a flower, conventionalized so as to be symbolized in a lamp, was new, so far as appears from the state of the art shown to the court. Other designs were shown which were graceful, approaching in certain respects some single part of complainants' design, and some resembling the general outlines of complainants' lamp, but none which embodies the complete design covered by the patent. And, admitting over every objection, all designs, enlarged, improved, modified, and with one part of one lamp combined with a different part of another, there is nowhere to be found, in letterpress or cut, a suggestion of a flower, or of such a tulip design, as a

harmonious whole. The wood cut of the Saladee lamp is unaccompanied by letterpress description, and is so roughly and incompletely drawn as to leave it uncertain whether it was intended to imitate a tulip or to merely select a graceful design, such as is shown in the lamp in defendant's Art Journal Illustrated Catalogue.

A further consideration in support of the novelty and originality of this design has forcibly impressed my mind. The court, taking judicial notice of matters of common observation and knowledge finds that a tulip has no calyx. The outlines at the base of top and body of the patented design are not found in nature, but seem to have been the fanciful creation of the patentee. This circumstance seems to me to furnish strong intrinsic evidence in favor of his claim of an original combination or contribution of creative thought. It has been well said that in designs "it is the new and original appearance which constitutes mainly the contribution to the public which the law deems worthy of recompense." We are educated, in these later days, to admire, not the mere forms of the carpenter or molder, but the conventionalized forms which suggest the natural objects which they represent. Gorham v. White, 14 Wall. (U. S.) 511. The statement of Judge Robinson in his work on Patents (section 206) seems peculiarly appropriate to this case. He says: "The essence of a design resides in the idea of that configuration or ornamentation which constitutes the new appearance given."

The conclusion reached from these considerations is that the patented design is a meritorious one; that it is not limited by the prior state of the art, as shown; and that the claims for the separate top and body, as well as for the entire design, are valid, and should be sustained.

The defendant has manufactured two differently constructed lamps, which complainants claim infringe said patent. It does not seem necessary to discuss the claim that the top of the second lamp of defendant infringes the second claim of complainants' patent. The claim covers a central spherical form, surrounded by upwardly projecting curved representations of a calyx. Defendant's lamp has a flat cap, surrounded by a downwardly projecting circular rim, which separates it from upwardly projecting semi-circular grooves. There is no resemblance between the two, and no one would be likely to be deceived. The correspondence between the parties prior to the suit shows that complainants claimed that the top of both lamps manufactured by defendant infringed the patent in suit, and that the defendant admitted that the head or top of the first lamp "did conflict with their patent," and ceased from making them. It denied infringement as to the second lamp, but dropped it from its price list. Complainants insisted upon payment of the statutory penalty of $250, and defendant declined to pay it, whereupon this suit was brought. Defendant's secretary, Wilmot, in his testimony, quali-

fied said admission by saying that he should have said that said top "seemed to conflict" with the patent in suit. I do not consider either admission as material, because, under the test applied to design patents, that which seems to conflict would ordinarily be an infringement; and, further, because a comparison of the two heads shows that the top of the defendant's first lamp seems to be a copy of the top part of complainants' lamp.

The vital question in the case is whether the defendant, by the manufacture of its first lamp, has infringed the patent in suit. Three witnesses for defendant—Boudren, Galle, and Fest—testify on this point. Boudren says, "There is so little similarity that nobody not an idiot could make a mistake." Galle says the designs do not resemble each other. Fest says, "I should think, in my experience, a purchaser could easily tell the difference." But Boudren is a lamp designer, a large stockholder in, and the superintendent of the defendant corporation. The other two witnesses are carriage or lamp designers, one of them being in the employ of a rival manufacturer. It does not appear that either of them ever sold a carriage or lamp to any one. It does not appear that Boudren ever had any experience to qualify him to testify on this point, other than from making sales of lamps on behalf of defendant corporation to trade buyers. Apart from other objections, this kind of evidence seems to be peculiarly within the class of expert testimony which has not found favor with the courts on the question of infringement of designs. It is not based upon experience in dealings with the ordinary purchaser, giving only such attention as such persons ordinarily give. It is based upon a theory emphasized, and liable to be biased, by the trained observation of the specialist. Gorham v. White, 14 Wall. (U. S.) 528. Inasmuch as the test of sameness is determined by the eye of the ordinary observer, I do not regard such testimony, from such expert designers, as of much importance. Six witnesses for complainants testify that the ordinary purchaser would be misled by said lamp, and would purchase it as one embodying complainants' design. Four of these witnesses were apparently disinterested persons, and neither they nor the two other interested witnesses were expert designers. They were experts only in the sense that they were constantly engaged in selling carriages to the ordinary public, whose testimony, founded upon their judgment and experience in such matters, might be of great assistance.

Apart from the effect of said testimony, the first impression received upon examination and comparison of the exhibits by the side of each other, was favorable to the defendant's claim that the ordinary purchaser would not be deceived. The complainants' exhibit, in all its details of construction, is more artistically constructed and finished. The defendant's exhibit has certain features —notably the extra downwardly projecting top, and the circular

ornaments at the bottom—not found in complainants' exhibit. The plain, spherical top of complainants' exhibit is flattened and ornamented in defendant's exhibit. The calyxes of the top are relatively larger in complainants' than in defendant's lamp. The plated divisions between the glass sections of complainants' lamp are more conspicuous than in defendant's lamp. Complainants' lamp has metal calyxes covering the bottom of the glass sides. Defendant's lamp has curved glass bottoms, filled out by the metal base. The bodies are dissimilar in shape. But the construction set forth in the specification and covered by the claims is not confined by such details of size, proportion, and ornament. It "consists of the novel shape and configuration." The test of infringement is whether ordinary purchasers would be likely to mistake the one design for the other, giving such attention as such a purchaser usually gives. Gorham v. White, supra; Monroe v. Anderson, 7 C. C. A. 272, 58 Fed. 398. I have already critically discussed the expert evidence, because it seems to me that the decision of the case may depend upon the definition of the "ordinary purchaser." If thereby is meant the trade purchaser of lamps, the claim is not infringed. He would not be deceived. I have treated this term as applicable to the general purchasing public, who buy a carriage with lamps under the ordinary condition under which such purchases are ordinarily made. In applying this test, the court should endeavor to place itself in the position of such purchaser, and to consider the accompanying conditions. The ordinary purchaser, in such a case, is not the dealer, who is presumably informed as to the various designs and their resemblances and differences. The ordinary purchaser sees the patented tulip lamp upon a carriage in the street, or among the complainants' stock of carriages. He examines other carriages in other warehouses and elsewhere, and sees defendant's lamp mounted above his head on the carriage. It has the pistil, the upper calyxes, the curved lines, corresponding to the lower calyxes, and an outwardly extending body. Every element is imitated, except the double curves of the glass. His eyes and attention, distracted by divers other considerations, are not critically directed to details of construction.

The manifest infringement of the upper part, substantially admitted by defendant; the only difference of construction therein—the flattened sphere—being one which would not be noticed from the point of view of the ordinary observer; the allegation that the infringing design was copied from that of complainants, undenied; the appropriation of the name "Tulip" by defendant for its second lamp; the apparent imitation of certain important details; the introduction of unessential variations; the adoption of curved lines simulating calyxes and petals,—these, together with the other circumstances, and the testimony, already considered, indicate that

the defendant intended so to imitate the patented design as to lead the ordinary purchaser to believe that he was getting complainants' lamp and that the suggested differences are colorable and not substantial.

The peculiar merit of the novel idea of thus symbolizing a flower, and its admitted popularity and utility, seem to entitle this design to a more liberal construction than would be applied where old and familiar devices for configuration and ornamentation are merely rearranged in new relations. This view is enforced by the above considerations as to the infringing design. The first claim, for the body part alone, is not infringed. The second claim, for the cover alone, is infringed by defendant's first lamp. If it were necessary to decide the point, I am inclined to adopt the views of the witnesses for complainants, and to hold that there is sufficient similarity between the body of defendant's first lamp and the body of the patented design, so that, when used in connection with the infringing cover, the third claim is infringed; although said body, without said cover, would not infringe. In view of the conclusions reached, an injunction against the infringement of the second claim will sufficiently protect the complainants in this case.

Let a decree be entered accordingly.

339. GIMBEL ET AL. v. HOGG, 97 Fed. 791, 38 C. C. A. 419. (1899, Design Patent No. 25,907).

Before Acheson, Dallas, and Gray, Circuit Judges.

Acheson, Circuit Judge: The bill charged the defendants below (here the appellants) with infringement of letters patent No. 25,907, issued on August 4, 1896, to Frederic M. Parker, assignor to William James Hogg (the complainant), for a design for carpets. The case was heard on bill and answer, and the Circuit Court, being "of opinion that a decree must be entered imposing the statutory penalty of $250, under Act Feb. 4, 1887 (24 Stat. 387; Supp. Rev. Stat. 533), for each of the two acts of infringement," decrees accordingly. (C. C.) 94 Fed. 518. By the "two acts of infringement" is meant the infringement of the first and second claims of the patent.

The first section of the act of February 4, 1887, provides that, during the term of letters patent for a design, it shall be unlawful for any person, other than the owner of the letters patent, "without the license of such owner, to apply the design secured by such letters patent, or any colorable imitation thereof, to any article of manufacture for the purpose of sale, or to sell or expose for sale any article of manufacture to which such design or colorable imitation shall, without the license of the owner, have been applied, knowing that the same has been so applied;" and that any person "violating the provisions, or either of them, of this section, shall be liable in the amount of $250;" and, in case his total profits from

such infringing manufacture or sale shall exceed that sum, he shall be further liable for the excess of such profit over and above the sum of $250. And the second section provides that nothing contained in the act shall prevent, lessen, impair, or avoid any remedy, at law or in equity, which the owner of a design patent aggrieved by infringement might have had if this act had not been passed, but such owner shall not twice recover the profit made from the infringement.

In response to the allegations of the bill, the answer of the defendants explicitly denied that they ever applied the complainant's said design to carpeting, denied that they manufactured the carpeting complained of in the bill, and denied that the defendants ever exposed for sale or sold any carpeting knowing that the design thereof had been applied thereto without the license of the complainant, or with knowledge that in design or in any other respect it infringed upon any right of the complainant possessed by him under letters patent or otherwise. In respect to the transaction complained of, the answer sets forth that the defendants were not manufacturers of carpets, but dealers therein, as merchants, and buying from manufacturers or owners; that, having procured from the treasury department of the United States a contract to supply it with Brussels carpet for the fiscal year ending June 1, 1898, they obtained bids from various manufacturers to supply them with the carpets needed, and the lowest bidder was James W. Barker, of Norristown, Pa.; that the defendants accepted his bid, and on or about September 1, 1897, gave him an order for the carpets needed, and asked for samples, which he furnished, and which the defendants submitted to the government officials; that among these samples was one containing the design here in question, and which design, among others, the government officials accepted, and directed the defendants to furnish the government about 1,500 yards of carpet, and about 200 yards of border, embodying said design; that thereupon the defendants instructed Barker, under his contract with them, to make and ship to Washington about 1,500 yards of carpet and 200 yards of border of said design; and that accordingly Barker furnished a portion of the carpet and border thus ordered, but, by reason of his business failure in December, 1897, did not complete the delivery. The answer avers that in giving this order to Barker the defendants "acted in entire ignorance of the fact that the carpet and border infringed upon the complainant's right in any way," and that they "were ignorant of any patent, or claim to patent, upon such design held by complainant." And, further answering the bill, the defendants averred as follows: "The carpeting and border sold by us of which complaint is made was not manufactured by us. It was sold by us in absolute ignorance that it infringed in any way upon any design owned by the complainant, or by any

other person. It was sold by us in entire good faith, after having received the same from the manufacturer by whom it was manufactured without any knowledge or information by us as to the source of its design or the method of its manufacture." The answer also denies that any damages accrued to the complainant by reason of what was done, or that the defendants derived any profit whatever from the use of his design. All the above-recited denials and averments made by the defendants are responsive to the bill, and are to be accepted as true, in the absence of evidence to the contrary. There is none here. The complainant set the case down for hearing on bill and answer.

Under the act of February 4, 1887, the fixed sum of $250 is in the nature of a penalty. Now if, upon the facts of the case, the defendants are amenable to the penal provisions of this act, one penalty only, we think, is recoverable here. The patent is for a single design. It is true that, in order to protect the patentee from any form of infringement, the patent has three claims,—the first claim covering the design as applied to the body of the carpet, the second claim covering the design as applied to the border, and the third claim reading thus: "The design for carpets, consisting of the body, A; and the border, B, substantially as shown." Here there was infringement of the third claim. As is usual in the purchase of carpeting, the order and sale in question embraced the body of the carpet and its border. There was, however, only one order and sale. It was a single transaction. In no view, then, that can be taken of the case, are the defendants to be subjected to two penalties.

But are the defendants amenable at all to the penal provisions of the statute? They were not manufacturers of this carpeting. They did not apply the patented design thereto. Barker, who was a manufacturer of carpets generally, made this particular carpeting, and applied to it the complainant's design. Undoubtedly, he incurred the pecuniary penalty imposed by the act. He was the sole manufacturer, and the defendants were his vendees, and nothing more. There is no basis for the argument that the defendant and Barker stood to each other in the relation of principal and agent. Under the circumstances, the defendants are not responsible for Barker's unlicensed act in applying the complainant's design, by reason of their having given the order to him to make and ship 1,700 yards of carpeting according to the pattern the government officials had chosen out of the samples Barker had submitted. The case is the same as if the carpeting had already been made and was in stock when ordered. In law and in fact, the defendants were simply purchasers from the manufacturer and sellers to the government. In making the sale, the defendants acted in perfect good faith, in utter ignorance of any infringement of any patent

rights, and without any knowledge whatever that the manufacturer had applied to the carpeting the complainant's design without license. We are, then, of opinion that the defendants are not chargeable with any penalty, under the act of February 4, 1887.

By the plain terms of the statute, the penalty is incurred by the seller of an article to which a patented design has been applied without license, only where he sells "knowing that the same has been so applied." The statutory punishment is for infringing knowingly. Clearly, it was not intended to subject to a penalty a vendor acting in good faith, and selling in entire ignorance of any infringement perpetrated by the manufacturer. For the infliction of the penalty, the statute contemplates and requires knowledge by the seller of the unauthorized use of the design by the manufacturer. Such knowledge is not to be imputed to the seller from the "notice to the public" by the marking required of the patentee by section 4900, Rev. Stat. It may be reasonable enough to hold such constructive notice sufficient as against the manufacturer who applied the design; for, if he did so without license, he must have known the fact. Pirkl v. Smith, (C. C.) 42 Fed. 410, 411. But the public notice by marking, under section 4900, gives no information whatever to a seller of an infringement committed by the manufacturer, and that section has no such purpose. Certain cases to which our attention has been called, namely, Dunlap v. Schofield, 152 U. S. 244, 14 Sup. Ct. 576, Smith v. Stewart, (C. C.) 55 Fed. 481, and Stewart v. Smith, 7 C. C. A. 380, 58 Fed. 580, 17 U. S. App. 217, were suits against manufacturers. We find nothing decided or declared in those cases to justify a decree for a penalty, under the act of February 4, 1887, against the defendants in this bill, upon the undisputed facts.

The decree of the court below is reversed, with costs of the appeal to the appellants; and the case is remanded to the Circuit Court, with directions to enter a decree against the defendants for an injunction and nominal damages, with costs of the suit in the court below.

346. GENERAL GASLIGHT CO v. MATCHLESS MFG. CO., 129 Fed. 137 (1904, C. C. N. Y. Design Patent No. 35,481).

Hazel, District Judge. This is a bill for an alleged infringement of design patent No. 35,481, dated December 24, 1901, issued to Alfred H. Humphrey, and by him assigned to the complainant corporation. The specifications state that the invention relates to a design for gas lamps known as "cluster lights." The defenses chiefly relied upon are want of novelty and noninfringement. It is not seriously controverted that the design embodies features familiarly known, nearly all of which may in some form be found in preexisting lamps. The proofs do not disclose the prior use of an

ornamental lamp simil· in design to that described in the specifications. On the contrary, the evidence establishes that no lamp having the shape, configuration, or ornamentation of the lamp design in suit was previously known to the trade. The design patent in question is not for an ornament, pure and simple. The shape and configuration of the lamp also permit its classification as a useful article of manufacture. According to section 4929 of the Revised Statutes [U. S. Comp. Stat. 1901, p. 3398], the design must be a new and original invention produced by the industry, genius, effort, and expense of the inventor. Whether the design possesses the characteristics of originality and newness must largely, if not altogether, be determined by the visual impressions resulting from its appearance. Matthews & Willard Mfg. Co. v. American Lamp & Brass Co. (C. C.) 103 Fed. 634; Pelouze Scale & Mfg. Co. v. American Cutlery Co., 102 Fed. 916, 43 C. C. A. 52; Smith v. Stewart (C. C.) 55 Fed. 481; Untermeyer v. Freund (C. C.) 37 Fed. 342. The shape and configuration of the lamp, in its entirety: the collocation of its mechanical features; the arrangement of the cluster lights and mantels; the contour and proportions of the bulbous globe; the two metal bands, with their twisted, plaited, and filigree ornamentation—contribute to the creation of a symmetrical form and pleasing appearance. The defendant contends that the prior art discloses substantially similar designs. It is also asserted that any additional elements or substituted features constituting complainant's patent accomplish an artistic result due solely to an assembling of parts obvious to any skilled designer, and not entitled to the dignity of invention. This contention is entitled to careful consideration. It is quite well settled, upon the authority of Smith v. Whitman Saddle Co., 148 U. S. 674, 13 Sup. Ct. 768, 37 L. ed. 606, that the law which applies to a mechanical patent does not differ materially from that applicable to design patents. Hence originality and the exercise of the inventive faculty must be present in both instances. The mere adaptation of that which was old and familiarly known to new purposes is not invention, nor would the mere aggregation of known parts of other substantially similar designs to produce that under consideration constitute patentability. Perry v. Starrett, 3 B. & A. 485; Simpson v. Davis (C. C.) 12 Fed. 144, 20 Blatchf. 413; Gorham Co. v. White, 14 Wall. 511, 20 L. ed. 731. It is quite true that the record shows many lamps of ornamental and graceful appearance, which were known prior to the conception of the design lamp in suit. Furthermore the collocation of different parts of such designs is frequently used to enhance their appearance and salability. The caprice of fashion constantly demands something novel in the art under consideration. However that may be, the principle, as applied to design patents, is unassailable, that whenever ingenuity is displayed in producing something new, which imparts to the eye a

pleasing impression, even though it be the result of uniting old forms and parts, such production is a meritorious invention and entitled to protection. The evidence establishes beyond doubt that the lamp under consideration met with immediate favor from the public on account of its artistic construction. It appears from the evidence of the patentee that his object was to design a lamp peculiarly appropriate for a gas arc lamp of ornate appearance, which would resemble an electric lamp. He began his design in August, 1900, completing the same in October of that year. No other similar lamp, which when lighted appeared like an electric light, was then known. A number of witnesses familiar with gas lighting and the sale of gas lamps testified that there were no lamps on the market resembling the Humphrey design, which insures the illumination of large areas, while its ornate appearance and novel shape quickly achieved popularity. I have looked in vain through the illustrated catalogues submitted in evidence for lamps like that in suit. The prior art does not disclose a lamp in its entirety (and that must be the test of anticipation) which justifies declaring void the Humphrey patent, and thus negativing the presumption of patentability secured to the inventor by the issuance of the patent. Every part used in the Humphrey design is trimmed and united in its construction with the sole object of forming a symmetrical and harmonious whole. This object was achieved as a result of effort, study, and skill, and it is therefore entitled to the dignity of invention.

The question of infringement: The defendant's lamp is apparently identical with that of complainant. There are a few minor differences in detail, but such differences are thought to be immaterial. Gorham Mfg. Co. v. Watson (C. C.) 74 Fed. 418; Whittall v. Lowell Mfg. Co. (C. C.) 79 Fed. 787; Sagendorph v. Hughes (C. C.) 95 Fed. 478; Hutter v. Broome (C. C.) 114 Fed. 655. The configuration, shape, and outline are the same, and only the closest inspection will disclose the slight difference of construction pointed out by the defendant at the argument.

Let a decree be entered for an injunction and accounting as prayed for in the complaint, with costs.

341. CHARLES BOLDT CO. v. NIVISON-WEISKOPF CO., 194 Fed. 871 (C. C. A.) (1912).

Before Warrington and Knappen, Circuit Judges, and Sater, District Judge.

Slater, J.:

* * * His claim is for the ornamental design for a bottle shown by the two figures appearing in his patent. The description and claim are sufficient. The purport of the description is that

what the drawings represent as a whole is the invention, and it is that which is claimed when applied to bottles. Dobson v. Dornan, 118 U. S. 10, 14, 6 Sup. Ct. 946, 30 L. ed. 63. * * *

[1] This court, in Soehner v. Favorite Stove & Range Co., 84 Fed. 182, 28 C. C. A. 317, and Westinghouse v. Triumph Electric Co., 97 Fed. 99, 38 C. C. A. 65, assented to the doctrine that both novelty and the exercise of the inventive faculties are essential to the patentability of a design. The insistence, however, is that designs, excepting such as exhibit merely the imitative faculty or obtain a mechanical result and are therefore wanting in patentability, are patentable, if they are new and pleasing and increase the salability of the articles to which they respectively relate. A classification of decisions is attempted to show that this theory has prevailed excepting from about 1893 to 1900. During the excepted period the reported cases confessedly exact substantially as high an order of inventive genius for design patents as is required in mechanical patents. Numerous cases are cited, some of which tend to sustain complainant's theory. Others adopt the view that, in addition to novelty, pleasing effect, and increased salability, invention is prerequisite to patentability. Whatever confusion may have existed in the judicial minds of the lower courts as to the degree of invention essential to a valid design patent, Smith v. Whitman Saddle Co., 148 U. S. 674, 679, 13 Sup. Ct. 768, 770, 37 L. ed. 606, forever put at rest all controversy on that subject by declaring that:

"The law applicable to design patents does not materially differ from that in cases of mechanical patents, and all the regulations and provisions which apply to the obtaining or protection of patents for inventions or discoveries * * * shall apply to patents for designs. * * * To entitle a party to the benefit of the act, in either case, there must be originality, and the exercise of the inventive faculty. In the one, there must be novelty and utility; in the other, 'originality and beauty. Mere mechanical skill is insufficient.' There must be something akin to genius—an effort of the brain as well as the hand. The adaptation of old devices or forms to new purposes, however convenient, useful, or beautiful they may be in their new role, is not invention."

[2] The issuance of a patent gives rise to the presumption that it involves both novelty and invention. The dismissal of the bill denied to the complainant the right to produce evidence to support that presumption. The question of want of novelty and invention, as disclosed by the specifications of a patent, may be raised, however, by demurrer by a defendant who is charged with infringing the alleged invention (Richards v. Chase Elevator Co., 158 U. S. 299, 15 Sup. Ct. 831, 39 L. ed. 991; Risdon Iron & Locomotive Works v. Medart, 158 U. S. 68, 15 Sup. Ct. 745, 39 L. ed. 899; American Fibre-Chamois Co. v. Buckskin-Fibre Co. [C. C. A. 6]

72 Fed. 508, 18 C. C. A. 662), and in a clear case a court may dismiss the bill to establish the patent and enforce a remedy for its infringement (Milner Seating Co. v. Yesbera [C. C. A. 6] 111 Fed. 386, 49 C. C. A. 397; Northwood v. Dalzell, Gilmore & Leighton Co. [C. C. A. 6] 100 Fed. 98, 40 C. C. A. 295), and thus save the parties the expense and delay incident to litigation (Strom v. Weir [C. C. A. 6] 83 Fed. 170, 27 C. C. A. 502). Indeed, if the court can see that a patent is void on its face for want of invention, it need not look beyond it and may sua sponte adjudge it invalid, whether the defense of nonpatentability is made or not. Slawson v. Grand Street, etc., R. R. Co., 107 U. S. 649, 2 Sup. Ct. 663, 27 L. ed. 576; Brown v. Piper, 91 U. S. 44, 23 L. ed. 200. But to justify sustaining a demurrer to an infringement bill, adopting the language of Judge Taft, speaking for this court in American Fibre-Chamois Co. v. Buckskin-Fibre Co.:

"The court must be able, from the statements on the face of the patent, and from the common and general knowledge already referred to, to say that the want of novelty and invention is so palpable that is is impossible that evidence of any kind could show the fact to be otherwise. Hence it must follow that, if the court has any doubt whatever with reference to the novelty or invention of that which is patented, it must overrule the demurrer, and give the complainant an opportunity, by proof, to support and justify the action of the patent office. This is the view which has been taken by the Supreme Court, and the most experienced patent judges upon the circuit." * * *

[3] The demurrer admits the well-pleaded averments of the bill, and therefore admits that complainant's bottle has gone into extensive use. It is earnestly argued that its salability creates a presumption of patentable novelty. Extensive or general use of the bottle is evidence of its utility, but it is not conclusive evidence in that respect, much less of its patentable novelty. Where there is no invention, the extent of the use is not a matter of moment. McClain v. Ortmayer, 141 U. S. 419, 12 Sup. Ct. 76, 35 L. ed. 800; Adams v. Bellaire Stamping Co., 141 U. S. 539, 12 Sup. Ct. 66, 35 L. ed. 849; Drake Castle Pressed Steel Lug Co. v. Brownell & Co., (C. C. A. 6) 123 Fed. 86, 89, 90, 59 C. C. A. 216. * * *

342. PHOENIX KNITTING WORKS v. HYGIENIC FLEECED UNDERWEAR CO., 194 Fed. 696, (C. C. A.) (1912, Third Circuit Design Patent No. 39,347).

Before Gray, Buffington and Lanning, Circuit Judges.

Gray, J.:

* * * Under the statute, as thus amended the patent sued on was issued, and its validity must be tested by the spirit and meaning of the legislative language. Whether the plain requirement of

the statute has been complied with, that the design should be new, original and ornamental, in order to be patentable, must be considered at the threshold of this case, as in every other. * * *

In this connection, it should not pass unnoticed that section 4929 of the Revised Statutes (U. S. Comp Stat. 1901, p. 3398), before the amendment of May, 1902, spoke of any person who invented a "new and original design for a manufacture," the word "ornamental" being absent. It also included, as patentable, "any new, useful and original shape or configuration of any article of manufacture." It is apparent, therefore, that the language of the section, as amended, has restricted the scope of design patents as to shape and configuration, and it is not entirely clear what part, if any, shape and configuration may play as the basis for a design patent. However this may be, we have no difficulty in deciding, apart from the restrictions of the amended act, that, under the facts peculiar to this case, the design for which a patent was granted is confined to the surface ornamentation in the scarf proper, and does not extend to the configuration, including the narrow neck band, which is never visible when the scarf is in the position for which it was intended. * * *

343.

[The patent referred to in the above case, No. 342, it should be observed, was held valid and infringed on motion for a preliminary injunction in Phoenix Knitting Works v. Louer Bros., 194 Fed. 700 (C. C. N. D. Ill. 1910) and Phoenix Knitting Works v. Hygienic Fleeced Underwear Co., 194 Fed. 702, (C. C. E. D. Penn. 1911); void for lack of invention and novelty in the above case (No. 342) and void for anticipation in Phoenix Knitting Works v. Hygienic Fleeced Underwear Co., 194 Fed. 703, (C. C. E. D. Penn., 1911) and Phoenix Knitting Works v. Rich et al., 194 Fed. 708, (C. C. N. D. Ohio, E. D., 1911)].

344. EX PARTE BETTENDORF, 127 O. G. 848, 1907 C. D. 79.

[Application for design for side frame for car-trucks, in which numerous distinctive features were present.]

"We are of opinion that its attractiveness to such men lies wholly in the apprehension of its utility, in its superior adaptation of its shapes to utilitarian ends. They see that the design is compact lengthwise by reason of the location of the journal-boxes against the end of the frame. They see that it is lowered by making the inverted-arch tires farther down from the bearings than the upper tires are distant from those bearings. So made the side bar is not only lower but is stronger. They see that a minimum of weight is attained by skeletonizing the side bar by two openings

near its ends and they see that in doing that the old upper truss and lower truss and the old guides are made with edge flanges which, as is well known, add strength to them. They also see here and there cross-webs, which, they well know, also add to the strength of the parts on which they are made and with which their ends are connected. All this makes the design attractive to them as practical men in the art.

"But we are of opinion that this utilitarian attractiveness is far from ornamentation. We find nothing beautiful or esthetic in the structure."

This statement of the examiners-in-chief is entirely in accordance with my views. It is not enough that the design should comprise features which would commend it to persons familiar with the art because of its functional value; it must possess an inherent beauty.

The principle stated in my decision in Ex parte Knothe, 1903, C. D. 42, 102 O. G. 1294, and reiterated in Ex parte Nickel and Crane, 1904, C. D. 135, 109 O. G. 2441, applies to this case. * * * [See No. 344.]

I find nothing in the appearance of the design claimed by the appellant which commends itself to the eye or even suggests the beautiful.

[The following under this heading are brief extracts to complete the discussion.]

345. EX PARTE KNOTHE, 102 O. G. 1294, 1903 C. D. 42.

[Citing many cases and refusing a patent on a design for a buckle having the corners of the frame and tongue made with sharp instead of rounded edges.]

A new and ornamental design will be found in an article of manufacture when there can be found in such article a new appearance created by inventive process and serving the purpose of embellishment. Such new appearance may be superficially applied or it may rest more or less deeply in the structure of the parts, but it must be a creation of inventive genius, accomplishing the purpose of ornament and not used for its functional value. It will be found, weighed and valued by the test of ornament. It will not be found in those articles whose visible forms are only modeled to develop function.

* * *

This section was intended to afford protection to the inventors of new ornamental effects produced in articles of manufacture. The selection of the design for this purpose is a choice from considerations of appearance and will be determined by the taste of the inventor seeking new and attractive appearances. This does not concern

itself with the functional value of the elements which may be in sight. Most mechanical constructions have their elements in sight, and it is not the exhibition of elements contributing to functions, however new, which was intended to be protected as a design.

346. EX PARTE SHERMAN, 147 O. G. 237, 1909 C. D. 170.

[Design for a nail having a particular shaped head. The applicant referred to certain advantages to be derived from the presence of a central protuberance such, for example, as protecting a skirt from injury and preventing distortion of the head when the nail is driven. These mechanical advantages were held not to confer patentability upon this design.

Affirmed in 35 App. Cas. D. C. 100, 154 O. G. 839, 1910 C. D. 382, the court saying inter alia:]

The right to a design patent under section 4929, Revised Statutes, depends upon whether the person applying has invented any new, original, and ornamental design for an article of manufacture not known or used by others in this country before his invention thereof, etc.

Prior to May 9th, 1902, when said section was amended, the invention must have comprised a new, useful and original shape or configuration of any article of manufacture.

It will be observed that in the statute as amended the word "useful" is omitted and the word "ornamental" is inserted. It would seem that the purpose of this change was to more carefully differentiate design patents from mechanical patents. While in a close case utility may be given some consideration, the real question is whether there is such originality shown as to call for the exercise of the inventive faculty. Smith v. Whitman Saddle Co., C. D. 1893, 324, 63 O. G. 912, 148 U. S. 674, 37 L. ed. 606, 13 Sup. Ct. 768; In re Tournier, C. D. 1901, 306, 94 O. G. 2166, 17 App. Cas. D. C. 481.

347.

[For examples of design patents held invalid, see Bradley v. Eccles, 126 Fed. 945, 61 C. C. A. 669; Perry v. Hoskins, 111 Fed. 1002, ("another instance of the 'liberal' if not lax practice"); Marvel Co. v. Pearl, 114 Fed. 946 ("another instance of a perversion of the statute"); Weisgerber v. Clowney, 131 Fed. 477; Lane Bros. v. Wilcox Mfg. Co., 141 Fed. 1000; Clark et al. v. Harmon Hollow Concrete Bldg. Block Co., 149 Fed. 1001, 79 C. C. A. 511; Mygatt v. M. Schauffer-Flaim Co., 191 Fed. 836, 112 C. C. A. 350; Ex parte Steck, 98 O. G. 228, 1902 C. D. 9; Ex parte Hartshorn, 104 O. G. 1395, 1903 C. D. 170; Ex parte Kern, 105 O. G. 2061, 1903 C. D. 292; Charles A. Seaman, 4 O. G. 691.

For incidental discussions see Ex parte Schulze-Berge, 42 O. G. 293, 1888 C. D. 4; McArthur v. Gilbert, 110 O. G. 2509, 1904 C. D. 245; Ex parte Colton, 104 O. G. 1119, 1903 C. D. 156; Ex parte Tucker, 97 O. G. 187, 1901 C. D. 140.

For examples of design held patentable, see Mygatt v. Zalinski, 138 Fed. 88; West Disinfecting Co. v. Frank, 146 Fed. 388; Ex parte Smith, 130 O. G. 1688; H. S. Earle Mfg. Co. v. Clark & Parsons Co., 154 Fed. 851; Ex parte Norton, 22 O. G. 1205, 1882 C. D. 14; Ex parte Gray, 114 O. G. 543, 1905 C. D. 21; New York Belting, etc., Co. v. New Jersey Car Spring, etc., Co., 137 U. S. 445. 34 L. ed. 741, 11 Sup. Ct. 193.]

348. DOBSON v. HARTFORD CARPET CO., 114 U. S. 439, 29 L. ed 177, 5 Sup. Ct. 945.

As to No. 1, though the bill was taken as confessed, the defendants take the point that the patent is void on its face because it has nineteen claims. It has a claim for an entire pattern, and then a separate claim for each of the eighteen component parts making up the whole. The bill alleges infringement by the making and selling of the "invention" and of carpets containing the "invention." Even if the defendants can raise this point after a decree pro confesso (see Thompson v. Wooster, 114 U. S. 104, 29 L. ed. 105, 5 Sup. Ct. 788), the patent must be held valid at least for the purposes of this case.

349. NEW YORK BELTING, ETC., CO. v. NEW JERSEY CAR SPRING, ETC., CO., 53 Fed. 810, 4 C. C. A. 21.

The patent contains no separate claim for the border, as in Dobson v. Hartford Carpet Co., 114 U. S. 439, 29 L. ed. 177, 5 Sup. Ct. 945, and the defendant's combination of his central panel with the complainant's border cannot be held to be an infringement unless complainant first produced such combination, and exhibited it in his patent so clearly and fully that one skilled in the art would understand that it was that specific combination which the patentee claimed. As none of the defendant's mats infringe the only specific design exhibited in the patent and shown in the drawing, the decree of the Circuit Court should be reversed.

350. [See Graff et al. v. Webster, et al. 195 Fed. 522, (C. C. A. Second Circuit, 1912) in which the Graff design patents No. 39,992 for a dish and No. 40,009 for a detail of a border section of a dish were held valid and infringed, affirming the lower court.]

351. [See Tilden-Thurber Co. v. Foster Co., 195 Fed. 538, (D. C. R. I. 1912) in which design patent No. 40,789 for a clothes brush, known in the trade as the "thin model" brush, was held to disclose novelty and a patentable degree of artistic invention, and infringed.]

352. [See Hall v. Frank et al., 195 Fed. 946, (D. C. E. D. N. Y. 1912) which is an example of the citation of a design patent, No. 28,476, in a case involving a bedstead patent and in the same manner in which a mechanical patent might have been cited.]

353. DOBSON v. DORNAN, 118 U. S. 10, 30 L. ed. 63, 6 Sup. Ct. 946.

In Dobson v. Buglow, 114 U. S. 439, 446, the claim of the design patent was "the design of a carpet substantially as shown." Objection was taken to the form of the claim. But this court said it saw no good objection to the form, and that the claim referred to the description as well as the drawing, in using the word "shown." * * * Undoubtedly the claim in this case covers the design as a whole and not any part of it as a part; and it is to be tested as a whole as to novelty and infringement.

354. UNTERMEYER v. FREUND, 58 Fed. 205, 7 C. C. A. 183.

The statute of 1887 was passed in consequence of this decision [Dobson v. Carpet Co., 114 U. S. 439]. The manifest purpose of Congress was to enlarge the remedy against infringers of design patents and to declare that the measure of profits recoverable on account of the infringement should be considered to be the total net profits upon the whole article. A construction which should limit a recovery above $250.00 to the amount which the complainant could clearly establish to be the value which the design had contributed to the infringing carpets would be at variance, not only with the apparent legislative intent but with the language of the statute. The rule which Congress declared for the computation of profits was the total profit from the manufacture or sale of the article to which the design was applied, as distinguished from the pre-existing rule of the profit which could be proved to be attributable to the design.

355. BYRAM v. FRIEDBERGER, 100 Fed. 963, 41 C. C. A. 121.

It has been said that in matters of design patents, infringement must be determined by the similarity of appearance evident to the eyes of an ordinary observer, and that an ordinary observer is an intending purchaser of the article in question, familiar with the various designs of the article sought to be purchased, and who seeks to purchase them for the uses to which they are generally adapted. The eye of the court is also that of a judge competent to pass upon the question of similarity.

PART VIII.

INTERFERENCES.

Conditions Precedent—"Interference in Fact"—Divisional Application—Avoiding an Interference—Amendment to Include Matter Shown But Not Claimed—Preliminary Statements—Rights and Relations of Parties—Motions to Dissolve—Judgment on the Record—Hearing, Decision and Course of Appeals—Priority of Invention—Evedince—Burden of Proof—Public Use and Other Statutory Bars—Conception and Disclosure—Reduction to Practice—Diligence—Originality—Employer and Employe—Taking Testimony, etc.—Bill in Equity (sec 4915)—Interfering Patents.

STATUTES.

356. INTERFERENCES.

Sec. 4904. Whenever an application is made for a patent which, in the opinion of the commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant or patentee, as the case may be, and shall direct the primary examiner to proceed to determine the question of priority of invention. And the commissioner may issue a patent to the party who is adjudged the prior inventor, unless the adverse party appeals from the decision of the primary examiner, or of the board of examiners-in-chief, as the case may be, within such time, not less than twenty days, as the commissioner shall prescribe.

357. AFFIDAVITS AND DEPOSITIONS.

Sec. 4905. The Commissioner of Patents may establish rules for taking affidavits and depositions required in cases pending in the patent office, and such affidavits and depositions may be taken before any officer authorized by law to take depositions to be used in the courts of the United States or of the state where the officer resides.

358. PATENTS OBTAINABLE BY BILL IN EQUITY.

Sec. 4915. Whenever a patent on application is refused, either by the Commissioner of Patents or by the Supreme Court of the District of Columbia upon appeal from the commissioner, the appli-

cant may have remedy by bill in equity; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim, or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the commissioner to issue such patent on the applicant filing in the patent office a copy of the adjudication, and otherwise complying with the requirements of law. In all cases, where there is no opposing party, a copy of the bill shall be served on the commissioner; and all the expenses of the proceedings shall be paid by the applicant, whether the final decision is in his favor or not. [See § 629, ¶ 9.]

359. SUITS TOUCHING INTERFERING PATENTS.

Sec. 4918. Whenever there are interfering patents, any person interested in any one of them, or in the working of the invention claimed under either of them, may have relief against the interfering patentee, and all parties interested under him, by suit in equity against the owners of the interfering patent; and the court, on notice to adverse parties, and other due proceedings had according to the course of equity, may adjudge and declare either of the patents void in whole or in part, or inoperative, or invalid in any particular part of the United States, according to the interest of the parties in the patent or the invention patented. But no such judgment or adjudication shall affect the right of any person except the parties to the suit and those deriving title under them subsequent to the rendition of such judgment.

[Sec. 4920 recites the special matters which may be pleaded in an action for infringement.]

* * *

Second. That he had surreptitiously or unjustly obtained the patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same; or,

* * *

Fourth. That he was not the original and first inventor or discoverer of any material and substantial part of the thing patented; or,

[For provisions relating to subpoenas, to witnesses, to witness fees and to penalty for failing to attend or refusing to testify, see R. S. U. S., Secs. 4906, 4907, 4908, under Part XIV.]

RULES OF PRACTICE.

360. INTERFERENCE DEFINED. Rev. Stat., § 4904.

93. An interference is a proceeding instituted for the purpose of determining the question of priority of invention between two or more parties claiming substantially the same patentable invention. The fact that one of the parties has already obtained a patent will not prevent an interference, for, although the commissioner has no power to cancel a patent, he may grant another patent for the same invention to a person who proves to be the prior inventor.

361. WHEN DECLARED.

94. Interferences will be declared in the following cases, when all the parties claim substantially the same patentable invention:

(1) Between two or more original applications containing conflicting claims.

(2) Between an original application and an unexpired patent containing conflicting claims, when the applicant, having been rejected on the patent, shall file an affidavit that he made the invention before the patentee's application was filed.

(3) Between an original application and an application for the reissue of a patent granted during the pendency of such original application.

(4) Between an original application and a reissue application, when the original applicant shall file an affidavit showing that he made the invention before the patentee's original application was filed.

(5) Between two or more applications for the reissue of patents granted on applications pending at the same time.

(6) Between two or more applications for the reissue of patents granted on applications not pending at the same time, when the applicant for reissue of the later patent shall file an affidavit showing that he made the invention before the application was filed on which the earlier patent was granted.

(7) Between a reissue application and an unexpired patent, if the original applications were pending at the same time, and the reissue applicant shall file an affidavit showing that he made the invention before the original application of the other patentee was filed.

(8) Between an application for reissue of a later unexpired patent and an earlier unexpired patent granted before the original application of the later patent was filed, if the reissue applicant shall file an affidavit showing that he made the invention before the original application of the earlier patent was filed.

(9) An interference will not be declared between an original application filed subsequently to December 31, 1897, and a patent issued more than two years prior to the date of filing such application or an application for a reissue of such a patent.

362. PREPARATION FOR INTERFERENCE.

95. Before the declaration of interference all preliminary questions must be settled by the primary examiner, and the issue must be clearly defined; the invention which is to form the subject of the controversy must be decided to be patentable, and the claims of the respective parties must be put in such condition that they will not require alteration after the interference shall have been finally decided, unless the testimony adduced upon the trial shall necessitate or justify such change.

363. FAILURE TO PREPARE FOR INTERFERENCE.

96. Whenever the claims of two or more applications differ in phraseology, but cover substantially the same patentable subject-matter, the examiner, when one of the applications is ready for allowance, will suggest to the parties such claims as are necessary to cover the common invention in substantially the same language. The examiner will send copies of the letter suggesting claims to the applicant and to the assignees, as well as to the attorney of record in each case. The parties to whom the claims are suggested will be required to make such claims and put the applications in condition for allowance within a specified time in order that an interference may be declared. Upon the failure of any applicant to make the claim suggested within the time specified, such failure or refusal shall be taken without further action as a disclaimer of the invention covered by the claim, and the issue of the patent to the applicant whose application is in condition for allowance will not be delayed unless the time for making the claim and putting the application in condition for allowance be extended upon a proper showing. If a party make the claim without putting his application in condition for allowance, the declaration of the interference will not be delayed, but after judgment of priority the application of such party will be held for revision and restriction, subject to interference with other applications.

[97 relates to the preparation of the notices of the interference, and to notices to conflicting parties having the same counsel, 98 to revision of notices by examiner of interferences; 99 for reference to the commissioner in case of disagreement between the examiner of interferences and the primary examiner.]

364. PRIMARY EXAMINER RETAINS JURISDICTION.

100. The primary examiner will retain jurisdiction of the case until the declaration of interference is made.

365. JURISDICTION OF EXAMINER OF INTERFERENCES.

101. Upon the institution and declaration of the interference, as provided in Rule 102, the examiner of interferences will take jurisdiction of the same, which will then become a contested case; but the primary examiner will determine the motions mentioned in Rule 122, as therein provided.

[102 provides for a formal declaration by the examiner of interferences; 103 relates to notices to the parties and upon necessity for publication in the Official Gazette; 104, to motion for postponement of time for filing preliminary statements; 105, to use of certified copies where only a part of an application is in interference; 106, to new application for claims not in interference, it being provided that no claim shall be made in either application broad enough to include matter claimed in the other.]

366. DISCLAIMER TO AVOID INTERFERENCE—SIGNATURE TO.

107. An applicant involved in an interference may, with the written consent of the assignee, when there has been an assignment, before the date fixed for the filing of his preliminary statement (see Rule 110), in order to avoid the continuance of the interference, disclaim under his own signature, attested by two witnesses, the invention of the particular matter in issue, and upon such disclaimer and the cancellation of any claims involving such interfering matter judgment shall be rendered against him, and a copy of the disclaimer shall be embodied in and form part of his specification. (See Rule 182.)

[108 provides for inspection of the claims of opposing parties after the preliminary statements have been received and approved; and 109 provides for claiming, on motion duly made, an invention shown but not claimed in an application in interference.]

367. PRELIMINARY STATEMENTS—REQUIREMENTS OF.

110. Each party to the interference will be required to file a concise preliminary statement, under oath, on or before a date to be fixed by the office, showing the following facts:

(1) The date of original conception of the invention set forth in the declaration of interference.

(2) The date upon which a drawing of the invention was made.

(3) The date upon which the invention was first disclosed to others.

(4) The date of the reduction to practice of the invention.

(5) A statement showing the extent of use of the invention.

(6) The applicant shall state the date and number of any application for the same invention filed within twelve months before the filing date in the United States, in any foreign country adhering to the International Convention for the Protection of Industrial Property or having similar treaty relations with the United States.

If a drawing has not been made, or if the invention has not been reduced to practice or disclosed to others or used to any extent, the statement must specifically disclose these facts.

When the invention was made abroad the statement should set forth:

(1) That the applicant made the invention set forth in the declaration of interference.

(2) Whether or not the invention was ever patented; if so, when and where, giving the date and number of each patent, the date of publication, and the date of sealing thereof.

(3) Whether or not the invention was ever described in a printed publication; if so, when and where, giving the title, place, and date of such publication.

(4) When the invention was introduced into this country, giving the circumstances with the dates connected therewith, which are relied upon to establish the fact.

The preliminary statements should be carefully prepared, as the parties will be strictly held in their proofs to the dates set up therein.

If a party prove any date earlier than alleged in his preliminary statement, such proof will be held to establish the date alleged and none other.

The statement must be sealed up before filing (to be opened only by the examiner of interferences: see Rule 111), and the name of the party filing it, the title of the case, and the subject of the invention indicated on the envelope. The envelope should contain nothing but this statement.

[111 places restriction upon the opening for inspection of preliminary statements and provides for forbidding access to the papers of any party in default; 112 relates to a notice to amend a defective statement, and to removing without inspection of opposing parties any unopened statements; 113, to amending upon motion and satisfactory showing.]

368. FAILURE TO FILE PRELIMINARY STATEMENT; FAILURE TO OVERCOME PRIMA FACIE CASE.

114. If the junior party to an interference, or if any party thereto other than the senior party, fails to file a statement, or if

his statement fails to overcome the prima facie case made by the respective dates of application, such party will be notified by the examiner of interferences that judgment upon the record will be rendered against him at the expiration of thirty days, unless cause is shown why such action should not be taken. Within this period any of the motions permitted by the rules may be brought. Motions brought after judgment on the record has been rendered will not be entertained unless sufficient reasons appear for the delay.

369. FAILURE TO FILE TESTIMONY EXCLUDED SETTING UP INVENTION PRIOR TO APPLICATION DATE.

115. If a party to an interference fail to file a statement, testimony will not be received subsequently from him to prove that he made the invention at a date prior to his application.

370. PRESUMPTION AS TO ORDER OF INVENTION.

116. In original proceedings in cases of interference the several parties will be presumed to have made the invention in the chronological order in which they filed their completed applications for patents clearly illustrating and describing the invention; and the burden of proof will rest upon the party who shall seek to establish a different state of facts.

371. STATEMENT NOT EVIDENCE.

117. The preliminary statement can in no case be used as evidence in behalf of the party making it.

[118 relates to times for taking testimony; 119, to an entry of judgment against party in default for not taking testimony; 120, to the postponement of hearing upon motion; 121, to enlargement of time for taking testimony upon motion.]

372. MOTION TO DISSOLVE FOR IRREGULARITY, NON-PATENTABILITY, ETC.

122. Motions to dissolve an interference (1) upon the ground that there has been such informality in declaring the same as will preclude a proper determination of the question of priority of invention, or (2) which deny the patentability of an applicant's claim, or (3) which deny his right to make the claim, or (4) which allege that counts of the issue have different meanings in the cases of different parties should contain a full statement of the grounds relied upon, and should, if possible, be made not later than the thirtieth day after the statements of the parties have been received and approved. Such motions, and all motions of a similar charac-

ter, should be accompanied by a motion to transmit the same to the primary examiner, and such motion to transmit should be notice for hearing upon a day certain before the examiner of interferences. When in proper form the motion presented will be transmitted by the examiner of interferences, with the files and papers, to the proper primary examiner for his determination, who will thereupon fix a day certain when the said motion will be heard before him upon the merits, and give notice thereof to all the parties. If a stay of proceedings be desired, a motion therefor should accompany the motion for transmission.

When the motion has been decided by the primary examiner the files and papers, with his decision, will be sent at once to the docket clerk.

Motions to shift the burden of proof should be made before, and will be determined by, the examiner of interferences. No appeal from the decision on such motions will be entertained, but the matter may be reviewed on appeal from the final decision upon the question of priority of invention.

[123 relates to motions to effect stay of proceedings.]

373. MOTION FOR DISSOLUTION—APPEALS.

124. Where, on motion for dissolution, the primary examiner renders an adverse decision upon the merits of a party's case, as when he holds that the issue is not patentable or that a party has no right to make a claim, or that the counts of the issue have different meanings in the cases of different parties, he shall fix a limit of appeal not less than twenty days from the date of his decision. Appeal lies to the examiners-in-chief in the first instance and will be heard inter partes. If the appeal is not taken within the time fixed, it will not be entertained except by permission of the commissioner.

No appeal will be permitted from a decision rendered upon motion for dissolution affirming the patentability of a claim or the applicant's right to make the same or the identity of meaning of counts in the cases of different parties.

Appeals may be taken directly to the commissioner, except in the cases provided for in the preceding portions of this rule, from decisions on such motions as, in his judgment, should be appealable.

[125 provides for termination of interferences only by written concession of priority; 126 provides for the suggestion of a statutory bar by any of the tribunals and that the case may be remanded to the primary examiner by the commissioner for the determination of such suggestion; 127 forbids a second interference upon the

same application by the same party; 128 for the suspension of an interference for the consideration of new references; 129 for the addition of new parties.]

374. NON-PATENTABILITY AT FINAL HEARING.

130. Where the patentability of a claim to an opponent is material to the right of a party to a patent, said party may urge the non-patentability of the claim to his opponent at final hearing before the examiner of interferences as a basis for the decision upon priority of invention, and upon appeals from such decision. A party shall not be entitled to take such step, however, unless he has duly presented and prosecuted a motion under Rule 122 for dissolution upon the ground in question, or shows good reason why such a motion was not presented and prosecuted.

[131 provides for the prosecution or defense by an assignee.]

132. Whenever an award of priority has been rendered in an interference proceeding by any tribunal and the limit of appeal from such decision has expired, and whenever an interference has been terminated by reason of the written concession, signed by the applicant in person, of priority of invention in favor of his opponent or opponents, the primary examiner shall advise the defeated or unsuccessful party or parties to the interference that their claim or claims which were so involved in the issue stand finally rejected.

[153 relates to motions; 154-163, to testimony in interference and other contested cases; to the printing of the testimony and briefs; to taking testimony in foreign countries, and formal matters relating to the testimony.]

375. CHRISTIE v. SEYBOLD, 55 Fed. 69, 5 C. C. A. 33 (1893).

Before Jackson and Taft, Circuit Judges, and Hammond, District Judge.

Taft, Circuit Judge (after stating the facts.) The questions arising in this case, covered by the assignments in error, are two: First, does Christie's invention or device show, "in a power press, a platen detachably connected with the power-driving mechanism and provided with a counterbalancing weight?" and second, if it does, which one of the two Seybold or Christie, was the first or true inventor, within the meaning of the patent laws?

It is contended by appellant that it was too late for the complainant to raise the question, in the court below, whether Christie's device includes "a platen detachably connected with the power-

driving mechanism," because it was not raised in the interference proceeding in the patent office. It is said he is thereby estopped to make it. We do not concur in this view. The interference issue is drawn up by the patent office examiners, and the interference is declared, before either party has access to the specifications of the other, and the claims made with respect to the issue are submitted before the specifications are disclosed. Subsequently, perhaps, the question might be raised, but we do not think that a failure to raise it in the patent office prevents its being brought to the attention of the court in a proceeding like this by independent bill.

The fact, if it be a fact, that the invention of one of the parties does not include the issue declared in the interference, is apparent on the record. In one of the two cases considered by the Supreme Court under this section it was held that the court of its own motion must declare that the issuable device in the interference proceeding was not patentable for want of invention, and could therefore dismiss the bill, although the question had not been raised either in the patent office or by the parties in the court below or in the Supreme Court. Hill v. Wooster, 132 U. S. 693, 10 Sup. Ct. 228. We do not see why the court has not the same power with reference to the present question. The fact, if it be a fact, that Seybold did not raise it in the patent office, may, of course, affect the weight of his present objection, but it has no force as an estoppel.

Coming now to the question whether the Christie device embodies that which is described by the issue framed in the interference proceedings, we find that the issue was adopted by the patent office from the language of the first claim of Christie's patent, and the question presented is really whether Christie's specifications entitle him to his first claim. * * *

Then follow the claims, the first of which is:

"In a power press, the platen, 5, detachably connected with the power-driving mechanism and counterbalanced by the weight, to hold the same in any adjusted position, substantially as specified."

The court below held that the power-driving mechanism consisted of the lever, the pawls, the ratchet wheels, the pinion, and the rack bar; and that as the ratchet wheel and pinion were fixed in their relation to the rack bar, and the rack bar was fixed to the platen, the power-driving mechanism was not detachably connected with the platen.

We think this construction too narrow. The expert for the complainant below testified that he had never heard the expression "detachably connected with," but that in this view it must mean that all the mechanism used to transmit the pressure to the platen should be capable of being detached from the platen. The patent office took the expression from the specifications and claim of

Christie, and it is only fair, therefore, in construing the meaning of the term, if ambiguous, to look into Christie's specifications to see what, in fact, is meant by the term "detachably connected with the power-driving mechanism." Of course Christie's specifications cannot be used for this purpose, if by so doing we are taken out of the Seybold invention, but if the issue framed by the patent office, by a fair construction, will include a feature present in both inventions, then it is the duty of the court to lean to that construction rather than to give it a strict and narrow one which will describe something present only in one. We are very clear that the two inventions have a common feature, viz., the easy elevation and lowering of the platen, secured by a counterbalancing weight and a device for the disengagement of the platen from the power-pressure mechanism and consequent independence thereof.

The amount of power required to compress the bundle makes necessary a somewhat cumbersome and slow action in the power-pressure mechanism. The object of both inventions is to temporarily free the platen from connection with the slowly-acting mechanism while the bundle is being put in the press. A device which unships the machinery conveying the great pressure power to the platen, so as to permit a free movement of the platen unrestrained by its connection with that machinery, makes the connection between the platen and the power-driving mechanism "detachable," within the meaning of Christie's specifications and the issue framed in this case by the patent office. It may be true that in a certain sense the pinion and the ratchet wheels and the rack bar are part of the power-driving mechanism when in action, though our impression is that, as the power is applied first on the lever, the machinery conveying the power to the platen beyond the lever is power-transmitting mechanism, and that the lever and pawl only may be properly called the "power-driving mechanism." But, whichever is the correct view, it is certain that, as soon as the pawls and lever which communicate the power to the ratchet wheels are unshipped, the ratchet wheels and the pinion are free to move without opposing any obstruction whatever to the easy up and down movement of the platen. When thus detached they are certainly no part of the power-driving mechanism. The result is exactly the same as if they were removed from their connection with the rack bar, because they make no resistance to the movement of the rack bar and platen. The specifications do not limit Christie to this one mode of applying the power, but the lever, pawl, and ratchet are described by him as the preferable mode. There are many well-known equivalents, and were at the time of this invention, of this power-driving mechanism, notably the screw described in Seybold's invention. For these reasons we are unable to agree with the learned judge below in respect to the ground

upon which he placed his decision. We are therefore brought to consider the question which, in the view he took of the case, he did not find it necessary to pass upon,—that is, who was the first and true inventor of that feature which we have found to be common to the two devices, and which is here the subject of controversy?

The patent statutes have always required such particularity of description in the applications for a patent as to leave no doubt that in the eye of the law he is the first and true inventor who first reduces the conception of a new invention or discovery to practical and operative form. In Bedford v. Hunt, 1 Mason (U. S.) 302-304, Mr. Justice Story said:

"The first inventor who has put the invention into practice, and he only is entitled to a patent."

And again, on page 305, he says:

"The intent of the statute was to guard against defeating patents by the setting up of a prior invention which had never been reduced to practice. If it were the mere speculation of a philosopher or a mechanician, which had never been tried by the test of experience, and never put into actual operation by him, the law would not deprive a subsequent inventor, who had employed his labors and his talents in putting it into practice, of the reward due to his ingenuity and enterprise."

So in Agawan Co. v. Jordan, 7 Wall. (U. S.) 583, Mr. Justice Clifford states the rule as follows:

"The settled rule of law is that whoever first perfects a machine is entitled to a patent, and is the real inventor, although others may have previously had the idea, and made some experiments towards putting it in practice. He is the inventor, and is entitled to the patent, who first brought the machine to perfection, and made it capable of useful operation.

So in Whitely v. Swayne, 7 Wall, (U. S.) 685, 687, Mr. Justice Nelson said:

"He is the first inventor and entitled to the patent who, being an original discoverer, has first perfected and adapted the invention to actual use."

This is the general rule, and had no exception under the statutes in force down to the act of July 4, 1836 (5 Stat., p. 117). The fifteenth section of that act, in specifying the defenses which a defendant might set up in an action for infringement, permitted him to plead that the patentee "had surreptitiously and unjustly obtained the patent for that which was in fact invented or discovered by another who was using reasonable diligence in adapting and perfecting the same." The effect of the change made by the act of 1836 was considered by Mr. Justice Story in the case

of Reed v. Cutter, 1 Story 590, where, referring to the words "was using reasonable diligence in adapting and perfecting his invention," he said:

"These latter words were copied from the fifteenth section of the act of 1836, c. 357, and constitute a qualification of the preceding language of that section; so that an inventor who has first actually perfected his invention will not be deemed to have surreptitiously or unjustly obtained a patent for that which was in fact first invented by another, unless the latter was at that time using reasonable diligence in adapting and perfecting the same. And this I take to be clearly the law; for he is the first inventor in the sense of the act, and entitled to a patent for his invention, who has first adapted and perfected the same to use; and until the invention is so perfected and adapted for use it is not patentable. An imperfect and incomplete invention, existing in mere theory or in intellectual notion, or in uncertain experiments, and not actually reduced to practice, and embodied in some distinct machinery, apparatus, manufacture, or composition of matter, is not, and indeed cannot be, patentable under our patent acts, since it is utterly impossible, under such circumstances, to comply with the fundamental requisites of those acts. In a race of diligence between two independent inventors, he who first reduces his invention to a fixed, positive, and practical form would seem to be entitled to a priority of right to a patent therefor. Woodcock v. Parker, 1 Gall. 438. The clause now under consideration seems to qualify that right by providing that in such case he who invents first shall have the prior right, if he is using reasonable diligence in adapting and perfecting the same, although the second inventor has, in fact, first perfected the same, and reduced the same to practice in a positive form. It thus gives full effect to the well-known maxim that he has the better right who is prior in point of time, namely, in making the discovery or invention."

Reed v. Cutter is a leading case, and has been followed by Mr. Justice Clifford in White v. Allen, 2 Cliff. 224, 2 Fish. Pat. Cas. 440, and in later cases.

It is obvious from the foregoing that the man who first reduces an invention to practice is prima facie the first and true inventor, but that the man who first conceives, and, in a mental sense, first invents, a machine, art, or composition of matter, may date his patentable invention back to the time of its conception, if he connects the conception with its reduction to practice by reasonable diligence on his part, so that they are substantially one continuous act. The burden is on the second reducer to practice to show the prior conception, and to establish the connection between that conception and his reduction to practice by proof of due diligence. It has sometimes been held, in the decisions in the patent office, that the necessity for diligence on the part of the first conceiver does not arise until

the date of the second conception; but this, we think, cannot be supported on principle. The diligence of the first reducer to practice is necessarily immaterial. It is not a race of diligence between the two inventors in the sense that the right to the patent is to be determined by comparing the diligence of the two, because the first reducer to practice, no matter what his diligence or want of it, is prior in right unless the first conceiver was using reasonable diligence at the time of the second conception and the first reduction to practice. The language of the statute (section 4920), in the use of the imperfect tense, "was using reasonable diligence," shows the legislative intent to confer a prior right on a first conceiver in a case where, after his mental act of invention, and pending his diligent reduction to practice, another inventor enters the field and perfects the invention before his rival. The reasonable diligence of the first conceiver must be pending at the time of the second conception, and must therefore be prior to it. Reasonable diligence by the first conceiver, beginning when his rival enters the field, could only carry his invention back to the date of the second conception, and in the race from that time, the second conceiver must win because of his first reduction to practice. See Rob. Pat. §§ 384-386; Millward v. Barnes 11 O. G. 1060. The elaborate opinion of the commissioner of patents, Mr. Mitchell, in the interference proceeding between Christie and Seybold, reported in 54 O. G. 957, cites all the authorities, and is quite convincing on this point. We fully concur therein. As Christie reduced the invention to practice nearly a year before Seybold's press was made, the burden is on Seybold to show that from the time of his original conception, which antedated that of Christie, he was using reasonable diligence in adapting and perfecting his idea to practical use. Has he sustained that burden? It is quite clear to us that he has not. The question of reasonable diligence in any case depends, of course, upon all the circumstances. A complicated invention, requiring many experiments and much study to give it practical form, would reasonably delay a reduction to practice after the first conception for a greater length of time than where the idea and the machine embodying it were of a simple character. Bradford v. Corbin, 6 O. G. 223. Then, too, the sickness of the inventor, his poverty, and his engagement in other inventions of a similar kind are all circumstances which may affect the question of reasonable diligence. See Webster v. Carpet Co., 5 O. G. 522; Cox v. Griggs, 1 Biss. 362, 2 Fish. Pat. Cas. 174; Munger v. Connell, 1 O. G. 491; Proctor v. Ackroyd, 6 O. G. 603; Cushman v. Parham, 9 O. G. 1108.

In this case, Seybold's first conception was in October, 1885, and he did not reduce his machine to practical form until April, 1889, three years and a half later. He made a rough sketch in January, 1886, which he subsequently lost. In October, 1888,

three years after his first conception, he had working drawings made, and six months later a press was manufactured. His excuse for his delay is that until the spring of 1889 he could not afford to buy the necessary tools for the manufacture of the press, and, if he had been able to do so, his shop was not large enough to permit the use of them. He does not say, however, that he had not the means to have the press made at some other shop, where the proper tools were to be had, but, on the contrary, intimates that he might have done so, but for the fact that there would have been no profit for him to sell machines made by others according to his invention. Now, we do not think this a good excuse for failing to make at least one machine, in accordance with his conception: It is as much as to say that in his view his new conception, when reduced to practice, would not have sufficient value and utility to bring him any return commensurate with the outlay required to reduce it to practice, and in consequence he indefinitely postponed putting it into practical form until circumstances should change. This is a temporary abandonment of the idea (White v. Allen, 2 Cliff. 224), and is not the due diligence which entitles him to the favor of the public, for whose benefit, primarily, the patent laws were enacted (Wright v. Postel, 44 Fed. Rep. 352).

It can hardly be claimed that the rough sketch made by Seybold of his proposed press in January, 1886, was a reduction to practice. It has been held in many cases that drawings, much more complete than the one here testified to, are not reductions to practice, as against a subsequent conceiver who first made an actual, operative machine. Reeves v. Bridge Co., 5 Fish. Pat. Cas. 456; Lubricator Manuf'g Co. v. Renchard, 9 Fed. 293 (opinion by Mr. Justice Matthews); Drill Co. v. Simpson, 29 Fed. 288; Ellithorpe v. Robertson, 4 Blatchf. 307; Draper v. Mills Corp., 13 O. G. 276; Odell v. Stout, 22 Fed. 159.

Further objection to reversing the decree is made on behalf of appellee on the ground that Christie was not the true inventor of the machine for which he obtained the patent. It is said that Christian Keck, who was in his employ, was the real inventor. We do not see how this is a subject which can be here investigated. The question here (section 4915, Rev. Stat.) is only whether Seybold was the first and true inventor. It is certain that some one reduced the invention to practice before Seybold did, and, if that is so, Seybold is not the first and true inventor, unless he was using reasonable, diligence to adapt and perfect his conception; and we have found that he was not doing this. If Christie's patent is void because he was not the first and true inventor, and Keck was, that would not entitle Seybold to a pat-

ent. The commissioner of patents did not consider the question, and we think he acted rightly in this respect.

On the whole case we find, therefore, that Seybold is not the true and first inventor. The decree of the court below is reversed, with instructions to dismiss the bill at the costs of the complainant.

376. MERGENTHALER v. SCUDDER, 11 App. Cas. D. C. 264, 81 O. G. 1417, 1897 C. D. 724.

Alvey, J.: * * *

A complete conception as defined in an issue of priority of invention is matter of fact and must be clearly established by proof. The conception of the invention consists in the complete performance of the mental part of the inventive act. All that remains to be accomplished in order to perfect the act or instrument belongs to the department of construction, not invention. It is therefore the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice that constitutes an available conception within the meaning of the patent law. 1 Rob. on Pats., sec. 375.

"He who first conceives and gives expression to the idea of an invention in such clear and intelligible manner that a person skilled in the business could construct the thing is entitled to a patent, provided he uses reasonable diligence in perfecting it. Machine Co. v. Harvester Works, 42 Fed. 152, 157."

Or, as said by Mr. Commissioner Leggett in Champan v. Candee, 2 O. G. 245:

"It is for him (the party upon whom the onus rests) to prove priority of invention, and he may do it by establishing either that he was the first to conceive the idea and the mode of putting it into practice, and used reasonable diligence in adapting and perfecting it, or that he actually perfected and reduced the invention to practice prior to the date of the application of the opposing party to the issue."

Or, as more fully stated by the same learned Commissioner, in the case of Cameron & Everett v. I. R. Brick, C. D., 1871, 89:

"The point of time at which invention, in such sense as to merit the protection of law, dates is neither when the first thought of it is conceived nor when the practical working machine is completed, but it is when the thought or conception is practically complete; when it has assumed such shape in the mind that it can be described and illustrated; when the inventor is ready to instruct the mechanic in relation to putting it in working form; when the 'embryo' has taken some definite form in the mind and seeks deliverance, and when this is evidenced

by such description or illustration as to demonstrate its completeness. * * * The true date of invention is at the point where the work of the inventor ceases and the work of the mechanic begins. Up to that point he was inventing, but had not invented, and he must have invented before the law will come to his protection."

In the case of Voelker v. Gray, 30 O. G., 1091, Mr. Commissioner Butterworth in defining what will constitute complete conception within the meaning of the patent law says that the party claiming "must have been first to conceive the thing in controversy; not merely to conceive it possible to construct a device which would produce the result sought. * * * The conception must not be the result to be obtained, but the means (which is the patentable thing) to produce that result. As long as there is a missing ingredient, in the absence of which the means utilized is a failure, the desired result unattainable, the invention is incomplete. * * * That of which the law takes notice is not the maturing, but the matured conception which can materialize in an operative device; but it very frequently occurs that the inventor confounds his original device and later conception and gives the latter the date of the former, and does it innocently."

It follows from the principles thus enunciated that the date of the conception is the date when the idea of means, including all the essential attributes of the invention, becomes so clearly defined in the mind of the inventor as to be capable of exterior expression (1 Rob. on Pats., sec. 380), and it is settled both by practice and express decision that such exterior expression of the mind of the inventor when relating to machinery may be by exhibits either in the form of drawings or by model, so as to lay the foundation of a claim to priority, if thereby the invention be made sufficiently plain to enable those skilled in the art to understand it. Webster Loom Co. v. Higgins, 105 U. S., 580, 594, 21 O. G., 2031.

Now upon the application of these well settled general principles, the onus of proof being upon Scudder, the question is whether upon the facts of the case the prima facie effect of the applications filed by Mergenthaler has been overcome and the priority of invention, as matter of fact, has been shown by Scudder in plain, definite, and comprehensive terms.

The fact of conception by an inventor, for the purpose of establishing priority, cannot be proved by his mere allegation nor by his unsupported testimony where there has been no disclosure to others or embodiment of the invention in some clearly-perceptible form, such as drawings or model, with sufficient proof of identity in point of time, for otherwise such facile means of establishing priority of invention would in many cases offer

great temptation to perjury and would have the effect of virtually precluding the adverse party from the possibility of rebutting such evidence. Hence it has been ruled in many cases that the mere unsupported evidence of the alleged inventor on an issue of priority as to the fact of conception and the time thereof cannot be received as sufficient proof of the fact of prior conception, Hisey v. Peters, 6 App. Cas. D. C., 73, 71 O. G., 892; Stevens v. Putnam, 18 O. G., 520; Farmer v. Brush, 17 O. G., 150; Brungger v. Smith, 62 O. G., 1511; but any full and accurate description of the invention, either in words or drawings or by model, if it be of a machine, or even an unsuccessful effort to embody the conception, when the effort discloses that the idea was complete, will suffice, although the attempt to represent it may have failed. In the absence of all other proof the date of the application for a patent, if containing a complete description, is taken as the date of the conception. 1 Rob. on Pats., sec. 380. But if drawings be exhibited and relied on as evidence of the conception of the invention they must show a complete conception, free from ambiguity or doubt, and such as would enable the inventor or others skilled in the art to reduce the conception to practice without any further exercise of inventive skill. (Ib.)

* * *

[An apt illustration of the rule of this case applied to process is found, for example, in McKnight v. Pohle Croasdale, 22 App. Cas. D. C. 219, 105 O. G. 977, 1903 C. D. 619.]

377. PETRIE v. DESCHWEINITZ, 19 App. Cas. D. C. 386, 99 O. G. 1387, 1902 C. D. 534.

* * * That the unsupported evidence of a party will not be accepted or acted upon as sufficient proof of the conception of an invention, is a well-settled principle, the reasons for which apply with equal force to its reduction to practice. Mergenthaler v. Scudder, C. D. 1897, 724, 81 O. G. 1417, 11 App. D. C. 264, 278; Winslow v. Austin, C. D. 1899, 301, 86 O. G. 2171, 14 App. D. C. 137, 141; De Wallace v. Scott, C. D. 1899, 416, 88 O. G. 1704, 15 App. D. C. 157, 162; Tyler v. St. Amand, C. D. 1901, 301, 94 O. G. 1969, 17 App. D. C. 464, 467; Young v. Donnelly, C. D. 1898, 20, 82 O. G. 1417. * * *

378. AUTOMATIC WEIGHING MACH. CO. v. PNEUMATIC SCALE CO., 166 Fed. 288, 92 C. C. A., 206. (1909, Patent No. 766,004).

Before Colt and Lowell, Circuit Judges, and Aldrich, District Judge.

Colt, Circuit Judge:

This is a bill in equity brought under section 4920 of the Revised Stautes (U. S. Comp. Stat. 1901, p. 3394) for infringe-

ment of the first seven claims of the Thomas patent, No. 766,004, for improvements in automatic weighing machines. The invention consists, broadly speaking, in the addition of a second hopper with a time valve to the previous single-hopper weighing machine of the Doble and Watson patent, No. 556,258.

The only defense is priority of invention by Thomas W. Watson, to whom a patent was issued for the same invention. It is admitted that both Thomas and Watson were independent inventors of this improvement.

Section 4920 provides as follows:

"In any action for infringement the defendant may plead the general issue, and having given notice in writing to the plaintiff or his attorney, thirty days before, may prove on trial any one or more of the following special matters:

"Second. That he had surreptitiously or unjustly obtained the patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same; or * * *

"Fourth. That he was not the original and first inventor or discoverer of any material and substantial part of the thing patented. * * *

"And the like defenses may be pleaded in any suit in equity for relief against an alleged infringement."

Under these provisions, the defendant contends, first, that Watson was the original and first inventor of the thing patented, and, second, that Thomas unjustly obtained his patent for that which was in fact invented by Watson, who was using reasonable diligence in adapting and perfecting the same. The first defense turns upon therespectivedates of the Thomas and Watson inventions, and the second defense raises a question of fact as to Watson's diligence in adapting and perfecting his invention.

Thomas filed his application December 17, 1896, and his patent issued July 26, 1904.

Watson conceived his invention, illustrated it by a drawing, and disclosed it to others, as early as January 10, 1896. He reduced his invention to practice by the building of a machine in April, 1897. He filed his application March 11, 1898, and his patent issued September 26, 1899.

It may be noted, first, that Thomas' application antedates Watson's reduction to practice by 4 months, and Watson's application by 15 months; and, second, that Watson's conception antedates Thomas' application by **11 months.**

The main controversy with respect to the Thomas invention is whether the date of his invention is the date of his application, December 17, 1896, and the main controversy with respect to the Watson invention is whether the date of his invention is the date of his conception, January 10, 1896.

On April 24, 1901, the Patent Office declared an interference between the Thomas application and the Watson patent, under section 4904 of the Revised statutes (U. S. Comp. Stat. 1901, p. 3389):

"Whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant and patentee, as the case may be, and shall direct the primary examiner to proceed to determine the question of priority of invention. And the Commissioner may issue a patent to the party who is adjudged the prior inventor, unless the adverse party appeals from the decision of the primary examiner, or of the board of examiners-in-chief, as the case may be, within such time, not less than twenty days, as the Commissioner shall prescribe."

Under a rule of the Patent Office, the filing of an allowable application is a constructive reduction to practice. In accordance with this rule, the date of the Thomas invention was fixed as of December 17, 1896, the date of his application; and the burden of proof was thrown upon Watson to establish the fact of reasonable diligence from the date of his prior conception, January 10, 1896, to the time Thomas filed his application. Upon this issue of diligence on the part of Watson, the Examiner of Interferences and the Commissioner of Patents, two of the three Patent Office tribunals which passed upon the question, and the Court of Appeals of the District of Columbia, found against Watson, and adjudged Thomas to be the prior inventor; and accordingly a patent was issued to Thomas under section 4904. As a result of the interference proceedings, there are two outstanding patents for the same invention issued to independent inventors.

The decision in interference proceedings is not conclusive on the question of priority of invention. The same question may arise in subsequent suits instituted under sections 4915, 4918, and 4920 of the Revised Statutes (U. S. Comp. Stat. 1901, pp. 3392, 3394).

Section 4915 provides that the unsuccessful applicant may bring a bill in equity, for the purpose of determining his right to receive a patent for his invention. The remedy under this section is in effect an appeal from the decision of the Patent office tribunals.

Section 4918 provides that where there are interfering patents any person interested in any one of them may bring a bill in equity against the interfering patentee, and the court may declare either of the patents void in whole or in part.

Section 4920 provides that the defendant in a suit for infringement may prove any of the special matters of defense therein enumerated.

In the present suit, as we have seen, the question of priority of invention is raised under paragraphs 2 and 4 of section 4920. In order to determine the question of priority under these paragraphs, we must, as already pointed out, ascertain the respective dates of the Thomas and Watson inventions. If we find the date of the Thomas invention is prior to the date of the Watson invention, then Thomas is the original and first inventor, unless Watson was using reasonable diligence in adapting and perfecting his invention from the time of his conception. On the other hand, if we find that the date of the Watson invention is prior to the date of the Thomas invention, then Watson is the original and first inventor. No question of diligence arises regarding the Thomas invention, because the complainant does not undertake to carry the date of the Thomas invention back of his application, while in the case of Watson it is sought to carry the date of his invention back to his conception.

In patented inventions there are several distinct stages of the invention. Some patented inventions comprise only three stages, namely, conception (evidenced by drawings, disclosures, or models), application, patent; while other patented inventions comprise four stages, namely, conception, reduction to practice, application, patent.

The date of the first class of patented inventions must be either (1) the date of the patent, or (2) the date of the application, or (3) the date of the conception; while the date of the second class must be either (1) the date of the patent, or (2) the date of the application, or (3) the date of the reduction to practice, or (4) the date of the conception.

When two patents for the same invention have been issued to independent inventors, we understand the rule to be that the dates of their respective inventions are, first, the dates of the patents; second, the dates of the applications, provided the application sufficiently describes the invention; third, the dates of actual reduction to practice; fourth, the dates of conception; with this qualification, that, if either patentee seeks to carry the date of his invention back to the date of his conception, he must show reasonable diligenece in adapting and perfecting his invention, either by actual reduction to practice or by filing his application.

Applying this rule to the present case, we find that the date of the Thomas patent is July 26, 1904, and the date of his application is December 17, 1896. We also find that the date of the

Watson patent is September 26, 1899, the date of his application is March 11, 1898, the date of his actual reduction to practice is April, 1897, and the date of his conception is January 10, 1896.

Upon a comparison of these dates, it appears that Thomas' application of December 17, 1896, carries the date of his invention back of Watson's application, March 11, 1898, and back of Watson's actual reduction to practice, April, 1897, but not back of Watson's conception, January 10, 1896. It follows, therefore, that Watson, in order to establish an earlier date than Thomas, must show that between the date of his conception, January 10, 1896, and the date of his actual reduction to practice, April, 1897, he was "using reasonable diligence in adapting and perfecting" his invention.

The defendant contends that the courts have adopted another and a different rule for determining the dates of inventions under the patent laws, and that the rule is as follows: Inventions are divided into two classes, simple and complicated. Simple inventions may be completed by drawings or disclosure which sufficiently describe the invention, while complicated inventions require for their completion actual reduction to practice. Under this rule the date of an invention depends upon the character of the invention. If the invention is a simple one, the date may be (1) the date of the patent, (2) the date of the application, (3) the date of actual reduction to practice, (4) the date of the conception. On the other hand, if the invention is a complicated one, the date may be either (1) the date of the patent, or (2) the date of actual reduction to practice.

Applying this rule to the present case, the defendant's position is as follows: If the court finds the invention in question is a simple one, then the date of the Thomas invention is the date of his application, December 17, 1896, and the date of the Watson invention is the date of his conception, January 10, 1896. On the other hand, if the court finds the invention is a complicated one, then the date of the Thomas invention is the date of his patent, July 24, 1904, and the date of the Watson invention is the date of his actual reduction to practice in April, 1897.

Upon this theory of the patent law it is apparent that Watson is the original and first inventor, for, if the invention is of a simple character, then Watson's invention was completed by his drawing and disclosure on January 10, 1896, while if the invention is of a complicated character, then Watson's invention was completed by actual reduction to practice in April, 1897.

With respect to this theory of the defendant, it is sufficient to say that it is novel and plainly unsound. No such distinction between inventions is found in the statutes, or has ever been recognized by the courts in any adjudicated cases. It may be

further observed that any such artificial distinction would lead to hopeless confusion and great injustice.

In the present case the question of priority of invention involves two fundamental inquiries: First, is the date of a patented invention as early as the date of the application? In other words, can Thomas carry back the date of his invention to the date of his application? Section, is the date of a patented invention as early as the date of the conception? In other words, can Watson carry back the date of his invention to the date of his drawing and disclosure?

First. With respect to the first proposition it may be said that the law is well settled that the date of a patented invention is at least as early as the date of the application, provided it sufficiently describes the invention to enable those skilled in the art to understand it; and we have found no decision in which this rule is questioned. "Patented inventions always date at least as early as the dates of the execution of the original applications therefor, provided the original applications exhibit the inventions with the above-mentioned extent of sufficiency. Walker on Patents (4th Ed.) § 70.

In Kearney v. Railroad Company, (C. C.) 32 Fed. 320, 322, Mr. Justice Bradley said:

"The relative priority of inventions is determined, first, by the dates of the respective patents therefor. But this is not conclusive. Evidence outside of the patents may be given to prove priority. The date of the application, if it describes the invention sufficiently, is conclusive evidence that the invention was made prior to such date."

The same rule was enforced by Mr. Justice Bradley in National Machine Company v. Brown, (C. C.) 36 Fed. 317, 321. In the recent case of Prindle v. Brown, 155 Fed. 531, 534, 84 C. C. A. 45, 48, this court said:

"An application of the character which we have described is of itself a positive and absolute exhibition of everything which the statute requires to constitute an invention."

In Bates v. Coe, 98 U. S. 31, 34, 25 L. ed. 68, Mr. Justice Clifford, speaking for the court, said:

"The presumption in respect to the invention described in the patent in suit, if it is accompanied by application for the same, is that it was made at the time the application was filed; and the complainant or plaintiff may, if he can, introduce proof to show that it was made at a much earlier date."

In Barnes Automatic Sprinkler Co. v. Walworth Manufacturing Co., (C. C.) 51 Fed. 88, 91, Judge Blodgett said:

"I am therefore very clear that the Talcott patent of January 31, 1882, which relates back to the time it was applied for in

April, 1879, clearly anticipates the fourth and fifth claims of the complainant's patent."

This case was affirmed on appeal, 60 Fed. 605, 9 C. C. A. 154.

In the Barbed-Wire Patent Case, 143 U. S. 275, 12 Sup. Ct. 443, 36 L. ed. 154, the court, in considering the evidence on the question of priority of invention, assumed that the date of the application of the patent in suit was the date of the invention; and the same assumption was made in Miller v. Eagle Manufacturing Company, 151 U. S. 186, 14 Sup. Ct. 310, 38 L. ed. 121. See, also, Westinghouse v. Chartiers Val. Gas Co., (C. C.) 43 Fed. 582.

The rule of the Patent Office that the filing of an allowable application is constructive reduction to practice is only the expression in another form of the rule that the application of a patented invention, if it sufficiently describes the invention, is conclusive evidence that the invention was made at least as early as that date.

In Lorraine v. Thurmond, 51 O. G. 1781, 1782, Commissioner Mitchell, in his opinion, said, respecting this rule:

"Completed and allowed applications evidence completion of invention, and in suits brought upon patents granted thereon that stage of invention which is usually evidenced by reduction to practice is conclusively assumed to have been reached. Hence the doctrine of 'constructive reduction to practice.'"

The Commissioner further said:

"If, as held in Seymour v. Osborne, 11 Wall. (U. S.) 516, 20 L. ed. 33, an invention is not patentable under the patent laws until it be perfected and adapted to use, and if, as held in the Telephone Cases, supra, and other cases cited, reduction to practice is not essential in order to obtain a patent, it follows that actual reduction to practice is not the only competent evidence of perfection and adaptation to use, but that the inventor's act in filing an allowable application is to be regarded in law as such an efficient and crowning step as to give it the standing of an invention so perfected and adapted. Interferences are declared after the applications involved are pronounced to be allowable by the experts of the office. In determining whether the application is allowable, the question of operativeness is one of the primary considerations. (Rule 133.) It hardly need be added that approved applications stand upon an entirely different basis from those which have been rejected by the office or abandoned by the applicant. Webster v. Sanford, 44 O. G. 567; Beach v. Fowler, 48 O. G. 821."

The rule of the federal courts respecting an application which has resulted in a patent, and the rule of the Patent Office respecting an allowable application, simply mean that such appli-

cations are conclusive evidence of the completeness of the invention. In other words, they are conclusive evidence that the stage of the invention has been reached which is evidenced by reduction to practice.

This rule of the Patent Office, as pointed out by Commissioner Mitchell in Lorraine v. Thurmond, supra, is based upon two well-established principles of the patent law:

(1) We have, in the first place, the principle that a statutory invention (except as modified by the doctrine of "diligence in adapting and perfecting") is a completed invention; that is, an invention which is perfected and adapted to use, or, as otherwise expressed, reduced to practice; and an inventor is not entitled to a patent—in other words, has not made an invention in the legal sense—until he has reduced his invention to practice.

In Agawam Company v. Jordan, 7 Wall. (U. S.) 583, 602, 19 L. ed. 177, the Supreme Court said:

"The settled rule of law is that whoever first perfects a machine is entitled to the patent and is the real inventor, although others may have previously had the idea and made some experiments towards putting it in practice. He is the inventor and is entitled to the patent who first brought the machine to perfection and made it capable of useful operation."

In Seymour v. Osborne, 11 Wall. (U. S.) 516, 552, 20 L. ed. 33, the Supreme Court said:

"He is the first inventor in the sense of the patent law, and entitled to a patent for his invention, who first perfected and adapted the same to use, and it is well settled that until the invention is so perfected and adapted to use it is not patentable under the patent laws."

In Clark Thread Company v. Willimantic Linen Company, 140 U. S. 481, 489, 11 Sup. Ct. 846, 849, 35 L. ed. 521, the court, in an opinion by Mr. Justice Bradley, said, when speaking of the invention covered by the patent in suit:

"It is evident that the invention was not completed until the construction of the machine. A conception of the mind is not an invention until represented in some physical form, and unsuccessful experiments or projects, abandoned by the inventor, are equally destitute of that character. These propositions have been so often reiterated as to be elementary."

In Woodcock v. Parker, 30 Fed. Cas. 491, 492 (1813), Mr. Justice Story said:

"The first inventor is entitled to the benefit of his invention if he reduces it to practice and obtains a patent therefor, and a subsequent inventor cannot, by obtaining a patent therefor, oust the first inventor of his right, or maintain an action against him for the use of his own invention."

In Bedford v. Hunt, 3 Fed. Cas. 37 (1817), Mr. Justice Story said:

"The first inventor who has put the invention in practice, and he only, is entitled to the patent. Every subsequent patentee, although an original inventor, may be defeated of his patent right upon proof of such prior invention being put into use."

In the leading case of Reed v. Cutter, 1 Story 590, 599, Fed. Cas. No. 11645, Mr. Justice Story said:

"For he is the first inventor in the sense of the act, and entitled to a patent for his invention, who has first adapted and perfected the same to use; and until the invention is so perfected and adapted to use, it is not patentable."

In Washburn v. Gould, 3 Story, 122, 133, Fed. Cas. No. 17,214, Mr. Justice Story said:

"The law is that whoever first perfects a machine is entitled to the patent, and is the real inventor, although others may previously have had the idea, and made some experiments toward putting it in practice. * * * He is the inventor, and is entitled to the patent, who first brought the machine to perfection, and made it capable of useful operation."

In White v. Allen, 2 Fish. 440, 446, Fed. Cas. No. 17,535, Mr. Justice Clifford said:

"In order to constitute an invention, in the sense in which that word is employed in the patent act, the party alleged to have produced it must have proceeded so far as to have reduced his idea to practice, and embodied it in some distinct form. Gayler v. Wilder, 10 How. (U. S.) 498, 13 L. ed. 504; Parkhurst v. Kinsman, 1 Blatchf. 494, Fed. Fed. Cas. No. 10,757; Curtis on Pat., § 43. Mere discovery of an impovement does not constitute it the subject-matter of a patent, although the ideas which it involves may be new; but the new set of ideas, in order to become patentable, must be embodied into working machinery, and adapted to practical use. Sickles v. Borden, 3 Blatchf. 535, Fed. Cas. No. 12,832."

In Winans v. New York & H. R. Co., Fed. Cas. No. 17,864, Mr. Justice Nelson said:

"It is not the person who has only produced the idea that is entitled to protection as an inventor, but the person who has embodied the idea into a practical machine and reduced it to practical use. He who has first done that is the inventor who is entitled to protection."

(2) At the same time we have the equally well settled rule that an invention need not be perfected and adapted to use, or reduced to practice, in order to obtain a valid patent, since no such condition is contained in the statutes.

This question of reduction to practice arose in the case of Wheeler v. Clipper Mower & Reaper Company, 6 Fish. 1, 16,

Fed. Cas. No. 17,493. In the opinion in that case Judge Woodruff said:

"On the argument it was insisted that the patent is void if the patentee did not reduce the invention to practical use before the patent was obtained.

"This proposition is wholly unsound. No such condition is required by the act of Congress; and if it were true that a patent would be void on that ground, no patent could properly be granted unless proof was furnished that the invention claimed had gone into practical use, which is not, and cannot, under the statute, be made a condition of granting the patent. It is enough that the inventor has perfected his invention, and is able to furnish to the Patent Office such specifications and model as the law requires. Having done this, the patent, in so far as prerequisites to its validity, either by way of experiment or use, are material, is valid."

If any doubt ever existed, however, upon this point, it was conclusively settled by the Supreme Court in the Telephone Cases, 126 U. S. 535, 8 Sup. Ct. 778, 782, 783, 31 L. ed. 863. In that case, Mr. Chief Justice Waite, speaking for the court, said:

"But it is insisted that the claim cannot be sustained, because when the patent was issued Bell had not in fact completed his discovery. While it is conceded that he was acting on the right principle and had adopted the true theory, it is claimed that the discovery lacked that practical development which was necessary to make it practicable. In the language of counsel, there was still work to be one, and work calling for the exercise of the utmost ingenuity, and calling for the very highest degree of practical invention.

"It is quite true that when Bell applied for his patent he had never actually transmitted telegraphically-spoken words so that they could be distinctly heard and understood at the receiving end of his line, but in his specification he did describe accurately and with admirable clearness his process—that is to say, the exact electrical condition that must be created to accomplish his purpose; and he also described, with sufficient precision to enable one of ordinary skill in such matters to make it, a form of apparatus which, if used in the way pointed out, would produce the required effect, receive the words, and carry them to and deliver them at the appointed place. * * *

"The law does not require that a discoverer or inventor, in order to get a patent for a process, must have succeeded in bringing his art to the highest degree of perfection. It is enough if he describes his method with sufficient clearness and precision to enable those skilled in the matter to understand what the process is, and if he points out some practicable way of putting it into operation."

From these established and seemingly contradictory principles of the patent law, first, that an invention in order to be patentable must be reduced to practice, and, second, that, under the statutes, reduction to practice is not essential either before or after the grant of a patent, it follows that there must be some stage of an invention when it must be presumed as a matter of law that the inventor has reduced his invention to practice; and that stage is presumed to have been reached when he has done all that he is required to do to obtain a valid patent, namely, when he has filed a complete and allowable application; and hence the Patent Office has adopted the rule that the filing of such an application is constructive reduction to practice, and the federal courts have adopted the rule that such an application is conclusive evidence that the patentee made his invention—that is, reduced his invention to practice—at least as early as that date.

The cases which hold that a rejected application is not sufficient to establish priority of invention under the statutes have no bearing on the question of the legal effect of a complete and allowable application which will result or has resulted in the granting of a patent. These cases simply enforce the rule that an invention must be perfected and adapted to use in order to prove prior invention or prior use. The Corn-Planter Patent, 23 Wall. (U. S.) 181, 23 L. ed. 161; Lyman Ventilating & Refrigerator Company v. Lalor, 1 Ban. & Ard. 403, Fed. Cas. No. 8,632; Northwestern Fire Extinguisher Company v. Philadelphia Fire Extinguisher Company, 1 Ban. & Ard. 177, Fed. Cas. No. 10,337.

The further argument is advanced that an application is only evidence of a disclosure of a somewhat stronger character than a conception proved by drawing and disclosure. The answer to this argument is that the courts have uniformly held that an application which eventuates in a patent, and which sufficiently describes the invention, is conclusive evidence that the invention was made at the time the application was filed.

While the defendant insists that the filing of an allowable application is not the equivalent of reduction to practice, it admits that the issue of a patent is the "equivalent in effect in the art to reduction to practice by the completion of a machine." We cannot see the force or reasonableness of this position. The issuance of the patent is an act of government, with which the inventor has nothing to do except to pay the final fee, while in the filing of a complete and allowable application the inventor has performed all the acts required of him under the statute for the grant of a valid patent.

To limit a patentee who has never reduced his invention to practice, and who is not required to do so under the statutes, to

fixing the earliest date of his invention as the date of his patent, is unsupported by authority, and would result in manifest injustice. For example, the Thomas patent was not issued until July 26, 1904, seven years and a half after he filed his application. If the earliest date that can be assigned for the Thomas invention is the date of his patent, any rival inventor who may have reduced his invention to actual practice during this seven and a half years would become the prior inventor, although Thomas may have done all that the law requires to entitle him to a valid patent.

For these reasons we must hold that the date of the Thomas invention is December 17, 1896, the date of his application.

Second. We have now to consider the question whether Watson can carry the date of his invention back to the time of his conception, January 10, 1896. This question must be viewed from two standpoints: First, can it be said that Watson's conception, drawing, and disclosure to others, of themselves, or without regard to his subsequent acts, constitute a complete invention within the meaning of the patent laws? Second, can Watson as a patentee carry back the date of his invention to the time of his conception?

(1) The law appears to be well established that a conception evidenced by disclosure, drawings, and even a model, confers no rights upon an inventor unless followed by some other act, such as actual reduction to practice, or filing an application for a patent. A conception of this character is not a complete invention under the patent laws. It may constitute an invention in a popular sense, but it does not make the inventor the "original and first inventor" under the statutes. If it did constitute an invention under the statutes, then an inventor might stop with his drawings and disclosure, and hold the field for all time against a subsequent inventor who has reduced his invention to practice, or who has obtained a patent. The law will not permit this. An inventor must not stop with this stage of his invention, but he must proceed with reasonable diligence to perfect his invention, either by actual reduction to practice, or by filing his application for a patent.

This rule of the patent law is both reasonable and just. It secures to the first conceiver the right to his invention. It is not uncommon for two persons to conceive an improvement in an existing device about the same time, and all the law exacts of the first conceiver in order to protect him in his right to the invention is that he shall proceed with reasonable diligence to reduce the invention to practice, or to file an application for a patent in conformity with the statutes.

The authorities seem to be conclusive upon the point that a conception evidenced by disclosure and drawings does not constitute an invention under the patent laws.

Detroit Lubricator Manufacturing Co. v. Renchard (C. C.) 9 Fed. 293, 297, was a suit for infringement, in which one of the issues raised was priority of invention as between the patentee of the patent in suit and the defendant. In the opinion in that case Mr. Justice Matthews said:

"The defendants exhibit a drawing made by J. V. Renchard which bears date August 10, 1876, and which, it is testified by him, was made on that day, and by others, that he showed it to them about that time. This antedates Parshall's application, but it fails to supersede his patent for the reason that it seems well established in evidence that Renchard did not at that time prosecute the matter beyond the mere drawing. The drawing seems to exhibit a perfect machine in all its parts, and sufficiently to show the combination forming the subject of the present controversy, particularly the metallic oil cup, the siphon tube carrying the condensed water into the glass indicator, and the two chambers, condensing and oil, closely and directly united. Nevertheless, it is clearly proven that the defendants did not, in fact, construct an indicator in this form, and reduce it to actual use, until after it had been successfully accomplished by Parshall, nor until after the date of his patent. This mere drawing, therefore, can not be allowed to have the effect of depriving Parshall of his title of being the first and original inventor."

Reeves v. Keystone Bridge Company, 5 Fish. 456, 462, 463, Fed. Cas. No. 11,660, was also a suit for infringement of a patent, and the issue was whether the complainant or the defendant was the first and original inventor. Although the date of the defendant's patent was subsequent to that of the patent in suit, they contended that the invention was actually made by them some time before. In support of this contention they relied upon certain drawings and sketches. In the opinion in that case, Judge McKennan said: "Can an invention be considered as 'perfected and adapted' which has reached only the maturity of an illustration on paper?" After considering various cases, the court states the rule of law in the following language:

"It must, therefore, be considered as an established rule that illustrative drawings of conceived ideas do not constitute an invention, and that, unless they are followed up by a seasonable observance of the requirements of the patent laws, they can have no effect upon a subsequently granted patent to another."

Pennsylvania Diamond Drill Company v. Simpson (C. C.) 29 Fed. 288, 290, was another suit for infringement, in which the principal issue was priority of invention. In that case, in order

to avoid anticipation shown by the Ball and Case patents, the patentee of the patent in suit attempted to fix the date of his invention as the time of his conception and drawings. In the opinion by Judge Acheson the law is stated as follows:

"Here, Allison, it would seem, was the first to conceive the invention; but mere conception, which is not seasonably followed by some practical step, counts for nothing as against a subsequent independent inventor, who, having complied with the patent laws, has obtained the patent. It would indeed be a strange perversion of the purpose of the patent laws if one who had conceived of a new device, and proceeded so far as to embody it in rough sketches, or even in finished drawings, could there stop, and yet hold that field of invention against all comers for a period of 12 years. The law does not so reward supineness. Hence, in Reeves v. Keystone Bridge Co., 5 Fish. 456, 463, Fed. Cas. No. 11,660, Judge McKennan declared the established rule to be 'that illustrative drawings of conceived ideas do not constitute an invention, and that, unless they are followed up by a seasonable observance of the requirements of the patent laws, they can have no effect upon a subsequently granted patent to another.' And this principle was enforced by Mr. Justice Matthews in the more recent case of Detroit Lubricator Mfg. Co. v. Renchard (C. C.) 9 Fed. 293, although the antedating drawing there exhibited a perfect machine in all its parts."

In Winans v. New York & H. R. Co., Fed. Cas. No. 17,864, which was an action at law for infringement, in which the principal question was whether the plaintiff was the first inventor of the railroad car claimed in his patent, Mr. Justice Nelson, in charging the jury said:

"Now the circumstance that a person has had an idea of an improvement in his head, or has sketched it upon paper, has drawn it and then gives it up—neglects it—does not, in judgment of law, constitute or have the effect to constitute him a first and original inventor. It is not the person who has only produced the idea that is entitled to protection as an inventor, but the person who has embodied the idea into a practical machine and reduced it to practical use. He who has first done that is the inventor who is entitled to protection."

Electric Railroad Signal Co. v. Hall Railroad Signal Co. (C. C.) 6 Fed. 603, 605, was a suit for infringement in which the main defense was that the patentee was not the first inventor. The law is stated by Judge Shipman in that case as follows:

"The patent having been granted to Pope, and now being attacked on the ground that the patentee was not the first inventor, it is not enough for the defendant to show that Hall had conceived the same idea, and had made drawings or models, and experiments with his models, but the defendant must establish

that Hall reduced what he conceived to practice in the form of an operative machine, and embodied it in some practical and useful form before Pope made his application, it being a fact in the case that Pope had not reduced his idea to practice before his application. Ellithorp v. Robertson, 2 Fish. 85, Fed. Cas. No. 4,408; Union Sugar Refinery v. Matthiesson, 3 Cliff. 639, Fed. Cas. No. 14,399. The law on the subject of priority of right between two independent inventors is substantially as it was laid down by Judge Story in Reed v. Cutter, 1 Story, 590, Fed. Cas. No. 11,645: 'In a race between two independent inventors, he who first reduces his invention to a fixed, positive, and practical form would seem to be entitled to a priority of right to a patent therefor. The clause of the fifteenth section of the act of 1836, now under consideration, seems to qualify that right by providing that in such cases he who invents first shall have the prior right, if he is using reasonable diligence in adapting and perfecting the same, although the second inventor has, in fact, first perfected the same and reduced the same to practice in a positive form.' White v. Allen, 2 Fish. 440, Fed. Cas. No. 17,535; Reeves v. Keystone Bridge Co., 5 Fish. 456, Fed. Cas. No. 11,660; Agawam Co. v. Jordan, 7 Wall. 583, 19 L. Ed. 177."

Draper v. Potomska Mills Corporation, Fed. Cas. No. 4,072, was a suit for infringement, and one of the defenses was that the patentee was not the original and first inventor. In that case Judge Shepley said:

"Illustrated drawings of conceived ideas do not constitute an invention, and, unless they are followed up by a seasonable observance of the requirements of the patent laws, they can have no effect upon a subsequently granted patent to another. But a patentee whose patent is assailed upon the ground of want of novelty may show by sketches and drawings the date of his inceptive invention, and, if he has exercised reasonable diligence in perfecting and adapting it, and in applying for his patent, its protection will be carried back to such date."

In Ellithorp v. Robertson, Fed. Cas. No. 4,408, which was a bill in equity brought to have a patent already issued declared void, and the complainant decreed to be the first and original inventor, and entitled to a patent, the court said:

"To constitute such a prior invention as will avoid a patent that has been granted, it must be made to appear that some one before the patentee not only conceived the idea of doing what the patentee has done, but also reduced his idea to practice and embodied it in some practical and useful form. The idea must have been carried into practical operation. The making of drawings of conceived ideas is not such an embodiment of such conceived ideas in a practical and useful form as will defeat a patent which has been granted."

(2) The next question we have to consider is whether Watson as a patentee can carry back the date of his invention to the date of his conception; that is, to his drawing and disclosure of January 10, 1896. It is conceded that a patentee who has used "reasonable diligence in adapting and perfecting" his invention can carry the date back to his drawings and disclosure; and the only question which arises is whether the law will permit him to do this in the absence of such reasonable diligence. In other words, can a patentee stop with his drawings and disclosure for an unreasonable time, and then, by virtue of his subsequently obtaining a patent, hold this field of invention against a rival inventor whose conception of the same invention was later, and who proceeded with diligence to build a practical machine, or to file an application for a patent? In our opinion, he can not do this under the patent laws.

We understand the true rule to be that a patentee who undertakes to carry back the date of his invention to his drawings and disclosure must show reasonable diligence in adapting and perfecting his invention, either by actual reduction to practice or by filing his application. This rule is supported by the great weight of authority, and we have found no cases which directly hold that this is not the law, although there are some cases in which a patentee has been permitted to carry back his invention to his drawings and disclosure, where the question of diligence was not raised or passed upon. Loom Co. v Higgins, 105 U. S. 580, 594, 26 L. Ed. 1177; Dodge v. Porter (C. C.) 98 Fed. 624, 625; Westinghouse Electric & Mfg. Co. v. Stanley Instrument Co., 133 Fed. 167, 68 C. C. A. 523.

No sound reason has been advanced why the doctrine of diligence should not apply to a patentee as well as to an inventor who has not secured a patent. On the other hand, any such distinction in favor of patentees is not in harmony with the patent laws. We have seen that an invention in the sense of the patent law signifies a completed invention, and that the earliest date of an invention is the time of its completion. We have also seen that an invention may be completed either by actual reduction to practice or by filing a complete and allowable application in conformity with the statutes.

This general principle, however, is subject to this qualification:

By section 15 of the act of July 4, 1836, c. 357, 5 Stat. 123, it is provided that a defendant in an action upon a patent may set up in defense that the plaintiff had "surreptitiously or unjustly obtained his patent for that which was in fact invented by another who was using reasonable diligence in adapting and perfecting the same."

Section 6 of the act of Feb. 21, 1793, c. 11, 1 Stat. 322, pro-provided that a defendant in an action upon a patent may set up that the plaintiff "had surreptitiously obtained a patent for the discovery of another person," and section 15 of the act of 1836 amended this section by adding the words "or unjustly," and the words "for that which was in fact invented by another who was using reasonable diligence in adapting and perfecting the same."

This amendment introduced a new and just principle into the patent law, inasmuch as it protected the first conceiver of the invention by permitting him to carry back the date of his invention to the time of his drawings and disclosure, provided he was using reasonable diligence in adapting and perfecting his invention. This amendment was fully considered by Mr. Justice Story in Reed v. Cutter, supra. In that case Mr. Justice Story said:

"The patent act of July 4, 1836, c. 357, §§ 7, 8, 13, 15, 16, 5 Stat. 322, expressly declares that the applicant for a patent must be the first, as well as an original, inventor. The passage cited from Mr. Phillips' work on Patents (page 395), in the sense in which I understand it, is perfectly accurate. He there expressly states that the party claiming the patent must be the original and first inventor; and that his right to a patent will not be defeated by proof, that another person had anticipated him in making the invention, unless such person 'was using reasonable diligence in adapting and perfecting the same.' These latter words are copied from the fifteenth section of the act of 1836 (chapter 357), and constitute a qualification of the preceding language of that section; so that an inventor who has first actually perfected his invention will not be deemed to have surreptitiously or unjustly obtained a patent for that which was in fact first invented by another, unless the latter was at that time using reasonable diligence in adapting and perfecting the same. And this I take to be clearly law; for he is the first inventor in the sense of the act, and entitled to a patent for his invention, who has first perfected and adapted the same to use; and until the invention is so perfected and adapted to use it is not patentable. An imperfect and incomplete invention, resting in mere theory or in intellectual notion, or in uncertain experiments, and not actually reduced to practice, and embodied in some distinct machinery, apparatus, manufacture, or composition of matter, is not, and indeed can not be, patentable under our patent acts, since it is utterly impossible, under such circumstances, to comply with the fundamental requisites of those acts. In a race of diligence between two independent inventors, he who first reduces his invention to a fixed, positive, and practical form would seem to be entitled to a priority of right to a patent therefor. Woodcock v.

Parker, Fed. Cas. No. 17,971. The clause of the fifteenth section, now under consideration, seems to qualify that right, by providing that, in such cases, he who invents first shall have the prior right, if he is using reasonable diligence in adapting and perfecting the same, although the second inventor has, in fact, first perfected the same, and reduced the same to practice in a positive form. It thus gives full effect to the well-known maxim that he has the better right who is prior in point of time, namely, in making the discovery or invention."

This decision has been followed in many cases, and we are not aware that it has ever been questioned. According to Reed v. Cutter, Fed. Cas. No. 11,645, section 15 of the act of 1836 secures to the first inventor the prior right, provided he uses reasonable diligence in adapting and perfecting his invention, and this rule applies to all inventors, whether patentees or otherwise.

The defendant relies largely upon the language of the court in Loom Company v. Higgins, 105 U. S. 580, 594, 26 L. Ed. 1177. In that case the court said:

"Webster had invented it before that time, and had made a drawing of it, which in March, 1868, he exhibited and explained to Davis. An invention relating to machinery may be exhibited either in a drawing or in a model, so as to lay the foundation of the claim to priority if it be sufficiently plain to enable those skilled in the art to understand it. There is no doubt that Davis understood Webster's drawing, and he did not then claim that the invention belonged to himself."

It will be observed that the court does not consider or pass upon any question of diligence, and that the language is simply to the effect that a drawing or a model may "lay the foundation of the claim to priority." Further, an examination of the facts in Loom Company v. Higgins shows that Webster was clearly the prior inventor, since he filed his application for a patent before Davis (who never applied for a patent) reduced the invention to practice. Again, to interpret broadly, the language used in Loom Company v. Higgins as meaning that a completed invention under the patent laws "may be exhibited in a drawing or in a model," is inconsistent with the rule laid down by the Supreme Court and the Circuit Court in the cases already cited. In this connection we need only refer to the later case of Clark Thread Company v. Willimantic Linen Company, supra, where Mr. Justice Bradley (who wrote the opinion in Loom Company v. Higgins) said, in the opinion of the court, that the invention covered by the patent sued upon "was not completed until the construction of the machine."

In Odell v. Stout (C. C.) 22 Fed. 159, 164, the patentee attempted to carry back the date of his invention by means of

drawings. This case was heard by Mr. Justice Matthews and Judge Sage. Mr. Justice Matthews was a member of the court which decided Loom Company v. Higgins. In the opinion by Judge Sage it was said:

"It is settled that 'an invention relating to machinery may be exhibited either in a drawing or in a model, so as to lay the foundation of a claim to priority, if it be sufficiently plain to enable those skilled in the art to understand it.' Loom Co. v. Higgins, 105 U. S. 594, 26 L. Ed. 1177. But this rule is to be taken with proper qualifications. Drawings may carry date of invention back if reasonable diligence is shown. Kneeland v. Sheriff, 18 O. G. 242. Making drawings of an idea is not invention, and is of no effect unless followed up. Draper v. Potomska Mills, 13 O. G. 276. Merely making drawings is not such an embodiment of invention as will defeat a subsequent patent. Ellithorp v. Robertson, 4 Blatchf. (U. S.) 307, Fed. Cas. No. 4,408. The reasons for this qualification of the rule are well stated in section 61, Walker on Patents."

We think this opinion states the true rule, and that the language of the court in Loom Company v. Higgins must be understood with the qualification respecting reasonable diligence in perfecting the invention.

In Reeves v. Keystone Bridge Company, supra, the court said:

"A patentee whose patent is assailed upon the ground of want of novelty may show by sketches and drawings the date of his inceptive invention, and if he has exercised reasonable diligence in 'perfecting and adapting' it, and in applying for his patent, its protection will be carried back to such date. * * * Reasonable diligence in 'perfecting and adapting' the invention is essential to the efficacy of such a claim."

In Christie v. Seybold, 55 Fed. 69, 76, 5 C. C. A. 33, 40, the court, after citing with approval Judge Story's language in Reed v. Cutter, said:

"It is obvious from the foregoing that the man who first reduces an invention to practice is prima facie the first and true inventor, but that the man who first conceives, and, in a mental sense, first invents a machine, art, or composition of matter, may date his patentable invention back to the time of its conception, if he connects the conception with its reduction to practice by reasonable diligence on his part, so that they are substantially one continuous act."

In Merrow v. Shoemaker (C. C.) 59 Fed. 120, 122, where the inventor undertook to carry back the date of his invention to his drawings and disclosure, Judge Dallas said in his opinion:

"If so, he has established his date of invention as not later than that day, and the question of anticipation must be solved

with reference thereto, provided that he was duly diligent in filing his application for a patent and in constructing his machine."

See, also, Detroit Lubricator Manufacturing Company v. Renchard, supra; Pennsylvania Diamond Drill Company v. Simpson, supra; Electric Railroad Signal Company v. Hall Railroad Signal Company, supra; Draper v. Potomska Mills Corporation, supra.

We come now to the remaining question, whether Watson was reasonably diligent in adapting and perfecting his invention.

Upon this question of fact the decision of the Patent Office tribunals and the Court of Appeals of the District of Columbia is entitled to great weight, if it is not absolutely controlling.

In Morgan v. Daniels, 153 U. S. 120, 125, 14 Sup. Ct. 772, 773, 38 L. ed. 657, a suit was brought under § 4915 of the Revised Statutes by the party who was refused a patent in interference proceedings, to determine the question whether he should not be adjudged entitled to a patent. In that case the court used the following language:

"Upon principle and authority, therefore, it must be laid down as a rule that, where the question decided in the Patent Office is one between contesting parties as to priority of invention, the decision there made must be accepted as controlling upon that question of fact in any subsequent suit between the same parties, unless the contrary is established by testimony which in character and amount carries thorough conviction."

There are four admitted facts with respect to Watson's diligence: (1) Watson conceived the invention, illustrated it by a drawing, and disclosed it to Doble as early as January 10, 1896; (2) he made working drawings some time between January 10, 1896, and the early part of January, 1897, when the exhibit blue print which was taken from the working drawings was handed to the patternmaker, Frazer; (3) he completed the building of a machine in April, 1897; (4) the main reason for the delay was business considerations arising from the fact that John F. Cushing had made a contract with the Electric Scale Company to build 10 single-hopper machines under the Doble and Watson patent.

Watson assigned his application to the Electric Scale Company, and the patent issued to that company as assignee. W. H. Doble was the manager of the Electric Scale Company. The Cushing contract with the Electric Scale Company was made January 28, 1896. The additional evidence taken in this case relates to the time during 1896 when these working drawings were made. In our opinion this is immaterial; and it may be assumed, as stated by Watson, and now testified to by Doble, that these drawings were made in the fall of 1896.

The main point against Watson on the question of diligence is that for business reasons nothing was done with respect to his invention between January, 1896, and January, 1897, except to make working drawings, or, upon the evidence as it now stands, nothing was done until September, 1896, when Watson began on the working drawings. As to the reason for this delay, Mr. Doble testified in the interference proceedings as follows:

"As he [Cushing] guaranteed the speed and accuracy, and was the responsible party, I did not care whether he accomplished this one hopper or a dozen."

"Before January, 1897, they had done nothing except complete the drawings. This contract with John P. Cushing which practically gave, if carried out, all the results that could be accomplished under the double hopper, kept them from acting during the early part of the year, and the fact that they were held to Cushing by this contract kept them from acting later. I would say that I was practically the only one in the company who knew just what was going on and took an active part in the affairs of the company. In January, we had the patterns made for the double hopper and the casting made from same on 1st of February."

"After receiving the drawings from Mr. Watson, in 1896, nothing was done in an active way, as I was trying to induce Mr. Cushing to put the double hopper onto the machines he had constructed, and which failed to do the work for which they were designed. Individually, I had no money to manufacture with myself, and the company had but a limited amount, and were practically bound to Mr. Cushing by his contract until such time as he threw up the same."

Mr. Watson also testified as follows:

"In the late summer of 1896, Mr. Cushing had proceeded with his contract until a part of the machines had been finished, and he was experimenting at that time with devices which he was called upon to furnish under his contract for the remaining machines. At the same time he had told me that it was his intention to discontinue his business at the close of the year 1896, and had so told me that I might be on the lookout for other employment. At that time I mentioned to Mr. Cushing the idea of the double hopper, and suggested to him that such an arrangement would assist him in fulfilling his contract in the completion of the remaining machines. As the result of my interview with Mr. Cushing, I thought that he was favorably impressed with the idea that the double hopper would be of use to him in completing the remaining machines; and with the idea that he thought such an arrangement would be useful to him I went to work making drawings of the additional hopper and its mechanism, so that it might be applied to the machines that he

was building. A portion of this time so spent was while actively employed on Mr. Cushing's work, and a portion of it on outside time. I consulted with Mr. Cushing and showed him some of these drawings, but he finally concluded that it would not be necessary for him to use the idea in the completion of his contract."

Upon the state of facts presented in the interference proceedings and in this record, we agree with the conclusion of the Patent Office tribunals and the Court of Appeals of the District of Columbia that Watson failed to use such diligence as the law requires.

In its decision the Court of Appeals said:

"The determination of the question depends upon the action or inaction of Watson during the period intermediate between the date of his conception of the invention, January 10, 1896, and the filing date of Thomas' application, December 17, 1896. But during all this period we find no evidence whatever of action on the part of Watson to reduce his conception to practice, beyond the making of some working drawings and a blue print taken from them, if indeed these were made during that interval; for their date is left in extreme doubt by the testimony, and it is not at all certain that they were made before January of 1897. Even if they had been made before the filing of Thomas' application, they could scarcely be held to have been a manifestation of due diligence on the part of Watson. During the whole of the year 1896 he was busy with the single-hopper machine; and during the year he took out a patent for that machine. If he had the device of the double hopper perfected in his own mind, no reason is shown why it could not have been reduced to practice; nor is there any reason shown why he could not have applied for a patent." Watson v. Thomas, 23 App. Cas. D. C. 65, 68.

Since infringement is not denied as to the defendant's machine complained of, it follows that a decree should be entered for the complainant for an injunction and an account, as prayed for in its bill.

The decree of the Circuit Court is reversed, and the case is remanded to that court for proceedings in accordance with this opinion, and the appellant recovers its cost of appeal.

379. PAUL v. HESS, 24 App. Cas. D. C. 462, 115 O. G. 251, 1905 C. D. 610.

Shepard, J.: * * *

The case of the appellee, Hess, stands, both for conception and reduction to practice, upon an application disclosing the invention which was filed April 26, 1901. This application ripened into a patent, but no benefit accrued to him therefrom, in respect

of the burden of proof imposed upon his adversary, the appellant Paul, because the latter's application was pending at the time of the issue. That application having been filed later, the burden was imposed upon Paul to show a reduction to practice preceding Hess's date, or else an earlier conception followed up with due diligence to reduction to practice, either actual or constructive.

The tribunals of the Patent Office agreed on the sufficiency of Paul's proof to show a conception of the invention about August 1, 1899; but, all concurring, denied his reduction to practice as well as diligence in reduction thereafter.

From the final decision of the Commissioner awarding priority to Hess, Paul has prosecuted this appeal.

The claim of actual reduction to practice is founded on a model constructed October 18, 1899, which has been made an exhibit in the case.

This model is a type-writing machine, having in it six bars answering the description of the issue. Paul testified that he manipulated these bars and thereby satisfied himself of the practical mechanism of his invention. No piece of paper was used in making his test, and it is apparent that his satisfaction was derived from the operation of the bars singly when struck with the finger. We agree with the tribunals of the Patent Office that this is not sufficient to show an actual reduction to practice.

It is true, as we have heretofore held in several cases, that some devices may be so simple and their efficacy so obvious upon mere inspection, that the construction of one of a size and form capable of practical use may well be deemed a sufficient reduction to practice without actual use or test to demonstrate its complete success and probable commercial value. (Mason v. Hepburn, 13 App. D. C., 86, 89, case of clip for gun; Lindemeyer v. Hoffman, 18 App. D. C., 1, cap for bottles; Loomis v. Hauser, 19 App. D. C., 401, paper-ticket holder; Couch v. Barnett, 23 App. D. C., 446, horse-collar.)

Bearing in mind the intended purpose and use of the new type-bar under consideration, it is not of the simple character of the inventions above mentioned. It constitutes one of the essential parts of a type-writing machine, upon the successful operation of which, entirely supplied with the new bars, the demonstration of its efficacy depends. This called for the application of another and different rule. (McDonald v. Edison, 21 App. D. C. 527, 529.) And it was therefore necessary for the inventor to show that a type-writing machine supplied with the new bars had been constructed and tested sufficiently to show that it was capable of successfully performing the work for which it was intended. As was well said by the Examiners-in-Chief:

"In a case where the new devices are of an old type and their novelty consists in specific construction of that old type, it may well be that their practical utility may be determined without actual use of them under conditions of industry. But not so where, as here, the type of devices is a new type. A type-bar-actuating mechanism of a new type, in order to be in practical form, must be one which can be operated with a light touch and one which must act with practical promptness and certainty and with uniform and adequate force. When it is of a new type there is need for demonstration of its practical utility, of a use of it under the conditions of industrial use, and evidence that that use demonstrated its practical operation.

Notwithstanding Paul's statement that he was satisfied with the practical success of the new bar, his action thereafter, and that of the company with which he was engaged, point to a different conclusion. He says that he submitted it to the company, but it was not accepted and adopted. On the other hand, the company adopted another machine called the "Improved Daugherty." This not giving satisfaction was withdrawn and another, not of the type of Paul's model, was substituted and put on the market. Regarding these facts as negativing the claim that the exhibit represented a complete and practical invention at the time, the Commissioner proceeds to say:

"Either Paul or the company could have filed an application in the Patent Office on this machine, had they so desired at any time after its alleged completion in October, 1899, whereas none of the five modifications of the application in interference shows the pin-and-slot connection used in the embodiment of the issue in "Paul's first machine," and no application based on the specific structure of this machine was filed until November 1, 1901. Paul states that applications for patents based on "Paul's first machine," and the "Improved Daugherty" machine were prepared for the company in March, 1900. The application on the "Improved Daugherty" machine, it is stated, was filed in the Patent Office in May, 1901, but the applications on "Paul's first machine" were not filed. This indicates an abandonment of "Paul's first machine" in favor of the "Improved Daugherty" rather than a knowledge of its practicability at that time, as argued by Paul. Paul's unsupported statement that the applications on his machine were not filed because he and the company could not come to terms upon this invention is of little weight. That an application based on "Paul's first machine" was eventually filed November (June 25?) 1, 1901, is of little significance, as the prior Paul-Hess interference had then been declared, and the importance of establishing this machine had become evident.

Long delay in making use of an invention claimed to have been reduced to practice, or in applying for a patent, have al-

ways been regarded as potent circumstances tending to show that the alleged reduction to practice was nothing more than an unsatisfactory or abandoned experiment. (Traver v. Brown, 14 App. D. C., 34, 41; Reichenbach v. Kelley, 17 App. D. C., 333, 344; Latham v. Armat, idem, 333, 353.) And this is specially the case where, in the meantime, the inventor has been engaged in the prosecution of similar inventions, (Fefel v. Stocker, 17 App. D. C., 317, 321), or others, without reasonable explanation, have been adopted for manufacturing and commercial use.

Having the benefit of conception only by the construction of his device in October, 1899, Paul was not exercising diligence when his rival entered the field. While nothing was being done to complete this invention by reduction to practice, two other type-writing machines had been adopted and put on sale by the company.

Concurring with the Patent Office tribunals in this conclusion also, we approve and adopt the following extract from the opinion of the Commissioner:

"Aside from business reasons, Paul could undoubtedly have caused the company to file the Pattison applications, or else have had prepared and filed an application on his own account at that time. The application on Paul's Daugherty improvement was filed during the period of delay. Paul urges in excuse of delay that he could not come to terms with the company upon this invention and that as their employee, constructing the model and machine at their expense, it was only proper that he should refrain from applying for patents on his own account until finally convinced of the impossibility of agreement. This excuse does not attempt to explain why an understanding with the company could not have been reached sooner either that they file the Pattison applications or let Paul protect the invention himself. Moreover, it rests upon the bare assertion of Paul entirely unsupported by evidence. Even if properly supported and covering the entire period of delay, this excuse would be insufficient as not of the character required. It involves mere business consideration and not circumstances of a compelling nature. Diligence will not wait on business arrangements. (Kassan v. Hethcrington, 88 O. G., 1157.)"

Without further discussion, the decision appealed from will be affirmed. It is so ordered. The clerk will certify this decision to the Commissioner of Patents as required by law. Affirmed.

880. SYDEMAN v. THOMA, 32 App. Cas. D. C. 362, 141 O. G. 866, 1909 C. D. 340.

Shepard, J.: * * *

All of the tribunals of the Patent Office concurred in holding that upon this state of facts, there was no reduction to prac-

tice in May, 1904; and that there was no diligence being exercised by the inventors in the matter of reduction to practice when Thoma entered the field. Whether certain acts done, show reduction to practice depends upon the special facts and circumstances of each particular case. As was said in a former case:

"In considering the question we apprehend that the same act or set of acts may or may not constitute reduction to practice, modified, as they may be, by the special circumstances of the particular case. We do not think that the size of a device is necessarily controlling in determining the question of reduction to practice. In the Cornplanter Patent, 23 Wall. 181, a half-sized device was held to be the equivalent of a reduction to practice, but that device was actually used in planting corn, and completely demonstrated the utility and practicability of the device. Nor do we think mechanical perfection, or that, as has been well stated, there are "possibilities of greater excellence in shape, location, arrangement, material, or adjustment," essential to a reduction to practice. Tested by any such requirements, nearly every pioneer invention, as put upon the market, would have failed to support the patent granted to it Nevertheless, it is essential that a device to constitute a reduction to practice must show that 'the work of the inventor must be finished, physically as well as mentally.' Nothing must be left to the inventive genius of the public. Gallagher v. Hien, 25 App. D. C., 77, 81, 82."

The device in that case was a frictional spring for use in railway-couplings. Gallagher was the first to conceive the invention, and relied upon a test as actual reduction to practice. He made a spring the exterior rings of which were something over three inches in diameter, and about an inch wide. It was first tested by pressure in a vise. It was then taken to the shops and the springs tempered; after which, it was put in a vise on the anvil of a very powerful steam-hammer. It made a good showing of its action, but finally broke under a very hard blow. This was held not to constitute reduction to practice, and priority was awared to Hien who conceived the invention later, but made a satisfactory reduction to practice. As appears from the opinion quoted above, the difficulty does not lie in the fact that the spring was small. The invention was declared a simple one, but it was said that it—

"Undoubtedly belongs to that class which requires either actual use or thorough tests to demonstrate its practical utility, and therefore there can be no actual reduction to practice until one or the other thing takes place and is proven."

Decisions involving this often-litigated question of actual reduction to practice may be divided into three general classes. The first class includes devices so simple and of such obvious efficacy that the complete construction of one of a size and form

intended for and capable of practical use, is held sufficient without test in actual use. Mason v. Hepburn, 13 App. D. C., 86, 89; Lindemeyer v. Hoffman, 18 App. D. C., 1, 5; Loomis v. Hauser, 19 App. D. C., 401, 404; Couch v. Barnett, 23 App. D. C., 446, 449; Rolfe v. Hoffman, 26 App. D. C., 336, 342. The second class consists of those where a machine embodying every essential element of the invention, having been tested and its practical utility for the intended purpose demonstrated to reasonable satisfaction, has been held to have been reduced to practice notwithstanding it may not be a mechanically-perfect machine. In other words it is sufficient reduction to practice although a more desirable commercial result may be attained by some simple and obvious mechanical improvement, or by substituting another well-known material for the one used in the original construction, as for example, metal for wood, cast metal for sheet metal, and the like. Coffee v. Guerant, 3 App. D. C., 497, 499; Norden v. Spaulding, 24 App. D. C., 286, 290; Smith v. Brooks, 24 App. D. C., 75, 80; Andrews v. Nilson, 27 App. D. C., 451, 457; Lowrie v. Taylor, 27 App. D. C., 522, 526; Burson v. Vogel, 29 App. D. C., 388, 394; Howard v. Bowes, 31 App. D. C., 619, 622. The third class includes those where the machine is of such a character that the particular use for which it is intended must be given special consideration, and requires satisfactory operation in the actual execution of the object. McDonald v. Edison, 21 App. D. C., 527, 529; McKenzie v. Cummings, 24 App. D. C., 462, 467; Gallagher v. Hien, 25 App. D. C., 77, 82; Ocumpaugh v. Norton, 25 App. D. C., 90, 93, 94; Sherwood v. Drewson, 29 App. D. C., 161, 173.

In cases falling within the second and third classes described, long delay in putting the machine in actual use for the intended purpose, has always been regared as a potent circumstance in determining whether the test was successful or only an abandoned experiment.

Notwithstanding the failure of Sydeman and Meade to attempt to introduce the machine of 1904 into commercial use, when it was of such great importance to do so, and their negligence in constructing the new and improved machine of 1905, which they regarded as showing such patentable novelty as to entitle the improver, Gallagher, to claim a part of the invention, it is earnestly contended that the evidence in regard to the construction and test of the 1904 machine brings it within the principle of the second class of cases above mentioned. We can not concur in this view. As before said, it was known that the coated duck could be moistened and heated so that it would adhere effectually to the leather insole of the shoe. The purpose in view was to construct a machine that would operate so as to perform this moistening and heating in a practically useful man-

ner commercially. The purpose of the parties was to produce a machine for "rapidly and efficiently" treating the coated fabric so that it would become sufficiently soft and tacky, as it emerged continuously from the machine, to be effectually applied to the leather innersoles. Without this capacity the machine was of no practical utility, and valueless to the manufacturer of shoes on the one hand, and the manufacturers of the fabric on the other. Becoming satisfied that the machine was too slow, that is to say, in our opinion, that it would not efficiently as well as rapidly dry and heat the wet fabric, the parties laid it aside, and did not go actively to work to improve upon it until they had heard of the apparent success of Thoma's machine and process. We are constrained to hold that there was not a reduction to practice, as claimed, in 1904. To hold otherwise would establish a dangerous precedent.

It is evident, from what has been said regarding the delay of the parties between May, 1904, and May 19, 1905, that they were not exercising the requisite diligence when Thoma entered the field.

These conclusions render it unnecessary to consider the question raised as to the credibility of the evidence relating to the alleged reduction to practice in 1904.

The decision in favor of Thoma will be affirmed. It is so ordered; and that the clerk certify this decision to the Commissioner of Patents.

381. GRIFFIN v. SWENSON, 15 App. Cas. D. C. 135, 89 O. G. 919, 1899 C. D. 440.

Morris, J.:

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We have heretofore had occasion to remark that the law encourages such delay as is required to test the thoroughness and utility of supposed inventions and to prevent the Patent Office from being overloaded with applications for patents for crude and incomplete devices, Yates v. Huson, 8 D. C. App. 93, and we have also said that the law fosters diligence for the reason that an inventor is always bound to anticipate that a rival may appear upon the field at any time, Platt v. Shipley, 11 D. C. App., 576; but neither the delay that is proper in the one case nor the diligence that is due in the other can in the absence of any statutory limitation of time in this regard be measured by any arbitrary standard. It has been repeatedly held that the question of due diligence is one to be determined in each case by its own circumstances. Bradford v. Corbin, 6 O. G., 223; Hunter v. Miller, 50 O. G., 1765; McCormick Harvesting Machine Company v. Minneapolis Harvester Works, 51 O. G., 1130, and while less

harm is done and the policy of the law better promoted by a rigid insistence upon the requirement of diligence than by laxity in the encouragement of delay it does not seem that the rule of diligence should be pushed to a harsh and unreasonable extent. A shorter delay even than one of four months if consumed in inaction might suffice to sustain a charge of laches; but a period of four months expended in reasonable activity—and what the law requires is reasonable, not extraordinary, activity—is not an unusual time to expend in preparation for an application to the Patent Office. Although there is no question here as to a race of diligence between the parties, the appellee himself waited for eight months without any apparent cause before filing his application, if we are to regard as correct the statement that he conceived and disclosed the invention in question as early as February, 1895. For one placed in the position of the appellant we can not consider that any laches are to be attributed to him for his course between September, 1895, and the date of his application for a patent. We think that the tribunals of the Patent Office were led into error by commingling and practically confounding the two causes and charging the appellant in both cases with the delays which it was proper to charge to him only in one of the cases.

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382. CROSKEY v. ATTERBURY, 9 App. Cas. D. C. 207, 76 O. G. 163, 1896 C. D. 437.

Cole, J.:

This is an appeal from the decision of the Commissioner of Patents in an interference proceeding in his office awarding priority of invention to the appellee for an improvement in the process of manufacturing hollow glassware. The Examiner of Interferences, the Board of Examiners-in-Chief, and the Commissioner of patents, the three tribunals of the Patent Office authorized by the rules thereof to determine questions arising upon interferences, upon successive appeals pronounced in favor of the appellee as to both of the issues involved in the interference. Those issues are as follows:

"1. The process of forming hollow articles of glassware consisting in pressing into a mold from a mass of glass in a font and over and around a plug sustained in the mold, sufficient glass to fill the mold and finishing a definite portion of the article by such pressure, separating the partially-finished blank from the mass of glass in the font and finally blowing the unfinished portion to the desired shape.

"2. The process of forming several articles of glassware simultaneously which consists in forcing a mass of molten glass

from a font around a series of two or more cores each arranged in a suitable mold-cavity, separating the blanks thus formed from the glass in the font and then simultaneously blowing the bodies of the several blanks to the desired shape."

The appellee filed his application involved in this interference in the Patent Office on the 1st day of October, 1892, and the appellant filed his on the 28th day of December, 1893. In his preliminary statement the appellant claims conception of the invention and the making of drawings in the month of August, 1889, and the making of other drawings from time to time from that date until January, 1893, and disclosure to others about July, 1890, and actual reduction of the invention to practice in or about the month of October, 1892. The Commissioner finds the earliest date of drawings and disclosure to others by appellant to be December 15, 1890. In the view we take it becomes immaterial to determine whether appellant is entitled to an earlier date for drawings and disclosure than that accorded to him by the Commissioner. The Commissioner also finds that appellant completed a mold for the purpose of practicing the invention on the first day of October, 1892, and that he actually practiced the invention of the first issue by making articles of glassware in accordance therewith on the 3d day of October, 1892; and the correctness of these findings is acquiesced in by both parties to this appeal.

The appellee in his preliminary statement claims conception of the said invention about the middle of June, 1892, drawings and disclosure to others about July 6, 1892, and actual reduction to practice about the 1st of October, 1892. It was conceded at the argument, however, that appellee's first actual reduction to practice did not occur until about the 22d day of October, 1892. The other dates claimed by appellee were adopted as correct by the Commissioner, and the accuracy thereof is not seriously questioned by appellant if appellee is to be considered an original inventor at all. * * *

Second. Was appellant's completed mold actual reduction to practice? Actual reduction of an invention to practice, as the words themselves indicate, is the actual application of the invention to the accomplishment of the purpose for which it is intended. If the subject of the invention be machinery or an improvement therein, then the construction of a machine according to the invention is actual reduction to practice; but the making of a model by which the machine may be constructed is not. Porter v. Louden, 23 Wash. L. R. 689. It follows that where the invention is a process, as in this case, the process must be performed in order to make actual reduction to practice. The Commissioner in his opinion in this case states the principle accurately in the following language:

"It is strenuously urged by Crosky that inasmuch as his mold was finished by October 1, 1892, he should have that date for his reduction to practice. He reaches that date by reasoning that as the mold was actually tried on October 3, 1892, which was Monday, this mold must have been finished on Saturday or probably before, because Saturday was a half-holiday. The invention in this case, however, is not a mold, but a process or series of acts, and I think that as a general rule it may be said that to reduce a method or process to practice the series of acts must be actually performed.

"It is true that in many cases the inventor is obliged to produce a new machine or apparatus to successfully work his process. It is possible that a case might arise in which the new method would be so clearly shown by an inspection of the new machine or apparatus that it would seem like straining a point to insist that the machine or apparatus must actually be used to effect a reduction to practice of the process. That is not the usual case, and clearly it is not the case now in question. This interference covers a process which is not apparent from an inspection of the mold and which is not in fact carried out by the mold acting automatically, but which requires other apparatus in connection with this mold for its successful operation."

Actual reduction to practice is also similarly defined in the case of Lorraine v. Thurmond, 51 O. G., 1781. It is also worthy of comment that counsel for appellant in their third reason for appeal from the Examiner of Interferences to the Board of Examiners-in-Chief and in their fourth reason of appeal from the latter to the Commissioner expressly claim that the earliest actual reduction of the process to practice was by appellant on the 3d of October, 1892, when he actually made articles of glassware in accordance with it. It must therefore be held that appellant's earliest actual reduction to practice was at the last-named date.

Third. Was appellee's application filed on the 1st day of October, 1892, constructive reduction to practice of the invention in interference, and, if so, has that the same effect in this contest as actual reduction to practice?

In a contest upon the question of priority of invention, if the first to conceive is guilty of laches in completing and reducing his conception to practice, and in the meantime, and while he is not in the exercise of due diligence, another conceive the same invention, then he who first reduces the invention to practice is, in law, the first inventor, and the filing of a completed allowable application for a patent for the invention is a constructive reduction to practice and is as effectual in a contest of priority as actual reduction to practice. Porter v. Louden, 23 Wash. L. R., 689; Yates v. Huson, 24 Wash. L. R., 214, and the

cases and authorities referred to in the opinions in those cases. Appellant's counsel impliedly admit the correctness of this rule, but contend that appellee's application should not be considered constructive reduction to practice in this case, because they allege that it was not an allowable application at the time it was filed and did not become such until it was amended May 18, 1893, by inserting the claims in interference and the words "or in any suitable or known manner" in the original application, and refer to Rule 116 of the Rules of Practice of the Patent Office and the case of Edison v. Ball, 71 O. G., 1313, and other like cases construing said rule. The rule referred to is in the following language:

"In original proceedings in cases of interference the several parties will be presumed to have made the invention in the chronological order in which they claim the same in their completed applications for patents clearly illustrating and describing the invention; and the burden of proof will rest upon the party who shall seek to establish a different state of facts."

This rule and the cases construing it refer only to the question of the burden of proof and have no application whatever to the subject of a completed and allowable application. Under the statutes and Rules of Practice of the Patent Office a completed and allowable application is one which, with the specifications, drawings, and model, if any, required to be filed therewith, describes a patentable invention in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it relates to make and use the same. R. S. U. S., § 4888; Patent Office Rule No. 30.

Either the specifications, drawings, models, or claims may be amended at any time, so as to make each correspond with the other; but nothing involving a departure from the original invention can be introduced by amendment. Such an amendment forms no basis for an argument that the application was not an allowable one when filed. (Patent Office Rules from 68 to 78, inclusive, especially Rule 71.) And these rules only state in positive terms the principles which would govern in the absence of such rules. They are the principles which apply to the amendments of pleadings and proceedings in courts. Applying them to the application of the appellee as it was when filed and when placed in interference it is clear that none of them were violated in allowing the amendments to be made, even if that question be now open to the appellant, which may be doubted. The invention in interference was clearly set forth and described in the specifications filed with appellee's original application, and the only object of the amendment was to make the claims conform thereto, nothing new having been introduced thereby. Such an amendment is provided for by Rule 109 even after an inter-

ference has been declared. That the authorities of the Patent Office understood that no new matter was introduced by these amendments is apparent from the fact that no new or additional oath was required to the amendments when one would have been requisite by Rule 48 if anything not disclosed in the original application had been claimed. That counsel for appellant so understood it may be inferred from their failure to make a motion to dissolve the interference, which might have been successfully done under Rule 122 if their present contention be correct. Their failure to make such motion is an acquiescence in the correctness of the action of the Patent Office in declaring the interference and in all preliminary steps essential thereto. Lorraine v. Thurmond, 51 O. G. 1781; Hunter v. Jenkins, 56 O. G. 1706. The application of appellee filed October 1, 1892, must be held to be an allowable one and a constructive reduction to practice and to entitle him to the award of prior invention unless at the time of his conception appellant was in the exercise of due diligence and so continued down to the date of his application. And that brings us to the consideration of the fourth question.

Fourth. Was appellant in the exercise of due diligence in completing and adapting his conception at the time appellee conceived the invention, and did such diligence continue until he made his application?

There is no general rule of what constitutes due diligence applicable to all cases. Due diligence is reasonable diligence, and that is to be determined by the particular facts of each case Yates v. Huson, supra.

In that case the correct doctrine is stated to be that the prior inventor must—

"have begun and prosecuted with diligence the work of adapting and perfecting his invention before the date of his rival's conception. * * * To show that his diligence only began with that date would not be sufficient;"

and that the prior negligent inventor loses—

"his inchoate right in favor of a subsequent and bona fide inventor who, having entered the unoccupied field, shall have reduced his conception to practice."

And it was also said in the case of Porter v. Louden, supra, that—

"a party who conceives a new device or invention and proceeds only so far as to embody it in rough sketches or drawings or even experimental or working models, cannot stop there, and still be able to hold the field of invention against all other inventors for an indefinite period."

Tested by these rules the appellant was not in the exercise of due diligence at the time of appellee's conception. He had not

at that time performed all the acts recited in the above quotation from Porter v. Louden, and which were held in that case to fall below the requirements of due diligence, although nearly three years had elapsed from the date of his conception, as claimed by him, and about eighteen months from the date of his disclosure as found by the Commissioner. Such inaction is clearly laches, unless excused upon some controlling ground. Especially is it so in the light of the evidence showing that appellant was less than one month constructing the mold and reducing the invention to actual practice, when he once set himself about it in September, 1892, which seems to have been his first effort to perform acts amounting to diligence, several months after appellee's conception. Nor was there any greater degree of diligence on the part of appellant after than before the conception of appellee. He made but few articles on or about the 3d of October, 1892, and did nothing subsequently until the filing of his application December 28, 1893. Such negligence cannot prevail over the prompt action of appellee, who first reduced the invention to constructive practice by filing an allowable application in about three months after his conception and by immediately following it with actual reduction to practice by manufacturing extensively in accordance with the said process. There is a feeble attempt to explain this unreasonable delay of appellant on the alleged ground of his poverty and lack of opportunity to make or have constructed a mold; but his answers to questions on cross-examination show that neither poverty nor lack of opportunity were controlling conditions in the way of earlier action on his part. Appellant also gave evidence tending to show that he was delayed by efforts to make other similar inventions; but time spent upon other inventions does not excuse delay otherwise unreasonable. Telephone Cases, 126 U. S. 1.

Appellant, though the first to conceive, by his laches lost his inchoate right in the invention in favor of appellee, who conceived later, while appellant was lacking in due diligence, and promptly reduced his conception to practice before appellant did.

Fifth. Is appellee also entitled to the award of priority upon the second issue?

The second issue of interference is also described in appellee's application. Besides, this issue contains nothing patentable not contained in the first one. It contemplates only the making of several articles of glassware at one time by the same method or process described in the first issue. Any skilled workman in the art would readily apply the process of the first issue as suggested in the second. To pass from the first to the second would not be invention. Whoever, therefore, is the prior inventor of the first issue is of the second also. This is

aptly stated in the opinion of the Examiners-in-Chief as follows:

"Probably the matter of issue No. 2 was allowed as a follower of issue No. 1 and as containing the same process and doing no harm when following its leader in a patent. It cannot be inferred from its allowance in that connection that it had been held to be patentable by itself as containing an invention sustainable in a patent when issue No. 1 stands as a claim in another patent.

"Whoever is the inventor of issue No. 1 is the inventor of issue No. 2, whether or not he makes any mention of working his process simultaneously on more than one mass of glass."

For the reasons given we shall therefore affirm the decision of the Commissioner of Patents and direct that a certificate of the proceedings and decision of the case in this court be certified to the Commissioner of Patents, to be entered of record in the Patent Office, as directed by statute, and it is so ordered.

[See also for application of rule of reduction to practice to processes, Stevens v. Seher, 11 App. Cas. D. C. 245, 81 O. G. 1932, 1897 C. D. 761; Appert v. Schmertz, 13 App. Cas. D. C. 117, 84 O G. 508, 1898 C. D. 524; Rosell v. Allen, 16 App. Cas. D. C. 559 92 O. G. 1036, 1900 C. D. 333.

Of the many additional cases applying the general rule and from which the summaries of the court were finally obtained see, for example, Kelly v. Fynn, 16 App. Cas. D. C. 573, 92 O. G. 1237, 1900 C. D. 339; Dashiell v. Tasker, 21 App. Cas. D. C. 64, 103 O. G. 2174, 1908 C. D. 551; Macdonald v. Edison, 21 App. Cas. D. C. 527, 105 O. G. 1263, 1903 C. D. 622.

The rule of diligence is also stated by the Court of Appeals in DeWallace v. Scott, 15 App. Cas. D. C. 157, 88 O. G. 1704, 1899 C. D 416; and in Silverman v. Hendrickson, 19 App. Cas. D. C. 381 99 O. G. 1171, 1902 C. D. 527. In that case the court says:]

"For, as we have repeatedly held, it is the fact of reduction to practice, actual or constructive, or the exercise of due diligent to reach that result, that must determine the right of the inventor; and prior conception,without reduction to practice, unless there has been diligence in the elaboration of the idea looking toward reduction to practice, will not avail. Soley v. Hebbard, C. D. 1895 182, 70 O. G. 921, 5 App. D. C. 99; Porter v. Louden, C. D. 1895 707, 73 O. G. 1551, 7 App. D. C. 64; Arnold v. Tyler, C. D. 1897 349, 79 O. G. 156, 10 App. D. C. 175; Carty v. Kellogg, C. D. 1896 188, 74 O. G. 657, 7 App. D. C. 542; Marvel v. Decker, C. D. 1899, 271, 86 O. G. 348, 13 App. D. C. 562; Platt v. Shipley, C. D. 1898, 307, 82 O. G. 461, 11 App. D. C. 576."

[See also Fefel v. Stocker, 17 App. Cas. D. C. 317, 94 O. G. 433, 1901 C. D. 269; Sendelbach v. Gillette, 22 App. Cas. D. C. 168, 109 O. G. 276, 1904 C. D. 597; Kasson v. Hetherington, 88 O. G. 1157, 1899 C. D. 143; Dodge v. Fowler, 11 App. Cas. D. C. 592, 82 O. G. 595, 1898 C. D. 320; Watson v. Thomas, 23 App. Cas. D. C. 65, 108 O. G. 1590, 1904 C. D. 587.]

383. AGAWAM COMPANY v. JORDAN, 74 U. S. 583, 19 L. ed. 177 (1869).

Clifford, J.: * * *

No one is entitled to a patent for that which he did not invent unless he can show a legal title to the same from the inventor or by operation of law; but where a person has discovered an improved principle in a machine, manufacture, or composition of matter, and employs other persons to assist him in carrying out that principle, and they in the course of experiments arising from that employment, make valuable discoveries ancillary to the plan and preconceived design of the employer, such suggested improvements are in general to be regarded as the property of the party who discovered the original improved principle, and may be embodied in his patent as a part of his invention.

Suggestions from another, made during the progress of such experiments, in order that they may be sufficient to defeat a patent subsequently issued, must have embraced the plan of the improvement, and must have furnished such information to the person to whom the communication was made that it would have enabled an ordinary mechanic, without the exercise of any ingenuity and special skill on his part, to construct and put the improvement in successful operation.

Persons employed, as much as employers, are entitled to their own independent inventions, but where the employer has conceived the plan of an invention and is engaged in experiments to perfect it, no suggestions from an employee, not amounting to a new method or arrangement, which, in itself is a complete invention, is sufficient to deprive the employer of the exclusive property in the perfected improvement. But where the suggestions go to make up a complete and perfect machine, embracing the substance of all that is embodied in the patent subsequently issued to the party to whom the suggestions were made, the patent is invalid, because the real invention or discovery belonged to another. Pitts v. Hall, 2 Blatchford, 234; Allen v. Rawson, 1 Manning, Granger & Scott, 574; Alden v. Dewey, 1 Story, 338; 1 Webster's Patent Cases, 132, note c; Curtis on Patents, 3d ed. 99; Reed v. Cutter, 1 Story, 599.

Guided by these well-established principles, the first inquiry is, what was actually done by the person who, as alleged by the

respondents, was the real inventor of what is described in the reissued letters patent? They do not pretend that he invented or even suggested the entire invention, nor all of the several elements embraced in any one of the separate combinations, as expressed in the claims of the patent; and if they did, it could not for a moment be sustained, as it finds no support whatever in the evidence. None of the devices described in the specifications are new, but the claims of the patent are for the several combinations of the described elements arranged in the manner set forth, and for the purpose of working out the described results.

Regarded in that light, it is clear that the concession that the person named did not invent nor suggest the entire invention, nor any one of the separate combinations, is equivalent to an abandonment of the proposition under consideration, as it is clear to a demonstration that nothing short of that averment can be a valid defense. Respondents do not allege in the answer that the person named was a joint inventor with the original patentee, but the allegation is that he made the invention, and they deny that the assignor of the complainant ever bestowed any ingenuity upon what is described in the letters patent as his improvement. Such a defense cannot be successful unless it is proved, as common justice would forbid that any partial aid rendered under such circumstances, during the progress of experiments in perfecting the improvement, should enable the person rendering the aid to appropriate to himself the entire result of the ingenuity and toil of the originator, or put it in the power of any subsequent infringer to defeat the patent under the plea that the invention was made by the assistant and not by the originator of the plan.

The evidence shows that the original patentee was born in 1793, and that he commenced working on machinery in his youth, while he was with his father, and that, as early as the year 1812, he went into the employment of certain machinists, residing at Worcester, Massachusetts, who were engaged in constructing machinery for the manufacture of wool and cotton. While in their employment, he began experiments in woolen machinery. Those experiments were directed to the object of improving the billy, for the purpose of drawing out the carriage more accurately, and thereby making better work. Several years were spent in that business, but, in 1820, he went to Halifax, in that State, and, while there, he made numerous experiments to get rid of the billy entirely, and to dispense with short rolls, and substitute long rolls in their place. He remained there three years, and, during that time, he was constantly engaged in experiments to accomplish those objects. In the spring of 1823 he moved to Dedham, in the same State, and there hired a mill, and engaged in the manufacture of broadcloth, and also carried

on the machine business, and the witness also states that he then prosecuted his experiments on a large scale.

Cans were used as a receptacle for the rovings, delivered from the doffers, before the drawing-off and winding apparatus, described in the patent, was invented. Rovings, before that invention, were spun from cans, instead of being wound upon, and spun from, spools or bobbins. Considerable importance is attached to the new method, as it was largely by that means that the use of the endless roving was made practical, and that the difficulty produced by the kinking of the roving, incident to the use of the cans, was overcome.

Theory of the respondents is, that the new method of accomplishing that function was invented by Edward Winslow, but their witness, John D. Cooper, only testifies that he made or suggested the spool and drum, which are not the only elements of that apparatus. Unaccompanied by the traverser, they would perhaps, be better than the cans, but it is clear that the apparatus would be incomplete without that device, as it is by that means that the bobbins are evenly wound with the roving.

Testimony of that witness is, that he first suggested to Winslow that the roving must be wound on a spool, else they never could make good yarn, and he proceeds to state that they procured some pasteboard, and that Winslow made a pattern for a spool and drum from that material. Explanations, in detail, are given by the witness, of the several steps taken by them in accomplishing the change in the apparatus, and the witness states that the original patentee never saw the spool and drum until he came into the mill and saw those devices in the machine. Argument for the respondents is, that the spool and drum were invented by that party while he was in the employment of the original patentee, but the complainant denies the theory of fact involved in the proposition, and insists that the statements of the witnesses are untrue, and that he is not entitled to credit. Further statement of the witness is, that the improvement, as soon as it was perfected, was applied to all the carding and spinning machines in the mill, and that the mills, so adjusted as to embrace that improvement, were put in successful operation during the summer and autumn of that year.

Two answers are made by the complainant to the defense founded on that testimony, both of which are sustained by the court. 1. Suppose the testimony of the witness to be all true, the complainant contends that it is not sufficiently comprehensive to support the allegations of the answer, nor even to support the proposition presented in the brief of the respondents. Taken in the strongest view for the respondents, the testimony merely shows that Winslow, or the witness Cooper, or both together, after the originator of the plan had nearly completed his

great and valuable improvement, and while he was still prosecuting his experiments with the utmost diligence, suggested the spool and drum as substitutes for the cans, and that Winslow actually made those devices, and, with the aid of witness, put them into one of the machines as an experiment. When their employer first examined the arrangement, rude as it was, he expressed great satisfaction with it, but upon seeing it tried he pronounced it of no value. Neither of those opinions, however, turned out to be quite correct, as, upon further trial, when better adjusted, and by adding the traverser, so that the contrivance would wind the roving evenly on the spool, it proved to be a useful auxiliary part of the invention.

Valuable though it was and is, as aiding in the accomplishment of the desired result, it is nevertheless a great error to regard it as the invention described in the subsequent patent, or as such a material part of the same that it confers any right upon the party who made the suggestion to claim to be the inventor, or a joint inventor, of the improvement, or to suppose that the proof of what was done by that party can constitute any defense, as against the owner of the patent, to the charge of infringement.

Second answer to the defense founded on that testimony is, that the testimony is unreliable, because the witness is not entitled to credit. Hundreds of pages of transcri . are filled with proof, introduced either to assail or support the credit of that witness; but the court is of the opinion that it is not necessary to enter into those details, as the decision must be in favor of the appellee, even if every word stated by that witness is taken to be true. Entirely satisfied with our conclusion upon the merits, we are the less inclined to enter into those details, as a full analysis of the proofs within reasonable limits would be impracticable; but it is proper to say that the proofs have been carefully examined, and it is the opinion of the court that the letters patent in this case cannot be held to be invalid upon such testimony.* * *

384. MASON v. HEPBURN, 13 App. Cas. D. C. 86, 84 O. G. 147, 1898 C. D. 510.

Shepard, J.:

First. This is an appeal from the decision of the Commissioner of Patents in the interference proceeding with the following issue:

"In a magazine-firearm, the detachable end piece closing the outer end of the magazine provided with upwardly-projecting curved arms to clasp the sides of the barrel, substantially as described."

The device is a clip made in one piece instead of two, as formerly one end of which is made to fit closely in the upper end of the magazine. The other is split or divided into two curved arms, which are elastic and clasp each side of the gun-barrel far enough around to hold securely without meeting each other. A side screw at the junction of magazine and barrel holds tight the clasp or releases it, as desired.

Hepburn received a patent for this invention September 11, 1894. Having taken no testimony, his date of invention must be confined to that of his application, filed April 3, 1894.

Mason's application was filed December 31, 1894. Mason offered testimony tending to show that he conceived the invention about June 28, 1887, on which date he made a complete drawing showing the device; that a working drawing was traced from that in July, 1887, and the clip made in the shops of the Winchester Repeating Arms Company; that during the same month a new "take-down" shotgun was made with this clip attached, which was tested, probably, in the shooting-gallery. This gun was stored in the model-room of the same company until produced in the course of the trial of this controversy. No clips of the kind were manufactured for any other purpose and no similar gun was made. No exhibition of the gun and clip was made to the public, and no one saw it besides the inventor and one or two other employees of the Winchester Company.

It appears that Mason filed an application for a detachable or "take-down" gun April 4, 1892, and the same was issued to him December 6, 1892. In this no mention is made of the device for clipping the upper end of the magazine to the barrel. On the same day, however, he received a patent for a clip, for which he applied August 1, 1892. This is made with projecting curved arms, as in the device of the controversy, to clasp the gun-barrel; but at the other end it has a hole made to receive the end of a pin on a separate piece that closes the end of the magazine.

Second. The testimony is sufficient to warrant the conclusion, in which all of the tribunals of the Patent Office have concurred, that Mason conceived the idea of this invention at the time claimed and that the gun, with the device attached, was actually completed and ready for use in July, 1887. They have not agreed, however, in respect of the sufficiency of the evidence to show with the required certainty that the gun, when constructed, was actually tested by firing in a manner that demonstrated the completeness and practical utility of the device of the controversy.

What is successful construction—that is to say, the embodiment of the inventor's conception in a substantial form which demonstrates at once its practical utility, constituting reduction to practice or use in the sense of the patent law—is a mat-

ter the determination of which must largely depend upon the nature and purpose of the machine or device in the particular case, as well as upon the special circumstances surrounding the alleged construction and use.

It is settled beyond all question that a drawing of even the simplest machine or device, perfect in every detail and plainly demonstrating the principle, efficacy, and practical utility of the invention, will not constitute reduction to practice. Nor will the requirements of reduction to practice or use be satisfied by a construction clearly designed and intended as a model and nothing more. They are but evidence of conception, furnishing the foundation of an award of priority when accompanied by proof of subsequent diligence in the matter of actual reduction to practice. Porter v. Louden, 73 O. G. 1551, 7 App. D. C. 64, 74. At the same time some devices are so simple and their purpose and efficacy so obvious that the complete construction of one of a size and form intended for and capable of practical use might well be regarded as a sufficient reduction to practice without actual use or test in an effort to demonstrate their complete success or probable commercial value. This doctrine is maintained in the following cases: Stitt v. Eastern R. R. Co., 22 Fed. 649; Sayles v. C. & N. W. R. Co., 4 Fish. 584; Parker v. Ferguson, 1 Blatchf. 407; Pitts v. Wemple, 2 Fish. 10, 15.

In such instances, however, the fact that the construction of the device had not been followed within a reasonable time by practical or commercial use or application for patent would afford a strong inference that what had been done was regarded by the inventor as experimental only and not completion of invention, and this would be materially reinforced if in the meantime the machine had been dismantled or destroyed. It appears in this case that the Winchester Repeating Arms Company, which is the assignee of Mason, did not make or use another of these clips. The gun was laid away, and no application for a patent was made until three months after the patent to Hepburn had issued. Five years after its completion a patent for the detachable gun or one nearly resembling it was applied for without mention of the clip as a part of the combination, and then, some months later still, a patent was applied for and obtained for a clip working in the same general way, but made in two pieces.

All of the Board of Examiners-in-Chief agreed on reversing the decision of the Examiner of Interferences, because they were not satisfied with the evidence of reduction to practice. They said:

"The clip evidently performs its expected office. Whether in use with no other means for holding it to the barrel and magazine than the clips and the sockets the construction as adapted

to practical use has not been proven, and cannot be decided by us on a mere inspection of the gun. It has not been certainly established that this clip was ever proven to be perfected and adapted to practical use."

In reaching this conclusion they laid great stress upon the subsequent inaction of the inventor, and from their point of view rightly so.

In reaching our own conclusion we regard the examination of the evidence in respect of the actual firing test of the gun as immaterial, because, in our opinion, the reduction to practice of the clip was accomplished by its perfect construction and attachment to a gun apparently completely finished and ready for sale and use. It was demonstrably capable of producing the result sought to be accomplished—namely, that of closing the magazine and clipping it to the barrel. As admitted by the Examiners—

"the clip evidently performs its expected office."

Actual test of the restraining power under the strain of repeated firing of the gun might be of importance in demonstrating the value of the clip, but was not necessary to the completion of the inventive act. Hall v. MacNeale, 23 O. G. 937, 107 U. S. 90, 97.

Third. Although the construction and adaptation to use of the clip were within the knowledge of several persons, these were all, with Mason himself, employees of the Winchester Repeating Arms Company, for whose benefit the invention was made. They had either been called on to aid in the construction and use or by the nature of their employment were necessarily cognizant of it. The invention was therefore as much secreted from the public as if it had been confined to the knowledge of Mason alone. Pennock v. Dialogue, 1 Pet., 1, 19; Kendall v. Winsor, 21 How., 322, 330.

The public did not and was not intended to receive any benefit from it during the seven years that intervened between the construction and the application for the patent. Not having been given or abandoned to public use there was nothing in the mere lapse of time to prevent Mason receiving a patent. Bates v. Coe, 15 O. G., 337; 98 U. S. 31, 46.

It seems that Mason attached no importance to the invention, for there is not a fact in evidence to account otherwise for his long inaction. Besides, as we have seen, he had in the meantime procured a patent for a gun, and on the same date another for a different clip to secure the magazine to the barrel. Apparently the invention as a thing of value had passed out of his mind, to which it was recalled by seeing the publication of the patent to Hepburn in the Official Gazette.

It is unquestioned that Hepburn's invention was an independent act; that he had no knowledge whatever of the work done by Mason, and that when he applied for and received his patent he in good faith believed himself to be the original and only inventor.

In this state of the case it remains to be considered whether the Commissioner, maintaining the view expressed in a separate opinion of one of the Examiners-in-Chief, was right in awarding priority to Hepburn on account of this conduct of Mason in purposely withholding his invention from the public without excuse for the period of more than seven years.

First. In our opinion the decision can not be upheld on the ground that the invention by reason either of secretion or forgetfulness on the part of Mason had become, as it were, a lost art. It is true that to entitle one to a patent for the discovery of a lost art it does not seem to be necessary that it shall have been buried and unknown for ages or even for any great length of time. Gayler v. Wilder, 10 How., 477, 497, 498; Hall v. Bird, 6 Blatchf., 438; Taylor v. Wood, 8 O. G., 90; 12 Blatchf., 110, 121; Converse v. Mathews, 58 Fed. Rep., 246, 249; 1 Rob. on Pats., § 323.

But it is necessary that the knowledge of the art or the improvement therein shall have completely disappeared. It must at least have been so far forgotten that its inventor, if living, or others who may have witnessed its use would not be able to recall it to memory and reproduce it without the assistance of the description made of the subsequent discovery. Rich v. Lippincott, 2 Fish., 1, 8.

Now if this device had been lost or destroyed by Mason, that fact, coupled with his subsequent invention and patent of another and different one to accomplish the same purpose, might be sufficient to uphold the patent to Hepburn as the inventor of a new and useful manufacture or improvement "not known or used by others" before his discovery, as those words are used in the law. Rev. Stat., § 4886; Gayler v. Wilder, 10 How., 477, 498. In this case, where it was made to appear that a safe similar in construction to the patentee's had been made and used some years before by one Conner, the Court, construing the like words in the act of 1836, said:

"The court put it to the jury to say whether this safe had been finally forgotten and abandoned before Fitzgerald's invention, and whether he was the original inventor of the safe for which he obtained the patent; directing them, if they found these two facts, that their verdict must be for the plaintiff. We think there was no error in this instruction. For if the Conner safe had passed away from the memory of Conner himself, and of those who had seen it, and the safe itself had disappeared, the

knowledge of the improvement was as completely lost as if it had never been discovered. The public could derive no benefit from it until it was discovered by another inventor. And if Fitzgerald made his discovery by his own effort, without any knowledge of Conner's, he invented an improvement that was then new, and at that time unknown; and it was not the less new and unknown because Conner's safe was recalled to his memory by the success of Fitzgerald's."

The facts of this case, however, are quite different. The clip had not been lost or destroyed or even removed from the gun. It was where the inventor could readily put his hand upon it. Reminded simply of its existence or possible value by the publication of the patent to Hepburn he required no assistance from the specification of that patent to aid him in again making or using it. He may have forgotten that he had made it and been reminded of it by the grant of Hepburn's patent, but it can not be said to have been so far forgotten as to have become what is called a lost art.

Second. The remaining question is, can the decision be upheld upon the ground that Mason's right to claim of priority has become barred by his designed or negligent concealment of his invention from the public and the subsequent entry of his rival in the apparently unoccupied field?

We concur with the Commissioner in the answer to this question, that under the circumstances Hepburn must be held to be the first inventor in the sense of the law regulating the grant of patents. Rev. Stat., § 4886.

A liberal interpretation of the words of the statute is demanded in the interest of the public, for the advancement of which the patent laws were enacted. Kendall v. Winsor, 21 How., 322, 327, 328. In the opinion in that case it was said:

"The true policy and ends of the patent laws enacted under this Government are disclosed in that article of the Constitution, the source of all these laws, viz., 'to promote the progress of science and the useful arts,' contemplating and necessarily implying their extension and increasing adaptation to the uses of society. Vide Constitution of the United States, Art 1, § 8, clause 8. By correct induction from these truths it follows that the inventor who, designedly, and with a view of applying it indefinitely and exclusively for his own profit, withholds his invention from the public, comes not within the policy or objects of the Constitution or acts of Congress. He does not promote and, if aided in his design, would impede the progress of science and the useful arts; and with a very bad grace could he apply for favor or protection to that society which, if he had not injured, he certainly had neither benefited nor intended to benefit. Hence, if during such a concealment an invention similar

to or identical with his own should be made and patented or brought into use without a patent, the latter could not be inhibited nor restricted upon proof of its identity with a machine previously invented and withheld and concealed by the inventor from the public. The rights and interests, whether of the public or individuals, can never be made to yield to schemes of selfishness or cupidity; moreover, that which is once given to or is invested in the public cannot be recalled nor taken from them."

That case was, it is true, an action for infringement by a patentee against one who before the application for the patent had made use of his invention without claim, himself, of discovery. The right was claimed in the patentee, on the one hand, as against the right of the public on the other. Nevertheless we think that our conclusion is in strict conformity with the principles which it announces, and there is nothing in it inconsistent with the spirit of indulgence that has always been manifested toward those who, in good faith, delay application for patent while engaged in a diligent effort to perfect their inventions. Idem, p. 329; Agawam Co. v. Jordan, 7 Wall., 583, 607; Yates v. Huson, 74 O. G., 1732; 8 App. D. C., 93, 98.

Considering, then, this paramount interest of the public in its bearing upon the question as presented here, we think it imperatively demands that a subsequent inventor of a new and useful manufacture or improvement who has diligently pursued his labors to the procurement of a patent in good faith and without any knowledge of the preceding discoveries of another shall, as against that other, who has deliberately concealed the knowledge of his invention from the public, be regarded as the real inventor and as such entitled to his reward.

This right of second discoverer has been recognized with considerable uniformity for a number of years in the administration of the Patent Office. Duncan, Acting Commissioner, in Monce v. Adams, 1 O. G. 1; Paine, Commissioner, in Mallett v. Cogger, 16 O. G. 45, and Farmer v. Brush, 17 O. G. 150; Marble, Commissioner, in Sheridan v. Latus, 25 O. G. 501. And again recently by Commissioner Duell, in whose decision the authorities are extensively reviewed. Mower v. Crisp & Copeland, 83 O. G., 155.

It has the sanction also of the following judicial decisions: Rowley v. Mason, 2 Am. Law Times Rep., 106; Consolidated Fruit Jar Co. v. Wright, 6 O. G., 327; 12 Blatch., 149; U. S. Rifle and Cartridge Co. v. Whitney Arms Co., 11 O. G., 373; 14 Blatchf., 94, 101; Boyd v. Cherry, 4 McCreery, 70, 77; Cahoon v. Ring, 1 Cliff., 610; White v. Allen, 2 Fish., 440, 454.

In Bates v. Coe, 15 O. G., 337; 98 U. S., 31, 46, the point was not directly involved; but Mr. Justice Clifford in affirming the

right of the inventor to keep his invention secret for any length of time without modifying his right to a patent coupled it with the following exception, as if one of unquestioned application, namely:

"Unless another in the meantime has made the same invention, and secured by patent the exclusive right to make, use and vend the patented improvement. Within that rule and subject to that exception, inventors may delay to apply for a patent."

See also 1 Robinson on Patents, § 390.

In some of the decisions the first inventor is regarded as having abandoned the field to other inventors, while in others he is held to have lost his right by sleeping too long upon it.

Strictly speaking, abandonment after the completion of an inventive act applies in a case where the right of the public to the use is involved and not in one where the contention is between rival claimants merely of the monopoly.

The true ground of the doctrine, we apprehend, lies in the spirit and policy of the patent laws and in the nature of the equity that arises in favor of him who gives the public the benefit of the knowledge of his invention, who expends his time, labor, and money in discovering, perfecting and patenting in perfect good faith that which he and all others have been led to believe has never been discovered by reason of the indifference, supineness or willful act of one who may, in fact, have discovered it long before.

It follows that the decision of the Commissioner must be affirmed. It is so ordered, and this decision will be certified to the Commissioner of Patents, in accordance with the law.

385. MATTHES v. BURT, 24 App. Cas. D. C. 265, 114 O. G. 764, 1905 C. D. 574.

Shepard, J.:

This is an interference case having the following issue:

"1. A mold comprising a tubular body open at both ends for the entrance of dies, and provided between its ends with transversely-movable plugs having ends adapted to extend into the bore of the tubular body and to engage a mass of plastic compressible material and retain the same therein. * * * [2, 3, 4.]

The Examiner of Interferences decided in favor of Julius H. Matthes. His decision was reversed by the Examiners-in-Chief —one member dissenting. From the final decision of the Commissioner in favor of Alonzo L. Burt, Matthes has prosecuted this appeal.

Burt's application was filed December 5, 1901, and that of Matthes on February 19, 1902.

Under a preliminary statement alleging the making of sketches on or about June 1, 1899, and reduction to practice by making a full-sized operative die or mold between the first and the middle of June, 1899, Matthes's evidence tended to show that he had made the mold in June, 1896, and manufactured several dozen of pool-balls therewith immediately after this construction.

The mold produced as the one then constructed is cracked and no longer serviceable, but shows the invention of the issue.

Each of the tribunals of the Patent Office has accepted this mold as a reduction to practice, and awarded credibility to the evidence tending to show its construction and experimental use in the manufacture of pool-balls in June, 1898. By reason of the date alleged in the preliminary statement the benefit of this reduction to practice has been limited to June, 1899. This is unimportant, however, as it antedates Burt's reduction to practice.

Notwithstanding these conclusions, we are constrained to say that Matthes's explanation of his mistake in the allegation of the date of this construction is not in every respect satisfactory. In view, however, of the ground upon which the final decision in favor of Burt has been rested, it is unimportant to review the evidence on this point, or to consider it along with other circumstances on which it is contended, on behalf of Burt, that this early experimental construction and use failed to demonstrate the efficiency of the model and the utility of the invention, whereupon it was laid aside and abandoned until information of Burt's successful exploitation of a similar invention caused it to be taken up again.

We will assume, therefore, as found by the Commissioner and other tribunals, that Matthes made a full-size, operative model and tested it in June, 1898, to his own complete satisfaction, as well as that of the officers of the Brunswick, Balke, Collender Co., by whom he was employed.

The mold thus made and tested was kept in the factory where it was concealed from the public, and known only to two or three employees who had helped to operate it. Some of the balls of this experimental manufacture were sold with the general stock, but it was admitted that there was nothing in their appearance to distinguish them from balls made in the old way; and no record of them was kept and no attempt made to determine how they might bear the strain of common use in comparison with the other balls, which was a thing that Matthes seems to have regarded as uncertain. Instead of proceeding to make balls for the trade with the newly-invented mold, it was laid aside and the manufacture was continued in the old way. Notwithstanding he had caused search to be made in the Patent

Office in 1899 and discovered that there was, apparently, nothing in the way of securing a patent for his invention, Matthes filed no application until February 19, 1902—some time after he had acquired knowledge that Burt was manufacturing and selling to the trade balls made with a similar device. During this interval of more than three and one-half years the public had no means of acquiring knowledge of his invention.

In the meantime Burt, without knowledge of Matthes's discovery, was at work. He claims to have conceived the idea in 1896, but is limited by the allegations of his statement to its disclosure in 1899. Without inquiry into his evidence, it is sufficient to say that he made disclosure of his invention early in 1901 and that a mold in accordance therewith was made in the factory where he was then employed in Milburn, N. J. As early as August, 1901, the new mold was in operation turning out balls for sale to the trade, and between that date and the time of filing his application, December 5, 1901, a great number (probably thousands) of the new balls were manufactured and sold.

It is clear that early in December, 1901, Matthes received full knowledge, through men lately employed in the Burt factory, concerning the successful use of Burt's construction and the sale of its product. The circumstances relating to the employment of these men by the Brunswick, Balke, Collender Co., of Chicago, where Matthes was at work, need not be considered. The only fact of importance is the information which they gave to Matthes.

For reasons that have been sufficiently stated in the decisions of the Examiners-in-Chief and the Commissioner, the evidence of Matthes tending to show an intention to apply for a patent in 1899, and the failure to carry it into execution, through the neglect of his solicitor, is unsatisfactory and not entitled to any weight. In the light of the surrounding circumstances and conditions, Matthes's attempt to excuse his failure to utilize his invention, on the ground of the waste of material involved in the use of the improved mold, is also entitled to no serious consideration. Having, then, completed the invention and satisfied himself of its utility, as claimed, Matthes deliberately concealed it, suppressing its use and withholding it from the public. How long he might have pursued this policy with no rival in the field is of course conjectural; but it is certain that he showed no substantial intention of change of policy until he had obtained definite knowledge of Burt's exploitation of the same invention. On the other hand, Burt, having no knowledge of Matthes's discovery, and encouraged and induced by the apparently unoccupied field, went diligently to work to perfect his invention and to put

its product upon the market. He not only sold this product to the trade in large quantities, but promptly applied for a patent. On this state of facts, the Commissioner held that Matthes's right had become subordinate to that of Burt who was the first to invent in accordance with "the true policy and ends of the patent laws" as declared by the Supreme Court of the United States in Kendall v. Winsor, 21 How., 322, 327 328.

His decision we think was correct. The facts bring the case within the principle of decisions heretofore given by this court on appeal from the Commissioner of Patents. Mason v. Hepburn, 13 App. D. C., 86; 84 O. G., 147; Warner v. Smith, 13 App. D. C., 111, 115; 84 O. G., 311; in re Mower, 15 App. D. C., 144, 154; 88 O. G., 991; Thompson v. Weston, 19 App. D. C., 373, 379; 99 O. G., 864.

They present no question of diligence in respect of adapting and perfecting the invention as between rival claimants; or of reasonable excuse for delay on other grounds relieving that delay of the imputation of deliberate concealment; or where delay is a potent circumstance in determining whether the tests made at a remote period amounted to a complete reduction to practice. For these reasons the decisions cited on the brief of the appellant are not applicable. Among these, see Yates v. Huson, 8 App. D. C., 93; Christy v. Seybold, 55 Fed. 69; Esty v. Newton, 14 App. D. C., 50, 53; Christensen v. Noyes, 15 idem, 94; McBerty v. Cook, 16 idem, 133, 139; Brown v. Blood, 22 idem, 216; Oliver v. Felbel, 20 idem, 255, 261; Roe v. Hanson, 19 idem, 559, 564; Reichenbach v. Kelley, 17 idem, 333, 344.

That Burt's application had not ripened into a patent before Matthes filed his, does not substantially affect the application of the cases of Mason v. Hepburn and others supra. Whilst the possession of a patent makes, ordinarily, a stronger case in favor of the holder, the doctrine in respect of concealment by one earlier to invent does not necessarily depend upon that fact. In Warner v. Smith, supra, in which the reasons for that doctrine are explained at length, the later inventor had not received a patent.

For the reasons given the decision of the Commissioner of Patents will be affirmed, and the proceedings in this court certified to him, as required by the law. It is so ordered.

[For line of interesting cases following Mason v. Hepburn and Matthes v. Burt, see Underwood's Digest, or any digest of C. A. D. C. cases.]

886. IN RE FULLAGAR, 32 App. Cas. D. C. 222, 138 O. G. 259, 1909 C. D. 270.

Shepard, C. J.:

While separately docketed, these cases were heard together in the Patent Office as involving substantially the same questions. They have been brought up in one transcript of the record and are to be heard thereon, at the same time, in this court.

W. L. R. Emmet, who was a party to each interference with Fullagar, has filed two motions. The first is to change the docket entry so as to read, Hugh Francis Fullagar, appellant, v. W. L. R. Emmet, appellee, and to permit him to be recognized as a party. The second is to dismiss the appeals.

The complicated history of the proceedings in the Patent Office, culminating in the decisions appealed from, is set forth in the Commissioner's decision as follows:

"This interference together with a companion interference number 27,622 is before me upon appeal from a decision of the Examiners-in-Chief affirming the action of the Primary Examiner dissolving these interferences upon the ground that Fullagar has no right to reissue his former patents upon the applications involved in these interferences.

"The record of the applications involved in this interference shows that on February 24, 1902, Emmet filed the application involved in this interference. On April 18, 1901, Fullager filed an application No. 56,462, which became a patent No. 696,867, April 1, 1902. On November 8, 1904, he filed a reissue application upon which Reissue Patent No. 12,317 was granted February 14, 1905. On October 31, 1906, Fullagar filed the application involved in this interference which is for the reissue of his Reissue Patent No. 12,317, or, in other words, is for a second reissue of his original Patent No. 696,867.

"On September 16, 1901, Fullagar filed an application No. 75,651, upon which Patent No. 746,061, was granted December 8, 1903. On January 7, 1907, he filed an application No. 351,258, for the reissue of this patent, which application is involved in the companion interference.

"The record shows that on May 12, 1903, an interference No. 22,666 was declared between the original application of Fullagar No. 75,651, and the application of Emmet involved in the present interference. That interference was subsequently dissolved upon the ground that the claim in issue was not readable on Fullagar's disclosure. In view of the fact that the parties at this time did not make claims to the same invention, Patent No. 746,061 was granted to Fullagar. Emmet then inserted in his application a claim corresponding to claim 16 of the Fullagar patent and interference No. 23,802 was declared May 31, 1904.

Testimony was taken in this interference and a decision was rendered by the Examiner of Interferences awarding priority to Fullagar. This decision was reversed by the Examiners-in-Chief on appeal and priority of invention was awarded to Emmet. Appeal was taken to the Commissioner of Patents who, in a decision affirming the decision of the Examiners-in-Chief, rendered July 21, 1906, stated that:

"'It is found that Fullagar's original application did not disclose the complete invention of the issue and therefore Fullagar has no right to the claim forming the issue of this interference. For this reason Emmet is entitled to the award of priority.'

"Soon after the decision of the Commissioner, Fullagar filed application Serial No. 341,509, for the release of his first patent No. 696,867, and inserted therein the claims forming the complete subject-matter of the two interferences now before me. Fullagar's claim of this application corresponding to count 4 was subsequently incorporated in his other release application Serial No. 351,285, and interference No. 27,362 was declared May 23, 1907, embodying this claim, and including both of Fullagar's reissue applications.

"Motions to dissolve were brought by Emmet in both interferences upon several grounds, including, first, the insufficiency of Fullagar's oath to excuse the delay between the grant of his original patents and the date upon which he filed the respective reissue applications; second, that intervening rights had accrued against a grant of a reissue of the patents to Emmet; and, third, that Fullagar had no right to make the claim corresponding to count 4 of this interference in his original application because the invention defined is indivisible from the invention claimed in his Patent No. 696,867. The Primary Examiner granted the motion as to the first and second grounds, but denied it as to the third. Upon appeal the Examiners-in-Chief affirmed the action of the Examiner in respect to the first ground, holding that the specification of errors in the Fullagar oaths did not justify the allowance of the appealed claims to him 'either as establishing "inadvertence, accident or mistake," or excusing his delay.' They, however, reversed the decision of the Examiner as to the ground of intervening rights. Fullager has appealed from the decision of the Examiners-in-Chief affirming the decision of the Primary Examiner and Emmet has also filed an appeal from the decision of the Examiners-in-Chief holding that no intervening rights had accrued which would bar the grant of the reissue patents to Fullagar.

"Emmet's appeal has no standing, whether it be considered an appeal from a favorable decision or an appeal from the reasons which are the basis of a decision in his favor, even though

such reasons in part are adverse to him. (Rule 124.) Breul v. Smith, 84 O. G., 809. Emmet's appeal is therefore dismissed.

"In respect to Fullagar's appeal the only question before me is as to the sufficiency of the Fullagar oaths to warrant the granting to him of reissue patents containing the claims in controversy."

After stating this single issue, the Commissioner proceeded to consider whether Fullagar's applications for reissue, founded on inadvertence, accident or mistake, had been filed within a reasonable time.* * *

"I therefore fully agree with the reasons and the conclusion ably stated by the Examiners-in-Chief that the verified showing made in support of Fullagar's reissue applications is insufficient to warrant the granting of reissue patents to him and that these interferences should be dissolved upon the ground that Fullagar has no right to the claims in issue.

"The decision of the Examiners-in-Chief is affirmed."

It is from this decision that the appeal has been prosecuted by Fullagar, who caused it to be docketed as an ex parte appeal. Under the practice of this court the Commissioner is permitted to appear by counsel in ex parte appeals. His counsel concurs in the motion of Emmet to change the docket entry, and to be recognized as appellee, contending that he is a proper party to the appeal.

The jurisdiction of this court to entertain appeals from decisions of the Commissioner of Patents, in proceedings relating to patents, is limited to two classes of cases. The first is where the claims of an applicant for a patent, or the reissue of a patent, after having been twice rejected, have been finally rejected on an appeal to the Commissioner in due course of procedure. The second is where on an appeal to the Commissioner in an interference proceeding there has been a final decision of priority in favor of one of the parties thereto. R. S. §§ 4909, 4910, 4911; Westinghouse v. Duncan, 2 App. D. C., 131, 132; Allen v. Lowrie, 26 App. D. C., 8, 17, 26; Union Distilling Co. v. Schneider, 29 App. D. C., 1. The case last cited arose under § 9 of the Trade-Mark Act, approved February 20, 1905, in an interference case between applicants for the registration of trade-marks, the procedure in which is similar to patent interferences.

The question for determination on this motion is whether these appeals come within either of the above-named classes.

The recitals of the Commissioner's decisions show that interferences were declared between reissue application of Fullagar and original applications of Emmet, in which motions to dissolve were made by each party. Fullagar's motions were denied

by the Primary Examiner to whom they were referred, and Emmet's were sustained on two grounds. Fullagar appealed to the Examiners-in-Chief who differed with the Primary Examiner on all points save one, but affirmed his decision on the ground that Fullagar's showing of inadvertence, accident or mistake was insufficient, and failed to excuse his long delay of more than two years in each case. On appeal by both parties to the Commissioner, as shown by his decision, he dismissed Emmet's appeal as without foundation, and affirmed the decision of the Examiners-in-Chief as to Fullagar. He also stated, it is true, that Fullagar had no right to make the claims; but this remark is evidently as a result of the conclusion that Fullagar had failed to show that he had come within the requirements for reissue. Had he held that Fullagar had made a sufficient showing for reissue, and then decided that he had no right to make the claims of the interference, because not disclosed in his application, he would necessarily have awarded priority to Emmet. Newcomb Motor Co. v. Moore, 30 App. D. C., 464. The latter's application having been allowed, and Fullagar having been put out of the case, there would remain nothing else to do.

It is now settled that the right of either party to make the claim of the interference issue may be urged, and brought up as an ancillary question necessarily involved in that of priority. Podlesak v. McInnerney, 26 App. D. C., 399, 405. In that case it was said by Mr. Justice Duell:

"The question of the right of a party to make a claim goes to the very foundation of an interference, for, if a party has not such right, the interference falls. If it be incorrectly held that such party has the right to make the claim, priority may be awarded to him, and his adversary be deprived of a substantial right in that he is not given a claim where he necessarily is the prior inventor, his adversary never having made the invention. Manifestly that question should not be finally determined by the Primary Examiner who originally declared the interference. We therefore take jurisdiction to determine that question in this case as an ancillary question to be determined in awarding priority of invention."

If the Commissioner had decided that Fullagar was not entitled to make the claim under his application, and had, in consequence, awarded priority to Emmet, Fullagar would have the right to appeal, bringing Emmet up for a final adjudication of the question of priority in this court. Instead of so deciding, the effect of his decision was to set aside the allowance of Fullagar's application as an entirety, and dissolve the interference. No award of priority was made in favor of Emmet. He was not declared entitled to the patent, nor was his application rejected.

He had nothing from which he could appeal. All that was left to him was to renew his demand for a patent, ex parte, which will be ultimately allowed, there being no ground for further declaration of interference with Fullagar, unless some additional reference be found to bar his right. As there was no final decision in Emmet's favor, it follows that Fullagar could not bring him before this court by an appeal. If Fullagar has any right to appeal at all it is by way of an ex parte appeal under § 4911, Revised Statutes, on the ground that the decision is in fact the final rejection of his application.

We are clearly of the opinion that Emmet, then, has no standing in this court as a party to the appeal, and his motion to appear and have the docket entry changed must be denied. It follows, therefore, that he has no right to move to dismiss Fullagar's appeal.

But Fullagar's right to appeal ex parte from the Commissioner's decision involves a question of jurisdiction which the court must consider of its own motion.

It is not pretended that this is a regular ex parte proceeding upon an application for a patent that has been rejected. Instead of being rejected it was allowed by the Primary Examiner, and might have proceeded to issue had there been no interference with another allowed application. It came before the Commissioner in that interference, and the right to appeal is founded on the character and effect of his decision therein. But we can not recognize the right of the Commissioner, if he so intended, to convert an interference case into an ordinary proceeding by one party upon an application for a patent, which he concludes to reject without an award of priority to the other party. The statute prescribes the procedure in the case of an application for a patent and for the reissue of a patent. If the application be rejected by the Primary Examiner, he must give notice of the same, with the grounds of his rejection, to the applicant, who has the right to answer the objections, or obviate them if possible, and to persist in his application. In that event he is entitled to a re-examination of his application. (R. S. § 4903.) He has no right to appeal from the first rejection, but must await the re-examination and a second rejection thereafter. Of course, no interference can be declared in such a case until there has been an allowance.

After the second rejection he can appeal to the Examiners-in-Chief and in succession to the Commissioner and to this court. (R. S., §§ 4909, 4910, 4911.) The conditions of the statute conferring the right of appeal must be observed, and the procedure it prescribes must govern the proceedings throughout.

As the proceedings in this case are not in compliance with the statute, we are constrained to hold that this court has no jurisdiction of the appeal.

Upon the return of the case to the Patent Office, Fullagar will be entitled to have his application remanded for re-examination; and if again rejected, he will be entitled to his successive appeals, in due course, if it should become necessary to resort thereto.

In accordance with these views, the appeals will be dismissed. It is so ordered, and that this decision be certified to the Commissioner of Patents as the statute requires.

387. JOHNSON v. MUESER, 29 App. Cas. D. C. 61, 145 O. G. 764, 1909 C. D. 437.

(Writ of error dismissed. Certiorari denied. S. C., 212 U. S. 283, 53 L. ed' 514,)

Shepard, C. J.: * * *

The first contention of the appellant is that the decision be reversed on the ground urged in his motion to dissolve the interference, namely, that the invention of the issue is not patentable.

The attitude of the appellant is a peculiar one. He holds a patent issued in 1899 which, among other references, he claims to be an anticipation of this invention. His present application was held by the Office to cover the claims of the issue, which when suggested to him were immediately accepted. Had no interference been declared, he would have received a patent for them. In a case presenting a similar state of facts, this court, speaking through Chief Justice Alvey, said:

"The question of patentability of the claim for invention was referred to and passed upon by the Primary Examiner in the Patent Office, who is the expert as to the state of the art involved, and it was not until that examination was had and favorably reported, that the interference was or could be declared. The appellant making claim for an alleged patentable invention, is not to be heard to urge non-patentability of his claim after it had been placed in interference with another claim. He is effectually estopped on that question by reason of his own affirmative assertion that his claim is patentable; and if his own claim is patentable that with which it would interfere may be equally so, if priority of invention be shown. Hisey v. Peters, 6 App. D. C., 68, 71."

The effect of this estoppel is sought to be avoided on the ground that the question of patentability is jurisdictional. The argument is that patentability is not a mere—

"collateral question aside from the main question of the interference"

but the essential foundation of the interference, without which it can not be carried on; in other words, it is a jurisdictional fact which the court must find before it can proceed to adjudge priority. If this be true the appellant is not estopped to raise the question, for his express consent could not confer jurisdiction. The same argument was met by the court in the opinion above quoted from, in these words following immediately thereafter:

"Moreover, the rights of appeal in case of the refusal of a patent upon the ground of non-patentability of the claim, and refusal of a patent because of interference with a prior right of invention, are distinct rights and the latter does not involve the former. This is clearly indicated in the Revised Statutes of the United States (§ 4911) and in § 9 of the act of Congress of February 9, 1893, providing for the organization of this court. See, also, Doyle v. McRoberts, 10 App. D. C., 445."

In some cases since decided it has been intimated that under extraordinary circumstances, the question of patentability might be considered in an interference case to prevent palpable injustice. But these expressions were not necessary to the determination of the case; and in none since the organization of this court has the decision of the Commissioner been reversed upon any such ground.

In the latest case in which this question was discussed, it was said:

"The decision that the issue is a patentable one, having been made in the office and a patent issued thereon to Geen, (one of the parties in interference), although it is confessed by the Examiner of Interferences that 'the invention is an exceedingly limited one,' is binding upon us on this appeal. Assuming, as we must, for the purposes of this case, that the original conclusion, arrived at, it appears, with considerable difficulty in the office in passing upon Geen's application to patent, was a sound one, the single question for our determination is the disputed claim of priority between the patentee and the later applicant. Kreag v. Geen, present term, 28 App. D. C. 437; 127 O. G. 1581."

In many other cases of doubtful patentability, in our unexpressed opinion, we have felt constrained to confine our consideration to the question of priority alone, for the reason that the statute does not give an appeal to this court from the decision of the Patent Commissioner affirming the patentability of a claimed invention. As was said by Mr. Justice Duell, in the recent case of Sobey v. Holsclaw, 28 App. D. C.:

"In interferences we do not determine whether either party shall receive a patent. The question presented to us is, considering that there is a patentable invention, which party was the first to invent or discover the same? When an interference is returned to the Patent Office after we have decided the question of priority, it is within the power of the Commissioner of Patents to withhold a patent from the successful interferant. In such case, by an orderly system of appeals provided by the statute, the action of the Commissioner of Patents may be reviewed on an ex parte appeal. It is only on such appeals that we can decide that a patent shall or shall not issue. Appeals frequently come to this court in ex parte cases where some claims have been allowed and others refused. The appeal is only before us to consider the correctness of the Commissioner's decision in disallowing the appealed claims. We may doubt the patentability of the allowed claims, but are without power to act. So, in interferences we may doubt the patentability of the issues; but we find no provision in the statute warranting us in overruling the deliberate decision of the Patent Office because of any such mere doubt. Authority to grant patents is vested in the Commissioner of Patents. If he errs and grants an invalid patent, his error can be corrected by the court whenever the validity of the patent is questioned."

Without reciting the rules of the Patent Office regulating the procedure in interferences, which are set out in the brief for the appellant, and assuming, for the purposes of the argument, that they are binding upon this court, we see nothing in them negativing the views expressed. They have never been so interpreted in the Patent Office. The question of patentability is passed upon by the Primary Examiner of the particular department in the first instance. Then only can an interference be declared with another allowed application for the same invention. When declared, the question of priority goes to the Examiner of Interferences, and thence to the Examiners-in-Chief, the Commissioner, and finally to this court. If the question of patentability is raised by a motion to dissolve the interference, it is at once referred to the Primary Examiner who gives a hearing and renders his decision. His decision is not appealable to the tribunals sitting in interference cases, but to the Commissioner in person. If the issue is held patentable the interference proceeds in the regular course on the issue of priority alone. This practice has been approved. Allen v. U. S., ex rel. Lowry, 26 App. D. C. 8, 25; U. S., ex rel. Lowry v. Allen, Sup. Ct. U. S. Dec. 10, 1906; 203 U. S., 476, 125 O. G. 2365.

If it were true, then, that the patentability of the issue is a jurisdictional fact without which there can be no determination

of priority of claim, the procedure above described could not reasonably have been upheld; and this court, moreover, would be compelled to pass upon the patentability of the issue, as a preliminary question, in every interference case, whether directly raised by the parties or not. To do this would be to exercise a general supervisory power over the administration of the Patent Office, not contemplated in the act creating this court and conferring upon it a limited appellate jurisdiction in certain cases. It must be borne in mind that the final judgment of this court entitling a claimant to a patent in either an ex parte, or an interference proceeding is not conclusive of either patentability or priority. The patent, when issued, may be attacked in the courts by parties whose interests may be affected by the monopoly claimed thereunder; and the defeated party has another remedy by proceeding in a court of equity as provided in section 4915, Revised Statutes.

It has become so much the practice, of late, to raise this question of patentability in interference cases, that we think it advisable to set it at rest, so far as this court may; trusting that if our judgment is erroneous it may be corrected by the court of last resort through some appropriate proceeding.

As regards the issue of priority, the burden upon the appellant, as the junior party, has been heavily increased by the unanimous decisions of the Patent Office tribunals. * * *

388. GOLD v. GOLD, 34 App. Cas. D. C. 229, 150 O. G. 570, 1910 C. D. 269.

Shepard, J.:

* * *

1. It is the settled doctrine of this court that the allowance of a claim in the Patent Office is conclusive of the question of patentability in an interference proceeding, because the appellate jurisdiction in respect of patentability is limited to cases where claims have been rejected on that ground. Johnson v. Mueser, 29 App. D. C. 61-64, and cases cited; Dunbar v. Schellinger, *idem.*, 129-140. But whether a former adjudication against the patentability of claims, made on motion of one of the parties in interference to dissolve on that ground, is conclusive of the right to reconsider the question of patentability of the several applications, ex parte, and then to renew the interference, formerly dissolved, is a question that has not been decided.

As we have seen, the first motion to dissolve, from the decision on which no appeal was taken, was granted on the ground that the claims in the issue of the interference were not patentable at all in view of the prior art. Two claims of the issue were not included in that adjudication, as they were not embraced in the motion. As the result of the order of dissolution, each appli-

cant was referred back to the Primary Examiner for separate action. The ordinary result of this would be the final rejection of the claims of both parties which had been held unpatentable. Edward E. Gold amended his claims and demanded reconsideration. The Examiner rejected them but on appeal to the Examiners-in-Chief they were allowed. Egbert H. Gold's application was also reconsidered and the interference was redeclared. Notwithstanding the amendments referred to the new claims are not essentially different from the old ones.

It is also settled that where an application has been finally rejected by the Commissioner in an ex parte proceeding, that adjudication may be relied on by him as conclusive on a second application for the same invention. In re Barratt's Appeal, 14 App. D. C. 255-261; in re Fay, 15 App. D. C. 517; in re Edison, 30 App. D. C. 321-323. A qualification of this doctrine was indicated by the following language in the opinion by Justice Morris in Barratt's case:

"In what we have said we do not desire to be understood that the Patent Office may not, if it thinks proper so to do, entertain and adjudicate a second application for a second patent after the first application has been rejected. What we decide is, that it is not incumbent upon the Office as a duty, to entertain such applications, and that, if it refuses to entertain them, it has a perfect legal right so to do. An applicant is not legally aggrieved by such refusal."

Therefore, in so far, as the public interest, of which the Commissioner is the representative, was concerned, it seems that he had the power to permit this reconsideration and allowance. The doctrine of res adjudicata necessarily applies in favor of the successful party to an interference to whom an award of priority has been made, against his opponent's attempt to renew the interference upon a new application with claims for the same invention although in different or broader form. Blackford v. Wilder, 28 App. D. C. 535-545; Horine v. Wende, 29 App. D. C. 415-428; Carroll v. Hallwood, 31 App. D. C. 165-172.

While the question of the patentability of the issue will not be entertained on appeal from an award of priority, the right of one of the parties to make the claims under the disclosures of his application will be entertained as an ancillary question for the reason that—

"If it be incorrectly held that such party has the right to make the claim, priority may be awarded to him, and his adversary deprived of a substantial right, in that he is not given a claim where he necessarily is the prior inventor, his adversary never having made the invention. Podlesak v. McInnerney, 26 App. D. C. 399-405."

As a consequence of the doctrine established by that case, it has been held that where an interference has been dissolved on that ground, without appeal from the decision, this right to make the claim, must be considered res adjudicata in a later interference between the parties on the same application. U. S., ex rel. Newcomb Motor Co., v. Moore, 30 App. D. C. 464-476. In that case Newcomb had received a patent but before its issue Thompson and others had applications pending in the Office, the claims of which did not conflict with Newcomb's. Hence no interference had been declared. When the parties saw Newcomb's patent they amended by copying every one of its claims. Interferences having been declared between the amended applications and the patent, Newcomb moved to dissolve on the ground that his opponents had no right to make those claims under the disclosures of their applications. The motion was sustained by the Examiner, and the opponents took an appeal to the Commissioner, which they thereafter abandoned. After withdrawing their appeals they proceeded ex parte and secured another allowance of their claims as being within the disclosures. The interference was then again declared. Newcomb moved to dissolve on the ground that the question of his opponents' rights to make the claims was concluded by the judgment on his first motion. This contention was sustained on a petition for mandamus to the Commissioner to compel him to give effect to the former judgment and vacate the later proceedings for interference. That case is relied on by appellant as governing the question under present consideration. We cannot agree with the contention. The question of the right of one of the parties to make claims, is inseparably connected with that of priority. When adjudged that one of the parties had no right to make the claims, in other words, that his description fails to show a conception of the invention of the issue, the other, who thereby appeared to be the sole inventor, was necessarily entitled to the award and to his patent. The effect of the decision is to establish his right of property in the invention, and he is entitled to the benefit without further impeachment of that right by his adversary in renewed litigation in the Patent Office. If the losing party can go back to the Examiner, and proceeding ex parte, secure an allowance of his right to make the claims and then renew the litigation with his adversary, there might be no end to it. It it to meet conditions of the kind that the salutary doctrine in respect of the conclusiveness of former judgments had been applied in proceedings in the Patent Office. On the other hand the patentability of a described invention is a question that arises on each application when presented, and is necessarily determined ex parte. It is only when patentability has been allowed

in the ex parte proceeding that an interference with a like application of another can be declared. This allowance is not appealable. It is true that the patentability of the claims of an issue in interferencc may be questioned in a motion to dissolve. (Patent Office Rule 122.) Why this is permitted by the rule we do not understand, unless it be to enable the Commissioner to reexamine the question in the light of argument and put an end to useless litigation if he find that an allowance of patentability ought not to have been made in the first instance. So finding he acts for the protection of the public from an unauthorized monopoly and dissolves the interference so that each application may be rejected. The decision determines no right between the two opponents, but one between them both, on one side, and the public on the other. If either desire to appeal from the final order of rejection, he must do so, ex parte in regular course of procedure. In re Fullagar, 32 App. D. C. 222-229; Sobey v. Holsclaw, 28 App. D. C. 65-82. That the question is to be considered as one between the public and the parties, and not between the latter, is also evidenced by the provisions of Rule 126 which authorizes the Examiner of Interferences, and the Examiners-in-Chief to direct the attention of the Commissioner to matters not relating to priority. Morever the Commissioner may, with or without such direction or attention, raise the question of patentability of his own motion, and send the application back for rejection without deciding the question of priority, or he may, after the question of priority has been determined, reject the application of the successful interferant, and put him upon an ex parte appeal. Sobey v. Holsclaw, 28 App. D. C. 65-82; Seymour v. Brodie, 10 App. D. C. 507. We must hold that the question of patentability was not concluded by the decision of the original motion to dissolve the interference on that ground.

2. The remaining question is whether the subject-matter of the issue is disclosed in Patent No. 771,628, for if it is, Egbert H. Gold is entitled to the filing date of the application for that patent for constructive reduction to practice, and consequently to the award of priority, as it has been found that he was the first to conceive the invention.

The point has been fully and ably considered in the decisions of the several tribunals of the Office, and we find no occasion for adding to the discussion. When all of these expert tribunals have concurred in holding, especially in a case involving somewhat complicated mechanical means, that the invention claimed is not disclosed in the description of a party's invention, error must be very clearly shown in their conclusions to justify a reversal of the same. Seeberger v. Dodge, 24 App. D. C. 476-481;

Kilbourne v. Hirner, 29 App. D. C. 54-57; Stone v. Pupin, 19 App. D. C. 396-400.

It is sufficient to say that no such error has been shown. The decision will, therefore, be affirmed. It is so ordered, and that this decision be certified to the Commissioner of Patents as required by law.

389. BLACKFORD v. WILDER, 28 App. Cas. D. C. 535, 127 O. G. 1255, 1907 C. D. 491.

Shepard, J.: * * *

The doctrine of res adjudicata, or estoppel by former judgment, has been thus declared by the Supreme Court of the United States:

"When the second suit is upon the same cause of action, and between the same parties as the first, the judgment in the former is conclusive in the latter as to every question which was or might have been presented and determined in the first action; but when the second suit is upon a different cause of action, though between the same parties, the judgment in the former action operates as an estoppel only as to the point or question actually litigated and determined, and not as to other matters which might have been litigated and determined."

Nesbit v. Riverside Independent District, 144 U. S. 610, 618; New Orleans v. Citizens Bank, 167 U. S. 371, 386; S. P. R. R. v. U. S., 168 U. S. 1, 48.

The same rule applies to adjudications made in the Patent Office. In re Barratt's appeal, C. D. 1899, 320, 87 O. G. 1075, 14 App. D. C. 255, 257; in re Fay, C. D., 1900, 232, 90 O. G. 1157, 15 App. D. C. 515, 517. It is also declared in Patent Office Rule 127, that—

"a second interference will not be declared upon a new application for the same invention filed by either party."

It is further provided in Rule 132, that whenever an award of priority has been rendered in an interference proceeding by any tribunal, and the limit of appeal therefrom has expired, the Primary Examiner shall advise the defeated party that the claims so involved in the issue stand finally rejected. In interpreting this rule (A. D. 1891) Mr. Commissioner Mitchell held that the Examiner, after rejecting all claims which are or could be made by the prevailing party, may properly allow to the defeated party such other claims as are held to be patentable and which could not be made by the prevailing party; and that no claim should be allowed to the defeated party which could by any latitude of construction be held to embrace matter common to the structure of both parties to the interference. C. D. 1891, 141, 56 O. G. 141.

In Corry & Barker v. Trout, C. D. 1904, 144, 110 O. G. 306, Mr. Commissioner Allen reversed a decision of the Primary Examiner refusing dissolution of a second interference between the same parties. In doing so he said:

"The prior interference included the application now involved and the claim in controversy was drawn upon the same structure as that now claimed. Corry and Barker contend that the present issue is not substantially different from that in the first interference, and Trout admits that they differ merely in scope. Trout, however, argues that the present issue being broader than the first cannot be regarded as substantially the same and that it cannot be assumed that he will be unable to prove priority of invention on this issue merely because he failed on the specific issue. The declaration of a second interference between the same applications should be necessary only in rare cases and under very exceptional circumstances. It should not ordinarily be upon claims to the same device and differing from the first issue merely in scope. If a mere change in the scope of claims were considered good ground for a second interference, the number of successive interferences between the same parties would be practically unlimited and the interference procedure would become an intolerable burden to applicants. The Office is justified in taking the decision as to priority of invention as prima facie evidence that the successful party was the first inventor not merely of the particular issue in controversy, but of the invention common to the two cases, whether more broadly or more specifically stated. The burden is upon the defeated party to show special circumstances of the particular case which make it improper to apply the decision to the other claims presented. It is not sufficient that the claims differ and that it is theoretically possible for one party to be prior inventor as to the first, and the other party prior inventor as to the second, for this would apply in all cases where the claims are not identical. To justify a second interference, there must be some exceptional circumstances, such as were presented in Sarfert v. Myer (76 MS. Dec. 410), where the decision in the first interference was in favor of Sarfert upon the specific issue; but it appeared from the findings of fact that Myer was the first inventor of the broad invention common to the two cases."

See also Phelps v. Wormley, 118 O. G. 1069, 1070; ex parte Neischwanger, C. D. 1890, 37, 38, 50 O. G. 1132.

The foregoing decision is in substantial accord with the long-established doctrine of the Patent Office, that an interference in fact depends chiefly upon the subject-matter disclosed and not merely upon the language of the respective claims. Drawbaugh

v. Blake, C. D. 1885, *7*, 11, 30 O. G. 259. In that case Mr. Commissioner Butterworth said:

"I have no doubt about the correctness of the rule laid down in ex parte Upton, C. D. 1884, 26, 27 O. G. 99. It is the substance of things and not the shadow with which we deal. * * *"

Gray v. Robertson, C. D. 1885, 1, 50 O. G. 165; Bissell v. Roberts, C. D. 1885, *77*, 51 O. G. 1618. See also Miller v. Eagle Mfg. Co., C. D. 1894, 147, 66 O. G. 845, 151 U. S. 186, 198.

In that case the question was as to the validity of two patents to the same party. The drawings in each patent were identical, and the specifications in each substantially the same, but the first patent covered both the lifting and depressing actions of the machine, while the second was limited to the lifting effect only. The second patent was held to be void. Mr. Justice Jackson, who delivered the opinion of the Court, said:

"The result of the foregoing and other authorities is that no patent can issue for an invention actually covered by a former patent, especially to the same patentee, although the terms of the claims may differ; that the second patent, although containing a broader claim, more general in its character than the specific claims contained in the prior patent, is also void; but that where the second patent covers matter described in the prior patent, essentially distinct and separable from the invention covered thereby and claims made thereunder, its validity may be sustained. * * * It is settled also that an inventor may make a new improvement on his own invention of a patentable character, for which he may obtain a separate patent, and the cases cited by the appellee come to this point, and to this point only, that a later patent may be granted where the invention is clearly distinct from, and independent of, one previously patented."

Porter v. Louden, C. D. 1895, *707*, *73* O. G. 1551, *7* App. D. C. 64, 69.

It remains to apply the foregoing principles to the facts of this case which are substantially these: The applications of the two interferences are the same: The issue of each reads on Wilder's original Exhibit E, and Blackford's Exhibit D. It was on Exhibit E, and the evidence relating to its several parts, time of construction and operation that Wilder's right to priority was founded and determined in each case. That exhibit when produced before the Examiners-in-Chief, the Commissioner, and this court, in the hearing of the first interference, did not show the wick of the issue therein involved, and Wilder was denied the right to introduce additional evidence tending to show that the wick was in the device when constructed, and when offered for inspection in the Patent Office. He was confined to the evidence contained in the record. When the decision awarding

priority to Blackford was certified to the Commissioner, Wilder presented the broader claims, and secured the declaration of a second interference with Blackford, supporting his claim to priority with his same Exhibit E and some additional evidence tending to show that the wick of the former issue was contained in it when constructed. The decisions of the several tribunals of the Patent Office in favor of Wilder were founded upon this exhibit and evidence. * * *

To sum up—the parties are the same. The applications are the same and disclose the invention of each issue. The constructions relied on, respectively, as evidencing conception and reduction to practice of the invention of both issues are the same. The fundamental facts of both cases are the same. Applying the well-settled principle of estoppel by judgment, before stated, it follows inevitably that the final decision in the first interference is conclusive, unless it can be made to appear that the question upon which the determination of the second case rests is one that neither was, nor could have been presented and determined in the first case.

The contention is that this essential difference between the two cases lies in the fact that the claims of the second interference are broader in scope than those of the first, and cover an essentially separate and distinct invention. We are unable to concur in the decisions of the Patent Office tribunals maintaining this view. As pointed out in the cases heretofore cited, in declaring interferences in the Patent Office, identity of subject-matter is not determinable merely by the language of the claims preferred by the respective applicants. By the several decisions under review on this appeal it is shown that the later claims of Wilder might have been presented in the first instance, if so advised, and Blackford brought into interference with him then as he has been since; for, as they expressly hold, Blackford's Exhibit D, being an oil-bowl, necessarily contained the issue of the second interference. Instead, Wilder preferred to adopt the more specific claims of the first issue drawn as the present ones were upon the structure shown in his Exhibit E, and reading as well on Blackford's Exhibit D. That issue having been decided in favor of Blackford, Wilder has been permitted to make the new claims and has been awarded priority of invention over the claim of Blackford founded on the structures proved in the first case, on additional evidence to that introduced on the first trial tending to show that his Exhibit E did, in fact, have in it the wick of the first issue, notwithstanding that had been one of the questions expressly decided in the former case. Having had the right to make the broader claims in the earlier stages of the proceedings in the Patent Office, as well as the opportunity, in

the first proceeding, to introduce all of his evidence relating to the construction and operation of his Exhibit E structure, his right, in both respects, terminated with that litigation.

Whether the former decision was right or wrong, or was induced by the want of the particular evidence that was offered in the present case, is not the question. However that might be it was final and put an end to the litigation in the first interference. It must be held, therefore, as conclusive of every question that not only was, but also might have been presented and determined in that case.

The motion to dissolve the second interference ought to have been sustained, and Wilder's claims finally rejected as provided in Rule 132.

The decision appealed from will therefore be reversed. It is so ordered; and that this decision be certified to the Commissioner of Patents as required by law. Reversed.

390. MORGAN v. DANIELS, 153 U. S. 120, 38 L. ed. 657, 14 Sup. Ct. 772 (1894).

Brewer, J.: * * *

Statement of the Case.

On October 30, 1889, the appellee, Fred H. Daniels, commenced suit against the defendant in the Circuit Court of the United States for the District of Massachusetts. In his bill he alleged that he was the original, sole, and first inventor of an improvement in machines for coiling wire or wire rods; that on June 26, 1886, he filed in the United States Patent Office an application in due form for a patent; that on September 4, 1886, the Commissioner of Patents declared an interference between his application and one filed by the defendant on June 24, 1886; that thereafter testimony was taken on such interference, and a decision rendered on March 22, 1889, adversely to his claim of a priority in invention; that a rehearing was had, which rehearing resulted, on October 28, in affirming the original decision. The bill further averred that the defendant was not, as decided by the Commissioner of Patents, the first inventor or discoverer, and prayed for a decree that he, plaintiff, be entitled to receive a patent for his invention, as specified in his claims, and that defendant be enjoined from taking any steps to use or dispose of Letters Patent for said invention, or any part thereof.

This suit was brought under the authority of section 4915, Revised Statutes, which is as follows:

"Whenever a patent on application is refused, either by the Commissioner of Patents or by the Supreme Court of the District of Columbia upon appeal from the Commissioner, the ap-

plicant may have remedy by bill in equity; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim, or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the Commissioner to issue such patent on the applicant filing in the Patent Office a copy of the adjudication, and otherwise complying with the requirements of law. In all cases, where there is no opposing party, a copy of the bill shall be served on the Commissioner; and all the expenses of the proceedings shall be paid by the applicant, whether the final decision is in his favor or not."

To this bill, on January 10, 1890, the defendant filed an answer, denying that plaintiff was the inventor, as alleged. The case was submitted to the circuit court upon the testimony used in the interference proceedings, and upon such testimony a decree was entered, finding that plaintiff was the original inventor and entitled to receive a patent for the invention. From such decree the defendant brings this appeal. * * *

Mr. Justice Brewer delivered the opinion of the Court.

It is worthy of notice that hitherto in the progress of this litigation upon the same testimony different persons have reached different conclusions. Thus, in the opinion filed June 5, 1888, by the Examiner of Interferences and Assistant Examiner, it was found that the defendant was the original inventor. On an appeal from that decision the Examiners-in-Chief (two members being present) came to a different conclusion, and awarded priority to the plaintiff. On a further appeal the Commissioner of Patents on March 22, 1889, reversed the judgment of the Examiners-in-Chief, and sustained that of the original Examiners. A motion for rehearing was brought before a succeeding Commissioner and overruled. When this case was submitted, without any additional testimony, to the circuit court the conclusion finally reached in the Patent Office was dissented from, and it was found that the plaintiff was the original inventor. An examination of the opinions filed by these different officers indicates that by each of them the matter was carefully considered. Evidently, therefore, the question as to which was the prior inventor is not free from doubt. What, then, is the rule which should control the Court in the determination of this case? It is insisted by the appellant that the decision of the Patent Office should stand unless the testimony shows beyond any reasonable doubt that the plaintiff was the first inventor, and, in support of their contention, cite the cases of Coffin v. Ogden, 18 Wall. (U. S.) 120, 124, and Cantrell v. Wallick, 35 O. G. 871, 117 U. S. 689, 695. In the

first of these cases, which was a suit for infringement, the defense was a prior invention, and in respect to this defense the Court observed:

"The invention or discovery relied upon as a defense must have been complete, and capable of producing the result sought to be accomplished; and this must be shown by the defendant. The burden of proof rests upon him, and every reasonable doubt should be resolved against him."

In the other case the same defense in a suit for infringement was set up, and there the Court thus stated the rule:

"The burden of proof is upon the defendants to establish this defense. For the grant of Letters Patent is prima facie evidence that the patentee is the first inventor of the device described in the Letters Patent and of its novelty. Smith v. Goodyear Dental Vulcanite Co., 11 O. G. 246, 93 U. S. 486; Lehnbeuter v. Holthaus, 21 O. G. 1783, 105 U. S. 94. Not only is the burden of proof to make good this defense upon the party setting it up, but it has been held that 'every reasonable doubt should be resolved against him'."

These two cases are closely in point. The plaintiff in this case, like the defendant in those cases, is challenging the priority awarded by the Patent Office, and should, we think, be held to as strict proof. In the opinion of the court below the rule is stated in these words:

"The complainant, on the issue here tendered, assumes the burden of proof, and must, I think, as the evidence stands, maintain by a clear and undoubted preponderance of proof that he is the sole author of that drawing. 42 Fed. 451."

This language is not quite as strong as that just quoted. The case as presented to the circuit court was not that of a mere appeal from a decision of the Patent Office, nor subject to the rule which controls a chancellor in examining a report of a master, or an appellate court in reviewing findings of fact made by the trial court. There is always a presumption in favor of that which has once been decided, and that presumption is often relied upon to justify an appellate court in sustaining the decision below. Thus, in Crawford v. Neal, 144 U. S. 585, 596, it was said:

"The cause was referred to a master to take testimony therein, 'and to report to this court his findings of fact and his conclusions of law thereon.' This he did, and the court, after a review of the evidence, concurred in his findings and conclusions. Clearly, then, they are to be taken as presumptively correct, and unless some obvious error has intervened in the application of the law, or some serious or important mistake has been made in the consideration of the evidence, the decree should be permitted to stand."

See also Camden v. Stuart 144 U. S. 104, and Furrer v. Ferris, 145 U. S. 132.

But this is something more than a mere appeal. It is an application to the Court to set aside the action of one of the Executive Departments of the Government. The one charged with the administration of the patent system had finished its investigations and made its determination with respect to the question of priority of invention. That determination gave to the defendant the exclusive rights of a patentee. A new proceeding is instituted in the courts—a proceeding to set aside the conclusions reached by the administrative department, and to give to the plaintiff the rights there awarded to the defendant. It is something in the nature of a suit to set aside a judgment, and as such is not to be sustained by a mere preponderance of evidence. Butler v. Shaw, 21 Fed. 321, 327. It is a controversy between two individuals over a question of fact which has once been settled by a special tribunal, intrusted with full power in the premises. As such it might be well argued, were it not for the terms of this statute, that the decision of the Patent Office was a finality upon every matter of fact.

In Johnson v. Towsley, 13 Wall. (U. S.) 72, 86, a case involving a contest between two claimants for land patented by the United States to one of them, it was said:

"It is fully conceded that when those officers (the local land officers) decide controverted questions of fact, in the absence of fraud, or impositions, or mistake, their decision on those questions is final, except as they may be reversed on appeal in that Department."

Upon principle and authority, therefore, it must be laid down as a rule that where the question decided in the Patent Office is one between contesting parties as to priority of invention, the decision there made must be accepted as controlling upon that question of fact in any subsequent suit between the same parties, unless the contrary is established by testimony which in character and amount carries thorough conviction. Tested by that rule the solution of this controversy is not difficult. Indeed, the variety of opinion expressed by the different officers who have examined this testimony is persuasive that the question of priority is doubtful, and if doubtful the decision of the Patent Office must control.

What was the invention which the parties each claim to have made and in respect to which an interference was ordered in the Patent Office? It was thus stated by the Examiner:

"In a device for coiling wire or wire rods, the combination, with a rotating coiling receptacle or reel for receiving and laying in coils the rod as it is delivered from the rolls, of a spider or plat-

form for supporting the coil mounted on a vertical shaft concentric with the reel-supporting shaft, and means for elevating the platform-shaft independently of the other."

Plaintiff claims to have conceived the idea of this combination in July, 1878, and to have made in that and the succeeding year sketches and drawings which fully disclosed it. It is conceded that a machine embodying the invention was first constructed and put into successful operation in the spring of 1886, and that this was done under the direction and superintendence of defendant.

During the years 1878 and 1879, the defendant, a man about forty-seven years of age, was, as he had been since 1864, the general superintendent of the Washburn & Moen Manufacturing Company, a corporation engaged in the manufacture of iron and steel wire, while the plaintiff, twenty-four years of age, was in the employ of the same company as a draftsman, working under the direction of the defendant. The business of the company had, during the years of defendant's superintendency, grown to be enormous. In the actual work of the mill, as the finished wire came from the rolls it was coiled on reels. At first this was done through the agency of an attendant seizing the wire by a pair of tongs and engaging it with the reel, but this operation was attended with both danger and delay. To obviate this, the parties interested in this manufacture sought the invention of machinery which should seize the finished wire and engage it with the reel, and thereafter dislodge the completed coil therefrom.

The defendant locates the time of his conception of the idea embodied in this combination in October, 1878, and that which enables him to locate it is a transaction with Daniel C. Stover. It appears that in October, 1878, Stover (who was a manufacturer and inventor) came to Worcester, Mass., and while engaged in examining the machinery in the mill had his attention directed to the way in which the wire was coiled on the reels, and thought that some device could be invented for picking up the wire immediately after its leaving the rolls. After some reflection he conceived the idea which he subsequently embodied in Patent No. 219,124. He suggested his idea to the defendant, who replied that it was not new, and that others were working at it. He prepared a model which showed not only a device for picking up the wire, but also one for discharging the completed coil, and showed it to defendant, who, on his part, showed Stover a model which he had prepared. It is not pretended that either the model of Stover or that of defendant disclosed the exact combination for which a patent was claimed in this case. Nor is it important to notice all the details of the transactions at the time between Stover and the Washburn & Moen Company. It appears that

Stover sold and assigned a one-half interest in his invention to the Washburn & Moen Company. The time of Stover's visit is established by the date of that assignment and the application which he made for a patent, and by other writings. There is significance in the fact that although the plaintiff was present when Stover's model was shown, it does not appear that he made any suggestion that he had invented anything of a similar character; and yet, if his present claim is true, he had for months been considering the matter, and had at least three months before conceived the very idea of the combination now in dispute. But it is enough to say in respect to this branch of the case that the story of the invention by defendant at the time stated is reasonable, probable, and to a certain extent supported by the testimony of Stover.

As against this the plaintiff claims to have conceived the idea of this combination in July, 1878, and relies mainly on the testimony of two witnesses, Lambert and Fowler. Though he was a draftsman he presented no sketch or drawing made prior to November, 1878, which in any such manner pictures his invention. It is true he testifies to having made sketches prior thereto, but none have been preserved. One of them he claims to have shown to Lambert in July, 1878, and Lambert was called as a witness to support this statement; but Lambert's testimony does not, it seems to us, carry the weight which is claimed for it. He was a tinsmith by occupation, employed at times by the manufacturing company, and testifies that in July, 1878, or about that time, very soon after Daniels' return from Europe, he came to his shop and showed him a sketch, and asked him to make a model of it. He declined, saying that he was too busy. Nothing more took place at that time, but in the fall of 1886, at Daniels' request, he made a model of the machine which, as he says, was disclosed by that sketch. This model was in evidence. Now, it is possible that one seeing for a few minutes a sketch of a complicated machine can eight years thereafter remember the details of that sketch so clearly as to make an accurate model. But, if it is possible, it surely is not probable. If the invention embraced in the sketch impressed either Daniels or Lambert as something of great value, and therefore, fixed itself firmly in the mind, it is strange that neither seemed anxious to impress it upon the attention of others, carry it into actual use, or derive profit from it. On the other hand, if it was one which did not impress either as of any special value, it seems almost morally certain that the details of the sketch and the precise character of the invention would not have been accurately remembered through all those eight years. We must not be understood as imputing to Lambert intentional falsehood. He was familiar with the machinery

actually in use in the wire mill. He saw in the course of his acquaintance with that machinery many models and many machines, and the machine embodying this invention, as perfected, had been in actual use in the mill several months before he made this model. He may well have gotten some of these matters confused in his mind, and introduced into this model elements and parts which were not seen by him in the sketch displayed in 1878, and which were in fact taken from other sketches and drawings, or from models, or machines. At any rate, when there was nothing to specially arrest the attention, it taxes credulity for one to claim that he bears in mind for over eight years the details of a sketch of a complicated machine which is casually shown to him and which he sees but for a short time, and is enabled to thereafter reproduce the details of that sketch in a model.

Equally unreasonable is the testimony of Fowler, which is to the effect that on July 20, 1878 (the date being fixed by a memorandum in his diary), Daniels came to visit him. This diary notes the facts simply of the visit of Daniels, but contains nothing in respect to the matters involved in this case. His testimony as to this was in these words:

"He explained by rough sketches an arrangement he had for coiling the wire after it was delivered from the rolls, which was a round box mounted on an upright shaft, and in the bottom of the box was a plate, perhaps I should say a movable plate. which could be lifted for the purpose of raising the coil of wire. That was his method of getting hold of the coil, to get it out of the box."

None of these rough sketches were preserved. There was apparently nothing to impress the matter upon the mind of Fowler, and his attention was not directed to it until some time in the early part of 1887, nearly nine years thereafter, when Daniels called on him for the purpose of securing his testimony in this case. Doubtless Fowler means to be truthful. There is no reason to impugn his integrity, but his testimony is subject to a criticism similar to that placed upon the testimony of Lambert. As one of the matters which was being considered and discussed by the manufacturing company was how to do the work which is now being done by the machine finally constructed by defendant, it is not at all unlikely that Daniels, one of the employes of that company, spoke of the matter to Fowler at the time named; very likely he may have drawn rough sketches to suggest the ideas which were in his mind; but it is not probable that in the absence of some special reason therefor the memory would carry for eight or nine years the details of the plan or idea suggested by Daniels and illustrated by these

sketches. While, of course, it is possible, yet such testimony is not of a character to carry great weight.

There is other testimony on both sides of this controversy. It is unnecessary to notice it in detail. It is enough to say that the testimony as a whole is not of a character or sufficient to produce a clear conviction that the Patent Office made a mistake in awarding priority of invention to the defendant; and because of that fact, and because of the rule that controls suits of this kind in the courts, we reverse the judgment and remand the case, with instructions to dismiss the bill.

Mr. Justice Jackson did not hear the argument or take part in the decision of this case.

391. UNITED STATES, EX REL LOWRY, v. ALLEN, COMMISSIONER OF PATENTS, 203 U. S. 476, 51 L. ed. 281, 27 Sup. Ct. 141 (1906).

Mr. Justice McKenna delivered the opinion of the Court.

This is a petition for mandamus filed in the Supreme Court of the District of Columbia, requiring the Commissioner of Patents to direct the Board of Examiners-in-Chief to reinstate and take jurisdiction of the appeal of petitioners from the decision of the Primary Examiner, refusing to dissolve an interference between a patent granted to him and an application for a patent by one William L. Spoon. The supreme court granted the mandamus. Its judgment was reversed by the court of appeals.

The question in the case is, whether the rule of the Patent Office which denies an appeal from a ruling of a Primary Examiner, upon motion to dissolve an interference, is contrary to the Revised Statutes, and therefore void. Rule 124 provides that "from a decision of a Primary Examiner affirming the patentability of the claim or the applicant's right to make the same, no appeal can be taken."

Plaintiffs in error attack the rule as inconsistent with the sections of the Revised Statutes which provide for interferences, These sections are inserted in the margin. [R. S. Secs. 4894, 4909, 4910, 4911; Sec. 9, Act of February 9, 1893; R. S. Secs. 482, 483—See supra.]

The facts are as follows: Lowry was granted a patent for a bale of fibrous material January 29, 1897. An interference was declared between his patent and application of one William Spoon, to which interference Lowry was made a party. He moved to dissolve the interference upon the ground, among others, that Spoon's press was inoperative. The Primary Examiner granted the motion and Spoon appealed to the Board of Examiners-in-Chief, who confirmed the decision. Upon petition of Spoon the Commissioner of Patents remanded the case to the Primary Examiner for further consideration, and the

latter officer, upon the filing of additional affidavits, decided that Spoon's application disclosed an operative device. From this decision an appeal was taken to the Board of Examiners-in-Chief, which was dismissed by that Board for want of jurisdiction. Thereupon Lowry petitioned the Commissioner to direct the Board to issue an appeal. The petition was denied, the Acting Commissioner remarking:

"The rule prohibiting an appeal from a decision upon a motion holding that a party has the right to make the claim of the issue is in accordance with the practice which has prevailed in this Office for many years and has the support of all decisions of the courts which have been rendered on the subject. There seems to be no reason for regarding it as inconsistent with the statute. It seems very clear that the decision in this case is not a final adverse decision, since it is not a ruling that Lowry is not entitled to his patent. That is a matter which may be determined in the further proceedings, and therefore it is clear that the decision relates to a mere interlocutory matter.

"The petition is denied."

Lowry filed another petition, appealing to the Commissioner "in person," to direct the Board of Examiners-in-Chief to entertain his appeal. The petition was considered and denied. In passing on the petition the Commissioner said:

"Under the express provisions of Rule 124 there is no appeal to the Examiners-in-Chief from such decision rendered on an interlocutory motion. It is believed that there is nothing in that rule inconsistent with law, and that therefore it has the force of law. The right of appeal in interferences given in general terms in the statute is a very different thing from the right of appeal on all motions in the interference. To permit appeals on motions would multiply litigation and extend the proceedings in interferences beyond all reasonable limits. It would work great hardship to parties. The appellate tribunals of this Office are no more required to give cases piecemeal consideration than are the appellate courts. The whole case should be ready for appeal when the appeal provided for by the statute is taken.

* * * * * * *

"It is to be particularly noted that there has been no decision as to the rival claims of the parties to this interference. It has not been decided which party is entitled to the patent. If it should at any time be decided that Spoon is entitled to the patent, Lowry will have the right of appeal, but until such final decision is rendered the statute gives him no right of appeal.

"It would seem upon general principles of law that Lowry could then present for determination by his appeal any question which in his opinion vitally affects the question which party is

entitled to the patent. The only ground upon which he can reasonably claim the right of appeal on this motion is that the question vitally affects his claimed right to a patent, and if it does that, he can raise it at final hearing and contest it before the various appellate tribunals, including the court of appeals.

"The refusal to permit the present appeal on motion is therefore not a denial of an opportunity to have the matter reviewed by the several appellate tribunals mentioned in the statute."

And further:

"No good reason is seen for changing the provisions in Rule 124 here in controversy, which was adopted and approved by a long line of Commissioners of Patents, among whom have been some of the ablest patent lawyers in the country, and which rule has been acquiesced in by patent attorneys practicing before the Office for the last quarter of a century."

There is quite a sharp controversy between the parties as to the effect of the ruling of the Commissioner. Plaintiffs in error are apparently convinced that the ruling of the Primary Examiner involves a fundamental right which, if not decided on his appeal, will be forever foreclosed to him for review. A different view is expressed by defendant in error. However this may be, we think the question in the case is in quite narrow compass. The statutes involved are not difficult of interpretation. The determining sections are 482, 483, 4904 and 4909. Plaintiffs in error put special stress upon sections 482 and 4909. Section 482 provides for the appointment of Examiners-in-Chief "whose duty it shall be, on the written petition of the appellant, to revise and determine upon the validity of the adverse decisions of Examiners * * * in interference cases."

Section 4906 provides that—

"every party to an interference may appeal from the decision of the Primary Examiner in such case to the Board of Examiners-in-Chief." * * *

The contention is that this section gives the right of appeal unreservedly and any limitation of it by a rule is void. Such might not be the result, even if there was no qualification of those sections in other sections. As said by the Commissioner—

"the right of appeal in interferences given in general terms in the statute is a very different thing from the right of appeal on all motions in the interference."

It certainly could not have been the intention to destroy all distinctions in procedure. But we are not left to inference. The statute is explicit. It limits the declaration of interferences to the question of priority of invention. Section 4904 provides

that in case of conflict of an application for a patent with a pending application or with an unexpired patent (as in the case at bar), the Commissioner shall give notice thereof—
"and shall direct the Primary Examiner to proceed to determine the question of priority of invention."

And it is provided that the Commissioner shall issue a patent to the party adjudged the prior inventor, unless the adverse party appeals from the decision of the Primary Examiner or Examiners-in-Chief, as the case may be. The history of the sections and the rules are gone into at length by the court of appeals in its opinion. We need not repeat the discussion. It answers the detailed reasoning of plaintiffs in error. We concur with the views expressed, that the statutes provide only for appeals upon the question of priority of invention. Appeals on other questions are left to the regulation of the Patent Office under the grant of power contained in section 483. Judgment affirmed.

Mr. Justice Peckham and Mr. Justice Day dissent.

392. U. S. Ex Rel., THE NEWCOMB MOTOR CO., v. MOORE, COMMISSIONER OF PATENTS, 30 App. Cas. D. C. 464, 133 O. G. 1680, *1908* C. D. 332.

Robb, J.:

This is an appeal from an order of the Supreme Court of the District of Columbia dismissing a petition for a writ of mandamus to compel the Commissioner of Patents to enforce a former decision made in the Patent Office and to vacate certain proceedings thereafter had involving what is claimed to be the same subject-matter.

The facts, about which there is no controversy, are these: On July 15, 1902, two patents were regularly issued to E. C. Newcomb—one for an apparatus for generating steam and the other for the method of generating steam. Both were subsequently assigned to the relator, The Newcomb Motor Company. Newcomb's original application was filed June 7, 1901, and subsequently divided. Prior to this, on August 2, 1897, Elihu Thomson had filed an application for an apparatus for regulating and controlling steam production. No interference was declared between this and Newcomb's applications. After the issue of Newcomb's patents Thomson inserted in his application forty-seven claims copied from Newcomb's method patent and demanded an interference. Thereafter, on November 17, 1902, Thomson filed a divisional application setting up the same method claims and at the same time canceled said claims in his original application. February 28, 1900, Herman Lemp filed an application for automatic regulation of steam-propelled vehicles,

and on November 3, 1902, another for the method of producing steam. Both of these have been assigned to the General Electric Company. December 30, 1902, an interference was declared between Lemp's last application and the Newcomb patent, No. 704,908 (method), involving an issue of fifteen counts. These counts consisted of fifteen claims of the Newcomb patent that were not claimed in Lemp's application as filed, but were added thereto after Newcomb's patent had issued. A second interference was declared January 13, 1903, between Lemp's first application and Newcomb's patent No. 704,907. The twenty-one counts of this issue were claims of the Newcomb patent not claimed by Lemp until after the issue of the Newcomb patent. January 13, 1903, an interference was declared between Thomson's divisional application and Newcomb's patent, the forty-seven counts of the issue constituting the claims taken from Newcomb's patent. Another was declared January 27, 1903, between Thomson's original application and Newcomb's patent No. 704,907. The issue in this contained forty-eight counts embracing forty-eight claims of the Newcomb patent not in Thomson's original application but inserted by him after the issue of the Newcomb patent aforesaid. Thereafter Newcomb filed in each case a motion, under Rule 122, to dissolve the interferences. Several grounds were assigned, the substantial one in each case being that the opposing party had no right under his application to make the claims in interference. The Primary Examiner, to whom the motions were referred under the rule, on January 11, 1904, made a decision in each case that the applicants had no right to make the claims, and thereafter dissolved the interferences. The limit of appeal from each decision was ordered to expire February 4, 1904. Lemp and Thomson filed motions before the Primary Examiner asking him to cancel the limit of appeal as contrary to law, because they were entitled to a second rejection of their claims, that after-proceedings in the interferences be suspended pending the motions, and that they be given thirty days within which to file affidavits regarding the right to make the claims. By stipulation the limit of appeal had been extended sixteen days, namely, to February 20, 1904. On that date the Examiner denied the motions. On the same day Lemp and Thomson entered appeals to the Examiners-in-Chief from the decisions dissolving the interferences, asking that hearings thereof be postponed until a decision by the Commissioner on appeals taken directly to the Commissioner from the decisions of the Examiner refusing to extend the limit of appeal. On March 11, 1904, the Commissioner affirmed the decisions denying the motions to extend the limit of appeal. September 28, 1904, the Commissioner denied motions for rehearing. Pending the above

proceedings on June 3 and 7, 1904, Thomson and Lemp petitioned the Commissioner to remand their applications to the Primary Examiner with instructions to reject or allow the same. This petition was denied. On October 5 and 6, 1904, Thomson and Lemp "in view of the Commissioner's decision" of September 28, 1904, withdrew their several appeals to the Examiners-in-Chief from the decisions of the Primary Examiner dissolving the interferences. After the withdrawal of these appeals, Thomson and Lemp proceeded ex parte before the Primary Examiner (Newcomb having no knowledge thereof) and demanded action on the same claims, their right to make which had been denied on the motions to dissolve. November 3, 1904, the claims were rejected. Both parties thereafter asked the reconsideration of their several demands and filed affidavits relating to the construction of the applications and claims. Thomson's application was a second time rejected on May 10, 1905, and he appealed in each case to the Examiners-in-Chief. Lemp pursued the same course, and was a second time rejected, on November 20, 1905, and likewise appealed to the Examiners-in-Chief. On July 13, 1905, on Thomson's ex parte appeal the Examiners-in-Chief reversed the Primary Examiner as to all but two of the claims involved. On Lemp's ex parte appeal they, on January 25, 1906, reversed the Primary Examiner as to all of the claims involved. After these last two decisions the Examiner of interferences reinstated the former interferences, redeclaring them as before with the exception of the two counts which the Examiners-in-Chief had held were rightly denied. Before noticing this second declaration Newcomb moved to dissolve on the ground that the subject-matter was res adjudicata. The Examiner denied the motions and Newcomb appealed to the Commissioner. On this appeal the Commissioner, on April 24, 1906, reversed the decision reinstating the interferences and directing it to be vacated; but also ordered that the Primary Examiner's decision rejecting the claims be considered in full force and effect until the Examiner should be convinced that the same was an error or until the same was overruled by an inter partes appeal, and further ordered that the Primary Examiner should fix a date for reconsideration of the rejection inter partes, and, if still convinced that the rejection was sound to make the same final and fix a limit of appeal. On May 23, 1906, Thomson and Lemp each asked that a day be set for the rehearing provided in said decision. Hearing was set for July 9, 1906, and notices were sent to Newcomb, but the same was postponed to September 26, 1906. Meantime the Examiner of Interferences had on June 11, 1906, set aside the declarations of interferences in obedience to the opinion of the decision of the Commissioner. On August 15, 1906,

The Newcomb Motor Company filed the petition setting up the proceedings in the Patent Office before stated and averring that the only remedy which Thomson and Lemp had in relation to the decisions of the Primary Examiner dissolving the interferences was by appeal to the Examiners-in-Chief pursuant to the provisions of §§ 4909 and 483, Revised Statutes, and the rules of the Patent Office established in accordance therewith, that having taken and then abandoned appeals therefrom the said decisions of the Primary Examiner had become final and the issues therein are res adjudicata between the parties, and that by the refusal of the Commissioner to vacate all of the proceedings connected with and leading to a redeclaration of the interferences, and particularly the ex parte actions of the said Thomson and Lemp subsequent to the dissolution of the said interferences and any and all appeals therein, petitioner had been deprived of the legal rights vested in him by the laws relating to the granting of patents and will be without redress unless the writ of mandamus prayed for be granted.

It is conceded in the brief of counsel for appellee that—"the judgments of the Primary Examiner, unappealed from, were as final as would have been the judgments of the Examiners-in-Chief, on appeal, or of the Commissioner, on appeal, had appeals been taken to those tribunals"—but, it is contended, that the judgment of the Primary Examiner dissolving the interferences on the ground that neither Thomson nor Lemp had the right to make the claims was an interlocutory and not a final decree, because it did not decide the question of priority. It is true, as contended by appellee, that in several cases, decided by this court prior to Podlesak v. McInnerney, 26 App. D. C. 299, it was in effect held that interference cases the right of either party to make the claims of the issue, except under extraordinary circumstances, would not be considered. In the Podlesak case, however, upon careful consideration we modified our earlier views and ruled that inasmuch as the right of a party to make a claim goes to the foundation of an interference, a judgment of the Primary Examiner denying that right might be appealed to this court, and that we would take jurisdiction to determine that question "as an ancillary question to be considered in awarding priority of invention." The opinion states:

"If it be incorrectly held that such party has a right to make the claim, priority may be awarded to him, and his adversary be deprived of a substantial right in that he is not given a claim where he necessarily is the prior inventor, his adversary never having made the invention."

Allen v. U. S., ex rel. Lowry, 26 App. D. C., 8, relied upon by appellee, in no way conflicts with the decision in the Podlesak case. * * * [See supra, No. 391.]

It is obvious that the decision of the Primary Examiner in the Lowry case was purely interlocutory, for it eliminated neither party to the interference and deferred final judgment on the question of priority until each party had taken testimony. It was still possible, therefore, for Lowry to prevail on the merits and receive the award of priority. Neither does the case of Distilling Co. v. Schneider, 29 App. D. C. 1, conflict with Podlesak v. McInnerney, for the reason that the appeal in that case was taken to this court before the subject-matter in dispute had been awarded to either party.

It is further contended that because § 4904, Revised Statutes, provides that whenever "in the opinion of the Commissioner" an interference exists, notice shall be given the parties, etc., a non-delegable duty is imposed upon the Commissioner. This question was considered in Allen v. Lowry, supra, and it was there held that the Commissioner "for any reason which he considers may be in the interest of the public or the parties" may delegate to the primary Examiner the duty of determining primarily whether an interference in fact exists, and that—"in so doing, he is not thereby depriving any party of any statutory right to have all questions passed upon at final hearing, and on appeals therefrom, which are necessary for a correct determination of the question of priority, which is the sole question for which interferences are declared."

To adopt the view of the appellee would reverse a practice which has prevailed in the Patent Office since the statute was enacted in 1870, and would in effect render the statute nugatory, since it would be a physical impossibility for the Commissioner personally to pass upon all these preliminary questions. He was given assistants for that purpose. Moreover, the Primary Examiner is skilled in the particular art, and, therefore, peculiarly qualified to pass upon a question involving the right of either party to make the claims of the issue. We think the demands of the statute fully met when it is provided that at some stage in the proceedings the personal opinion of the Commissioner may be invoked by either party.

It is next contended by the appellee that the judgment of the Primary Examiner was not a final judgment because, under the provisions of §§ 4909, 4910, and 4911, Revised Statutes, the applicant is entitled to a reconsideration and second rejection of his claims by the Primary Examiner. These sections read as follows:

"§ 4909. Every applicant for a patent or for the reissue of a patent, any of the claims of which have been twice rejected, and every party to an interference, may appeal from the decision of the Primary Examiner, or of the Examiner in charge of interferences in such case, to the Board of Examiners-in-Chief: having once paid the fee for such appeal.

"§ 4910. If such party is dissatisfied with the decision of the Examiners-in-Chief, he may, on payment of the fee prescribed, appeal to the Commissioner in person.

"§ 4911. If such party, except a party to an interference, is dissatisfied with the decision of the Commissioner, he may appeal to the Supreme Court of the District of Columbia, sitting en banc."

It will be necessary to examine §§ 4903 and 4904, Revised Statutes, in discussing the merits of this contention. These sections read as foliows:

"§ 4903. Whenever, on examination, any claim for a patent is rejected, the Commissioner shall notify the applicant thereof, giving him briefly the reasons for such rejection, together with such information and references as may be useful in judging of the propriety of renewing his application or of altering his specification; and if, after receiving such notice, the applicant persists in his claim for a patent, with or without altering his specifications, the Commissioner shall order a re-examinaton of the case.

"§ 4904. Whenever an application is made for a patent which, in the opinion of the Commissioner, would interfere with any pending application, or with any unexpired patent, he shall give notice thereof to the applicants, or applicant and patentee, as the case may be, and shall direct the Primary Examiner to proceed to determine the question of priority of invention. And the Commissioner may issue a patent to the party who is adjudged the prior inventor, unless the adverse party appeals from the decision of the Primary Examiner, or of the Board of Examiners-in-Chief, as the case may be, within such time, not less than twenty days, as the Commissioner shall prescribe."

In Allen v. Lowry, supra, § 4909 was construed—"as though it read, every applicant for a patent, or for the reissue of a patent, any of the claims of which have been twice rejected, may appeal from the decision of the Primary Examiner, and every party to an interference may appeal from the decision of the Examiner in charge of interferences in such case, to the Board of Examiners-in-Chief. In other words, to abbreviate and make the sections more succinct, the words 'may appeal from the decision' were used but once, but we think that thereby clearness was sacrificed for brevity."

This interpretation negatives the contention of appellee that the provision giving an applicant the right to have his claim twice rejected applies in inter partes cases. In an ex parte case arising under § 4903 the applicant in the first instance has no knowledge as to the references and reasons of the rejection of the Primary Examiner of his claim, and has no opportunity to be heard before action has been taken by that official. The notice of rejection contains his first information of what has taken place in the Patent Office. The statute, therefore, very properly provides in effect that upon the receipt of such notice the applicant may have an opportunity to meet the objections raised by the Primary Examiner. Under § 4904, however, it is made the duty of the Commissioner to give notice to parties thought to be in interference, and to "direct the Primary Examiner to proceed to determine the question of priority of invention." The statute, therefore, imposes upon the Commissioner the duty of notifying the parties prior to the first hearing before the Primary Examiner so that, when the hearing is had, both parties have a right to be present, and, in the event a motion for dissolution is made, the applicant affected has knowledge of the grounds for the motion and ample opportunity for hearing and argument. No more reason exists for a second hearing than exists for a second hearing in any other case between two parties litigant where due notice has been given and all the forms and requirements of the law have been complied with. The Commissioner in his opinion said:

"I am of the opinion that the proceedings in the Thomson application since the withdrawal of the appeal to the Examiners-in-Chief in the interference were contrary to the evident spirit of the rules, and that to sustain such proceedings would be in opposition to the requirements of good practice and to the interests of applicants generally. If parties can waive their rights of inter partes appeal in the interference and then proceed by ex-parte appeals to try the same questions which they could have tried by the inter partes appeals, the provision of Rule 124, that appeals shall be heard inter partes is rendered ineffective. If the inter partes hearing upon appeal is to be escaped, the usefulness of motions for dissolution will be slight except in those cases where parties voluntarily take the inter partes appeal. Why should motions be brought or even permitted if decisions granting them can be set aside upon appeal without opportunity for the moving parties to be heard and presumably to a large extent without consideration of the arguments upon which the conclusions appealed from are based? It is no sufficient answer to say that if the decision of the Primary Examiner is reversed, the motion may be brought again when the interference is reinstated or

redeclared; if reinstated, a new motion brought and granted would presumably be followed by another ex parte appeal and another reversal of the decision. There would be no logical conclusion to such proceedings and to permit them would be absurd. The practice of permitting motions for dissolution to be brought is believed to be good. If appeals upon these motions are to be permitted, the prosecution thereof must be inter partes to save the whole proceedings upon the motion from becoming farcical. The rules at present do provide for appeals and it is not deemed expedient to change them in this respect at the present time."

We conclude, therefore, that the provisions relating to ex parte applications do not apply to inter partes actions, and that, when the appeal from the decision of the Primary Examiner was abandoned, his decision became final and binding upon the parties.

But, it is insisted, that mandamus is not the proper remedy. When the decision of the Primary Examiner that Thomson and Lemp had no right to make the claims in issue became final and res adjudicata, those parties were eliminated from the case, and appellant was entitled to go hence in the full and uninterrupted enjoyment of the patent. Under the statute the jurisdiction of the Commissioner attaches when he directs the declaration of an interference, and he still retains jurisdiction to award priority to the successful party after his adversary has been eliminated. It would indeed be an anomalous situation, if his determination that one party to an interference has no right to make the claims in issue, and, therefore, is not entitled to a judgment of priority, operates to deprive him of jurisdiction to award priority to the other party who has the right to make the claims in issue and who is entitled to an award of priority. The remedy of the defeated party is by way of appeal. He has no right whatever thereafter to prosecute the claims of the issue in an ex parte case. It follows, therefore, that when Thomson and Lemp abandoned their appeals from the decision of the Primary Examiner denying their right to make the claims in issue, that decision became final and res adjudicata as between the parties to the interference, and that thereafter the Commissioner was without authority to direct the Primary Examiner to readjudicate in Thomson's and Lemp's ex parte applications, the question whether they had the right to make the identical claims of the issue in the interference proceeding. If this remedy is denied it appellant will be again compelled to litigate with Thomson and Lemp in the Patent Office the same question which we have held has already been finally determined in its favor. All this will involve expense, delay and loss. The Commissioner, being without authority to direct a readjudication of the question involved in the former interference,

has no discretion in the premises, for—"whether the former decision was right or wrong, or was induced by the want of the particular evidence that was offered in the present case, is not the question. However that might be, it was final and put an end to the litigation in the first interference. Blackford v. Wilder, 28 App. D. C., 551."

It is no answer to the petition of appellant that the Commissioner deemed himself possessed of the authority he exercised, if no discretion in the premises was committed to him and he was in fact acting byond his authority and without warrant of law. Garfield v. U. S., ex rel. Frost, 35 W. L. R. 771; 30 App. D. C.; U. S., ex rel. Daly, v. Macfarland, 28 App. D. C. 552.

Seymour v. Brodie, 10 App. D. C. 567, confidently relied upon by appellee to defeat appellant's right to the writ, is not in point. That case like this involved an interference between an application and unexpired patent, but in that case the decision dissolving the interference had been acquiesced in by the junior party, leaving the senior party in full possession and enjoyment of his patent. This court very naturally held that the patentee was not entitled to a writ of mandamus to compel the Commissioner of Patents to reinstate the interference proceeding because he had suffered no legal injury whatever and because he remained "in full possession of all his legal rights to the same extent as before he was summoned to defend those rights."

In the instant case a second attack not authorized by law has been instituted against appellant's patent, and necessarily has impaired that patent. There being no other adequate and speedy remedy, we think appellant entitled to the relief sought.

The judgment of the court below must be reversed with costs, and the cause remanded to that court with directions to issue the writ as prayed.

393. SIMPLEX RAILWAY APPLIANCE CO. v. WANDS, 115 Fed. 517, 53 C. C. A. 171.

Before Caldwell, Sanborn and Thayer, Circuit Judges.

Thayer, Circuit Judge, after stating the case as above, delivered the opinion of the court.

Counsel for the respective parties agree upon the following propositions, which are well established by authority, namely: That upon a bill of this character, filed under § 4918 of the Revised Statutes of the United States, the first question to be determined is whether the patents involved are interfering patents, since the right to relief is grounded on the fact of interference; that patents do not interfere, within the meaning of the patent law, unless the claims of the respective patents, or some of them,

cover the same mechanical device or combination; that it is the claim of a patent, and the claim only, when properly construed, which determines the thing patented; and that it may happen that the structure described in one patent will infringe the claims of another patent, although the patents are not interfering patents, within the meaning of the statute. Gold & Silver Ore Separating Co. v. United States Disintegrating Ore Co., 6 Blatchf. 307, 10 Fed. Cas. 539 (No. 5,508); Manufacturing Co. v. Craig (C. C.) 49 Fed. 370, and cases there cited.

The important question in the case, and the one concerning which there is a real controversy, is whether a court can or ought to say, as a matter of law, on an inspection of the Marshall, Bauer, and Wands patents, that the claims of these patents, quoted above, do not cover the same invention, and that there is and can be no interference between the patents, although the bill of complaint contains an express averment to the contrary. The invention or combination covered by the claims is to be ascertained, as a matter of course, by a proper construction thereof, and it may be conceded to be the province of the court to construe the claims, giving to each its due scope and effect. But when the court enters upon the discharge of that duty it is not necessarily limited to the language of the claims and specifications, but may take into consideration certain extraneous facts. For example, it may have recourse to the testimony of experts to ascertain the meaning of technical words or phrases, if any such are employed, or to ascertain the difference between or the identity of the devices, or to obtain a better understanding of a drawing or model or the character and operations of the devices; and, generally, a court may avail itself of the testimony of experts to acquire a knowledge of all the facts pertaining to an art to which a given patent belongs, and a full understanding of the progress that had been made therein at the time the patent was issued. Winans v. Railroad Co., 21 How. 88, 100, 101, 16 L. ed. 68. Such testimony frequently has an important influence upon the construction of the claims of a patent, either enlarging or restricting their scope. The adjudged cases afford many illustrations of the fact that proof of the state of the art has an important bearing upon the manner in which the doctrine of mechanical equivalents is applied, and also in determining to what extent, if any, limitations should be placed upon the mere wording of a claim. McCormick v. Talcott, 20 How. 402, 405, 15 L. ed. 930; Machine Co. v. Lancaster, 129 U. S. 263, 274, 9 Sup. Ct. 299, 32 L. ed. 715; Miller v. Manufacturing Co., 151 U. S. 186, 187, 14 Sup. Ct. 310, 38 L. ed. 121; National Hollow Brake Beam Co. v. Interchangeable Brake Beam Co., 45 C. C. A. 544, 561, 106 Fed. 693; Railway Co. v. Godehard, 19 U. S. App. 360, 400, 8 C. C. A.

265, 59 Fed. 776; McClain v. Ortmayer, 141 U. S. 419, 12 Sup. Ct. 76, 35 L. ed. 800; Walk, Pat. (3d Ed.) § 184.

Moreover, it is a well-known fact that proceedings taken in the patent office, while an application for a patent is under consideration, sometimes have much effect in determining the scope which shall be given to the claims of a patent. Sutter v. Robinson, 119 U. S. 530, 7 Sup. Ct. 376, 30 L. ed. 492; Sargent v. Lock Co., 114 U. S. 63, 5 Sup. Ct. 1021, 29 L. ed. 67; Brill v. Car Co., 33 C. C. A. 213, 90 Fed. 666. While it is true, therefore, that it is the function of the court to construe patents as well as all other written instruments, yet it can not be gainsaid that many facts dehors the patent, of which the court can not take judicial notice, may with great propriety be proven to enable it to reach a right conclusion. In the construction of any contract a court is generally entitled to be advised, by testimony, of the situation and the relation of the parties thereto when it was executed, to enable it to decide with more certainty what was the real purpose and intent of the agreement. It is sometimes said that a court should aim to place itself, as nearly as possible, in the situation which the parties to an agreement occupied when it was entered into, and, if this is so as respects the construction of ordinary written instruments, with much greater truth may it be said that, in construing the claims of a patent which deals with mechanical devices with which courts are often unfamiliar, they ought to be very sure, not only that they have a clear comprehension of the language and meaning of the claims and the operation of the patented device, but that they are well advised of the state of the particular art at the time the patent was granted. Evidence which throws any light on this subject ought not to be excluded when the scope to be given to the claims of a patent is the subject for consideration, except in those cases, which may sometimes arise, where the device is very simple and easily comprehended, and the art to which it relates is well understood, so that the introduction of evidence of the kind above indicated would be a work of supererogation. In most cases, therefore, the question whether patents interfere or contain interfering claims is a mixed question of law and fact, because the parties have the right to introduce testimony to enable the court to correctly determine what mechanical device or contrivance is in fact comprehended by the claims, and what are the legal rights thereby granted. * * *

The lower court held that claim 1 of Wands' patent does not conflict with claims 1 and 2 of the Marshall patent, because Marshall expressly limits himself to a flat tension member, which passes, as it nears the ends of the compression member, between the flanges of the latter member, which is made of channel iron,

while Wands does not thus limit his claim. But, if we look carefully at Wands' specification and drawings, it will be seen that his head block has, on the underside, a depression or channel along which the tension member passes, and that this groove or channel holds the tension member in place precisely as the flanges of the compression member hold it in the Marshall structure. Now, it may well be that the state of the art to which this patent appertains, when fully developed, will prove to be such that Wands must be limited to the precise construction indicated in his specifications and drawings, notwithstanding the broad language of his claim, especially as his claim contains the words "substantially as described." And in that event the further inquiry would be pertinent, whether the two combinations claimed and patented, the one by Marshall and the other by Wands, are not substantially the same. It is manifest that Wands, in constructing his car bolster, has merely cut off a section of the compression member and inverted it, and termed it a head block, making a channel for the tension member on the bottom of the head block, instead of utilizing the flanges of the compression member for such a channel.

* * * * * * * * * * *

The result is that if Wands' head block, in view of the state of the art and the functions which it performs, be regarded as the mechanical equivalent of Bauer's "strengthening piece," the two claims now under consideration cover substantially the same combination, and hence interfere.

We would not be understood, however, as expressing a definite opinion upon the question whether the claims of the patents in question do in fact interfere. That is a question which does not arise, necessarily, on this appeal, because the case passed off on a demurrer to the bill which expressly alleged interference. Its contention in the court is that by sustaining the demurrer and denying its right to introduce evidence as respects the state of the art and other facts which it deemed material to a correct construction of the claims of the patents the trial court erred. For reasons which have been sufficiently indicated by what has already been said, we feel constrained to concur in that view. The case, in our judgment, does not belong to the class of cases where, notwithstanding an express allegation that certain claims of patents interfere, a trial court can say, on an inspection of the patents, that it is impossible to sustain the allegation by any evidence which can be adduced, and unless such was the case the demurrer should have been overruled. The averment that certain claims of Wands' patent cover substantially the same inventions previously patented to Marshall and Bauer was a statement of an ultimate conclusion of fact, such as is permis-

sible in good pleading, and in the present instance the complainant was entitled to substantiate the charge, if it could, by other evidence besides the patents of which it made profert.

The decree below, dismissing the bill of complaint, is accordingly reversed, and the cause is remanded to the circuit court, with directions to overrule the demurrer to the bill.

[The following under this heading are brief extracts to complete the discussion.]:

394. ELECTRIC, ETC., CO. v. CARBORUNDUM CO., 102 Fed. 618, 42 C. C. A. 537.

No alleged interference, on the merits of which the patent office finally passed and to which the Messrs. Cowles were parties, was declared until after the issuing of the process patent in suit, and can not of itself control the scope, construction or validity of the claims in question. 2 Rob. Pat., § 588. These interference proceedings can at most only serve to disclose the understanding of the patent office and of the parties to such interference at the time as to the validity and scope of those claims. They are not conclusive in any sense upon the rights of the appellant.

395. LOOM CO. v. HIGGINS, 105 U. S. 580, 26 L. ed. 1177.

An invention relating to machinery may be exhibited either in a drawing or in a model, so as to lay the foundation of a claim to priority, if it be sufficiently plain to enable those skilled in the art to understand it.

396. ASHTON VALVE CO. v. COALE, ETC., VALVE CO., 52 Fed. 314, 3 C. C. A. 98.

The defendant's patent having been issued before that of the complainant, upon an application filed in advance of the latter's application, the burden of proof is upon the complainant to establish a prior use of the machine by a preponderance of testimony over that of defendant to the contrary.

397. WHITELEY v. SWAYNE, 74 U. S. 685, 19 L. ed. 199.

He is the first inventor and entitled to the patent, who, being an original discoverer, has first perfected and adapted the invention to actual use.

398. TELEPHONE CASES, 126 U. S. 1, 31 L. ed. 863, 8 Sup. Ct. 778.

We do not doubt that Drawbaugh may have conceived the idea that speech could be transmitted to a distance by means of

electricity and that he was experimenting upon that subject; but to hold that he had discovered the art of doing it before Bell did would be to construe testimony without regard to "the ordinary laws that govern human conduct."

399. ECAUBERT v. APPLETON, 67 Fed. 917, 15 C. C. A. 73.

Ecaubert having thus abandoned any attempt to make his idea practically available and to develop his theory, in fact, Hofmann conceived the idea, embodied it in means by which it could be carried out, proceeded to make watch centers, and thereby first perfected it, and is entitled to be recognized as the real inventor.

400. STANDARD CARTRIDGE CO. v. PETERS CARTRIDGE CO., 77 Fed. 630, 23 C. C. A. 367.

[For an elaborate illustration see this case, which states that a subsequent reducer to practice who derives his knowledge from a prior inventor cannot take advantage of the fact that the prior inventor failed to push his invention to completion or file an application at an earlier date.]

401. HILL v. WOOSTER, 132 U. S. 693, 33 L. ed. 502, 10 Sup. Ct. 228.

The provision of § 4915 is that the circuit court may adjudge that the applicant "is entitled according to law, to receive a patent for his invention, as specified in his claim or for any part thereof, as the facts in the case may appear;" and that, if the adjudication is in favor of the right of the applicant, it shall authorize the commissioner to issue the patent. It necessarily follows that *no adjudication* can be made *in favor of the applicant*, unless the alleged invention for which a patent is sought is a patentable invention. The litigation between the parties on this bill can not be concluded by solely determining an issue as to which of them in fact, first made a cabinet creamery. A determination of that issue alone, in favor of the applicant, carrying with it, as it does, authority to the commissioner to issue a patent to him for the claims in interference, would necessarily give the sanction of the court to the patentability of the invention involved.