ON THE

SUBJECT-MATTER

OF

LETTERS PATENT FOR INVENTIONS.

BEING A SUPPLEMENT

TO THE

LAW AND PRACTICE

OF

LETTERS PATENT FOR INVENTIONS.

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PREFACE.

In the following pages I have attempted to present such an account of the subject-matter of letters patent for inventions as may be consistent with the spirit of the common law, the words of the proviso of the statute of *monopolies*, and the decided cases. In furtherance of this design, I have been led into some extended remarks on the classification of the various cases, on the amount or sufficiency of invention, and on the incidents of novelty and utility. Some of these matters were suggested and briefly treated of in my work on "The Law and Practice of Letters Patent for Inventions," but as a lengthened discussion of them would have been inconsistent with the character of a work intended to represent the well-acknowledged and existing law and practice, I reserved the more complete development of my views for the present opportunity. It has appeared to me, that much of the difficulty supposed to exist in the law of patents might be removed by a somewhat different mode of treating the subject from that usually adopted; especially by a careful analysis of the subject-matter of the invention, with the view of ascertaining the peculiar circumstances of the case from which the law is derived, or to which it is about to be applied. The application of principles of law without due regard to such circumstances,

and a want also of proper attention to the precise words of the statute, and of the practical forms employed in soliciting letters patent, and of the letters patent themselves, have combined to prevent that uniformity and consistency in opinions on the subject which might otherwise have been attained, and which, as I trust the following pages will show, really belongs to this branch of the law.

T. W.

2, *Pump Court, Temple,*
May, 1841.

ON THE

SUBJECT-MATTER

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LETTERS PATENT FOR INVENTIONS.

In defining, arranging, and classifying the subject-matters of Letters Patent for Inventions, different terms have been employed in the laws of different countries (*a*), and various arrangements and classifications adopted, according to the particular views and objects of their authors (*b*).

But the subject-matter of inventions having at all times and in all countries one general characteristic, namely, the adaptation of things that exist to the wants and conveniences of man, it will be found that the laws of different countries, notwithstanding the diversity of terms employed, have all the same object, and all express substantially the same thing (*c*).

(*a*) In the United States, "Any new and useful art, machine, manufacture, composition of matter, or any new and useful improvement on any art, machine, manufacture, or composition of matter." Act of Congress, A.D. 1836.

In France, "Every discovery or new invention in all kinds of industry, is the property of the inventor."

In the Netherlands, "An invention or essential improvement in any branch of arts or manufactures."

In Spain, "Whosoever invents, improves, or imports a new branch of industry, has a right of property thereto."

In Austria, "All new discoveries, inventions, and improvements, in every branch of industry."

See Parl. Rep., 12th June, A.D. 1829. Papers, by John Farey.

(*b*) Mr. Godson adopts the following terms and classification:—1. A substance or thing made. 2. A machine or instrument. 3. An improvement or addition. 4. A combination or arrangement of things already known. 5. A principle, method, or process, carried into practice by tangible means. 6. A chemical discovery.

Mr. Rankin:—1. A thing manufactured. 2. A manufacturing process.

Mr. Holroyd:—1. Things made. 2. Practice of making.

Mr. Carpmael:—1. "A new combination of mechanical parts or instruments, whereby a new machine is produced, though each of the parts be separately old and well known."

2. "An improvement on any known machine, whereby such machine is rendered capable of performing more beneficially."

3. "Where the vendible substance is the thing produced, whether by chemical or mechanical process, such as a new description of fabric."

4. "Where an old substance is improved by some new working—the means of producing the improvement, in most instances, is patentable, whether chemical or mechanical."

5. "The application of a known substance or material to a new purpose, when there requires art to adapt it, is the subject of a patent."

The latter classification seems unobjectionable, and expresses, in a practical manner, the various kinds of inventions, and the means by which they are to be carried into practice.

(*c*) See *Law & Practice*, 8, n. *x*.

The same uniformity of character ought also to exist in the arrangements and classifications of these adaptations, or subject-matters of invention; and such will be the case, if they are founded on distinctions having a real substantive existence in the invention itself, and are not made to depend on certain preconceived views respecting the meaning of words, and the propriety of the terms employed (*d*).

Letters patent are granted for inventions. The form of the legal instrument by which certain privileges are granted to the true and first inventor, or the manner in which this character may be acquired (*e*), does not form any part of the present inquiry, which is directed simply to the question, on what kind of inventions these privileges can by law be conferred.

Invention defined.

Invention, in its most extended sense, may be defined to be the embodying in words, or in some material form, the conceptions and creations of the mind; but this extended application of the term, including the practical exercise of the mind in whatever sensible or material form exhibited, is not the subject of the present inquiry (*f*); and the invention which may be the subject-matter of letters patent, must, both by the common and statute law of the realm, be directed and tend to the production of such improvement in the manufactures, as will furnish fresh sources of national industry, and contribute to the advancement of the trade and commerce of the country (*g*).

(*d*) The meaning of words, and their propriety and applicability, has been a fruitful source of discussion in patent law.

Watt's case presents an instance of a most elaborate discussion on the word 'principle.' The specification stated the invention to "consist in the following principles," and then proceeded to describe the nature of the invention, and the particular manner in which it was to be carried into practice. (*Law & Pr.* 46.)

The insufficiency of that description does not seem to have been insisted on, but the term principle was sufficiently explained by what followed, though "particulars" or "rules of practice" might have been more correct; and much of the lengthened disquisition and apparent confusion in this case would probably have been spared.—*Boulton and Watt* v. *Bull*, 2 H. Bl. 463.

The irrelevancy of this kind of discussion seems to have struck some of the judges in the subsequent case of *Hornblower and Maberly* v. *Boulton and Watt*.

Lord *Kenyon*, C. J.: "No technical words are necessary to explain the subject of a patent; as Lord Hardwicke said upon another occasion, there is no magic in words."

Lawrence, J.: "Principle may mean a mere elementary truth, but it may also mean constituent parts, and in effect the specification is this: 'The contrivance by which I lessen the consumption of steam consists in the following principles' (that is, constituent or elementary parts): 'A steam vessel in which the powers of steam are to operate to be kept as hot as the steam by a case; a distinct vessel to condense the steam, and pumps to draw off such vapour as is likely to impede the motion of the fire engine,' &c. That is the description of the thing."

(*e*) As to these, see *Law & Pr.* 49, n. *g*.

(*f*) That invention which is exhibited in words, is protected by the law of copyright; and that which is exhibited in some other material forms, has been attempted to be protected by the recent law of copyright of designs.

(*g*) *Heath*, J.: "I approve of the term manufactures in the statute; because it precludes all nice refinements; it gives us to understand the reason of the proviso, that it was introduced for the benefit of trade." 2 H. Bl. 482.

Ashurst, J.: "Every new invention is of importance to the wealth and convenience of the public; and when they are enjoying the fruits of a useful discovery.

Such practical applications then, or results of inventive genius, as have this special and peculiar object, are the only inventions to which letters patent can be granted.

Character of the invention.

The invention will have a peculiar character according to the department of knowledge from which it is derived; and since the adaptation of the truths of exact science, or of the laws of physical science, or the application of the general properties of matter, may furnish either alone or in combination with each other practical results, the terms usually employed therein will be the most convenient terms to employ in treating of the inventions derived from these respective sources.

Axiom.

Thus, should the invention consist in the practical application of some simple proposition in geometry, the term "axiom" (*h*) would appropriately be introduced in the description of the invention, and inasmuch as the same term is frequently employed to express, though with perhaps less propriety, the more simple truths or propositions of other departments of knowledge, and also any acknowledged truth, this term may be appropriately introduced in the description of any invention founded thereon.

Law and principle.

Should the invention consist in the practical application of some of the truths or facts of physical science, the term law or principle may most appropriately be employed in explaining the nature of the invention, and the manner in which it is to be performed.

Method, process, and mode.

Should the invention consist in the application of some of the properties of matter, or in the simple arrangement and combination of particles, without reference to any theoretical analysis respecting the laws or principles of action of that matter, the general words, 'method, process, or mode,' will suggest themselves as the most convenient and appropriate words for describing that invention (*i*).

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it would be hard on the inventor to deprive him of his reward." 8 T. R. 98.

Eyre, C. J.: "The advantages to the public from improvements of this kind are beyond all calculation important to a commercial country, and the ingenuity of artists who turn their thoughts towards such improvements is in itself deserving of encouragement; and in my apprehension it is strictly agreeable to the spirit and meaning of the statute, 21 Jac. 1. that it should be encouraged." 2 H. Bl. 494.

(*h*) The term "axiom" is used to express the simplest order of propositions, or a proposition of so simple a nature, that no reasoning can add to its force; or which may be said to be the necessary and self-evident consequence of the definitions, and not susceptible of any formal demonstration. It is also applied to all kinds of admitted truths, and all demonstrations; that is, all reasoning founded on definitions may be said to terminate in axioms.

(*i*) Thus *Buller*, J.: "The method and the mode of doing a thing are the same, and I think it is impossible to support a patent for a method only, without having carried it into effect, and produced some new substance. But here it is necessary to inquire, what is meant by a principle reduced into practice? It can only mean a practice founded on principle, and that practice is the thing done or made, or, in other words, the manu-

In the great majority of cases, several of these terms may be applied with perfect indifference; the peculiar habits and occupation, or the peculiar theoretical and philosophical views, of the person describing the nature of the invention, and the manner in which it is to be performed, will lead him unconsciously to select some in preference to the others, and to use several in the same description; and the terms consequently will not unfrequently be either misapplied or used in senses somewhat inconsistent with their strict and proper application.

But such misapplication of terms cannot affect the substantial and distinctive features of the invention, and unless the terms are employed in a manner so perverse and contrary to their ordinary acceptance, that the crown may have been deceived in granting the letters patent, or the public may be unable to understand the invention as described by them, the validity of the grant will not be affected by the particular terms employed (*k*). Such then being the various terms which may be made use of according to the department of knowledge from which the invention is derived, it becomes necessary to consider certain other applications which may with equal propriety be made of them. These terms having originally reference to those truths and facts, with the origin of which man had nothing to do, are by a very natural and common transition transferred to the arrangements of matter due to man's inventive skill; and the particular modes which he has devised for operating and producing effects, are expressed by the terms 'laws and principles.'

Extension of the preceding terms.

Thus matter and things are said to be arranged according to a certain law, that is, according to a certain rule or order which man has devised, and machines are said to act according to certain principles, that is, in certain manners. All these cases, however, are referable to the ulterior laws or principles of the particular department of knowledge from which the invention may be considered as derived.

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facture which is invented." 2 H. Bl. 486.

Lawrence, J.: "Method, properly speaking, is only placing several things and performing several operations in the most convenient order; but it may signify a contrivance or device; so may an engine, and therefore I think it may answer the word method." 8 T. R. 64.

(*k*) A brush being thought improperly described as a "tapering brush," it was held, that the difficulty arising from the grammatical construction could not be removed, unless the term had by the usage of the trade acquired a perverted sense. Per Lord *Ellenborough*, C.J. *R.* v. *Metcalf*, 2 Stark. 249.

But the use of French terms will not vitiate. Per *Abbott*, C. J. *Bloxam* v. *Elsee*, 1 Car. and P. 558.

Nor the use of words in a purely technical or in a new sense, if explained by the context. *Derosne* v. *Fairie*, 1 Gale, 109.

Clear inconsistency is a fatal defect. ee *Law & Practice*, 88, n. *b*.

Many instances occur, in which it is said that the one arrangement is a mechanical equivalent for another, because, according to the truths or propositions of mechanics, the relations between forces and motions may be varied indefinitely, the same effects still being produced. Hence it follows, that the same effects may be produced by two machines apparently extremely dissimilar in construction, but of which the principles are essentially the same. Instances.

Thus, under certain circumstances, a wheel and axle are the same as a lever, and an inclined plane the same as a screw, and the invention will be the same whether the one or the other be used (*l*). In mechanics.

The principle of all steam engines, in respect of their being applications of the elastic force of steam, is the same, but in respect of the mechanical arrangements by which that law of nature may be made available, so as to constitute an invention, an unlimited variety may exist. Indeed, it is not possible that one piece of matter arranged by the hands of man should resemble in every respect any other arrangement of matter, but the same principles or rules for our guidance being observed in each arrangement, the results are substantially the same. The steam engine.

In every other department of science, in chemistry or electricity for instance, there exist various substances by which the same result or effect may be produced; it may be a matter of perfect indifference which substance is employed; but one invention may possess the same distinctive character as another, though the particular means by which certain results and effects are produced are not precisely the same. The question to be determined in these cases is, whether the particular means constitute the substance of the invention (*m*). Chemistry and Electricity.

All results are brought about or effects produced by the intervention of certain agents; as those agents are substantially the same or different, the inventions are similar or dissimilar accordingly.

The above general review of the various objects of invention, will point out certain consequences, and distinctive features or characteristics in inventions, of great importance hereafter.

(*l*) In a theoretical point of view, or according to the laws of mechanics, a simple lever is the same machine as a wheel and axle; but in respect of their practical applications, they are very different. The same is the case with the inclined plane and screw. From these may be drawn important illustrations of the subject-matter of patents. Suppose a simple lever or the inclined plane to have been known and in use; the inventor of the wheel and axle, or of the screw, would have been entitled to a patent, but he would have had some difficulty in describing it, except as a new application of the principle of the lever, or of the inclined plane.

(*m*) See *post* 6, note *n*.

The discovery of a truth not an invention.

First, it may be of importance to remark, that the discovery and announcement of any axiom or proposition of abstract science, of any law of nature or principle of physical science, of any property of matter, is not an invention in the sense in which the term is here used, or such a discovery as can be the subject-matter of letters patent. Such an invention or discovery is an addition to our knowledge only; it must be applied, so that some results or effects may be produced, whereby the arts and manufactures or trade and commerce of the country may be benefitted.

The application of such truth may be an invention.

Secondly, an invention may consist in the application of an axiom or proposition of abstract science, of a law or principle of physical science to a special purpose, or in some peculiar arrangement of matter whereby those axioms or laws are in a condition to act. And it will be material to inquire whether the application of the axiom and principle to a particular purpose, and with a particular object, or the particular arrangement whereby it is applied, is the substantial and essential part of the invention.

Illustration from Watt's case.

An illustration of the preceding may be derived from the celebrated case of Watt's patent. The object of this invention was to lessen the consumption of steam and fuel in fire engines; and this was to be effected by various means, among others by casing the steam cylinder, so that the exterior might be kept as hot as the interior. This might be effected in various ways, which would readily suggest themselves to the parties.

The characteristic of this part of the invention, then, was the keeping in the heat of the steam by the application of some casing—the mode in which it was to be performed would be subsidiary to the main idea. This, whether effected by a jacket kept full of steam, or by a wooden case containing sawdust, or any other non-conductor of heat, would still substantially be the same invention.

A similar observation may be made with respect to the rest of his invention, which furnishes an instructive example of an invention in which the particular arrangement by which the principles were to be carried out, is not of the substance of the invention, but incidental to the main idea (*n*).

(*n*) The doctrine here insisted on seems fully recognised by *Eyre*, C. J.

"The substance of the invention is a discovery, that the conducting the steam out of the cylinder, and protecting the cylinder from the external air, and keeping it hot to the degree of steam heat, will lessen the consumption of steam. This is no abstract principle; it is in its very statement clothed with practical application; it points out what is to be done in order to lessen the consumption of steam. Now the specification of such a discovery seems to consist in nothing more than saying to the constructor of a fire engine, 'for the future condense your steam out of the body of the cylinder, instead of condensing it within it—put something round the cylinder to protect it from the external air, and to preserve

But in the case of Arkwright's machinery for spinning cotton, the particular arrangement of the parts was the substance of the invention, and the same is the case whenever the invention consists in the making or producing some particular thing or substance, as a machine, a paint, or a medicine (*o*). Arkwright's case.

It would follow from the above considerations, that all inventions may be viewed in one of two classes, the one where the particular arrangement of matter is the substance of the invention, so that the result or effect produced is the real subject-matter; the other where the particular application of some principle or property of matter is the substance of the invention, so that the real subject-matter is the particular mode of production. Under one of these two classes—the thing produced, or mode of production—all inventions may be classified. Two classes of invention.

It will follow also from the preceding, that all invention, whatever its object, will consist in new applications or adaptations. Matter is endowed with certain properties, and subject to certain laws; man cannot alter these properties or impose other laws, but he has the power of applying those properties and of giving occasion for the exercise of those laws according to his will, and the result of the exercise of that will is exhibited in manufactured as distinguished from elementary matter (*p*). All invention an application or adaptation.

SUBJECT-MATTER BY STATUTE.

Such then being the general nature of that invention by which the arts and manufactures of a country may be advanced, it is necessary to compare the preceding with the proviso of the statute, Words of the statute.

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the heat within it, keep your piston air-tight without water.' Any particular manner of doing this one should think would hardly need to be pointed out, for it can scarcely be supposed that a workman capable of constructing a fire engine would not be capable of making such additions to it as should be necessary to enable him to execute that which the specification requires him to do. But if a very stupid workman should want to know how to go about this improvement, and in answer to his question was directed to conduct the steam, which was to be condensed, from the cylinder into a close vessel by means of a pipe and a valve communicating with the cylinder and the close vessel, to keep the close vessel in a state of coldness sufficient to produce condensation, and to extract from it any part of the steam which might not be condensed by the pump—and was also told to inclose the cylinder in a wooden case, and to use a resinous substance instead of water to keep the piston air-tight—can it be imagined that he would be so stupid as not to be able to execute this improvement with the assistance of these plain directions?" 2 H. Bl. 497.

See *Law & Practice*, 46.

(*o*) See *R.* v. *Arkwright*, printed case; and Dav. P. Ca. 61.

(*p*) The phrase "manufactured matter" seems to express in a peculiar and distinct manner all those particular arrangements which are due to the exercise of the inventive faculty of man. Matter exists in its elementary state in the iron stone, limestone, and fuel; but when these materials have been subjected to certain processes devised by the ingenuity of man, the result is that particular species of manufactured matter which we call iron.

and to show the various ways in which the letter and spirit of that proviso may be complied with.

According to the words of the statute, letters patent are to be for the "working or making of any manner of new manufactures within this realm, which others at the time of making such letters patent shall not use"(q); and the letters patent are granted for the particular new invention stated in them. The terms "new invention" must be considered as defined and interpreted by the words of the statute; or such new inventions only will be the subject-matter of letters patent as the spirit and letter of the statute will fairly comprehend. The express words of the statute will include all the objects of the adaptations and arrangements of matter to which attention has already been directed, and may be considered as pointing out generally, first, the class or kind of objects, and secondly, the character of the subject-matter in respect of which the proviso was introduced. The arts and manufactures of the country constitute the class of objects; the character of the subject-matter, or the nature of the invention as defined by these words, remains to be considered.

Meaning of word 'manufacture.'

The generality of the expression "any manner of new manufacture," removes all difficulty which might be felt in the present advanced state of the arts respecting the strict or literal meaning and import of the word manufacture. That word in its etymological sense would refer to some object of skill or industry executed by the hands of man, and the manufactures of a country are all those objects viewed collectively; but inasmuch as the perfection of manufacture consists in the substituting other agents for human labour, this term manufacture now includes every object upon which art or skill can be exercised, so as to afford products fabricated by the hand of man, or by the labour which he directs.

Nor must the import of the words "any manner" be passed over without notice, since cases may occur in which by virtue of the generality of the expression "any manner of new manufactures," inventions, respecting which some doubts might otherwise be entertained, will at once be recognised as comprehended within both the letter and spirit of the statute.

Now all manufacture consists in a series of processes, and the particular character of each manufacture depends on the particular series of processes pursued. And this series of processes may consist in executing a certain number of things in a certain definite order, or in the application of known things in a particular manner, and for particular purposes, or in some particular

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(q) See 21 Jac. 1. c. 3, s. 6; *Law & Practice*, 44.

arrangements and combinations. And any change in the series of processes pursued will constitute a new manufacture (*r*).

The conducting or executing the series of processes upon which the character of the manufacture depends, is expressed in the statute by the words "working or making," either of which are equally applicable, though some cases will occur in which one term may appear preferable to the other; and it is unnecessary to attempt distinctions when the general import of the words is clearly expressed.

Any improvement a new manufacture.

The definition of a manufacture as consisting in the particular series of processes, and the consideration of the consequences of any change in such series, leads at once to the important practical conclusion, that any improvement in the mode of obtaining a known product, is a manner of new manufacture. Hence both the words and spirit of the statute are satisfied, either by the invention of a product not before known, or by an improvement in the mode of production.

Manufactured matter and its applications.

The clause of the statute has hitherto been considered with reference to those inventions, in which some distinct product or substance is produced. It must also be considered with reference to a class of inventions in which no single product or distinct substance, but a general effect or result, is obtained. In the infancy of the arts and manufactures of a country, the objects of invention will be almost exclusively new products, or new methods of obtaining those products (*s*). But as the arts and manufactures advance, that ingenuity which was at first exercised in obtaining new products by the arrangements of matter in its elementary state, that is, in the production of manufactured matter, will be principally directed to the application of those products, or to new arrangements of that manufactured matter.

New application of known substances in known manners

The latter class of inventions is commonly described as the new application of known substances in known manners, and objections have been made to such subject-matters, but it is conceived without good reason. For whether the invention consist in the production of some new thing, or in some new mode of producing that thing, it really consists in the application or adaptation of matter to the particular purpose or in the particular manner—this, as has already been observed, being one charac-

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(*r*) *Eyre*, C. J.: "Probably I do not overrate it when I state that two-thirds, I believe I might say three-fourths, of all patents granted since the statute passed, are for methods of operating and of manufacturing, producing no new substance, and employing no new machinery." 2 H. Bl. 494.

(*s*) The new manufactures before the statute (21 Jac. 1, c. 3.) were frisadoes (Hastings' case); something concerning lead ore (Bircot's case); a new knife (Matthey's case); an instrument for melting lead (Humphrey's case); those mentioned in the statute relate to glass, alum, smalt, and making iron by means of pit coal (Lord Dudley's).

teristic of all invention whatsoever(*t*). The first production of iron, for instance, was a new application of known substances; and the first production of a knife, a stocking, or of any other article, is an application of some known substance or thing. The substance or thing having been once produced, attention will be directed to improvements in the mode of production. An invention having this object, may consist either in the new application of some known substance, as of lime to iron, or in the particular order or series of the processes pursued; any change in that order or series constituting, as we have seen, a new manufacture(*u*). A particular mode of production consists only in arranging, according to some definite rule or law, existing matter, so as to bring about a known result in that particular manner—and such an invention may also be described as a new application.

Hence, whether the thing produced or the mode of production be the subject-matter of the invention—in the former case there is an application or adaptation of matter to produce a new result, and in the latter case a new application or adaptation of matter in some particular manner to produce a known result. In both these cases the result obtained is manufactured matter.

Extension of preceding to machines and combinations generally.

On the same principle that the application and adaptation of matter, as exhibited in manufactured matter, are included under the letter and spirit of the statute, the application and adaptation of manufactured matter, that is, of existing substances and things, are also included. From these result the various combinations of parts and elements, whereby, machines, compound substances, and constructions, are produced, and the application of such machines, substances, and constructions, to produce results in a more beneficial and economical manner. For no distinction can be drawn betwixt the application and adaptation of matter in its elementary state, and the application and adaptation of matter in a state next to the elementary, that is, in a manufactured state, and the statute will consequently include the new applications and adaptations of such existing substances and things.

Distinction between application and adaptation.

In the preceding, the terms application and adaptation have been used in connexion with each other, and they are generally of the same import; but cases will occur in which it will be necessary to distinguish between them, and to point out instances of applications which are not adaptations in that sense of the term in which either is the subject-matter of letters patent(*w*).

(*t*) See *ante*, p. 7.

(*u*) See *ante*, 9.

(*w*) A mere application, as the substitution of one material for another, without the exercise of any skill in the application, is not an application and adaptation which could be the subject-matter of letters patent. Such a mere application is conveniently described as a double use. See *post*, 24, 25.

It may also be convenient to distinguish between the cases in which the thing produced or final result presents no traces of the particular application or adaptation wherein the invention consists, and the cases in which the thing produced or final result obtained exhibits the particular application or adaptation. Iron and similar manufactures present in the final result no traces of the particular elementary matter which has been applied and adapted, or of the particular process pursued, but a steam engine and other constructions present the particular applications and adaptations by and for which they exist.

CLASSIFICATION OF CASES.

The subject-matter of all invention, and the special subject-matter of that invention for which, both at common law and by the statute, letters patent may be granted, having been considered, it is of importance to show the classifications which may be made of the inventions which have formed the subject-matter of letters patent, more especially such of them as have given rise to legal and other proceedings; the following classifications are suggested as distinct and comprehensive.

I. An arrangement, combination, or composition of matter; the particular arrangement, combination, or composition, being of the essence and substance of the invention.

II. An arrangement, combination, or composition of matter, with the view of carrying out into practice certain truths, laws, or principles, the particular arrangement, combination, or composition, not being of the essence or substance of the invention, except as in connexion with and subsidiary to the truths, laws, or principles, which are to be so carried out into practice.

III. An application and adaptation of natural or known agents, and of known substances or things.

Under one of the preceding classes, the subject-matter of letters patent may be readily and conveniently arranged.

First class. I. An arrangement, combination, or composition of matter; the particular arrangement, combination, or composition, being of the essence and substance of the invention.

Hastings'. The earlier cases, as the letters patent granted to Hastings (9 Eliz.), in consideration that he brought in the skill of making frisadoes from abroad, to Matthey for a knife, and to Humphrey for a sieve or instrument for melting lead, are instances in which the thing produced then for the first time, that is, the particular arrangement or composition of matter, is the subject-matter of the letters patent. In these and similar cases the thing pro-

The mode of production the real subject-matter.

duced, or the mode of production, may be spoken of as the subject-matter of the invention; but when a thing has been produced before, the subject-matter of the invention will have reference to the mode of production, and it is conceived that some of the confusion which has occurred would have been avoided, by considering the essence and substance of every invention in which some particular thing is produced, to consist in the mode of production. This is also quite consistent with the consideration, that all invention consists in applying and adapting the matter which already exists (*x*).

Lord Dudley's.

Lord Dudley's patent (19 Jac. I.) for melting of iron ewer, and making the same into cast-works or bars with sea coals or pit coals, may also be referred to this class; for the iron so made would be a different composition of matter from that made with charcoal, but inasmuch as that particular combination or composition could not be distinctly defined or distinguished from those arrangements, combinations, or compositions, of elementary matter which constituted iron as before known, it seems better to refer this invention to the third class. The invention in this case could only relate to the mode of production, since the iron would have apparently the same physical properties, and for all practical purposes would be the same substance, as had been produced by the use of charcoal (*y*).

Arkwright's.

In Arkwright's patent (A.D. 1773) for certain machines for preparing silk, cotton, flax, and wool, for spinning, the invention consisted in the combination of known elements of machinery, that is, in a particular arrangement of manufactured matter.

Morris's.

In Morris's patent (A.D. 1764) for a machine with a set of working needles, to be applied to a stocking frame for making oilet holes or net-work in silk, thread, or cotton, the invention consisted in the addition to an existing thing, the old stocking frame, of this particular combination of known things. In an action for the infringement of this patent, it was objected, that there could be no patent for an addition, but the objection was overruled by Lord Mansfield. The plaintiff had a verdict, with 500*l.* damages (*z*).

(*x*) See *ante*, 7, 9; *Law & Practice*, 4, n. *m*.

(*y*) The same observations will apply to many subsequent patents, as for instance to Cort's (A. D. 1784), who extended this invention of Lord Dudley's to making bar iron by pit coal; to Hill's, for cinder iron, and curing the defect of cold short by the addition of lime; to Neilson's, for the hot blast iron; and to Crane's, for the anthracite iron. The substances so produced would be new compositions of matter, but are more conveniently described as new applications of known things; also, having the same apparent qualities as the substance known before, they may be spoken of as improvements in the mode of production.

(*z*) See *Bull.* N. P. 76 c.

Lord *Mansfield*, C. J.: "If the general question of law, viz. that there can be no patent for an addition, be with the defendant, that is open upon the record, he may move in arrest of judgment; but that objection would go to repeal almost every patent that was granted."

An addition or improvement a subject-matter.

Since the preceding case, an addition or an improvement generally has been held a subject-matter for letters patent (*a*); and an examination of the list of patents will show by far the greater number of patents to have been granted for improvements. This old objection was subsequently raised, on a *caveat* at the Great Seal, in the particular case in which the letters patent solicited were for an improvement on an existing patent, but the objection was overruled by Lord *Eldon*, L. C., who said, that a party having invented improvements on any patent, could not use that patent before the expiration of its term; and the solicited letters patent were granted (*b*).

The addition or improvement, supposing it a separate and independent instrument or thing, may be a new arrangement of matter, but the real subject-matter of the invention will in general be the old and new instrument or thing in combination, and such combination will be a new arrangement of matter by virtue of that very addition (*c*). And in the same manner that an addition to an existing thing constitutes a new arrangement of matter, an omission of an existing thing also constitutes a new arrangement of matter which may be the subject-matter of letters patent. In Whitehouse's patent (A.D. 1825, assigned to Russell) for improvements in manufacturing tubes for gas and other purposes, the substance of the invention consisted in omitting an instrument called a maundril, which was used in the manufacture of these tubes under a previous patent (*James & Jones*), and upon which the subsequent patent was an improvement. The tubes so manufactured (by the omission of the maundril) were a new composition of matter in this—that tubes having such properties due to the manner in which the constituent matter was disposed, could not be made under the previous patent (*d*).

Omission a subject-matter.

(*a*) See *Boulton & Watt* v. *Bull*, 2 H. Bl. 489.

Buller, J.: "In later times, whenever the point has arisen, the inclination of the court has been in favour of the patent for the improvement, and the parties have acquiesced where the objection might have been brought directly before the court."

Also *Hornblower & Maberly* v. *Boulton & Watt*, 8 T. R. 104.

Grose, J.: "If indeed a patent could not be granted for an addition, it would be depriving the public of one of the best benefits of the statute of James."

(*b*) *Fox, ex parte*, 1 Ves. & Bea. 67.

This objection was not raised in the case of Harmar's patent (*Harmar* v. *Playne*, 14 Ves. Jr. 130; 11 East, 101), nor Lewis's (3 Car. & P. 502), which were expressly for improvements on existing patents; and several other important cases, as Huddart's and Russell's, were in fact improvements on existing patents.

The pleadings in the recent case of *Crane* v. *Price & others*, presented the objection in a somewhat new form, but the legal point was not raised, an issue in fact having been taken. See *Law & Practice*, 113, note.

(*c*) In cases of this kind the specification must clearly distinguish in what the improvement consists. See *Harmar* v. *Playne*. Dav. Pa. Ca. 311. *Macfarlane* v. *Price*, 1 Stark. 199.

(*d*) See *Russell* v. *Cowley*, 1 Cr. M. & R. 864, & 1 Rep. Arts, N. S.

This invention may also be referred to the third class, as an application of known instruments to produce a know result.

Else's. In Else's patent for a new manufacture of lace, called French, otherwise ground lace, the substance of the invention consisted in a particular arrangement of matter, or in the mode of mixing silk and cotton thread upon the frame (*e*).

Brunton's. In Brunton's improvements in chain cables, the invention consisted in substituting a cast-iron stay with a broad end, so as to clasp the sides of the link for a wrought-iron stay, which pierced the links of the cable as made on Brown's method. This, as well as the other improvements included in the same patent, was a new combination or arrangement of matter (*f*).

Galloway's. In Galloway's improvements in paddle wheels, the invention consisted in the particular arrangement according to an assigned law of the float boards previously used for the same purposes, but arranged in a different manner; in this invention, the particular arrangement was the essence of the invention (*g*).

Chemical patents. Many instances in illustration of this class may be derived from the numerous patents in which the mode of production will have reference to the laws of chemical combination, as well as of mere mechanical admixture, as in the manufacture of iron, the composition of paints, stuccos, and medicines, and similar

Zinck's. substances. In Zinck's patent for making verdigris, the invention consisted in certain proportions of granulated copper, oil of vitriol, and *aqua fortis*, boiled for a certain time in a copper of a particular construction, and afterwards strained off and mixed with a solution of potash and soda. The particular composition of matter so produced, was of the essence and substance of this invention (*h*).

New fabrics. Many instances in illustration of the above class, may be derived from the patents granted for new fabrics, though it may be convenient to arrange some of these under the third class.

In Sievier's patent for improvements in the manufacture of elastic goods, by combining in the warp covered threads of caoutchouc with non-elastic threads, and thereby forming a cloth

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(*e*) See *R.* v. *Else*, Bull. N. P. 77.

Buller, J.: "The patent claims the exclusive liberty of making lace composed of silk and cotton thread mixed, not of any particular mode of mixing it; and therefore, as it has been clearly proved and admitted, that silk and cotton thread were before mixed on the same frame for lace. in some mode or other, the patent is clearly void." *Ibid.*

(*f*) See *Brunton* v. *Hawkes*, 4 B. & A. 541; & *post* 31.

(*g*) See *Galloway* v. *Bleaden*, 15 Rep. Arts, N. S.

(*h*) See *Wood & others* v. *Zimmer*, 1 Holt, N. P. C. 58.

The following well-known cases possess many points in common with the preceding:

Tennant's, for a bleaching liquid. Dav. P. C. 429.

Turner's, for a yellow colour. *Turner* v. *Winter*, 1 T. R. 602.

Liardet's, for a composition or stucco. *Liardet* v. *Johnson*, 1 Bull. N. P. 76.

Wheeler's patent, in which the invention was of a new colouring matter produced from malt. *R.* v. *Wheeler*, 2 B. & Ald. 349.

Savory's, for a seidlitz pow er. *Savory* v. *Price*, 1 R. & M. 1.

in which the non-elastic threads are the limit to which the elastic threads can be stretched—the essence of the invention was the particular arrangement and combination of matter. The subject-matter of this invention may also be considered as the application of a known substance, in a known manner, to a purpose known before (*i*).

It will frequently be more convenient in practice to arrange some of the cases which belong to this class, under the third class. For though, speaking theoretically, no two pieces of manufactured matter can present the same arrangement of particles, or be the same combination and composition, other considerations of a more practical nature must be introduced, and whenever the thing produced is an improvement on that which has been produced before, the subject-matter of the invention will be a difference in the means pursued, and that difference will at once point out the proper classification. Other cases.

II. An arrangement, combination, or composition of matter, with the view of carrying out into practice certain truths, laws, or principles, the particular arrangement, combination, or composition, not being of the substance and essence of the invention, except as in connexion with or subsidiary to the truths, laws, and principles, which are to be so carried out into practice. Second class.

The paper machine, which was the subject of letters patent to Gamble in 1801 and 1803, will furnish an important illustration of this class of cases. The subject-matter of the invention was the making paper in sheets of great length, by means of machinery. This was effected by receiving the pulp on an endless web of wove wire, or other suitable material, passing round two cylinders made to revolve with a uniform velocity. The carrying out into practice this general idea or principle of the invention, would require arrangements and combinations of a very complex nature, and arrangements or combinations in themselves extremely different would, when adopted, in connexion with, and as subsidiary or incidental to, this main idea, still be substantially the same invention. The invention did not consist in some particular means of applying an endless web to make sheets of paper of an indefinite length, but in the application of such endless web. The substance and essence then of this invention was an arrangement, combination, or composition of parts, *i.e.* manufactured matter, whereby paper might Gamble's patent.

(i) Per *Tindal*, C. J. *Cornish* v. *Keene*, 3 Bing. N. C. & 2 Hodg. The same remarks may be made with respect to Macintosh's patent for a waterproof cloth, in which the particular composition of matter consisted in the application of caoutchouc. *Macintosh* v. *Ebrington*, 6 Rep. Arts, N. S. 317.

be made by means of an endless web, in sheets of an indefinite length.

Dollond's. In Dollond's patent (A. D. 1758) for a new method of making the object glass of telescopes, the invention consisted in combining a convex lens of crown glass and a concave lens of flint glass, so that certain known laws of light in respect of refraction and achromatization, and the production of an image, might be carried out into practice. The invention did not consist in any mode of making the glass, or of grinding the lenses, or in assigning any particular degrees of sphericity to their surfaces—these being known from the ordinary propositions of optics—but simply in combining two lenses of the kind described, with the view of obtaining a correction of colour, and leaving some amount of refraction.

Bainbridge's. In Bainbridge's patent (A. D. 1807) for improvements on the flageolet, or English flute, the invention consisted in a particular composition of matter, such that the physical law of the vibration of a column of air, upon which the production of a particular note depends, might be carried out in practice in the improved instrument.

Cochrane and Galloway's. In Cochrane and Galloway's patent for removing the inconvenience of smoke and gas generated in stoves, the invention consisted in the retention of a volume of atmospheric air in a condensed state within a close furnace, in order to effect perfect combustion. The particular means by which the inventors proposed to carry out into practice the principles or laws of combustion were described in the specification, which contained the following passage:—"These objects may also be effected and produced by other abstract parts and combinations of machinery not explained or described; but yet such alterations may be made, embracing the principle of our invention, that may be a different modification of them, and yet be substantially in their effect and principles our invention" (*k*).

Minter's. In Minter's patent for an improved chair, the invention was described as consisting in the application of a self-adjusting leverage to the back and seat of a chair, whereby the weight on the seat acts as a counterbalance to the pressure against the back

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(*k*) In an action for an infringement of this patent (*Cochrane & Galloway* v. *Braithwaite & Ericsson*, 3 Lond. J. 42), by an invention in which the same principles of combustion were carried out in a different manner, and among other things by producing the condensed state of the air by means of a contracted orifice instead of a weighted valve—

Sir *Thomas Denman*, C. J., said:—"All that seemed indispensable was, that the required resistance, the necessary degree of compression, should be produced, and if that could be obtained by narrowing the outlet, as well as by a weighted valve, such a mode of effecting the object must be held as being covered by the words 'any other known means of producing required resistance.'"

See *Law & Practice*, 79.

of the chair. The application of self-adjusting leverage to this purpose might be effected by many different arrangements and combinations, so that the substance of this invention was not any one particular arrangement or combination of matter, but such an arrangement as was subsidiary to the carrying out into practice the principles described in the specification, that is, the well-known laws of a particular kind of compound lever (*o*).

In Jupe's patent for an improved expanding table, the inven- Jupe's.
tion consisted in making a table in sections which might diverge from a common centre, so that the table would be enlarged or expanded on inserting leaves or pieces in the openings or spaces caused by such divergence. The validity of this patent was strongly contested, but the Court of Exchequer held, that such an invention constituted a new manufacture, without reference to the mechanical means by which the divergence was effected (*p*). In this case then the subject-matter of the letters patent was a particular composition of matter for the purpose of effecting a certain object; but the particular composition described was not the essence and substance of the invention, except as in connexion with and subsidiary to the principle of expansion or divergence.

Watt's patent, though this may be more conveniently referred Watt's.
to the third class, will also furnish an important illustration of the preceding. The letters patent were for an improved method of lessening the consumption of steam and fuel in fire engines, and the specification stated the improved method to consist in the following among other principles, namely, in keeping the cylinder hot, in condensing the steam in a separate vessel, in withdrawing from that vessel the elastic vapour which was not condensed, so as to have as perfect a vacuum as possible; the specification also pointed out the means by which these principles were to be carried out(*q*); and the directions and description given therein were, according to the finding of the jury, sufficient to enable a mechanic, acquainted with fire engines previously in use, to construct fire engines so as to lessen the consumption of steam, and consequently of fuel; that is, to realise and put in practice

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(*o*) See *Minter* v. *Wells*, 1 Cr. M. & R. 505.

(*p*) See *Jupe* v. *Pratt*, 3 Rep. Arts, N. S. 112, &c.

Alderson, Baron: "You cannot take out a patent for a principle, but you may take out a patent for a principle coupled with the mode of carrying the principle into effect, provided you have not only discovered the principle, but invented some mode of carrying it into effect; but then you must start with having invented some mode of carrying the principle into effect; if you have done that, then you are entitled to protect yourself from all other modes of carrying the same principle into effect, that being treated by a jury as piracy." *Ibid.*

This same important doctrine was laid down by Lord *Tenterden*, C. J., in *Lewis & another* v. *Davis*, 3 Car. & P. 502.

(*q*) See *Law & Practice*, 46; and *ante*, 6, note *n*.

the invention of Watt. The subject-matter of this patent, if referred to this class, must be considered as a particular arrangement and composition of manufactured matter, in connexion with and furtherance of the principles or rules of management pointed out in the specification (*r*).

Inventions a character independent of the means.

The preceding are some of the principal cases in which the most important part or great merit of the invention consists in the conception of the original idea, rather than in the manner in which it is to be carried out or applied in practice. Many other cases might be mentioned, but the preceding, it is conceived, will be sufficient to illustrate this class, and to show that inventions may have a character which is totally independent of the particular means by which they are applied, so that the imitating that character may be a piracy of that invention, although the means may be very different, and such as in themselves might constitute a distinct substantive invention (*s*).

It will frequently be a question of some difficulty, whether the particular arrangement or composition of matter is of the essence and substance of the invention; and on the determination of this will frequently depend the question, whether an invention has or has not been infringed by another invention having the same or similar objects, and producing the same or similar results. The determination of the particular character of the invention will depend simply on the specification, that is, on the obvious and reasonable construction which can be put on the words by which the patentee describes and ascertains the nature of his invention (*x*).

Third class.

III. An application and adaptation of natural or known agents, and of known substances or things.

Lord Dudley's.

Letters patent were granted (19 Jac., A.D. 1620) to Lord Dudley for his "mystery, arts, way, and means of melting iron ewre (ore), and of making the same into cast works or bars of iron with sea coals or pit coals, in furnaces with bellows:" they recite, that the invention consisted in the use of sea or pit coal instead of charcoal. From the brief description contained in the letters patent, it appears that the invention was simply the sub-

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(r) The distinction here contended for is recognised in several of the judgments delivered in this case. Thus—

Eyre, C. J.: "Some machinery it is true must be employed, but the machinery is not of the essence of the invention, but incidental to it." *Boulton & Watt* v. *Bull*, 2 H. Bl. 496.

See *ante*, 6, note *n*.

(s) As Morton's patent for a slip for drawing up ships; Jones's, for wheels on the principle of suspension; and Hall's, for a cover for a copper for the purpose of preserving the essential oil of hops, obtained from the steam of the wort.

(x) See important instances of this in the case of Forsyth's patent for the application of detonating powder to the discharge of fire-arms (*post*, 20); and of Hall's patent for the application of the flame of gas to improve lace by singeing off the superfluous fibres (*post*, 21).

stitution of pit or sea coal for charcoal, that is, the application of the kind of coal to the manufacture of iron (*a*).

Successive improvements in the manufacture of iron have been the subject-matter of a great variety of patents, in many of which the invention has consisted simply in the application of some known agent or substance, whereby the quantity or quality of the iron produced was improved (*b*).

Derosne's. In Derosne's patent for improvements in extracting and refining sugar and syrups, the most valuable part of the invention consisted simply in the application of animal and other charcoal as the medium of filter. The specification described the invention in the following manner:—"Whatever sort of charcoal it may be, it must be disposed on beds very thick, on a filter of any suitable form; the filter of itself has nothing particular, and does not form the object of the patent, because it is already known and used for other purposes, but until now it has not been used for discolouring (*c*) syrups." In this, as in many of the patents for improvements in the manufacture of iron, the invention was simply the new application of a known substance; if the substance produced, rather than the mode of production, be regarded, these cases would belong to the first class, since the particular composition of matter so produced would be different from that previously obtained (*d*).

Hartley's. In Hartley's patent (A.D. 1773), extended by act of parliament (17 G. 3, c. 6), for the method of securing buildings from fire, the invention consisted in the application of plates of metal and wire to the parts of buildings and ships, so as to prevent the access of fire, the plates being laid over each other at the joints, and fastened in any known manner (*e*). The essence and

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(*a*) This patent, granted three years before the statute of monopolies, was, with several others, specially mentioned and saved in that statute. This exception would appear unnecessary, except *ex abundante cautelâ*, it having been held in Bircot's case (10 Eliz.), that an addition was not a subject-matter. See *ante*, 12, note *z*.

(*b*) The application of lime to cure the defect of cold short, of the hot blast, and of anthracite as a fuel, are well-known cases. See *ante*, 12, note *y*.

A vast variety of other applications, mechanical, physical, and chemical, have been the subject-matter of letters patent in this branch of the arts.

(*c*) This term is used in the sense of the French word *decolorer*, or of discharging the colour. See *Law & Practice*, 87.

(*d*) Several of the inventions referred to the first class may also be referred to this, by selecting some prominent feature of the invention. Thus, Sievier's may be considered as the application of covered caoutchouc threads, and Macintosh's as the application of caoutchouc in solution. The case of Walton's patent, in which the invention consisted in using India rubber for the back of cards instead of leather, may also be referred to either class, though more properly to the third class.

(*e*) The specification of this patent was as follows:—"My invention of a particular method of securing buildings and ships against the calamity of fire, is described in the manner following, that is to say, by the application of plates of metal and wire, varnished or unvarnished, to the several parts of buildings and ships, so as to prevent the access of fire, and the current of air, securing the several joints by doubling, overlapping, soldering, rivetting, or in any other manner closing them up, nailing, screwing, sewing, or in any other manner fastening, the said plates of metal into and about the several parts of buildings and ships, as the case may require." See 17 G. 3, c. 6.

substance of the invention in this case was, the application of a known thing in a known manner, by simple contact, to obtain a known effect—protection from fire (*f*). This case might have been arranged under the second class, as a particular arrangement or composition of matter for the purpose of obtaining a certain result, namely, security from fire, but it seems to belong more properly to this class.

Watt's. In Watt's patent for his improved method of lessening the consumption of steam and fuel in fire engines, the invention consisted, among other things, in the application of a system of external casing and clothing to the cylinder, in the adaptation to the cylinder of a separate vessel in which the steam was to be condensed, and of the air-pump to draw off the elastic fluid from that separate vessel. The invention included other things, and might be considered, as has been already mentioned under the second class, as a particular composition of matter for the purpose of carrying out certain principles, but each of these separate applications contributed essentially to the practical result, viz. the diminution of the consumption of steam, and consequently of fuel, and, as such, might have been the subject-matter of letters patent (*g*).

Forsyth's. In Forsyth's patent for a "method of discharging or giving fire to artillery, and all other fire-arms, mines, chambers, cavities, and places in which gunpowder or other combustible matter is or may be put for the purpose of explosion," the essence of the invention was the application of detonating powder, a known substance, to produce a known effect. The specification described a mode of discharging the powder, or producing the explosion, but this was not the substance of the invention as claimed, and the patentee succeeded in an action against a party who had adopted a different mode of effecting the discharge, from any described in the specification (*h*).

(*f*) The validity of this patent in respect of the subject-matter was fully discussed by *Eyre*, C. J., in delivering judgment in Watt's case, and placed on the same grounds as the patents for methods of operating and manufacturing, producing no new substance, and employing no new machinery. *Boulton & Watt* v. *Bull*, 2 H. Bl. 493-4.

(*g*) As to the subject-matter of Watt's patent, see *Law & Practice*, 46, n. *e*. See *ante*, 6, note *n*.

A substantial part of the invention in Huddart's patent, was the substitution of a tube, through which all the yarns were brought for a new circle which had been used before. On this we have the following important judgment:—

Lord *Ellenborough*, C. J.: "Now the tube does seem to me an important difference from the mere circle, because it keeps the yarns in a degree of confinement for a greater time, and more certainly obtains the end pointed out in Mr. Balfour's specification; the same end is to be attained, and had the patent been taken out for that to be done by a tube, which was before done by a ring or circle, I should have thought the patent good, for that is a distinct substantive invention." *Huddart* v. *Grimshaw*, Dav. Pa. Ca. 297.

(*h*) See *Forsyth* v. *Riviere*. Chitt. Prerog. Crown, 182.

The specification of Forsyth's patent states—First, the chemical plan and principles of the invention, describing generally the manner in which the known

In Hall's case, for a method of improving every kind of lace or net, or any description of manufactured goods where fabric is composed of holes or interstices made from thread or yarn, as usually manufactured, of every description, whether fabricated from flax, cotton, wool, silk, or any other vegetable, animal, or other substances whatsoever," the substance of the invention was the application of the flame of gas to singe off the superfluous fibres about the meshes of goods of the above description. This case furnishes a good illustration of those in which the question may be raised, whether the substance of the invention as described in and claimed by the specification, was generally the application of the flame of gas, or some particular mode of applying it—in the latter case, it would belong to the second class. The patentee succeeded in an action for infringement, on the evidence that the defendants having recently started in the same line of business as the plaintiff (clear-starching lace), had the gas laid on to the premises in a peculiar manner, of which no explanation was furnished, and used a much larger quantity of gas than could have been required for the ordinary purposes of lighting (*i*). Hall's.

Letters patent were granted (A.D. 1818), to Lewis and another, for improvements on a machine for shearing cloth, for which machine Lewis had a previous patent (A.D. 1815). The specification described various things, but the most important Lewis's.

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chemical compound was to be applied and discharged, but disclaiming the invention of the compound itself in the following words. "But it is to be observed that I do not lay claim to the invention of any of the said compounds or matters to be used for priming; my invention in regard thereto being confined to the use and application thereof to the purposes of artillery and fire arms as aforesaid." It then proceeds as follows:—"And secondly, I do hereby further declare, for the better illustration of my said invention, and as auxiliary to the use thereof in relation to the mechanical parts thereof, that I have hereunto annexed drawings or sketches exhibiting several constructions which may be made and adopted in conformity to the foregoing plan and principles, out of an endless variety which the subject admits of." 11 Rep. Arts, 2nd Ser. 401.

(*i*) See *Hall* v. *Francis & Gervas Boot*. Printed case.

The specification of this patent was as follows:—"My method of improving lace or net, or such other goods as aforesaid, is by passing them through or at a very small distance over a body of flame or fire produced by the combustion of inflammable gas, while the said flame or the intense heat thereof is urged upwards so as to pass through the holes or meshes of the lace or net, &c., by means of a current of air which is produced by a chimney fixed over a flame immediately above the lace or net, &c. The action of the flame is to burn, singe, and destroy, as much of the said superfluous fibres or fur as may be removed without injury to the lace or net, or such other goods as aforesaid." The specification then gave certain directions for the trade, proceeding as follows:—"The drawing hereunto annexed, represents a system of rollers to operate upon lace or net, or such other goods as aforesaid, by the flame of inflammable gas (describing the drawing, &c.) The above apparatus or combination of machinery is conveniently adapted for the purpose of the said invention, but I do not claim the exclusive use of any apparatus or combination of machinery, except in connexion with and in aid of the application of the flame of inflammable gas to the purposes above described in this specification."

part of the invention was the application of a rotary cutter to shear the cloth from list to list. In an action for the infringement of this patent, it was objected on the part of the defendant, that the rotary cutter being old, and having been used to shear cloth from end to end, and cloth having been sheared from list to list by shears, the application of a rotary cutter to shear from list to list was not a subject-matter for letters patent. But this objection was overruled by Lord *Tenterden*, C.J., who said—"The case stands thus; it appears that a rotary cutter to shear from end to end was known, and that cutting from list to list by means of shears was also known; however, if, before the plaintiff's patent, the cutting from list to list, and the doing that by means of rotary cutters, were not combined, I am of opinion that this is such an invention by the plaintiffs as will entitle them to maintain the present action" (*k*).

In this case then the substance of the invention was the application of a known instrument, a rotary cutter, in a known manner, viz., to shear cloth from list to list.

Cases of simple applications.

In most of the cases which have hitherto been given, the means or machinery employed, if not of the substance or essence of the invention, has been of some importance; but there are a great number of cases in which the substance and essence of the invention consist in an application, requiring no

Daniell's.

composition of matter to put it into practice. Thus, in Daniell's patent (A.D. 1819), for improvements in dressing woollen cloth, the invention consisted in immersing a roll of cloth manu-

Fussell's.

factured in the usual manner in hot water, and in Fussell's patent the cloth was subjected to a steam bath with the same object (*l*).

Hadden's.

In Hadden's patent (A.D. 1818), for an improvement in preparing wool, the invention consisted in the application of heat to wool, by means of iron heaters within the rollers through

Lister's.

which the slivers of wool passed, and in Lister's patent (A.D. 1823), the rollers were heated by steam (*m*).

Crompton's.

In Crompton's patent for an improved method of drying

(*k*) See *Lewis & another* v. *Davis*. 3 Car. & P. 502.

The patentees had a verdict, which was not disturbed; they also had a verdict in a subsequent action. (*Lewis & another* v. *Marling*.)

The decision in these cases fully established the important doctrine, that an invention may be infringed by adopting the same general idea, but carrying it out by totally different means. In this case it was admitted that the machinery of the defendant was totally different from that of the plaintiffs, and the infringement consisted in the fact of the shearing from list to list, by a rotary cutter, without any reference to the machinery by which such shearing was produced. See 2 Lond. Jour. 2nd Ser. 256.

(*l*) The latter patent was held an infringement on the former, and both were repealed by *scire facias* for want of novelty.

(*m*) The invention was held substantially the same in both these cases, and both patents were repealed for want of novelty.

and finishing paper, the substance of the invention was the use of a heated cylinder, against which the paper was conducted.

In Christ's patent for "improvements in copper and other plate printing," the substance of the invention was in the preparation of the paper, and the particular means by which this was effected, as the damping the paper is an application which would have been an invention sufficient to support the patent (*n*). Christ's.

In these, and many other cases, the substance and essence of the invention were the application and adaptation of a known agent, as heat, water, &c., for effecting great improvements in manufactures.

The omission of any ingredient previously used in and considered essential to any particular manufacture, would constitute a change in the series of processes pursued, and consequently a new manufacture; and the subject-matter of letters patent for such an invention would properly belong to this class, as Campion's patent for "a new and improved method of making and manufacturing double canvas and sail cloth with hemp and flax, or either of them, without any starch whatever"(*o*). Omission of a substance.

The class of cases which has just been illustrated, will be the most numerous class in an advanced state of the arts and manufactures of a country. When the manufactures are in their infancy, products which never before existed, results never before obtained, and effects never before produced, will be the subject-matter of letters patent; this will constitute, as it were, the first era of invention; but ingenuity will then be directed to improvements in the mode of producing,—to obtain the same products or results, and to produce the same effects, in a more economical and beneficial manner; this will constitute the next or more advanced era of invention; and it is obvious that new applica- Two eras of inventions.

(*n*) *Sturtz* v. *De la Rue*, 5 Russ. 322. Lord *Lyndhurst*, L.C.: "The title in this case is for certain improvements in copper and other plate printing. Copper-plate printing consists of processes involving a great variety of circumstances. The paper must be of a particular description; before it is used it must be damped; it must remain damp a certain time, and must be placed in a certain temperature; the plate must be duly prepared and duly applied; and various processes must be gone through before the impression is drawn off, and brought to a finished state. An improvement in any one of these circumstances, in the preparation of the paper for instance, as in the damping it, &c., may be truly called an improvement in copper-plate printing." *Ibid.*

(*o*) In this (as in several others of the preceding cases) the patentee failed, but it was as in this case in respect of want of novelty or some defect in the specification, and not in respect of the alleged invention not being a proper subject-matter, if new and properly described in the specification. See remarks of the judges on this patent, *Campion* v. *Benyon*, 4 B. Moore, 71.

tions of known agents and things must lead to such a change in the series of processes as will constitute a new manufacture (*p*).

Every application not a subject-matter.

But although in a large and continually increasing proportion of the patents, the substance of the invention will be an application of known agents or things, it is not every application or every novelty which can constitute a new manufacture, and as such be a subject-matter of letters patent. Many cases to which the term new applications may be applied, but which are not the subject-matter of letters patent, have been designated by the terms double or new use—and in general wherever the term adaptation cannot be employed in connexion with the term application, that is, wherever the only change is of so simple a nature, or so obvious, as to exclude all idea of skill, thought, or design—always supposing no new manufacture, as above described, to be the result—the application is not such as can be the subject-matter of letters patent. It will, however, be necessary to consider this, or the more general question, what amount of invention is sufficient to support a patent, somewhat more in detail.

AMOUNT OF INVENTION.

Every change not an invention.

The subject-matter of letters patent must possess the incident of novelty, or the principles of the common law and the words of the statute will not be complied with; and further, the result to which it leads must be a new manufacture. But every novelty is not an invention which may be the subject-matter of letters patent; the change must be such as may have resulted from the exercise of or given scope for thought, design, and skilful ingenuity. It is not necessary that either thought, design, skill, or ingenuity, should have been exercised—the invention or discovery may have resulted from guess or accident (*q*);

(*p*) See *ante*, 8.

The application, within the last few years, of electricity for the transmission of signals, and copying seals and impressions, and gilding, and of light for the purposes of photography, illustrate and confirm these remarks.

(*q*) This has been fully recognised.

Thus, Lord *Mansfield*, C. J.: "Inventions are of various kinds; some depend on the result of figuring, others on mechanism, others depend on no reason, no theory, but a lucky discovery. Water Tabbies were discovered by a man spitting on a floor-cloth, which changed its colours, whence he reasoned on the effect of mixing water with oil and colours." Bull N. P. 76.

Buller, J.: "The true foundation of all patents must be the manufacture itself, and so says the statute (21 Jac. 1, c. 3), and whether the manufacture be with or without principle, produced by accident or art, it is immaterial." 2 H. Bl. 486.

J. Bell, Q. C.; "It was not necessary to show that an invention was the result of long application or deep skill. He remembered that, many years ago, ladies wore flowered tabbies. The method of working the flower was discovered by mere accident; a man having spit upon the floor, placed his hot iron on it, and observed that it spread out into a kind of flower. He afterwards tried the experiment upon linen, and found it produced the same effect. He then obtained a patent, and lived to make a considerable fortune." 29 Rep. Arts, 2d Ser. 311.

and in a great number of cases the whole invention is but the conception of the idea; and whatever may have been the thought or labour before the idea was conceived, or the result attained in practice, yet inasmuch as the result itself gives no evidence of thought or labour, neither may have been exercised. This is peculiarly the case with many of the inventions which are applications of known agents and things, and described above under the third class. In most of these cases the practical application of the idea is easy and simple, and will suggest itself as soon as the idea; in fact, the whole invention is realized as soon as the idea is conceived. In these cases then it is only necessary that the possibility of thought, design, and skilful ingenuity, having been exercised, should not be excluded. The simple substitution of one material for another, as brass for copper, in any construction, may or may not be an invention or discovery which could be the subject-matter of letters patent (*r*). Suppose a machine for making iron nails in a particular manner—the application of that machine to making copper nails, there being no adaptation, no change in any part of the manufacture but the substituting of copper for iron, the machine being worked precisely as before, could not be the subject-matter of letters patent. Cases of this kind must be determined by other considerations, as the utility of the change.

As steam for hot water.

The immersion of cloth in a steam bath, with the view of damping it, was held an infringement on a previous patent for an improvement in the manufacture of cloth, by immersing it in hot water; that is, the substitution of steam for hot water, the object of the former invention being an improved mode of dressing by simply moistening the cloth, is not a sufficient change or invention to support a patent. Also the substitution of steam as the means of heating hollow rollers through which the slivers of wool passed, was held not a sufficient change from the previous practice of heating the hollow rollers by iron heaters

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(r) The following argument and illustration were used by an eminent counsel, (Mr. Leach, afterwards Sir John Leach, V. C.) in a case of an alleged improvement in the construction of barrels for containing gunpowder. "The making of an old machine of new materials could not be a discovery, and the plaintiff could claim no protection for an invention, the only merit of which consisted in being made of brass instead of wood. When tea was first introduced into this country, earthen tea-pots were used, but could a person who made the first one of silver be entitled to a patent?" *Walker* v. *Congreve*, 29 Rep. Arts. 2d Ser. 311.

If the composition of matter now called a silver tea-pot had existed before the introduction of tea, and been used for making similar infusions from other ingredients, its appropriation or 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 the same manufacture.

to support a patent (*s*). The peculiar circumstances of each case must be minutely examined for the purpose of determining what change may be sufficient to constitute an invention (*t*). Whenever a particular arrangement, combination, or composition of matter, some independent instrument or machine, as described under the first class, or in connexion with the carrying out into practice certain laws or principles, as under the second class, is the substance and essence of the invention, the mere substitution of one material for another will produce no change in the character of the invention. It is still a particular composition of matter, and any change in the kind or species of manufactured matter produces no change in the character of the invention.

What change not sufficient.

Also, if the change be immaterial or useless, that is, if the machine will do as well without it, or if some process or series of processes be not substantially affected thereby, so that either a different result be not obtained, or the same result be not obtained in a more economical or beneficial manner, that change will not be sufficient to support a patent.

In Arkwright's patent, one article, the filleted cylinder, was proved to have been used both in the manner the defendant used it, and likewise when covered with card, and *Buller*, J. said, "If it were in use both ways, that alone is an answer to it. If not, there is another question, whether the stripe in it makes any material alteration? For if it appears, as some of the witnesses say, to do as well without stripes and to answer the same purpose, if you suppose the stripes never to have been used before, that is not such an invention as will support the patent." And again, with respect to another article, the can, "if it be so, it brings the case to a short point indeed, for if nothing else is new, the question is, whether it is material or useful. The witnesses on the part of the prosecution say it is of no use at all. In the first place, they had that before which answered the same purpose, though not made exactly in the same form—it was open at the top, it twisted round and laid the thread precisely in the same form, and had the same effect this had—so if it was new it was of no use; but they say it is not new, for though it was not precisely the same shape, in substance it was the same thing; that is not contradicted" (*u*). The preceding remarks

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(*s*) Per Lord *Tenterden*, C.J. In *R.* v. *Fussell*, and *R.* v. *Lister*.

See *Law & Practice*, 47, and *ante*.

(*t*) The immersion of cloth in hot water, according to Daniell's patent, is said to have improved its value one guinea per yard; had the immersion in steam, according to Fussell's patent, been attended with a still further improvement, it may be presumed that such a change, by virtue of the great utility thereof, would have been held a sufficient invention. See *post*, 39.

(*u*) *R.* v. *Arkwright*. Printed case, 185, & Dav. P. C. 137.

of the learned judge point out very distinctly what changes will not be sufficient to constitute such an invention as will support a patent; and furnish tests readily applicable to cases of that class. The following words of the same learned judge contain a better, because more general, test. "If there be any thing material and new which is an improvement of the trade, that will support a patent"(*w*). The words "improvement of the trade," constitute a *definition* of the *preceding*, and it may be said that will be material and new which is an improvement in the trade, so that the preceding leads obviously to the conclusion, that any change which is conducive to a more beneficial result, will support a patent; that result which is obtained more beneficially, using that term in the very wide and extended sense which it admits of, must be in some respect or other new. The improvement of trade is the great end and object of patents, and whatever conduces to this is within the spirit of the common and statute law.

A change sufficient, if an improvement in trade.

The question of the sufficiency or insufficiency of an invention to support a patent, does not often present itself under this distinct form, but indirectly in actions for infringement (*x*). The alleged piracy will in general contain, at the least, some colourable or formal variation, and the question will be, whether the change be colourable and formal, or substantial and essential; that is, whether it be such as would of itself support a patent; this question will be determined according as the jury are of opinion that the invention has or has not been infringed, or by a special finding, as that what is new is essential or useless, and a colourable evasion. This is often a question of extreme difficulty and nicety, especially in the cases of minute additions to complicated machinery, or of the substitution of mechanical equivalents, or of one substance for another, in one of several processes, and in chemical cases; but an analysis of the case, with a view to classifying it under one of the preceding classes, will show whether, by reason of the change, the invention has acquired a distinct character.

The analysis already given of the words of the statute, and the definition of the term 'manufacture' as a particular series of processes pursued, renders any extended remarks on the applicability of the preceding to the various classes of cases unnecessary.

To a large proportion of the cases, especially of those included under the first and second classes, the words of the learned judge in Arkwright's case would be obviously applicable, and a little consideration will show, that in all the cases the sufficiency

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(*w*) *Ibid.* Printed case, 182.

(*x*) See *Brunton's* case, *post*, 30—32.

of the invention may be examined and ascertained by the principles there laid down, although the peculiar circumstances of some of the cases might be conceived to render the preceding observations less literally applicable, there being no combination of mechanical parts. But whatever the peculiar form of the objection to the sufficiency of the change in Arkwright's case, it must be observed that the gist and substance of the objection is, that no new manufacture was thereby produced; the change as specified was not such as could be said to be sufficient to constitute a new manufacture; the cotton spun under Arkwright's patent, was essentially the same manufacture as that spun before; the change produced no manufacture which could be said to be material and new, or an improvement of the trade. It is the effect on the result which must be looked at, and not the change in the particular means or intermediate processes which contribute to that result. The change is insufficient, not because of its own minuteness, but because it fails to constitute a new manufacture.

A new manufacture the test.

Dudley's.

In Lord Dudley's patent, the change was simply the substitution of pit coal for charcoal; but that change constituted a new manufacture. Iron having the same ingredients or chemical constitution, that is, the same composition of matter, was never produced before; also, iron was never produced in the same way before. The manufacture was new both in respect of the constitution of the iron and its mode of production.

The result also in this case was highly beneficial, for the wood of the country was nearly exhausted, and this discovery led to a totally new source of trade (*y*).

Derosne's.

In Derosne's patent, the invention was the application of charcoal to filter sugar. Here an entire change took place in one process, and this would constitute a new manufacture. Sugar had never been produced in this way before (*z*).

Hall's.

In Hall's case, the application of the flame of gas to singeing off the superfluous fibre of lace, constituted a new manufacture; this final process had till then been done in an imperfect and inefficient manner; but the result obtained was highly beneficial, and a great improvement in the trade (*a*).

Daniell's.

In Daniell's case, cloth, manufactured in the usual manner, was rolled up and saturated in hot water. This additional process constituted a new manufacture, and very much increased the value of the cloth. But the subsequent patent of Fussell for an improved manufacture of cloth, by immersing it in steam till it became saturated, was held an infringement. This change might be said to constitute a new manufacture, but the change

Fussell's.

(*y*) *Ante*, 18. (*z*) *Ante*, 19 (*a*) *Ante*, 21.

of means was very obvious, and the result not superior to that obtained under the previous patent of Daniell (*b*).

In these, and many other cases which might be mentioned, the changes, though apparently trifling, were extremely important in their consequences, and the results to which they led were new manufactures and great improvements in the trade. It is obvious in all these cases, that no estimate can be formed of the amount of invention, except from the importance of the result, and that though the exercise of thought, design, and ingenuity, is not excluded, and probably took place, the merit of the invention is in having conceived and realized the idea, and not in devising any particular means for carrying it out into practice.

Change small, but result important.

The sufficiency of the invention then does not depend on the thought, labour, or skill, which has been bestowed upon it, but upon its having a distinct and independent character, and leading to results in their nature highly beneficial to the manufactures of the country.

Sufficiency depends on the result.

But though the amount of invention, and the consequent sufficiency of a change to support a patent, cannot be directly estimated or ascertained, they may be estimated and ascertained from the result; and with this view two things have to be considered, viz., the nature of the change and its consequences. The change may be considerable, that is, may of itself exhibit traces of thought, skill, and design; the consequences produced thereby may be important and considerable, or unimportant and inconsiderable; in the former case, both the means and the result may be new—in the latter, the means new and the result the same—in both cases there will be a sufficient invention.

Sufficiency may be ascertained from the result.

Next, the change in itself may be inconsiderable or minute, that is, exhibiting of itself no trace of thought, skill, or design; and the consequences produced thereby may be important and considerable, or unimportant and inconsiderable; in the former case both the means and the result will be new, and there will be a sufficiency of invention—in the latter case the means will be new, but the result unchanged; or there will be an insufficiency of invention. These four cases, the only cases which can occur, are all included in the following general proposition and practical test—that whenever the change and its consequences, taken together and viewed as a sum, are considerable, there must be a sufficiency of invention to support a patent. Thus, when the change, however minute, leads to consequences and results of the greatest practical utility, as in the case of Dudley's, Hall's, and Daniell's patents, the above condition is satisfied; but if the

If the change and its consequences as a sum are considerable.

(*b*) It was generally believed that the use of steam was neither so good nor so convenient, and only a colourable evasion.

consequence, as in the case of Fussell's, be inconsiderable, the change also being inconsiderable, and such as would most readily suggest itself to any one, the condition is not fulfilled, and the invention is not sufficient to support a patent (*c*).

The utility the real test.

The utility then 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 one may be presumed on proof of the existence of the other. Whenever then utility is proved to exist in a very great degree, a sufficiency of invention to support a patent must be presumed. And the fact of one invention having come into use to the exclusion of another of prior date, and apparently extremely similar, will lead to the presumption that there was some difference, and a sufficient difference to support a patent—the one invention having failed, and the other having come into use (*d*).

Sufficiency of invention may be presumed from great utility.

Cannot be presumed from apparent change.

The following important practical conclusion may be derived from the preceding, namely, that the sufficiency of an invention cannot be judged of or ascertained by the apparent amount of thought, design, or skill, which may or may not have been exercised in producing it. In many cases, as those in which the invention consists in the application of some known substance or thing, the result can exhibit no trace of the thought, design, or labour expended, however great it may have been; and in those cases in which the result itself may exhibit traces of that thought and design, as in some complicated piece of machinery or elaborate composition of matter, that result may turn out to be useless, and so the invention, which is to all appearances most sufficient, may in fact be most insufficient (*e*).

Brunton's case.

The difficulties in which this question is involved, and the necessity of recourse to other tests and considerations than the apparent design or amount of invention, cannot be better illustrated than by the celebrated case of Brunton's patent (*f*). In this case the question of the sufficiency of an invention to support a patent, was much considered, and the learned judges drew some very minute and subtle distinctions of great practical importance in similar cases.

The letters patent were "for improvements in the construct-

(*c*) This consideration of the change and its consequences in connexion, will be found sufficient and consistent with all the cases. See *Law & Practice*, 11.

The consideration of the change alone is quite inadequate. See *post*.

(*d*) This was the principle of the decision in *Hullett* v. *Hague*. (2 B. & Ad. 370.)

There were two patents extremely similar for improvements in evaporating sugar; the one had failed, but the other had come into use.

(*e*) If an invention be useless, the letters patent will be void, whatever the skill or ingenuity which has been exercised. See *Law & Practice*, 117 & 118.

(*f*) *Brunton* v. *Hawkes*, 4 B. & Ald. 341.

ing of ships' anchors and windlasses, and chain cables or moorings." The windlass was admitted to be new, and the jury found the chain cable and the anchor to be new and useful. A rule *nisi* was granted for a new trial on the grounds of insufficient invention to support a patent, both in the cable and anchor; and the new trial was granted on the latter ground only.

The first chain cables (Captain Brown's) were made with twisted links, a wrought-iron stay being fixed across the middle of the opening of each link to keep it from collapsing.

The chain cable.

The invention in Brunton's cables consisted in making the links with straight sides and circular ends, and in substituting a cast-iron stay with broad ends, adapted to the side of the link, and embracing them. The particular form of link and the broad-ended stay were adopted from considerations respecting the action of forces, and the nature of the strains to which cables were subjected, which were fully set forth in the specification. On this part of the invention, *Abbott*, C. J.: "As at present advised, I am inclined to think that the combination of a link of this particular form, with the stay of the form which he uses, although the form of the link might have been known before, is so far new and beneficial as to sustain a patent for that part of the invention, if the patent had been taken out for that alone."

Bayley, J.: "The improvement in that respect, as it seems to me, is shortly this: so to apply the link to the force to operate on it, that that force shall operate in one place, namely, at the end; and this is produced by having a bar across, which has not the defect of the bar formerly used for similar purposes. The former bars weakened the link, and they were weak themselves and liable to break, and then if they broke there might be a pressure in some other part. Now from having a broad-ended bar instead of a conical one, and having it to lap round the link instead of perforating it, that inconvenience would be avoided; and therefore the present impression on my mind, as to this part of the case, is, that the patent might be supported."

Best, J. doubted whether the patent could be supported in respect of the chain cable, on the ground that the specification claimed the form of the link as new, and had not confined the claim to the use and introduction of the stay between the links, embracing the sides instead of entering them.

The substitution of a broad-headed for a pointed stay in the link of the cable a sufficient invention.

The above learned judges were agreed, that the substitution of the stay or bar was, under the circumstances, a sufficient invention to support the patent; and the utility of this substitution, in respect of the result and in connexion with the principles which were to be carried out by that substitution, is very prominently adverted to by all of them. The change was but small,

but the principles upon which it was adopted, as set forth in the specification, showed that much thought and design had been exercised about it, and the evidence at the trial proved the superiority of that chain cable above those of Captain Brown, who had himself adopted the improvement. So that the general observations of *Buller*, J., and the practical tests to which they lead, are applicable to, and were fully recognised in, this case.

The anchor.

The invention in respect of the anchor consisted in making the two flukes or arms in one piece, with such a thickness of metal in the middle, that a hole might be pierced through it for the insertion of the shank, instead of joining the two flukes in two distinct pieces by welding to the shank; the hole being made conical or bell-mouthed, so that no strain could separate the arms from the shank, by which means the mischief to the materials, from repeated heating, was avoided, only one heating being necessary to unite the end of the shank perfectly with the sides of the conical hole. With respect to this, *Abbott*, C. J.: "The mode of joining the shank to the flukes of the anchor is, to put the end of the shank, which is in the form of a solid cylinder, through the hollow and conical aperture, and it is then made to fill up the hollow, and to unite itself with it. Now, that is precisely the mode by which the shank mushroom anchor is united to the mushroom top, by which the shank of the adze anchor is united to its other parts. It is, indeed, the mode by which the different parts of the common hammer, and the pick-axe also, are united together. Now, a patent for a machine, each part of which was in use before, but in which the combination of the different parts is new, and a new result produced, is good; because there is a novelty in the combination. But here the case is perfectly different; formerly three pieces were united together; the plaintiff only unites two; and if the union of those two had been effected in a mode unknown before, as applied in any degree to similar purposes (*g*), I should have thought it a good ground for a patent; but, unfortunately, the mode was well known, and long practised. I think that a man cannot be entitled to a patent for uniting two things instead of three, where that union is effected in a mode well known and long practised for a similar purpose. It seems to me, therefore, that there is no novelty in that part of the patent as affects the anchor; and, if the patent had been taken out for that alone, I should have had no hesitation in declaring that it was bad."

The simple application of a mode known and practised for a similar purpose, not a subject-matter.

Bayley, J.: "As to the ship's anchor, in substance the patent

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(*g*) The words of the chief justice, as applied in any degree to similar purposes, and the subsequent illustration, are very important; the law requiring originality of idea and conception—as in the application of explosive mixture in Forsyth's case, of gas in Hall's, and of charcoal in Derosne's. See *ante*, 20-22.

is, for making in one entire piece that which formerly was made in two. The two flukes of the anchor used to consist of distinct pieces of iron, fastened to the shank by welding. In the present form the flukes are in one piece, and instead of welding them to the shank, a hole is made in the centre, and the shank introduced through the hole. Could there be a patent for making in one entire piece, what before had been made in two pieces? I think not(*h*); but if it could, I think that still this would not be new. In the mushroom and adze anchors, the shank is introduced into the anchor by a hole in the centre of the solid piece; and in reality, the adze anchor is an anchor with one fluke, and the double-fluke anchor is an anchor with two flukes. After having had a one-fluked anchor, could you have a patent for a double-fluked anchor? I doubt it very much. After the analogies alluded to in argument of the hammer and pick-axe, I do not think that the mere introducing the shank of the anchor, which I may call the handle, in so similar a mode, is an invention for which a patent can be sustained. It is said in this case, that the mushroom anchor and adze anchors are not ships' anchors, but mooring anchors. I think they are ships' anchors; they are not indeed such anchors as ships carry with them for the purpose of bringing the ship up; but if the ship is required to be stationary at a particular place, then the common mode of making it stationary is by the mushroom anchor. So the mode adopted to bring a ship, containing a floating light, to an anchor, is by mooring her to one of these mushroom anchors. That is the description of an anchor for a holdfast to the ship. The analogy between the case of the mushroom anchor and of the adze anchor is so close to that of the present anchor, that it does not appear to me that this discovery can be considered so far new as to be the proper ground of a patent. In reality, it is nothing more than making in one piece what before was made in two, and introducing into this kind of anchor the shank in the way a handle is introduced into a hammer or pick-axe."

The making in one piece that which had been made in two, not a subject-matter.

Best, J.: "Then as to the anchor, the invention claimed is, that he avoids the welding; but that certainly is not new, because that has been done before, in the case of the mushroom and adze anchor, the pick-axe, and the common hammer. It is said, however, that his invention consists in the application of that which was known before to a new subject-matter, viz., that he had, for the first time, applied to the manufacturing of

Application of a known mode to a new subject-matter.

(*h*) This *dictum* of the learned judge must evidently be received and applied with great caution; for many cases may occur in which the doing this very thing would be a most important new manufacture—the avoiding a joining may be most essential and material.

anchors a mode in which welding was avoided, which, however, had been long practised in other instances to which I have before alluded; but he does not state that as the ground upon which he had applied for his patent, nor state in the specification, that it being known that the process of welding weakens the anchor, he had first applied to an anchor a mode long practised in the manufacture of other instruments, viz., of making the two flukes of one piece instead of two. If he had so described his process, the question would then arise, whether that would be a good ground for a patent. I incline to think, however, that it having been long known that welding may be avoided in instruments of a similar form, the application of that practice, for the first time, to a ship's anchor, cannot be considered a new invention, and, therefore, that it is not the ground of a patent."

Application of known practice to similar purpose.

The judges were unanimous in their opinion that the patent, in respect of the improvements in the anchor, could not be supported; that the application of a mode well known and generally used in several of a class of cases, to one particular case of that class, did not constitute some manner of new manufacture within the meaning of the statute. If the sufficiency be judged of only from the invention which the results themselves, the cable and the anchor, exhibit, the substitution of a conical end to the shaft, and of a conical hole in the piece constituting the two arms, whereby the pieces were supposed to be more securely united, is as great a change as the substitution of a broad-headed for a pointed stay across a link. And yet there can be no doubt that the invention in the cable was of a much higher order than in the anchor. The improvement in the cable was the carrying out into practice certain important principles respecting the action of forces, by the substitution of the broad-headed for the pointed stay in a link of a particular form. The improvement in the anchor was the avoiding the welding by means well known and practised in cases extremely similar. There was originality of idea in the application of the broad-headed stay, as subsidiary to the principles for the improvement of the chain cable, as laid down in the specification, but there was no originality of idea or of method in avoiding the welding, this being borrowed from cases which would obviously and immediately present themselves.

It should also be remarked, with the view of pointing out whatever may have contributed to the subtle distinctions which were drawn in this case, that evidence of the great superiority of the cable was given at the trial, but nothing appears to have been said respecting the anchor. And this has been confirmed

by the result, for the cable is in constant and general use, but anchors are made as before the patent.

This case is much relied on whenever the sufficiency or insufficiency of an invention is in question, either directly or indirectly; but in applying this, as all other decisions on patents, great care is requisite; and unless the peculiar circumstances of each case are fully examined and comprehended, the greatest uncertainty will prevail (*i*).

Saunders's. In Saunders's patent for improvements in buttons, the specification stated that the improvements consisted in the substitution of a flexible material in the place of metal shanks on buttons, and described a mode of substituting the one for the other, by means of a collet, but the use of the collet was not claimed as part of the improvements, and a flexible shank was old. So that in this case the only invention claimed, was the substitution of one known thing for another, a flexible for a metal shank, both having been in use before. A button was old, and any invention must therefore have reference to the mode of manufacture, and the mode described in the specification was not claimed as new (*k*).

Kay's. In Kay's patent for new and improved machinery for preparing flax, hemp, and other fibrous substances by power, the specification declared the invention to consist in new machinery for macerating the flax, &c., and also in improved machinery for spinning the same. The invention in respect of the latter object consisted in placing the retaining and drawing rollers nearer to each other than was usual, and at an assigned distance; but inasmuch as the rollers were usually made capable of movement, and adjustable at variable distances, the Court of Common Pleas were of opinion, that the fixing them at an assigned distance was not a good subject-matter; or in other words, that spinning at a particular distance did not constitute a new manufacture, it having been the practice to spin at variable distances (*l*).

(*i*) It would be very easy to point out instances in which decisions in one case have been applied to other cases without any regard to the peculiar circumstance of each case; and this has mainly contributed to the opinion so often expressed of the obscurity and uncertainty of the law of patents. See Parl. Rep., A. D. 1829.

(*k*) *Saunders* v. *Aston*, 3 B. & Ad. 881.

The real invention in this case was the substitution of a flexible shank by the special aid of the collet, and had this been properly claimed in the specification the patent would have been good.

Littledale, J.: "Neither the button nor the flexible shank was new, and they did not, by merely being put together, constitute such an invention as could support the patent. It is contended, that the operation of the collet under the present patent is new, but that is not stated in the specification as the object of his invention, and it is in fact only one mode of carrying it into effect." *Ibid.*

(*l*) *Kay* v. *Marshall*, 5 Bing. N. C.

The substance of the invention in this case, was spinning at a much less distance than had before been done, viz., at about 2½ inches, in conjunction with maceration; but the specification did not thus describe and claim the invention. *Ibid.*

Many other cases have been already mentioned, in which the sufficiency of the invention was really in question, and the general conclusion from them is, that any change, however minute, if leading to a beneficial result in the arts and manufactures, is sufficient to support a patent (*m*).

NOVELTY AND NON-USER.

The question of novelty has already been in a great measure considered, but the words of the statute not only render novelty an essential incident of the subject-matter, but also explain and qualify it in a manner which is of great practical importance. By the statute, letters patent are to be granted for the "sole working or making of any manner of new manufactures, which others, at the time of making such letters patent and grant, shall not use" (*n*), and there is a condition in the letters patent themselves, for rendering them void if the invention be not a new invention as to the public use and exercise thereof, within that part of the United Kingdom for which the letters patent are granted (*o*). Thus the incident of novelty is qualified, explained, and interpreted by the incident of non-user; and that will be new within the meaning of the words of the statute, and of the letters patent, which is discovered then for the first time, or which is communicated to others then for the first time, whether discovered by a person's own wit and ingenuity, or learned from abroad (*p*).

Novelty defined as non-user.

The time at which the invention must be new.

The invention must, according to the words of the statute, be new at the time of the grant of the letters patent; and these generally bear date the day of affixing the Great Seal; but by an early statute (18 H. 6, c. 1) they may bear date the day of the delivery of the warrant from the crown, the Privy Seal Bill, into Chancery, but not before that day, and the Chancellor will, on petition, order them to bear the date of this delivery, but he cannot order an earlier date (*q*). This, considering the delay which may occur in the progress of the letters patent

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(*m*) See *ante*, 28.

(*n*) 21 Jac. 1, c. 3, s. 6; *Law & Practice*, 45.

(*o*) See *Law & Practice*, 80, note *k*.

(*p*) This exception in favour of a communication from abroad, is an essential part of the common law, and within the policy of the statute, which was intended to encourage new devices within the realm, and whether learned by travel or by study the country is equally benefitted, provided a new manufacture be introduced See *Edgebury* v. *Stephens*, 2 Salk. 447; also per *Eyre*, C. J., 2 H. Bl. 491.

(*q*) See Statute, *Law & Practice*, 33.

This statute was passed to prevent certain practices prevalent in respect of grants of lands and offices, whereby letters patent were antedated, and parties in possession unjustly deprived. But for this statute, practices of a somewhat similar kind, though with different objects and results, would probably be of constant occurrence in letters patent for inventions.

through the different offices (*r*), and the law that user or publication of the invention before the date of the letters patent would vitiate them, has been much commented upon by practical men as a hardship and endangering of their invention (*s*).

Publication independent of user.

It has not yet been decided how far the publication of an invention, independent of any user, would vitiate a subsequent patent. A project or scheme may have been published as likely to succeed, but notwithstanding such publication may never have been tried; would this publication vitiate the patent of a person, who, without seeing this book, or receiving any suggestion, hits upon this same project, and finds it a useful invention, and introduces it into actual use and exercise (*t*)? By the words of the statute, user by others at the time of the grant, is the criterion of novelty, so that the words of the statute include all cases of re-invention. In the great fluctuations to which manufactures are subject, a process or mode of manufacture once in constant use and exercise may be totally lost sight of; he who brings this again into use, renders the same service to the manufactures of the country as he who invents that which was never before known. The words of the statute also include those cases in which projects have been abandoned after many experiments, and an independent inventor or successful competitor availing himself of what has been before done, perfects the project, and brings the invention into use (*u*).

The letters patent contain a proviso for rendering the grant voidable, "if the said invention is not a new invention as to the public use and exercise thereof," without any reference to time, so that the proviso in the letters patent is more limited than the words of the statute (*w*).

The very difficult and important question of novelty in connexion with user, was presented in the following most luminous manner by Sir N. *Tindal*, C. J., in delivering the judgment of the Court of Common Pleas in a recent case (*x*): "It will be

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(r) From a month to six weeks. See *Law & Practice*, 15.

(s) See Parl. Rep. on Patents.

This evil is practically much less than at first sight may appear, from the caution which inventors exercise. But still in cases where workmen must be employed, the disclosure to a rival in trade, or publication to the world, may subject the real inventor to much annoyance, though the law would ultimately render him safe and secure in his rights.

(*t*) It is generally assumed that publication in any printed book would vitiate a subsequent patent, but this seems to rest on the presumption that the subsequent inventor learnt it from such book.

(*u*) See per *Tindal*, C.J., in *Galloway* v. *Bleaden*, 15 Rep. Arts, N. S.; *Law & Practice*, 81.

(*w*) The courts would probably hold the proviso to have reference to the time of the grant, so as to render it consistent with the statute.

Pattison, J., directed the jury in *Jones* v. *Pearse*, that a ceasing to use would not make an invention new; but this case is not fully reported. See 14 Rep. Arts; *Law & Practice*, 81.

(*x*) *Cornish* v. *Keene*, 3 Bing. N. C. 570; 2 Hodg. 281.

for the jury to say whether the invention was or was not in public use and operation at the time the patent was granted. There are certain limits to this question. A man may make experiments in his own closet—if he never communicates these experiments to the world, and lays them by, and another person has made the same experiments, and being satisfied, takes a patent, it would be no answer to say that another person has made the same experiments; there may be several rivals starting at the same time: the first who comes and takes a patent, it not being generally known to the public, that man has a right to clothe himself with the authority of the patent, and enjoys the benefit of it. If the evidence, when properly considered, classes itself under the description of experiment only, that would be no answer. On the other hand, the use of an article might be so general as to be almost universal; then you can hardly suppose any body would take a patent. Between these two limits, most cases will range themselves, and it must be for the jury to say, whether the evidence convinces their understanding that the subject of the patent was in public use and operation at the time when the patent was granted."

This mode of viewing the question presents a practical test, which divests the question of much difficulty in the cases to which it can be applied.

Secret invention.

An invention practised in secret, is not such a user as will vitiate the patent of a subsequent and independent inventor; and there are many other cases of the same class—as where an invention has been long known and practised within the premises of the inventor by his own workmen and servants. Such knowledge and practice, so far as the public are concerned, are a perfect secret. This important doctrine was fully recognised in a recent case, in which a set of paddle-wheels were made in the inventor's premises under injunctions of secresy; and when finished, were taken to pieces, packed up, and sent abroad, and there used. The Court of Exchequer held, that this was not a user which would vitiate a subsequent patent; and Mr. Baron *Parke*, in delivering judgment, said, "The words of the statute are, that grants are to be good for the sole working or making of any manner of new manufacture within the realm which others, at the time of making such grants, did not use; and the proviso in the patent in question founded on the statute is, that if the invention be not a new invention as to the public use and exercise thereof in England, the patent should be void. The word 'manufacture' in the statute must be construed in one of two ways: it may mean the machine when completed, or mode of constructing the machine. If it mean the former, undoubtedly there has been no use of the machine, as the machine, in Eng-

land, either by the patentee himself or any other person, nor indeed any use of the machine in a foreign country before the date of the patent. If the term 'manufacture' be construed to the mode of constructing the machine, there has been no use or exercise of it in England, in any sense which can be called public. The wheels were constructed, under the direction of the inventor, by an engineer and his servants, with an injunction of secresy, on the express ground that the inventor was about to take out a patent, and that injunction was observed; and this makes the case so far the same as if they had been constructed by the inventor's own hand, in his own private workshops" (*y*).

In this case the workmen were under the injunction of secresy, it being the intention of the inventor to take out a patent; so that all which was done previously was in the nature of an experiment, the patent being taken out as soon as the success of the invention was ascertained. But the principles of the preceding cases are also applicable to those cases of inventions long known and practised by the inventors within their own premises, and by their own servants and workmen, but without any injunctions as to secresy, or the intention of taking out a patent; and which inventions become the subject of subsequent patents to other and independent inventors. It would seem that such patents may be valid, there having been no user which can be said to be public, and that the inventor, by practising a useful invention, and omitting to publish it to the world, runs the risk of being debarred from practising his own invention, should it become the subject of letters patent to a subsequent and independent inventor. Such a user by the inventor without letters patent would effectually vitiate any subsequent patent obtained by him, but the case of a subsequent inventor who had had no means of knowing of this prior invention and user, is very different; the law not recognising any exclusive right or property in an invention not protected by letters patent (*z*).

User in premises of the inventor without publication.

UTILITY.

The question of utility as an incident of an invention, and its importance as a practical test of the sufficiency of that invention,

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(*y*) *Morgan* v. *Seaward*, 2 M. & W. 544.

(*z*) This curious and difficult question has never yet been before the courts; but the conclusion to which the cases lead us is of great importance. The policy of the law, if this conclusion be correct, must be sought in the consideration that the grant of letters patent is intended rather as a benefit to the public than a reward to the inventor; and that if he omit to inform the public of a useful invention which may become lost by reason of such neglect, he must forfeit the privileges incident to such a disclosure to a subsequent inventor who instructs the public by enrolling a record of his invention in the manner prescribed by law.

But *quære*, whether the original inven-

has already been fully considered. It remains only to point out in what manner some degree of utility is both by statute and common law rendered an essential incident of every invention which is the subject-matter of letters patent. The statute having defined the nature or class of inventions to which letters patent may be granted, adds the words, "so as also they be not contrary to law nor mischievous to the state, by raising prices of commodities at home, or hurt of trade, or generally inconvenient;" and these words seem to express the old common law of the realm (*a*). Till very recently, no precise construction has been put upon these words, but many cases have been mentioned as within their scope and meaning, as, for instance, an invention requiring or supposing a practice in contravention of some statute, or contrary to religion and public morals (*b*). But cases not open to objections on such grounds may be conceived, in which the monopoly granted by letters patent of an invention totally useless would be to the hurt of trade, and generally inconvenient, as fettering improvement in some particular branch of the arts and manufactures. Thus *Parke*, B., in delivering the judgment of the court, says, "A grant of a monopoly for an invention which is altogether useless, may well be considered as mischievous to the state, to the hurt of trade, and generally inconvenient, within the meaning of the statute, which requires, as a condition of the grant, that it should not be so; for no addition or improvement to such an invention could be made by any one during the continuance of the monopoly, without obliging the person making use of it to purchase the useless invention; and on a review of the cases, it may be doubted whether the question of utility is any thing more than a compendious mode introduced in comparatively modern times, of deciding the question whether the patent be void under the statute of monopolies; and the court does not mean to intimate any doubt as to the validity of a patent for an entire machine or subject which is, taken altogether, useful, though a part or parts may be useless, always supposing that such patent contains no false suggestion" (*c*).

Uselessness may vitiate.

Uselessness of parts.

The uselessness of parts of an invention will not vitiate letters patent, if a result on the whole beneficial be obtained (*d*); nor will the uselessness of an original invention vitiate letters patent for an improvement thereon, since the defect may be cured by this subsequent patent (*e*). In all the decisions connected with

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tor could be restrained from continuing to use it in the same manner? The statute (21 Jac. I, c. 3) did not alter the common law.

(*a*) See 11 Co. Rep. 86 *b*.

(*b*) See *Law & Practice*, 50, note *i*.

(*c*) *Morgan* v. *Seaward*, 2 M. & W. 544.

(*d*) *Haworth* v. *Hardcastle*, 1 Bing. N. C. 189.

(*e*) Per Lord *Tenterden*, C. J., *Lewis* v. *Davis*, 3 Car. & P. 502.

this subject, the courts have been guided by their opinion as to what would or would not tend to an improvement of the trade.

REVIEW OF PRACTICAL PROCEEDINGS.

Review of practice.

The various matters treated of in the preceding pages, may be illustrated and confirmed by a review of the practice of obtaining letters patent. The party soliciting the letters patent represents to the crown that he is in possession of an invention, which, as he believes, is new, and will be of great public utility(*f*). Thus the conditions of novelty and of utility are at once introduced as material and essential; the failure of either of them would be a ground for avoiding the letters patent, as having been obtained on false suggestion (*g*). Upon this representation, and on the consideration that it is entirely at the party's own hazard, whether the invention is new, or will have the desired success, and that it is reasonable for the crown to encourage all arts and inventions which may be for the public good, the law officer of the crown recommends the grant, with a proviso requiring the inventor within a certain time to cause a particular description of the nature of his invention, and in what manner it is to be performed, to be enrolled in the court of Chancery(*h*). This proviso gives rise to the specification, upon which instrument so much depends, for if it does not satisfy the terms of this proviso, and, further, is not a full and fair disclosure of all the inventor knows, the letters patent will be void (*i*).

Suggestions to the crown.

The specification.

Various conditions.

It is of some importance to distinguish the various requisites and conditions in respect of the subject-matter of letters patent. The nature of the subject-matter is defined by the statute; novelty is an essential requisite introduced by the statute, and if the invention be altogether useless, the letters patent will be voidable under the statute, as prejudicial and generally inconvenient; so that the invention must possess some degree of usefulness. This incident of utility, introduced by the statute somewhat indirectly and by implication, is rendered essential by reason of the suggestion of that incident as a motive of the grant, and the adoption of that suggestion by the crown. The condition or the enrolment of the specification introduced

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(*f*) See Pr. Forms, I.; *Law & Practice*, 65.

(*g*) The ordinary grounds of false suggestion are the representation that he has invented more or something different from that which he really has invented. See *Law & Practice*, 77, note *d*.

(*h*) See Pr. Forms, VI.; *Law & Practice*, 71.

(*i*) As to the form and requisites of the specification, see notes to Pr. Forms, XIV.; *Law & Practice*, 86.

(*k*) About 11 Anne; *Law & Practice*, 6.

at the suggestion of the law officer of the crown, in comparatively recent times, might be dispensed with under extraordinary circumstances, on the suggestion of the same authority, but the specification being intended for the benefit and protection of the public, it is highly improbable that letters patent, without this condition, will again be granted (*l*).

Such being the manner in which this clause is introduced, the form and effect of it are important to be observed. Until the specification is enrolled, the crown and the public are equally ignorant of the nature of the invention, except so far as it may be disclosed by the title of the invention contained in the letters patent, and this in general conveys no information beyond pointing out to what department of the arts and manufactures the invention relates.

The nature of the invention distinct from the means.

The proviso recognises a distinction between the invention and the means by which the invention is carried into practice—the inventor is to describe and ascertain the nature of his invention, and in what manner the same is to be performed. Now it has been already shown (*m*), that an invention has a character independent of the means by which it is carried out or reduced into practice; the description of that invention must also follow the distinctions there adverted to, and by an attentive regard to these distinctions, the specification will be such as strictly to satisfy the condition or proviso of the letters patent. It has been raised as a ground of objection to a patent, that parts of the apparatus described in the specification were invented subsequently to the date of the letters patent; but this objection has been overruled on the grounds that time is given to an inventor to prepare his specification, for the express purpose of allowing him opportunity of maturing the mechanical parts of his invention (*z*). This doctrine is consistent with the justice of the case, for it must be remembered that the necessity of secresy prior to the sealing of the letters patent renders proper experiments extremely difficult. Further, this doctrine is not only consistent with, but a necessary consequence of, the views advanced in the preceding pages respecting invention. And here the question presents itself, when, consistently with the language of the petition, a person may be said to be in possession of an invention: this may truly be said to be the case as soon as he has satisfied himself of its application to practice; and a correct knowledge of the general laws of

Subsequent invention of means no objection.

(*l*) See per Lord *Eldon*, L. C. *Law & Practice*, 71.

(*m*) *Ante*, 18.

(*z*) See in *Crossley* v. *Beverley*, 3 Car. & P. 515, and 9 B. & C. 63; and per *Tindal*, C. J., in *Jones* v. *Heaton*, 11 Lon. J.

nature, combined with practical experience in the general application of those laws, will enable a party to say with confidence and truth, that he is in possession of an invention, although not one experiment may have been made in direct reference to it. This view of the case is consistent with the history of invention generally, from which, so far as we can judge, it would appear that many of the greatest improvements have been the result of accident rather than design.

The patent a reward.

It is also important to remark, that letters patent may be considered in the light of a reward for having found out and introduced into public use and exercise something not before known, whereby either a new trade is brought into the realm, or fresh channels for the employment of capital and industry are opened; and there is this advantage in a reward of this nature, that it is exactly proportioned to the value of the invention to the public; if the invention be useless it is soon lost sight of, and the patentee derives no benefit from it; but if it be of great utility, and come into general use and exercise, the patentee receives a corresponding reward.

THE END.

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