Syllabus.

I think the power to enlarge the time and rehear the case remains with the Commissioner until not only the patent issues, but until it is actually delivered; after which his power over the case is exhausted. I think, therefore, he had a right to entertain the motion in this case, and might have granted an enlargement of the time and a rehearing; but having refused so to do, and no reasons having been filed within the time limited, and a patent having issued, the right of appeal was lost.

Believing, therefore, that I have no jurisdiction in this case, the appeal must be, and is hereby, dismissed. All the papers and models are herewith returned.

IN RE HUGH H. FULTZ. APPEAL FROM REFUSAL TO GRANT PATENT.

UTILITY OF INVENTION—FILING AFFIDAVITS THERETO PENDING APPEAL.—Pending the decision of an appeal from the Commissioner, an applicant will be permitted, on motion, to procure and file affidavits of competent persons touching the practical utility and advantages of his invention.

EVIDENCE—INTRODUCING SAME ON APPEAL.—Section 11 of the act of 1839, read in connection with sections 7 and 8 of the law of 1836, upon which it is engrafted, gives to the applicant, on appeal to the judge, the right to support his claim by, and to be heard upon, the evidence or facts deemed by him essential to a just decision, although not produced before the Commissioner at the hearing before him.

SM—SM—EVIDENCE BEFORE THE COMMISSIONER—MERITS OF THE CASE.—The restrictive part of the section confining the judge in his decision to "the evidence adduced before the Commissioner" applies to the merits of the case.

INTERLOCUTORY ORDER BY JUDGE—ADMITTING NEW EVIDENCE.—If, therefore, a party has been denied the privilege of submitting proper proofs of his invention, it is the duty of the judge, by reasonable regulations similar to those directed by section 12, to pursue such a course as to afford an opportunity to the party to produce and lay before him on the trial his proof to support his claim.

COMMISSIONER'S REFUSAL TO ADMIT EVIDENCE, APPEALABLE—REHEARING BEFORE HIM.—If the Commissioner refuse to admit competent and material evidence offered by the applicant, the applicant may assign such refusal as a reason of appeal, and the Commissioner, in stating the grounds of his

decision, is bound fully to answer such reason and the judge to decide it, and the judge may then make an order directing the evidence to be admitted and the case to be reheard by the Commissioner.

DEPOSITION NOT BEFORE COMMISSIONER EXAMINED AS TO MATERIALITY.—In the decision of such a reason of appeal, the depositions and testimony may be considered to determine their relevancy, materiality, and competency.

SLIGHT EVIDENCE OF INVENTION REQUIRED.—But slight evidence of invention is required when the nature of the invention is pointed out and where proof is given of its practical utility.

TESTIMONY AS TO UTILITY, COMPETENT.—The testimony of witnesses is admissible to show the practical effect or utility of an invention.

OATH OF INVENTOR PRIMA-FACIE EVIDENCE.—The oath of the inventor, unopposed, is some evidence of the novelty, invention, and usefulness of the improvement. The rule of law is that a patent issuing, grounded upon the oath of the patentee, under such circumstances will be considered as *prima-facie* evidence in an action for the infringement of a patent right.

MERE CHANGE OF FORM OR PROPORTION—NEW EFFECT.—A mere change of form or proportion is not patentable; but if by changing the form or proportion a new effect is produced, it is not simply a change of form or proportion, but a change of principle, and is the proper subject of a patent.

(Before MORSELL, J., District of Columbia, March, 1853.)

STATEMENT OF THE CASE.

Appeal from the decision of the Commissioner finally rejecting the application for lack of patentable novelty. The purported invention related to horse-power for cotton gins and other agricultural appliances; and the question was presented whether a change in the form and proportions of a machine is the proper subject of a patent. Applicant's machine did not differ from existing machines in the nature, number, or arrangement of its parts, but it was contended that certain changes in the relative size of the various parts of the gearing tended to reduce the friction of the machine to an appreciable degree, and thereby to increase its efficiency. A denial by the Office that this result was in fact produced led to extended argument on both sides as to the mechanical principles involved. The applicant submitted a comparative statement of the amount of friction developed in the two machines, respectively, showing the advantages possessed by his own machine in that respect. The accuracy of the calculation was challenged, it being pointed out in particular that no

account had been taken in the estimate, of the greater friction likely to be developed in applicant's machine owing to the increased rapidity of rotation. In effect, the Office contended that the alleged invention was but a mere change in the form or proportion of the machine, not producing any new result further than is always produced when the proportions of gearing are adapted to the speed required for the particular mechanical operation. Pending the decision the applicant was permitted, on motion, to submit affidavits to show that his changes in the proportions of the machine in fact produced a useful result.

MORSELL, J.

On the 1st of July, 1852, Hugh H. Fultz, of the State of Mississippi, applied to the Commissioner of Patents for letters-patent to be granted to him for a new and useful improvement in so proportioning the machinery as to produce the requisite speed and force concentrated upon the working-point to move a cotton gin, &c. On the 7th of July, 1852, the Commissioner notified said Fultz that his said claim had been examined, and found to present nothing new and patentable, and referred him to several cases in which letters-patent for horse-powers had been granted having precisely the same arrangement of parts, and from which the machine under consideration differed only in the size and proportions of its wheels. The Commissioner proceeds to state "that he was also referred to the fact, as established by the practice of the Office and the decisions of the courts, that a change in the relative size of the parts of an old machine for the purpose of obtaining a required velocity could not be made the subject of letters-patent." The specification was then withdrawn from the Office, the claim was altered so as to read as it now stands in the specification, in which he states: "My improvement consists in so proportioning the machinery as to produce the requisite speed and force concentrated upon the working-point to move a cotton gin, &c., with the minimum power, by which I have been enabled to effect a saving of more than one-half of the power required for ordinary apparatus to gin cotton. By the construction, proportion, and arrangement I have a force equal to that expended upon the prime mover at the working-point, minus the friction, there being no loss of power by errone-

ous proportion of parts, as would be the case by any deviation from my formula." He then proceeds to give the particular construction of the machine, towards the end of which he says: "By this proportion of parts it will be found that one hundred pounds force upon the end of the lever will produce one hundred pounds force upon the pinion (*L*), minus the friction; and at the ordinary ascertained travel of a mule it will make over one hundred and fifty revolutions with that force per minute, or sixty revolutions of the band-shaft to one of the master-wheel, equal to what is required to drive a gin. This equalizing the force at the driving and working-points is the important feature of my invention." The report of the Commissioner proceeds to say: "This specification thus changed was returned to the Office for consideration, with an argument by Mr. Fultz's attorney, (No. 3,) and some calculations (No. 4) by Mr. Fultz intended to demonstrate the superiority of his machine over those to which he was referred. The argument opens with the following remarks: 'From your postulate that all horse-powers throw upon the working-point all the power of the prime mover, less the friction, we beg leave to dissent. Friction is but a single element of loss, and a very minor one, in many horse-powers, between the prime mover and the working point, by which the power is wasted; and it is the avoidance of these and other errors, as well as the diminution of friction, that we base the merits of this invention upon.'" The Commissioner proceeds: "No effort was made in this argument to show what were the 'other elements of loss,' or the 'other errors' spoken of, or how such errors had been avoided; but a simple 'dissent' from the fact assumed by the Office was stated upon the assumption of the 'easier running' of the machine in question." To that part of the letter which refers to legal authorities to prove that if the result of the improvement was a superiority in utility over all those to which he had referred them, or might thereafter refer them, that would entitle Fultz to a patent, the Commissioner says: "Advantages, which the Office after the most careful and repeated examinations have not been able to discover, should not only be set forth specifically and plainly by the applicant in his specification or argument, but be demonstrated and proved actually to exist before precedents and authorities be adduced to show that letters-patent could be based upon them; the calcu-

lations made by Fultz must fall, because he has omitted the most important element in them, viz., the number of revolutions in a given space of time; and the calculations themselves will be found to be filled with mistakes, and are based upon the fundamental error that the friction of moving machinery is dependent upon the amount of pressure put upon the wheels, without reference to the number of revolutions made by the wheels in a given space of time." This matter, the Commissioner says, was discussed, in brief, in official letter of July 13th, 1852, and was replied to by applicant on the 14th. (See letter No. 6.) In that letter the counsel for Fultz says "that his letter of the 9th instant, addressed to the Patent Office in the case of H. H. Fultz, Esq., has been misunderstood. In that letter it was distinctly intimated that friction was not the only element of loss of power in this case. If it was, and your axiom contained in your letter of July 13th is correct, no change in the construction of the parts of a machine for transmitting power from the motion to the working-point would make any difference or decrease the effect." To support the position, he says that the best authorities he has been able to consult on the subject of friction leave it an uncertain matter, and the best experiments show but an approximation to the truth in any practical machine. He refers to various authorities on the subject. Towards the close of the last authority cited by him, it is said "no conjectural calculation should be relied on when the real loss of power can be obtained by experiment."

The Commissioner proceeds: "If, then, the number of revolutions performed in a certain specified time be a grand essential in all calculations concerning moving machinery, the calculations of Mr. Fultz are based upon an entirely erroneous assumption, as the element of time, or rather the number of revolutions made in a given time, is excluded from them; furthermore, this matter is not now involved in the uncertainty which the letter No. 6 would lead to suppose. The recent experiments made by the French Academy, and allowed by the best English authorities to warrant implicit confidence, &c., have set the matter at rest. A reference is made to the 'Engineer and Machinist Assistant, Blackie & Son,' Glasgow, 1847, page 54." The Commissioner further states: "Mr. Fultz has been referred to four-horse powers having precisely the same arrangement of wheels with his,

and differing only in the relative size and proportions of the parts. This case comes clearly within the dictum of Judge Story, who says: 'It is not necessary to defeat the plaintiff's patent that a machine should have previously existed in every respect similar to his own, for a mere change of former proportions will not entitle a party to a patent,' (Woodcock *v.* Parker, 1 Gall., 437)—Mr. Fultz having entirely failed to demonstrate that his is anything more than a mere change of former proportions, or that any useful result has been produced by such change, other than is always produced when the relative proportions of gearing are adapted to the speed required for various mechanical operations."

The claim of Mr. Fultz being thus rejected, he notified the Commissioner of his desire and intention to appeal, and filed in the Office his reasons of appeal, five in number:

1. That the Commissioner in his refusal to issue the patent gives no reason, but to the effect only that the application did not set forth such a case as would authorize the issuing of a patent, whereas the specification given and the model furnished in accordance with the acts of Congress in such case made and provided set forth and demonstrated new and important results produced by a particular proportion of some of the mechanical powers in a mode and manner not before used or applied.

2. Reason is, in substance, the same with the first.

3. Because it was evident from the specifications and model aforesaid that in consequence of the particular size and mode of the application of the different parts of the machinery exhibited by said model that the improvement therein was new and useful in a high degree, producing results never before produced or attained.

4. Because the novelty claimed is the specific proportions of the machine, whereby a beneficial result is produced, and that result is due to the proportions of the machine.

5. The Commissioner refused to receive additional proof of the new results claimed by the applicant as having been produced by his machine.

The Commissioner, in more particularly stating the grounds of his decision touching the points involved by the reasons of appeal, says, in answer to the first and second reasons, that neither the

specification nor the model set forth or demonstrate any new or important result produced by the particular proportions used, while the mode and manner in which the mechanical powers are used or applied are precisely similar to that found in the four machines referred to. It is not evident that the improvements produced new and important and useful results. To the third, the oath of the applicant is but one of the requisites which must be complied with before letters-patent can issue, and it is of no force except as a test of the honesty of the belief of the applicant as regards the novelty of the alleged invention. To the fourth, the applicant has failed to demonstrate that any beneficial result has been produced, and therefore the change of proportion is clearly not patentable. To the fifth, reference is made to letters 8 and 9, from which it will appear that the applicant was informed that the Office was at all times ready to receive any evidence which he might see fit to offer, though it could not encourage him to offer any further evidence with a view to a reconsideration of the case.

After which the party (Hugh H. Fultz) presented to me his petition for an appeal, stating in substance his previous application for a patent, the grounds of it, and the refusal of the Commissioner to grant the patent; also that he was willing and very desirous of offering the testimony of highly respectable gentlemen, who had seen his machine in operation, in further corroboration of the new results produced by his said machine. Yet the said Commissioner refused to receive the same, and rejected his application for a patent; of all which due notice was given to the Commissioner, and of the time and place appointed by me for the trial, at which time and place the petitioner, by Mr. Greenough, his counsel, and Mr. Weightman, chief clerk in the office of patents, and Mr. Renwick, the examiner, attended; and it appearing that from sickness the report had not been prepared, the trial for that cause was postponed from time to time until the 22d of September, when the petitioner, by his counsel (Mr. Carlisle) and an examiner on the part of the Office, appeared with the report of the Commissioner and original papers and models; and after the reading said report, on the motion of the petitioner's counsel and affidavit to show the Commissioner's refusal to receive evidence on the part of Fultz, an order was made by me authorizing the said

Fultz to take and file in this appeal the testimony of witnesses to prove the novelty of the results produced by his alleged invention, and the utility thereof, such evidence to be taken before any justice of the peace duly authenticated as such, and to be filed, &c., saving the question of its admissibility to the final decision; under which order sundry depositions of witnesses were duly and, from what appears, fairly taken, and have been filed with me; and on notice given to the Commissioner of the party's offer to use the same on the trial of this appeal, the Commissioner addressed the following note to me, dated the 16th of February, 1853:

"SIR: Your note of the 14th instant, in regard to the hearing of the appeal of H. H. Fultz on Monday next, has been received. In this note you state that it is proposed to take additional testimony. This Office would beg leave to call your attention to the following words in the act of March 3d, 1849: 'On the evidence produced before the Commissioner,' and also to the orders in appeals made by you, '(3) the appeal will be tried upon the evidence which was in the case and produced before the Commissioner.'"

The rule alluded to was intended to be in accordance with the provisions contained in the statute of Congress of the 3d of March, 1839, chapter 88, section 11, the proper construction of which will be an answer to the objection made by the Office to the admissibility of the testimony which has been offered on this occasion. It provides "that in cases where an appeal is now allowed by law from the decision of the Commissioner of Patents to a board of examiners provided for in the seventh section of the act to which this is additional, the party, instead thereof, shall have a right to appeal to the chief justice of the District Court of the United States for the District of Columbia, by giving notice thereof to the Commissioner and filing in the Patent Office, within such time as the Commissioner shall appoint, his reasons of appeal specifically set forth in writing, and also paying into the Patent Office to the credit of the patent fund the sum of twenty-five dollars. And it shall be the duty of the said chief justice, on petition, to hear and determine all such appeals, and to revise such decisions in a summary way, on the evidence produced before the Commissioner, at such early and convenient time as he may appoint, first notifying the Commissioner of the

time and place of hearing, whose duty it shall be to give notice thereof to all parties who appear to be interested therein, in such manner as said judge shall prescribe. The Commissioner shall also lay before the said judge all the original papers and evidence in the case, together with the grounds of his decision fully set forth in writing, touching all the points involved by the reasons of appeal, to which the revision shall be confined."

The twelfth section provides for the taking of evidence—"that the Commissioner of Patents shall have power to make all such regulations in respect to the taking of evidence to be used in contested cases before him as may be just and reasonable. And so much of the act to which this is additional as provides for a board of examiners is hereby repealed."

Those parts of the act of 1836 not repealed by the law which I have just recited, and which relate to the question which I am now considering, are to be found in the seventh and eighth sections.

The seventh section, in effect, provides that on the presentation of an application for a patent, it shall be granted on the party's oath required to be previously made, unless on examination by the Commissioner it should appear to him, first, that the applicant was not the original and first inventor or discoverer thereof; or, second, that any part of that which is claimed as new had before been invented, or discovered, or patented, or described in any printed publication in this or any foreign country as aforesaid; or, third, that the description is defective or insufficient, in which case he shall notify the party, giving him briefly such information and references as may be useful in judging of the propriety of renewing his application, &c. But if the applicant shall persist in his claim for a patent, &c., he may, on appeal and upon request in writing, have the decision of a board of examiners, to be composed, &c.

"Said board shall be furnished with a certificate in writing of the opinion and decision of the Commissioner, stating the particular grounds of his objection and the part or parts of the invention which he considers as not entitled to be patented; and the said board shall give reasonable notice to the applicant as well as to the Commissioner of the time and place of their meeting, that they may have an opportunity of furnishing them with

such facts and evidence as they may deem necessary to a just decision. And it shall be the duty of the Commissioner to furnish to the board of examiners such information as he may possess relative to the matter under their consideration; and on examination and consideration of the matter by such board, it shall be in their power, or a majority of them, to reverse the decision of the Commissioner either in whole or in part," &c.

The eighth section makes a similar provision for an appeal in the case of interfering applications, thus: "Whenever an application shall be made for a patent which, in the opinion of the Commissioner, would interfere with any other patent for which an application may be pending, or with any unexpired patent which shall have been granted, it shall be the duty of the Commissioner to give notice thereof to such applicants or patentees, as the case may be; and if either shall be dissatisfied with the decision of the Commissioner on the question of priority of right or invention, on a hearing thereof he may appeal from such decision on the like terms and conditions as are provided in the preceding section of this act. And the like proceedings shall be had to determine which, or whether either, of the applicants is entitled to receive a patent as prayed for."

Thus it appears that two class of cases are provided for in the sections of the act of 1836 just recited—the one where there is no opposing party, and the other where there are interfering applications. In each case the applicant has a right equally to reasonable notice of the decision of the Commissioner, in order to prepare to support his claim and to be heard upon the evidence or facts deemed necessary by him or them to a just decision thereof. I can perceive nothing in the repealing act of 1839 which takes away or impairs that right; on the contrary, every reason to infer that it was intended to be saved and secured to the fullest extent. The act, it is true, abolishes the particular tribunal, but it substitutes the chief judge of the District Court of the United States for the District of Columbia in place thereof. The difficulty arises out of that part of the section which says "that the said chief justice shall hear and determine all such appeals, and revise such decisions in a summary way 'on the evidence produced before the Commissioner;'" but rather than to conclude that there has been a *casus omissus*, every reasonable en-

deavor must be used to reconcile the apparent conflict in the different parts of the same statute. If, then, I have shown (as I think I have done) that the party equally in both classes of cases is still entitled to be heard upon the facts and evidence of his case, and the restrictive part of the eleventh section confines the judge, in trying the merits of the case, to such evidence as was produced before the Commissioner, it follows that it is his duty, in a case like the present, to pursue, by reasonable regulations similar to those directed by the twelfth section, such a course as to afford an opportunity to the party to produce and lay before him on the trial his proofs to support his claim.

If, then, the law be as I have stated it, the party has a right to insist, before the Commissioner on the trial, on this privilege; and in offering competent and material evidence, if it is refused, or if his objection to inadmissible or incompetent testimony is overruled by the Commissioner, he has a right to assign that as a reason of appeal; and the Commissioner, in stating the grounds of his decision, is bound fully to answer such reason and the judge to decide it on appeal and afford relief, although the rule be as I have stated it when trying the cause upon its merits.

In deciding upon such a reason of appeal, the judge must be satisfied of the relevancy, materiality, and competency of the testimony offered and refused, which he could not be satisfied of in the present case without permitting the *ex-parte* depositions to be taken and offered. There is no reason to believe that they have been unfairly taken. I will now proceed to consider the materiality and applicability of the evidence contained in the various depositions produced and offered.

The deposition of Thomas E. Warner (marked J. S. M., No. 1) says he is a machinist. When in Washington, D. C., July, 1852, he examined Mr. H. H. Fultz's plan of a horse-power for driving cotton-gins or other machinery; that he believes it a very useful and important improvement in horse-power, requiring, in the first place, less power to set it in motion; second, it is more compact, easier to manage, and more durable in every respect, than any horse-power that has ever come to his knowledge.

This appears to be taken before Wm. H. Sparks, Commissioner of Deeds, 31st December, 1852.

The paper marked J. S. M., 2, is the opinion of an expert

and is an examination of the calculations made by Fultz. It was filed in the case at the time of the trial before the Commissioner: "Judging from the model and diagrams before me, [the same filed in this case before the Commissioner,] Fultz's machine combines correct proportions in the various parts constituting the whole machine. These parts again have the exact proportion for the purpose for which they were put together, performing the work intended with a great saving of power without additional transfer fixtures." He subjoins calculations by which a result is shown decidedly in favor of Fultz's improved machine over those of Emmerson, Fitzgerald, and Whipple.

Maddison McAfee (J. S. M., 3) says that "he is familiar with the old mode now in use of propelling gins; that he has seen and examined the above-named power, (commonly called Fultz's propeller,) and is satisfied that it is decidedly superior to any power he has ever known for propelling gins, and, being a planter, has himself purchased one; and from the repeated and anxious inquiries by the farmers, and the expressed wishes to obtain one, he believes it will entirely supersede all others."

William A. Purdom says "that he is familiar with the old mode now in use of propelling gins; that he has seen the power above named [Fultz's] in successful operation, and with two very ordinary mules it did the work which, with the old gearing, invariably required at least four good mules or horses; that deponent believes it to be the most useful invention of the kind that has ever been made, and from the repeated and anxious inquiries among the farmers and their expressed wishes to procure one, he believes that it will supersede all others."

John M. West, James Simmes, Samuel Gibbons, R. A. Anderson, John M. West, Wellington Jenkins, D. C. Sharpe, and forty-one other persons depose to substantially the same effect.

There can be no doubt that the testimony stated in the aforegoing depositions would have been most material, if admissible and applicable, on the trial before the Commissioner.

I have already stated the specifications, and the grounds of the Commissioner's decision in answer to the reasons of appeal, one of which states that the letter (9) in answer to the application contained in appellant's letter (8) shows that the Office was at all

times ready to receive any evidence which he might see fit to offer, "though it could not encourage him to offer any further evidence with a view to a reconsideration of the case." If such an intimation can be understood as giving permission to offer his evidence for the purpose of a rehearing of the case thereon, it would seem from his affidavit that Fultz entirely misunderstood it.

With respect to the principles of mechanical philosophy stated by the Commissioner, and which have been the ruling influence in his decision, the counsel for Fultz, in his argument, urged what he had before contended for, "that friction was not the only element of loss of power in the question before the Commissioner before whom the arguments were made; that the best authorities on that subject leave it an uncertain matter, and the best experiments show but an approximation to the truth in any practical machine, while, upon the experiments of learned professors, under similar circumstances, the weight that overcame the friction was found to be nearly the same at all velocities," &c. Again, that "no conjectural calculation should be relied on when the real loss of power can be obtained by experiment;" that Mr. Fultz had tried practically, by actual experiment, the advantages of his machine over others, and found them to coincide essentially with his calculations," &c. The argument before me on the same point insists on the principle of the "loss of power by the indirect application of the force from the prime mover to the working point, and the loss very frequently resulting, as in this case, from the previous erroneous proportions of the machinery." This loss, counsel argues, has been saved by Fultz's improvement, and is the advantage over all the other machines referred to. And so with respect to the Commissioner's objection to Fultz's calculations, because of his disregard of the time and number of the revolutions, he says that the fact is otherwise; that the assumption throughout those calculations was a given number of revolutions of the master-wheel, equal in all, which must necessarily be restricted to the speed at which the animal can walk. These are constant quantities, and need not therefore be brought into the account.

In connection with these arguments I think it would be proper to restate a part of Fultz's description, which may be taken as a part of the specification, to wit: "By this proportion of parts it

will be found that one hundred pounds force upon the end of the lever will produce one hundred pounds force upon the pinion (*F*), minus the friction, and at the ordinary ascertained travel of a mule it will make over one hundred and fifty revolutions with that force per minute, or sixty revolutions of the band-shaft to one of the master-wheel, equal to what is required to drive a gin. This equalizing the force at the driving and working points is the important feature of my invention." This, in connection with the specifications, is intended to show a new proportion and arrangement of the parts between the driving and working points, which saves the loss of power over the horse-power referred to.

However forcibly I may feel myself affected by the aforegoing arguments, I wish it to be understood that it is very far from my purpose in this investigation to question the truth of the principles of mechanical philosophy stated by the Commissioner and examiners, or to call in question the principle as settled by the Office and the courts, "that a mere change in the relative size of the parts of an old machine for the purpose of obtaining a required velocity is not patentable."

With respect to the party's own oath in the present case it is unopposed by the oath of any other party, and although not of itself sufficient, is some evidence of the novelty, invention, and usefulness of the improvement. The rule of law is, that a patent issuing, grounded on the oath of the patentee, under such circumstances, will be considered as *prima-facie* evidence in an action for an infringement of a patent-right. And this brings me to the consideration of the answer of the Commissioner to the fourth reason of appeal, in which he says: "It is only necessary to state that as the applicant has failed to demonstrate that any beneficial result has been produced, and as therefore the change of proportions is clearly not patentable, the action of the Commissioner was fully in accordance with the decisions of the courts."

What, therefore, are the decisions of the courts in like cases? But slight evidence of the invention is required when it is shown in what the invention consists, as has been done in this case, and where proof is given of its practical utility. This is a main and principal test, and this may be shown by the testimony of those who have seen the practical effect or result. To this point the

proof offered by the appellant was very full and ample. It appears to me that the argument and authorities presented by the counsel for the appellant are conclusive.

Chief Justice Marshall, in the case of Davis *v.* Palmer, 2 Brock., 310, says: "It is not every change of form and proportion which is declared to be no discovery, but that which is simply a change of form or proportion, and nothing more. If by changing the form and proportion a new effect is produced, there is not simply a change of form and proportion but a change of principle also."

Curtis, sections 14 and 15: "It appears, then, according to the English authorities, that the amount of invention may be estimated from the result, although not capable of being directly estimated on a view of the invention itself."

"The utility of the change is the best to be applied for this purpose," &c. "When a real utility is seen to exist, a sufficiency of invention may be presumed, and it is said that whenever utility is proved to exist in a very great degree, a sufficiency of invention to support a patent must be presumed." (Webster on the subject-matter, page 30; Webster's Patent Cases, 71).

Curtis, section 95: "The statute also makes a new and useful improvement of a machine the subject of a patent. A patent for improvement of a machine is the same thing as a patent for an improved machine. Improvement applied to machinery is where a specific machine already exists, and an addition or alteration is made to produce the same effects in better manner, or some new combinations are added to produce new effects. In such cases the patent can only be for the improvement or new combination. The great question, of course, when an alleged invention purports to be an improvement of an existing machine, is to ascertain whether it be a real and material improvement or only a change of form. In such cases it is necessary to ascertain, with as much accuracy as the nature of such inquiries admits, the boundaries between what was known and used before, and what is new in the mode of operation. The inquiry, therefore, must be, not whether the same elements of motion, or the same component parts, are used, but whether the given effect is produced substantially by the same mode of operation and the same combination of powers in both machines, or whether some new element,

combination, or feature has been added to the old machine, which produces either the same effect in a cheaper or more expeditious manner, or an entirely new effect, or an effect that is in some material respects superior, though in other respects similar, to that produced by the old machine."

Upon the whole, I think a new trial ought to be granted.

J. J. Greenough and *M. Carlisle*, for the appellant.

Examiners Renwick and *Parker* and *Chief Clerk Weightman*, for the Commissioner.

PASCAL YEARSLEY

vs.

BROOKFIELD AND WHITE. INTERFERENCE.

EVIDENCE—PARTY TO THE RECORD—STATUS OF APPLICANT.—An applicant for a patent involved in interference is within the reason of the rule which makes a party an incompetent witness in a cause, although the interference proceedings do not, strictly speaking, constitute a record.

SM—SM—PARTY RELEASED.—Such a party to an interference cannot be released by an assignment of his invention so as to make him a competent witness.

SM—SM—LOSS OF ORIGINAL DOCUMENT.—From a principle of necessity, however, the party is a competent witness to establish the loss of an original paper if lost out of his own custody, and not destroyed by fraud.

SM—STATEMENTS OF PARTY AT TIME—RES GESTA—The statements and declarations of the inventor made before the contest arose, describing orally or by drawings a certain invention, are admissible in evidence as part of the *res gesta* to show that he knew of or had made the invention at that time.

INTERFERENCE—JURISDICTION OF JUDGE THEREOF.—The judge is not precluded by the action of the Commissioner from considering upon appeal in interference cases whether the thing in controversy is patentable. He is by law directed to determine in all such cases which, or whether either, of the applicants is entitled to receive a patent as prayed for.

NOVELTY—INVENTION—ENGLISH AND AMERICAN CASES CONTRASTED.—The differences between the English and the American cases on the questions of novelty and invention relate rather to the kind and degree of evidence required. According to the English cases the result of the change alone may furnish