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

a conclusive test of the invention and novelty, while the American authorities hold that it must appear by some other evidence than a mere inspection of the result that the effect was produced by some new process, device, contrivance, mode, manner or means.

INTERFERENCE—SUBJECT OF—HOW DETERMINED.—The nature of the invention in interference is to be determined by regarding the essential principles common to the conflicting inventions, and disregarding mere formal differences and the substitution of equivalents.

INVENTION—GLASS FURNACE—DOUBLE USE.—The use of anthracite coal as a fuel with a blast to produce a diffused heat around the smelting pots in a glass furnace, held not to be a mere analogous or double use of anthracite coal and a blast, as previously used to produce a concentrated heat for various purposes; but a specification which failed to particularly describe and point out the mode of thus regulating the diffusion of the heat, held to be too vague and indefinite.

INVENTOR NOT A PARTY—TESTIMONY OF.—The testimony of a witness to the effect that he was a joint inventor with one of the applicants is competent evidence as against that applicant, though it would not, it seems, be admissible in his own behalf if he were a party to the record.

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

MORSELL, J.

The original application of Yearsley appears to have been filed on the 18th of September, 1850, stating his claim, with specifications, &c., but which, being supposed defective, he was allowed to amend according to the application as stated in the report filed on the 7th of August, 1851, in which he says: "What I claim as my invention, and desire to secure by letters-patent as a new and useful improvement in the art of making glass, is the employment of anthracite coal in a glass furnace, substantially in the manner and for the purposes set forth in my specification."

He then describes particularly the methods which had been formerly used and the difficulties met with in the ordinary process, and says the improvements and advantages attending his invention and discovery are—first, anthracite coal may be used, giving a flame which plays upon the vessels containing the fluxing materials; second, a great economy in fuel is effected and a much shorter time is required for fluxing, the flame being of a more uniform and higher temperature and under greater control than in the ordinary methods; third, the glass is of a superior quality and the scum sandiver or salts escape very freely; fourth, the great heat renders the sulphate of soda as useful a flux as

soda ash and carbonate of soda; fifth, the fluxing-pots can be separated some distance from the burning fuel for the convenience of working, and freed from the cracks called fangs and fleins, and they can be used without covers; sixth, colored glass may readily be made, and the labor of testing it much reduced; seventh, and finally, the manufacture of glass by this means will not be a nuisance in densely-populated cities. To enable persons skilled in the art of glass-making to understand and use his invention and discovery, he describes particularly its nature and operations, which specifications are supposed to comprehend, as the applicant's claim of invention, the combination of anthracite, blast, steam or vapor, and preparatory heating.

To this application the report states that there was found to interfere, in the recent archives of the Office, a caveat, of which notice was given, and on the 31st of July, 1851, the caveators (James M. Brookfield and Ephraim V. White) filed their application, and claimed the application of a blast to an ordinary glass furnace, by which they are enabled to use anthracite coal in the manufacture of glass, substantially as herein set forth. This caveat appears to bear date the 31st of January, 1851, and to have been filed in the Office the 4th of February, 1851; and their claim is stated in substantially the same way as the claim of Yearsley, above recited, as by reference to the specification and accompanying draft will appear. In the specification alluded to they say they have invented and discovered a new and improved mode of manufacturing glass by the use of anthracite coal as a fuel; and referring to the accompanying drawing, and to the letters of reference marked thereon, they state that the nature of the invention or discovery consists in burning coal instead of wood, the heat being generated by the application of a blast to the burning coal. They then describe the furnace. They say the construction consists of an air-chamber, a fire-chamber and furnace, or place in which the materials to be melted are deposited; in the drawing it is a chamber to receive the pots for the manufacture of glass, &c. The report then states: "The interference was declared on the 5th of August, 1851, and a hearing appointed for the first Monday of October, 1851, which hearing was postponed from time to time until Monday, July 5th, 1852, when it was fixed for final hearing, and on the 11th of August, after weighing

the testimony, priority of invention was awarded by the Office to Brook field and White, and from this decision the appeal was taken and sundry reasons filed." Those relating to preliminary objections will be first considered, viz., that E. V. White's depositions are incompetent and inadmissible, and that the testimony of the witness, stating his declarations, is also inadmissible; second, that the joint invention, as alleged, of Brookfield and White ought to have been proved.

The Commissioner, in his report, says that White, by assigning all his interest to Anderson R. Hay on the 26th of March, 1852, divested himself of every interest in the pending application that could, under any rule of evidence, have excluded his testimony, taken in the month of September, after the assignment.

First, as to White's deposition to show the loss of the draft made by him in the year 1847, for the purpose of introducing secondary evidence, in accordance with the rule that the non-production of the original must be accounted for. From a principle of necessity the party is allowed by his own oath, addressed to the court, to prove the fact of a lost paper if lost out of his own custody and not destroyed by fraud, the existence and details of such paper being proved by other testimony.

In this case, although the evidence is not sufficient to show that it was destroyed by fraud, as Brookfield, by reason of his relationship to White in interest, may be reasonably supposed to have access to it, it would have been more satisfactory if he had been joined with White in the deposition. In the absence of proof, however, of his having the custody of it, the objection must be overruled.

With respect to the deposition of White, taken in the examination of him as a witness generally, I do not think that the objection can be sustained on the ground of his liability over to the assignee. There appears to be no warranty, either express or implied, of indemnity. But the objection on the ground of his being a party to the proceeding by his application for the patent at the time of the examination, and still so, though perhaps nominally—and, technically speaking, that proceeding cannot be called a record—yet the case appears to be within the reason of the rule which makes a party incompetent, and therefore the deposition cannot be considered as legal evidence. The rule and its reason will

be found laid down by the Supreme Court in 12 Peters, 149. The court say: "The decision in 1 Peters, C. C. R., 301, where the court held that a party named on the record might be released so as to constitute him a competent witness, has been cited and relied on in the argument. Such a rule would hold out to the parties a strong temptation to perjury, and we think it is not sustained either by principle or authority."

The next objection is to the admissibility of the evidence as to the declarations of Mr. White. The rule, as stated by the counsel of Brookfield and White, is—"If in 1834, 1847, or any other period, he (White) described, orally or by drawings, a mode of using anthracite coal for the purpose of making glass, those statements are acts or part of the *res gesta*, and show what he knew or had invented at the time when made." This position is correct, with this qualification, that the same were made before this contest arose. The case decided by the Supreme Court in 14 Peters, 448—Philadelphia and Trenton Railroad *v.* Stimpson—fully sustains the proposition. No better evidence from the nature of the subject could be expected or required. That objection is also overruled. With respect to an objection that the evidence does not prove Brookfield a joint inventor with White, I do not think it can be considered material in this issue, for if both, or either, is shown by the testimony to have been the first and original inventors or inventor, the appellant must be considered as having failed in his claim.

This disposes of the reasons Nos. 1, 2, 3, 5, 6, 19, 36, and 38. The reasons Nos. 13, 18, 31, and 38, which involve the consideration of the effect which must be given to a supposed variance between the caveat now produced and the specification of the 18th of July, 1851, and from the plan actually experimented with, will be hereafter considered, when the principles of law shall have been considered and stated upon which the question of interference must be governed; and so also as to Nos. 8, 9, 10, 12, 20, 24, 26, 35, 32, 38, 27, and 23. Nos. 14, 15, 16, 17, 21 present the question whether claim of Brookfield and White for anthracite and a blast in an ordinary glass furnace is patentable, being devoid of novelty as a combination, and that it is but an analogous use. The counsel for the appellees contends that the judge in the present case of appeal is confined to the refusal by the Patent

Office to grant letters-patent, and that his jurisdiction does not extend beyond this; by which I understand that he supposes Judge Cranch to have decided in the case of Pomeroy *v.* Connison (*ante* p. 40) that the judge has no jurisdiction to inquire into and decide the question of patentability. That was the case of an appeal by a patentee against whom the Commissioner had decided, and the point determined by the judge was as to the character of the person; the judge held that he could take jurisdiction only in the cases of applicants for a patent on refusal, &c. In the case of Bain *v.* Morse (*ante* p. 90) the judge says that "upon the hearing, he is to decide, and from that decision, if either shall be be dissatisfied with it on the question of priority, including that of interference, he may appeal, and upon such appeal, as I understand the law, the judge, in case of real interference, may determine which, or whether either, of two applicants is entitled to receive a patent as prayed for." The question, therefore, as to jurisdiction is settled against the objection.

I have already stated the specifications of the parties and what they respectively claim a patent for, together with the description of each, embodying the principle of the invention. The sixth section of the act of Congress of 1836 provides that if any person or persons have discovered or invented any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement on any art, machine, manufacture, or composition of matter not known or used by others before his or their discovery thereof, and not at the time of his application in public use and sale, on application, the Commissioner may grant a patent. Each of the parties show, as essential to their improvement, the use of anthracite coal with a blast, instead of wood, in the manufacture of glass in a glass furnace. Both show the result produced to be very highly useful, a better article, and much cheaper; but it is objected on the part of the appellants that the improvement, as claimed by Brookfield and White, is for anthracite and a blast in an ordinary glass furnace, and is therefore devoid of novelty as a combination, and but an analogous use. In support of his proposition, he states as an instance of analogous use the case of Crane, where anthracite coal is used to melt iron from ores with a hot blast instead of a cold, by which latter means (a cold blast) it had been used before for the same purpose. He

also claims that it had been used in the mint of the United States to melt metals, &c.; that White used it in the year 1834 to forge axes; that it had been in use to forge other edge-tools; and that it had been used for upwards of thirty years to raise steam for boats and furnaces, &c.; that it has long been known also to be cheaper than wood for various purposes, and than charcoal and bituminous coal where the means and the effect are the same but the occasion new. He cites as his authorities Curtis on Patents, 23, 76, 77, 78; 2 Story, 100.

The passage referred to in Curtis (page 23, first edition, 1849) rests upon the authority of the law as laid down by Judge Story in the second volume of his reports, 408.* That was the case of a patent for a machine in which it appeared that the same apparatus stated in the claim had been long in use, and applied, if not to chairs, at least, in other machines, to purposes of a similar nature. The judge says the machine was old and well known, and applied only to a new purpose. That does not make it patentable. The thing itself which is patented must be new, and not the mere application of it to a new purpose or object. The next reference on this part of the subject is to Curtis, pages 76, 77. The principle of law stated here is upon the authority of Losh *v.* Hague, Webster's Pat. Cases, 207, in which case Losh had taken out his patent to use his wheels on railways. The case shows that a patent cannot be granted for the application of an old contrivance to a new object; or, in other words, that you cannot have a patent for applying a well-known thing, which might be applied to fifty thousand different purposes, to an operation which is exactly analogous to what was done before. Curtis states one principle to be this: "When the principle is well known, or the application consists in the use of a known thing to produce a particular effect, the question will arise whether the effect is of itself entirely new, or whether the occasion only upon which the particular effect is produced is new."

2 Story, 190, is the next reference—Howe *v.* Abbot. This was the case of a patent for a new and useful improvement in the application of a material called palm-leaf or brub-grass to the stuffing of beds, mattresses, sofas, cushions, and all other uses for

* Bean *v.* Smallwood.

which hair, feather, moss, or other soft and elastic substances are used. "The application of an old process to manufacture an article to which it had never before been applied is not a patentable invention. There must be some new process or some new machinery used to produce the result." Again, page 194: "He who produces an old result by a new mode or process is entitled to a patent for that mode or process. But he cannot have a patent for a result merely, without using some new mode or process to produce it."

The counsel for the appellants adds to these authorities the principles as declared to be law in the letter of Commissioner Ewbank of the 12th of November, 1850, to Yearsley, in which he says in the last clause of the letter: "The remark may be made for your guidance in the prosecution of your application, that any feature common in furnaces for other purposes is not patentable in its new application to a glass furnace."

The Commissioner in his report says: "As shown by the claims of both parties, the inventions are substantially the same, for the important feature is manufacturing glass by the use of anthracite coal as a fuel, with a blast, and the details of neither invention are absolutely necessary to the attainment of the result desired. The invention was deemed new in its particular application to this precise manufacture, and therefore patentable. The specifications, drawings, and models were sufficiently clear to enable the Office to form a correct opinion of the invention, and the decision implied that the materials and mechanism, as set forth by both parties, were adequate to the result claimed. The Office decided that the invention was patentable because anthracite coal and a blast had not been used in the manufacture of glass, and it was therefore a new application of known substances to produce a particular result, and that result was useful; the result, from the testimony, was an important gain to the public."

Lord Dudley's case, (Web. Pat. Cases, p. 28,) Neilson's case, and Crane's case, were relied on by the Office. To the same effect the counsel for Brookfield and White rely upon the following authorities: Curtis on Patents, p. 379; Lund on Patents, p. 6; Hill *v.* Thompson, 3 Mer., p. 622; Boulton *v.* Bull, 2 Black., p. 487; 2 March., p. 211; Eng. Com. Law Rep., vol. 4. p. 357;

Hindmarch on Patents, pp. 76, 124; Crane *v.* Price, 1 Web., p. 393; 4 Manning & Grange, p. 680.

Lord Dudley's patent was at a very early period—1622. It was for a discovery for making iron with sea or pit coal. So far as appears in the letters-patent, the invention was simply the substitution of pit coal for wood or charcoal. This was the general feature of the invention. The means are not stated, the common law only requiring the inventor to be in possession of such means. The enrollment of a specification has since been declared an essential motive in granting a patent, and by statutory provision, both in England and this country, must form a part of the patent. Our statutes provide "that before any inventor shall receive a patent for any such new invention or discovery, he shall deliver a written description of his invention or discovery, and of the manner and process of making, constructing, and using the same, in such full, clear, and exact terms, avoiding unnecessary prolixity, as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same," &c.

Neilson's patent was for the improved application of air to produce heat in fires, forges, and furnaces where bellows or other apparatus is required. The specification states distinctly his claim and the modes by which his object was to be attained. Objections were raised that his invention was the same with many others, as stated in the case. The case is too long to make even an extract from. I will therefore state the notice of it to be found in Webster: He says: "The object of these two inventions, or the ends to be attained by the inventions, are clearly distinct. That air had been applied in a heated as well as in its natural atmospheric state to different kinds of fires and furnaces, under certain circumstances and conditions, before the date of Neilson's patent, is undeniable, but no practical success had attended the application; and the ends proposed and nature of the inventions are quite distinct from Neilson's. The real question would appear to be, What is the principle of the invention as disclosed in and by the specification? For to suppose that the doing or using a thing with one object will deprive the doing or using the same thing with a different object of the character of invention, is unreasonable. The omission of one

of several processes, or a change in the order of a series of processes, may give a new character to the thing produced, notwithstanding all that was done was done before."

In the case of Crane *v.* Price (*supra*) several of the cases are reviewed which have been referred to on this occasion. That was the case of a patent for an improvement in the manufacture of iron, in which case it is stated that "the plaintiff describes the object of his invention to be the application of anthracite or stone coal combined with hot-air blast in the smelting or manufacture of iron from iron stone, mine, or ore, and states distinctly and unequivocally at the end of his specification that he does not claim the use of a hot-air blast separately as of his invention, when uncombined with the application of anthracite or stone coal, nor does he claim the application of anthracite or stone coal when uncombined with the using of a hot-air blast; but what he claims as his invention is, the application of anthracite or stone coal and culm combined with the using of a hot-air blast in the smelting and manufacture of iron from iron stone, mine, or ore" (p. 408). As to the result, the evidence showed that the yield of the furnace was more, the nature, properties, and qualities of the iron were better, and the expense of making the iron was less, than under the former process by means of the combination of the hot-air blast with the bituminous coal.

At page 411 the judge says: "Upon the fourth issue, which raised no more than the usual inquiry whether the nature of the invention was sufficiently described in the specifications, the usual evidence was given that persons of competent skill and experience could, by following the directions, produce the manufacture described with success, and the evidence was entirely unopposed."

It appears from the reasoning of the court upon the issue raised by the fifth plea, that the allegation in the plea would have been fatal to the plaintiff's recovery but for the fact of the hot-air blast being used in combination with anthracite coal for the first time for the purpose stated in the pleadings. The court say: "Undoubtedly, if the second patent claims as a part of the invention described in it that which had been the subject-matter of a patent still in force, it would be void on the double ground that it claimed that which was not new, (which, indeed, would equally be the case if the former patent had expired,) and also that it would be an

infringement" (p. 412). The principles in the case of The King v. Wheeler, (2 B. & Ald., 349,) referred to as authority in the aforegoing case, will be found to support the view I have expressed as to the proper understanding of that case. It was a patent for a new or improved method of drying and preparing malt. The judge in the first part of the case assumes, for the sake of argument, that the novelty and utility of the invention might have been established by proof. He gives what he considers the meaning of manufactures within the terms of the statute (21 Jac., 1 C., 3.) First, as to machines or engines, &c., he says: "Or it may, perhaps, extend also to a new process to be carried on by known implements or elements acting upon known substances, and ultimately producing some other known effect, but producing it in a cheaper or more expeditious manner, or of a better or more useful kind." In applying his general principles, he says: "This is a patent for the invention of a method, that is, of an engine, instrument, or organ, to be used for the accomplishment of some purpose, or at least of a process to be so used. The patentee does not profess to be the inventor of any engine, instrument, or organ. He says that a coffee roaster or a kiln, or anything by which the grains may be kept in motion during their exposure to a requisite degree of heat, may be used." The judge proceeds to state the rule that the particular means, manner, or method by which the object was to be effected ought to be clearly and fully stated, so that any one skilled in the art might, without the necessity of experimenting, be enabled to accomplish the same end by the same means.

Among other things which he ought to have stated in his specification, he says: "He does not say what heat beyond four hundred degrees of Fahrenheit may be used—a specification which casts upon the public the expense and labor of experiment, and that is undoubtedly bad."

In the case of Crane (Web. Pat. Cases, p. 409) is to be found dicta to the effect that "there are numerous instances of patents which have been granted where the invention consisted in no more than the use of things already known, producing effects already known, but producing those effects so as to be more economically or beneficially enjoyed by the public." At page 410 of this case the judge says: "The only question, therefore, that ought to be

considered on the evidence is, was the iron produced by the combination of the hot-air blast and the anthracite a better or a cheaper article than was before produced from the combination of the hot-air blast and the bituminous coal, and was the combination described in the specification new as to the public use thereof in England." Our statute requires that it should be new and original with the inventor. So in the same case as quoted in Curtis, p. 8: "The Court of Common Pleas said: 'We are of opinion that if the result produced by such a combination be either a new article or a better article or a cheaper article to the public than that produced before by the old method, that such a combination is an invention or manufacture intended by the statute, and may well become the subject of a patent.'" I have before said that the proper understanding of the decision in this case must be by confining it to the case itself. I deem it unnecessary to take particular notice of the other cases cited by the counsel for the appellees to this point.

These authorities have been referred to on the question involved in the reasons of appeal, Nos. 14, 15, 16, 17, and 21, and by which it becomes my duty to decide the very difficult question, what is or is not an analogous use, or, as it is called, a double use. It will be observed that the principal matters of difference between the English and the American cases on the subject of novelty and invention relate to the kind and degree of evidence by which it may be shown. The English cases are supposed to go to the extent of deciding that the result alone, when the effects produced are shown to be more economical, useful, and beneficial to the public in the manufacture of a better article, is of itself a conclusive test of invention and novelty. On the other hand, the American authorities show that the result alone will not be sufficient for that purpose, but that it must also appear by some other evidence that the effect was produced by some new process, device, contrivance, mode, or manner or means, or by some new machinery; also that a patent can in no case be granted for an effect only. When, however, the applicant shows such a result, slight evidence only of the existence of the novelty and invention will be required. All, however, agree that as a previous condition to the granting or issuing of every patent the applicant must set forth in his specification a true, full, and clear account and description of his

invention, showing the contrivance, mode, method, manner, or means by which the result is to be produced; that in that specification he should state what his invention is, what he claims to be new and useful, and what he admits to be old. By the sixth section of our statute of 1836, also, it is provided that before any inventor shall receive a patent for any new invention he shall deliver a written description of his invention or discovery, and of the manner and process of making, constructing, using, and compounding the same, in such full, clear, and exact terms, avoiding unnecessary prolixity, as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of any machine he shall fully explain the principle and the several modes in which he has contemplated the application of that principle or character by which it may be distinguished from other inventions, and it shall particularly specify and point out the part, improvement, or combination which he claims as his own invention or discovery.

And now to apply the law to the facts of this case. Is there a new and important mode of manufacturing glass by the use of anthracite coal as a fuel invented by the applicants, Brookfield and White, duly set forth in their specifications? They say "it is well known that anthracite coal has heretofore failed to produce suitable heat on account of the small amount of flame produced thereby, thus not enabling the heat to be readily conveyed to the pots. The objection is obviated in our improved mode by the application of the blast, properly regulated, through the aforesaid pipe 9, whence it passes up through the grates *c q* through the burning coal into the orchard chamber *A*, and surrounds the pots, when it escapes through the working holes *a a* or by chimneys. By this means the great amount of heat engendered by the burning coal is quickly conveyed to the melting pots as desired. We are aware that anthracite coal has been used with a blast in other processes of the arts; but the application and objects attained in our improved mode of manufacturing glass being peculiar, we claim our invention to be new and useful." In the argument on the part of Brookfield and White, it is said: "The blast has been before applied to other furnaces when a diffused heat was not necessary, but when, on the contrary, the

greatest possible heat in a confined space, as for welding, smelting, &c., was the object. The invention is the combination of the blast to an ordinary glass furnace."

If this peculiar mode were clearly and sufficiently stated in the specification, *i. e.*, properly regulating the blast in an ordinary glass furnace so as to produce by the use of anthracite coal a sufficiently increased amount of flame and a suitably diffused instead of the confined concentrated heat, I should certainly think the improvement would unquestionably be new and more than an analogous use, and, of course, patentable, in view of the fact that it is clearly shown by the evidence in this case that an important result is obtained in the manufacture of glass of equal, if not superior, quality to that where wood is used as a fuel, and with a great saving of expense, and therefore greatly to the public benefit. But I feel obliged to say that I do not think the specification in this case amounts to such a statement, and that it is entirely too vague on that subject to warrant the issuing of a patent for the application of the blast to the ordinary glass furnace, by which anthracite coal may be used as a fuel in the manufacture of glass. It is true it is stated that the strength of the blast is regulated by the sliding valves *h h* or their equivalents; still there is nothing particular to show any new mode of using the blast for the diffusion of the proper degree of heat. Suppose, however, this to be the case, it is not perceived how the appellant can derive to himself any material benefit. It still remains necessary that he should appear to be the original and first inventor of a new and useful improvement in the art of manufacturing glass by the use of flame from an anthracite coal fire, as claimed by him in his specification. The reasons of appeal embracing this part of the subject will next be considered.

It is apparent from the specification of the parties that the main principle of the improvement contended for by each of the parties is the manufacture of glass by the agency of anthracite coal with a blast, instead of other kinds of coal more expensive, to effect which, they have adopted combinations of elements, as I have stated, in some respects different, but in the great essential principle they are the same, and that must be the test by which the interference is determined. To which effect, see Treadwell *et al. v.* Bladen, 4 Wash., 706, in which case it is said: "It seems to me

that the safest guide to accuracy in making the distinction is, first, to ascertain what is the result to be obtained by the discovery; and whatever is essential to that object, independent of the mere form and proportions of the thing used for the purpose, may generally, if not universally, be considered as the principle of the invention." In Curtis, 266, it is said: "It is in relation to this question of substantial identity that the doctrine of mechanical equivalents becomes practically applicable. This doctrine depends upon the truth that the identity of purpose, and not of form or name, is the true criterion in judging of the similarity or dissimilarity of two pieces of mechanism." At 270 also: "Where the subject-matter of the patent is a manufacture, the same test of substantial identity is to be applied. * * * The question will be whether in reality and in substance the defendant has availed himself of the invention of the patentee in order to make the fabric or article which he has made." And to the same effect, also, in Curtis, 273: "Whenever the real subject covered by the patent is the application of a principle in arts or manufacture, the question on an infringement will be as to the substantial identity of the principle and of the application of the principle." It is believed that these authorities support the position as laid down by me.

The evidence on the part of Brookfield and White shows that they have succeeded in manufacturing glass by producing a good article, equal, if not superior, to that from the use of wood, by the use of anthracite coal with a blast, with a much greater saving of expense and resulting beneficially to the public, as they have stated in their specification, proving also, I think, that their invention was prior to that of Yearsley's. Upon which grounds, I think, and so decide, that the said Yearsley was not the original and first inventor of said improvement mentioned in his said specification, and therefore that he is not entitled to a patent as prayed for in his petition to the Commissioner of Patents.

The fourteenth and fifteenth reasons of appeal make it necessary that I should consider the claim of Jacob Faatz as an original inventor of the improvement mentioned in the specification of Brookfield and White. The Commissioner states that in the question before the Office Faatz could only be known as a witness upon the question of priority between Yearsley and Brook-

field. This is certainly correct in one sense, but I suppose it ought to form a material subject of consideration in deciding on Brookfield and White's application for a patent. In Curtis on Patents, page 101, the law is thus stated: "It is necessary, therefore, in all cases that the subject-matter should be claimed as the sole invention of one party if such is the fact, or as the joint invention of two or more parties if it was invented by more than one." And so I understand the act of Congress to be. The Commissioner says: "And the testimony does not show that he (Faatz) had formed any opinion on the subject of the invention before White." And in another part of the report he says "that White had formed the opinion in the year 1834." As to the subject which I am now considering, that cannot be deemed very important, as like imperfect and impracticable opinions were formed long before, in the year 1816, by a glass company in Baltimore, and several others, as appears from the testimony in this case.

From the most careful examination of the testimony, it appears to me that the earliest period at which any regularly practicable opinions or principles were arrived at was when White and Faatz contributed an equal part, and that it was not until after that time that the drafts alluded to in the testimony were made, in accordance with which joint understanding the furnace was erected at Hornsdale. I shall state parts of the testimony relating to this point as the grounds of my opinion. I shall only state the material parts of the depositions, from which I shall extract them, and refer to the pages of the book in which the whole may be seen and read. Record of Evidence, page 105, shows the account which Faatz himself gives of it. This would not be competent evidence in an application for a patent by Faatz for him in support of his right; but under the circumstances of its being taken and forming part of the evidence in that record, although an objection to the credit may be valid, if he is sufficiently corroborated, I can see no reason why it may not be used for the present purpose. He states in substance that he had formed the idea previously to the year 1846 that he could make good glass profitably by using anthracite coal for fuel, with the aid of a blast, and that the plan of the first melting furnace which he built in the glass factory now in the possession of James M. Brookfield was devised and adopted by him so as to enable him to melt glass

therein by the use of anthracite coal as a fuel, with the aid of a blast. This answer was made to an interrogatory of Yearsley's counsel. The witness then states and describes particularly how it was so adapted. He proceeds to state unfortunate circumstances, which so reduced him to poverty that he was unable to proceed with his plan. This, I think, will be found to be the earliest effort to bring the idea, which afterwards in a more complete form succeeded so well, into practice. (Quotations from the testimony are omitted.)

Faatz may be charged with laches because he has not prosecuted the plan; but the loss of means brought on him by the misfortunes which it is stated in the evidence he sustained, and the reason he had to believe, from the assurance of Mr. White, that when he moved in the business he should be a joint sharer, I think a sufficient excuse and save his rights. My conclusion from the evidence is that he must be considered as a joint inventor with Mr. White, and that the Commissioner, in acting upon his (White's) application must be governed by the rule of law which I have before stated on this branch of the subject. And for the reasons before stated, I am of opinion, and I do so decide, that neither of the said parties—Pascal Yearsley nor the said Brookfield and White—are entitled to the patents for said invention as prayed by them.*

John S. McCulsche and *James Wm. McCulsche*, for appellant.

*The patent was subsequently issued to Hay and Brookfield, No. 9789, as the assignee of Faatz and White, in accordance with decision of Morsell that Faatz was joint inventor with White.