a new and useful result, as it was here produced, may be patentable. It is often the material part of a discovery; because it may be that which renders useful what was previously useless. In the case of the paper-machine, before this court, it was held that a number of rollers acting in pairs for a particular purpose might be patented, though a single pair could not have been. As to the greater and more general subject of claim, namely, *the propulsive effect of vortical motion of water in a reaction wheel, operating by its centrifugal force, and so directed by mechanism as to operate in the appropriate direction*, the court instructs you, not without being aware that the question is one of possible difficulty, that this also is a valid subject of claim, and properly to be secured by letters-patent. The views which lead to this instruction are too elaborate and metaphysical, perhaps, to find a place properly in a charge at bar. They may, however, be made intelligible by reference to a few simple positions. All machines may be regarded as merely devices, by the instrumentality of which the laws of nature are made applicable and operative to the production of a particular result. He who first discovers that a law of nature can be so applied, and, having devised machinery to make it operative, introduces it in a practical form to the knowledge of his fellow-men, is a discoverer and inventor of the highest grade, not merely of the mechanism, the combination of iron, brass, and wood, in the form of levers, screws, or pulleys, but the force which operates through the mechanical medium, — the principle, — or, to use the synonym given for this term in the act of 1793, the *character* of the machine; and this title as a discoverer he may lawfully assert and secure to himself by letters-patent, thus establishing his property, not only in the formal device for which mechanical ingenuity can at once, as soon as the principle is known, imagine a thousand substitutes, — some as good, others better, perhaps all dissimilar, yet all illustrative of the same principle, and depending on it, — but in the essential principle which his machine was the first to embody, to exemplify, to illustrate, to make operative, and to announce to mankind.

"This is not, in my view, to patent an abstraction, in the sense which this expression has borne in the arguments on this subject. It is rather to patent the invention as the inventor has given it to the world, in its full dimensions and extent; nothing less, but nothing more. It is to patent the invention in the broad and general terms that properly express it, and to secure to the party who has made it the exclusive right, for a limited time, to precisely that discovery which he has imparted to the public, and which, when that limited time expires, the public will enjoy as the fruit of his mind."

Also, in regard to prior use, the court said : —

"It is not enough for the defendant to show that wheels like the patented one were *made*, but he must also show that they were *used*, before the plaintiff's invention. This is the test of what is required to defeat the title of a patentee of an improved machine. In the present case, moreover, the mere proof of *use* of such wheels would not suffice, unless it was also proved that *water was introduced into the wheel with the proper direction* given to it, as otherwise it could not have involved the principle of the improvement patented. This is illustrated by the accidental circumstance [not reported] which led to Mr. Parker's discovery."

See also Parker *v.* Brant, 1 Fish. 58; Parker *v.* Sears, 1 Fish. 93; Parker *v.* Stiles, 5 McLean, 44.

In Wintermute *v.* Redington, 1 Fish. 243 (1856), N. D. of Ohio, where this patent was again in suit, before a jury, the court, Willson, J., said : —

"In these arrangements of machinery, the patentees claim a combination of pressure, or percussion, reaction, and centrifugal force, that produces a combined power of propulsion. And here lies the secret of the invention of this 'Parker wheel.' *It is the vortical motion of the water on the wheel, which operates as a coefficient to the reactive power of the water on the buckets.* It is what the patentees claim it to be, to wit, 'an improvement in the application of hydraulic power, by a *method* of combining percussion with reaction.' . . .

"It is true that a patent cannot be sustained for a mere principle. For instance, Sir Isaac Newton's discovery of the principle of gravitation could not be the subject of a patent. But it is equally true that a principle may be embodied and applied so as to afford some result of practical utility in the arts and manufactures, and that under such circumstances a principle may be the subject of a patent. It is, however, *the embodiment and the application of the principle which constitute the grant of the patent.* And it has been justly said, 'that the principle so embodied and applied, and the principle of *such* embodiment and application, are essentially distinct: the former being a truth of exact science, or a law of natural science, or a rule of practice; the latter, a practice founded upon such truth, law, or rule.'

"Now, percussion, reaction, and centrifugal force are in the abstract neither new principles nor subjects of a patent. But their embodiment and application to machinery may be both new and useful, and entitle the discoverer to the exclusive use of his invention. The patentees in this case claim the discovery of embodying these principles

in a water-wheel, and their application in a new and improved method of propulsion. And this it is competent for them to do. . . . We have already stated that when a person has invented some *mode* of carrying into effect a law of natural science, or a rule of practice which constitutes the peculiar feature of his invention, such discovery may be secured to him by a patent. Hence it follows that he is entitled to protect himself from all other modes of making the same application. The substantial *identity*, therefore, that is to be looked to respects that which constitutes the essence of the invention; namely, *the application of the principle*. If the mode of carrying the same principle into effect adopted by the defendant still shows that the principle admits of the same application in a variety of forms or by a variety of apparatus, the jury will be authorized to treat such mode as a piracy of the invention. But if the defendant has adopted variations which show that the application of the principle is varied, that some other law or rule of practice or science is made to take the place of that which the patentee claims as the essence of his invention, then there is no infringement. Curtis on Patents, 338.

" If the defendant, in the use of a reaction water-wheel, whether on a vertical or horizontal shaft, whether single or in pairs, has run it or caused it to be run by the aid of the vortical motion of the water upon the wheel in its line of motion, he has violated this patent, provided he has used in so doing any or all of the patentee's mechanical contrivances for producing that vortical motion, or mechanical equivalents for any or all of them to produce it."

FOOTE *v.* SILSBY, 1 BLATCH. 445 (1849); 2 BLATCH. 260 (1851); 20 HOW. 378 (1857).

N. D. OF N. Y.

Foote's patent. The invention was an " improvement in regulating the draft of stoves."

The patent was first construed by Conkling, J. (district judge for the Northern District of New York), before whom and a jury an action of infringement was tried. The claims were: —

" 1. The application of the expansive and contracting power of a metallic rod, by different degrees of heat, to open and close a damper which governs the admission of air into a stove or other structure in which it may be used, by which a more perfect control over the heat is obtained than can be by a damper in the flue. 2. The mode above described of setting the heat of a stove at any requisite degree, by

which different degrees of expansion are requisite to open or close the damper. 3. The combination above described by which the regulation of the heat of a stove or other structure in which it may be used is effected. 4. The mode above described of connecting the action of the metallic rods with the damper, so that the same may be disconnected when the damper shall have closed and the heat shall continue to rise,"[1] &c.

As to the first claim, the court charged the jury that it,

"being for the application of a natural property of metals to the purpose therein mentioned, was not the fit subject of a patent."

The jury found a verdict for the plaintiff, and the defendants moved for a new trial. In refusing it, Mr. Justice Nelson remarked as follows (p. 468): —

"The substance of the discovery . . . is the application of the principle of the contraction and expansion of a metallic rod, by the use of certain mechanical contrivances particularly described and set forth, to the cast or sheet iron stove in common use, by which means he produces a self-regulating power over the heat of the same, at any given degree of heat that may be desired within the capacity of the stove. This is the thing invented. It is, in a word, the application of a well-known principle to a new and useful purpose; and the first question is, whether or not the patentee was the first and original inventor, or whether it was before known and in public use. Now, although it is shown (assuming for the present that we may look into books not in evidence) that the principle had before been applied to the regulation of heat, as in the instance of Dr. Ure's 'Thermostat' and Bonnemain's 'Heat Regulator,' and some others, yet, for aught that appears from the testimony or from any book that has been produced, the plaintiff was the first person who applied the principle to the regulation of the heat of stoves; and for this he was entitled to a patent. . . . Phillips on Patents, ch. 7, § 6, p. 101. . . . The charge in respect to the first claim was more favorable to the defendants than in my judgment was warranted. The claim is not for a discovery of a natural property of the metallic rod, which of itself is not a patentable subject, but for

[1] The report contains the specification, which is very long, minute, and nearly or quite impossible to understand without the diagrams to which it refers.

There was a disclaimer of March, 1847, not properly proved at this trial, and therefore ruled out; but it played a part subsequently. In it the patentee disclaimed the use of such a rod as he describes in any other structure than a stove, in which the rod is acted upon directly by the heat of the stove or of the fire in it.

a new application of it by means of mechanical contrivances, which is one of the commonest subjects of a patent," &c.

The mechanical devices used by the defendant having been shown to be substantially like the plaintiff's, the judge remarked: —

"I am not sure that the plaintiff was bound to go to this length in making out a case of infringement. There is some ground for the position that the new application of the principle, by means of mechanical contrivances, constitutes of itself a part of his invention, and that any different or improved mode of application is but an improvement upon his discovery, and not available without his consent." [1]

Next came the trial [2] before Judge Nelson and a jury, of two feigned issues in this case; namely, whether or not the plaintiff was the original and first inventor of the improvements set out in his *first* and *third* claims. Mr. Justice Nelson charged the jury as follows: —

". . . There has been some difference of opinion between the counsel for the respective parties as regards the true construction to be given to the first claim, and it will therefore be necessary for the court to call your attention particularly to this branch of the case. It will be seen that the patentee, after he has set forth in general terms that he has made a new and useful improvement in regulating the heat of stoves, has set forth with great particularity two modes by which he adapts this improvement to use through the arrangement of various machinery; and that then, in this first claim, he claims the application

[1] Mr. Curtis, in the 4th ed. of his treatise, p. 166, thus comments upon this passage: "In this *dictum* we reach for the first time in any American case the suggestion of a doctrine which, in reference to cases of this kind, must either be established in, or rejected from, the patent law. This doctrine treats the application of the principle by some mechanical means as being at least a part of the invention and of the subject-matter of the patent; and as a corollary of this position, it regards a variation of the means, even if an improvement, as still an infringement if used without the consent of the patentee. The opposite doctrine is that which is maintained by those who contend that the application of a principle in this sense is not capable of appropriation under a patent; that its appropriation can extend only to the application of a principle as effected by the particular means used by the patentee, and by such other means as may turn out to be colorable imitations, mechanical equivalents, or fraudulent evasions, to neither of which categories is a real improvement to be referred."

[2] 2 Blatch. 260 (1851). In the report of the preceding case (1 Blatch. 445) there is a long and unintelligible description of Ure's apparatus and of Bonnemain's, referred to by Judge Nelson in the present case.

of the expansive and contracting power of a metallic rod, by different degrees of heat, to open and close a damper which governs the admission of air into a stove in which it may be used, by which a more perfect control over the heat is obtained than can be by a damper in the flue. Now, it is the application of the expansive and contracting power of the metallic rod to regulate the heat of the stove by opening and closing the damper, the whole being self-acting in the admission or exclusion of air, that is specifically claimed in this part of the patent: and according to the construction that I give to it, and have always given to it, it is a claim independent of any particular arrangement or combination of machinery or contrivance for the purpose of applying the principle to the regulation of the heat of stoves. I have always supposed, therefore, that the peculiar arrangement or construction of the machinery used did not enter into this branch of the claim. Where a party has discovered a new application of some property in nature never before known or in use, by which he has produced a new and useful result, the discovery is the subject of a patent, independently of any new or peculiar arrangement of machinery for the purpose of applying the new property in nature; and hence the inventor has a right to use any means, old or new, in the application of the new property to produce the new and useful result, to the exclusion of all other means. Otherwise a patent would afford no protection to an inventor in cases of this description, because, if the means used by him for applying his new idea must necessarily be new, then in all such cases the novelty of the arrangement used for the purpose of effecting the application would be involved in every instance of infringement, and the patentee would be bound to make out, not only the novelty in the new application, but also the novelty in the machinery employed by him in making the application."

He then cites the English case of Neilson *v.* Harford, and sections 80 and 81 of Curtis on Patents, wherein the learned author states the rule laid down by that celebrated decision to be, that in such cases "a principle carried into practice by *some* means constitutes the subject-matter of the patent;" and that the use of such a principle, though by means patentably different from those of the original discoverer, might be an infringement of the original invention.

Mr. Justice Nelson then goes on to say:—

"Now, in this case, as I understand the claim of the patentee, he claims the application of the principle of expansion and contraction in a metallic rod to the purpose of regulating the heat of a stove. That

is the new conception which he claims to have struck out; and although the mere abstract conception would not have constituted the subject-matter of a patent, yet when it is reduced to practice by any means, old or new, resulting usefully, it is the subject of a patent, independently of the machinery by which the application is made. I think, therefore, that in examining the first question presented to you, you may lay altogether out of view the contrivance by which the application of the principle is made, and confine yourselves to the original conception of the idea carried into practice by some means; but whether the means be new or old is immaterial, for although old means be used for giving application to the new conception, yet the patent excludes all persons other than the patentee from the use of those means and of all other means in a similar application."

In regard to the inventions alleged to anticipate the plaintiff's patent, the court said: —

"As respects the various contrivances of Ure, Bonnemain, and Evans, it does not appear that any one of those persons ever applied the principle of the expansion and contraction of the metallic rod to regulate the heat of a stove, by means of the heat produced by the stove itself, thereby producing a self-regulator; and it is therefore quite obvious that no one of them had reached the idea. In all these contrivances, with the exception of Ward's, the metallic rod used to produce the motion by which the damper was opened and closed was not heated by the air of the furnace, but was heated indirectly by the heat of the furnace, by being immersed in hot water. They all, therefore, fell short of the whole idea embraced in the first claim of the patent. Ward's application was applied to the ventilation of a room, and, so far as regards the conception of the idea of regulating the heat of a stove by the use of an expanding and contracting metal, was altogether different from the plaintiff's. It was a use of the principle to regulate a damper; but it was not adapted to regulate the heated air of a stove, which is the application in question here. In this respect, therefore, it was the same as Ure's, Bonnemain's, and Evans's. But in the Saxton stove[1] you have the application of the principle in question directly to the regulation of the heated air of the stove, by the opening and closing of a damper to admit or exclude the air for the supply of combustion, by the use of a metallic rod heated by the heated air of the stove itself. . . . Now, it is insisted by the counsel for the plaintiff that although there is in the Saxton stove an application of the principle of the expansion and contraction of a metallic rod heated by the stove itself, to

[1] This stove is not described elsewhere in the report of any of these cases.

regulate its heat, yet the rod is a compound rod, composed of a slip of brass and a slip of iron, firmly fastened together, and the motion of the damper is produced through a deflection of the rod resulting from its curvature, caused by the unequal dilatation, under a given degree of heat, of the two metals composing it, that of brass being greater than that of iron; that such an application is distinguishable from an application of the principle made by the direct linear expansion of a brass rod used in connection with an iron stove; and that, in that respect, the improvement of the plaintiff is distinguishable from the principle or conception applied in the Saxton stove. I lay entirely out of view the machinery, and speak only of the idea of applying the principle to regulate the heat of stoves. . . . It must be remembered, however, that in the patent the broad claim is made to 'the application of the expansive and contracting power of a metallic rod by different degrees of heat to open and close a damper which governs the admission of air into a stove in which it may be used, by which a more perfect control over the heat is obtained than can be by a damper in the flue.' And one thing must be admitted, that in the Saxton stove the principle of the expansion and contraction of the metallic rod was applied in the regulation of the damper, by causing it to open and close according to the degrees of heat in the stove itself. The means by which Saxton produced this adaptation were indeed different from the means used by the plaintiff; but the principle was the same. This is obvious from the testimony; and so say all the witnesses who have been examined on the question. Saxton's conception of the idea was anterior to that of the plaintiff. He applied the principle by means of a double bar, which produced a curvature. Still, that curvature was produced by the expansion and contraction of the brass rod, which, being greater under the same temperature than the expansion and contraction of the iron rod, resulted in the curvature, giving a motion which was applied to the regulation of the damper.

"The plaintiff is presumed, in judgment of law, — although I suppose the fact was otherwise, — to have had a knowledge of the Saxton stove, and of the application of the metallic rod to regulate its heat, when he applied the rod to the regulation of the stove described in his patent; and he then saw the principle applied by means of the deflection produced by the two compound bars, and of the motion resulting from the curvature.

"The difficulty in this branch of the case, on the part of the plaintiff, lies in his claim to the original conception of the adaptation of the principle to the purpose. Saxton's stove having been anterior in time to the plaintiff's, the principle existed there, and was only applied by the plaintiff in a different mode to the same object. The plaintiff

used the direct action of expansion and contraction to regulate the stove, whereas the combination of the iron rod with the brass rod had been before used. That would seem to be a different mode of applying the principle, rather than an original conception of the idea of adapting the expansion and contraction of the rod to the regulation of a stove. The idea had been before conceived and applied in the Saxton stove." [1]

The jury found a verdict against the plaintiff on both the feigned issues, — namely, the originality of the invention stated in the first claim, and of the combination stated in the third claim; but afterward, says the report, "on a final hearing on pleading and proofs, the court entered an interlocutory decree for the plaintiff, notwithstanding the verdict on the feigned issues. The case went to a master, who took an account. On exceptions, his report

[1] As to the third claim, that for the combination, the learned judge charged as follows: " . . . This combination consists of, *first*, the brass rod, which is used, as it expands and contracts from the action of the heat of the stove, to give the power to open and close the valve; *second*, the apparatus by which the motion obtained by the expansion of the rod is increased, in order to operate more effectually, which is a combination of levers; *third*, the adjusting screw, which is used to set the brass rod, with the combination of levers and the connecting rod attached to the damper, at a given degree of temperature, by which different degrees of heat are obtained in the operation of the stove, — thus, if when the stove is cold you were to set the brass rod with its connections so that the damper should be but just open, a very slight degree of heat would close it, consequently the stove . . . would be kept at a low temperature; but if the apparatus was set with the damper wide open, it would require an extreme degree of heat to produce a sufficient expansion of the metallic rod to close it; *fourth*, the detaching process, by which the connecting rod is made to act or cease acting on the damper. In the apparatus of the plaintiff, the connecting rod operates directly and positively both to open and close the damper. The damper is not closed by its own gravity, by being released at the extreme of expansion. . . . Now, I am inclined to think — although the question has embarrassed me, and I may possibly, after all, have fallen into an error in regard to it — that the combinations of Dr. Ure in the two instances before alluded to, and the models of which have been produced on the trial, the egg-hatcher of Bonnemain, and the contrivances of Evans and of Ward, do not come up to the idea of the combination . . . claimed by the patentee. . . . I mean, aside from the parts composing the apparatus used by these different persons. As I have before said, when speaking of the first question submitted to you, the contrivances devised by those persons were not constructed to regulate the damper of a stove to be operated on by the heat of the stove. In all the cases mentioned, except that of Ward, the metallic rod was heated, so as to produce the contraction and expansion, by immersion in hot water," &c.

port was modified, and a final decree was entered for the plaintiff. The defendants appealed to the Supreme Court," which brings us to the case of Silsby *v.* Foote, 20 How. 378.

The Supreme Court sustained the decree, two judges dissenting. The decree is reported, but it does not appear from it on which of the claims (if not on both) it was based. The presumption, however, is, that it was founded upon the third, the claim for the combination, inasmuch as Mr. Justice Nelson, in the trial which preceded the making of the decree, charged the jury that the principle of the Saxton stove was the same as that of the plaintiff's stove, the application only being different; and the first claim of the plaintiff's patent was for the application of the principle by the use of the metallic rod, and not for a combination of devices. On the other hand, the report of the Supreme Court case says that only the first claim of the patent was in controversy, and that it alone was argued by the counsel for the appellants, the former defendants. And when we turn to the opinions delivered (that of the majority by Mr. Justice Nelson, and the dissenting opinion of Mr. Justice Grier, with which Mr. Justice Daniel concurred), the fog which has hung about this case from the beginning closes in and almost shuts it out of sight, for it appears that the court differed in their understanding as to which claim was the basis of the decree.

Mr. Justice Nelson, in his opinion, says that the first claim was disproved by the Saxton stove; whence the inference that he, and with him the majority of the court, sustained the decree upon the basis of the third claim. Mr. Justice Grier, on the other hand, argued that the decree was founded upon the first claim, and that that claim, under the rule established by O'Reilly *v.* Morse, was void upon its face.

DETMOLD *v.* REEVES, 1 FISH. 127.

E. D. OF PENN., 1851. KANE, J.

The complainant's patent (reissued to him Jan. 23, 1845) was for

"a new method of economizing fuel, by using the waste, combustible gases of the upper portion of the blast-furnace, by drawing them off

below the upper level of the charge, and conducting them through convenient passages to other fire-places or structures, there to be burned as fuel."

The point for taking off the gases — and on this part of the specification the whole case turned — was thus described: —

"At or near that point of the furnace where the limestone, employed as a flux, is completely calcined, and the reduction or deoxidation has not yet commenced, . . . which point will generally be at about one-third the height of the whole furnace, below the tunnel-head, or two-thirds above the bottom stove."

It was conceded that the defendants did not take off the gases at the point indicated by the patentee. Furthermore, it was proved that such a point was indefinite and changeable, because it varied with the size and shape of the furnace, the chemical constitution of the ore, the flux, the fuel, and with atmospheric changes; and some witnesses testified that it was impossible to fix the point, because reduction always begins (they said) before calcination is perfected. The court, therefore, held that infringement of the patent could be proved only by showing that the defendants took off the gases at the point described, limiting the patent

"to the formal arrangement, without any assertion of right to any dominant principle. The defendants have, perhaps, derived instruction from his descriptions, and may even, to some extent, have modelled their furnace, with its appendages, upon a theory which he suggested. But it does not appear to me that they . . . have infringed his patent."

And on the general subject the court said: —

"There is no doubt that he who has discovered some new element or property of matter may secure to himself the ownership of his discovery, so soon as he has been able to illustrate it practically, and to demonstrate its value. His patent, in such a case, will be commensurate with the principles which it announces to the world, and may be as broad as the mental conception itself. But, then, the mental conception must have been susceptible of embodiment, and must have been, in fact, embodied in some mechanical device or some process of art. The abstract must have been resolved into the concrete. The patent must be for a thing, not for an idea merely. This limitation, it may be said, denies to some of the more important products of mind what it concedes to others of lower grade. But it is not the less true

on that account. Men may be enriched or made happy by physical as well as by moral or political truths, which, nevertheless, go without reward for their authors. He who devised the art of multiplication could not restrain others from using it after him, without paying him for a license. The miner who first found out that the deeper veins were the richer in metal could not compel his neighbor to continue digging near the surface. . . . If we could search the laws of nature, they would be like water and the air, — the common property of mankind; and those theories of the learned, which we dignify with this title, partake, just so far as they are true, of the same universally diffused ownership. It is their application to practical use which brings them within the domain of individuals; and it is the novelty of such an application that constitutes it the proper subject of a patent. But the contract of the public is not with him who has discovered, but with him who also makes his discovery usefully known. If he has discovered much and discloses little, — if there has been revealed to him one of the *arcana* of nature, and he communicates to the world only one or more of its derivative and secondary truths, he patents no more than he has proclaimed. He will not be allowed afterward, when the extent of his right shall be the subject of controversy, either by expanding into a general expression what was limited before in a particular form, or by tracing out for us the line that leads back from consequences to remote causes, to initiate us, inferentially, into the radical mystery of his invention, and then argue that he had described it by implication from the first, and so claimed ownership of it in his patent. If, as it has been contended with great apparent force," the patentee "was really the discoverer of the true theory of the blast-furnace, so as to determine from it the point at which the carbonic oxide, having performed its chemical function, might be withdrawn without sensible injury; if he knew that the gases, when taken from openings near the boshes, were capable of more intense combustion, but that their withdrawal so low down impoverished the action of the furnace, and that when used at the tunnel-head, after they had performed successively the offices of deoxidating the mineral, calcining the flux, and vaporizing the water of the charges, they were less available as fuel in consequence of the increased impurity; and if, knowing this, he had taught the iron-master how to choose the best place for withdrawing the gases, having reference to the dimensions of his furnace, and the different sorts of fuel and mineral and fluid employed in it, and with reference also, perhaps, to the purpose to which the flame of the gases was to be applied after they had been withdrawn, — no one can doubt that he would have conferred a signal benefit upon the arts of the world. And if he had, besides this, devised some form of structure, some material ar-

rangement, by which his discovery might be applied to use, I would be most reluctant to say that his patent, properly drawn out, should be limited to the mere mechanical illustration, and could not cover effectually the whole ground of his discovery. But" the patentee "and his assignee have not done this. They have announced no principle of science, no natural law. They indicate to us the place at which the gases should be taken out, first by reference to a scientific problem, which they leave unsolved, and next by a proximate reference to a mechanical measurement."

He goes on to notice, in remarks which we have condensed above, the difficulty, if not impossibility, of fixing the point required by the patent.

LE ROY *v.* TATHAM, 14 How. 156 (1852); 22 How. 132 (1859).

The invention of John and Charles Hanson, of England, a patent for which was reissued to H. B. and B. Tatham, Aug. 31, 1837.[1]

[1] *Vide ante*, pp. 541, 542. We quote the following lucid description of the invention from Curtis on Patents, § 61: —

"The real invention in this case consisted in the discovery and practical application of a new method of making lead pipe by forcing the metal, when recently set, but still under heat, by great pressure, from a receiver through an aperture and around a core, so as to make the metal reunite where it had been separated. Wrought pipe, as an improvement upon cast pipe, had been previously made from set or solid lead by great pressure; but before the discovery of the plaintiff's method, such wrought pipe could not be made with uniformity of thickness and a true centrality of bore. The former mode of making wrought pipe from set or solid lead was founded upon the supposition that the metal, when once set after being molten, would not unite perfectly if separated; and it was in consequence of the want of knowledge of the property of such metal to unite under heat and extreme pressure that a mode of making the pipe was resorted to by which the contact of the particles of the metal would remain unbroken. This mode consisted in the use of the following apparatus: Lead in a fluid state was introduced into a cylinder in which a piston played from one end to the other. In the solid end of the cylinder opposite to the piston an aperture was fitted with a die which formed the exterior of the wall of the pipe. To form the interior wall of the pipe, a cone or mandrel, consisting of a long cylindrical rod of steel, was attached to the face of the piston, and extended through the cylinder, and through the centre of the die. When the metal in the cylinder had become set, the piston was forced through the cylinder by hydraulic pressure, carrying the metal to the die, and driving it through the annular space between the die and the core, and thus forming a continuous pipe from the whole charge of the cylinder, because the continuity

"The Hansons discovered that lead, when recently set and solid, but still under heat and extreme pressure in a close vessel, would reunite perfectly after a separation of its parts. Availing themselves of this property in lead, the inventors succeeded in making by machinery, at a reduced expense, lead pipe of a better quality than had before been known. The claim of the patent was to the combination of machinery employed 'when used to form pipes of metal under heat and pressure, in the manner set forth, or in any other manner substantially the same.' The machinery used was shown to be, in principle, substantially the same with machinery which had before been used to make macaroni, and with machinery which had before been used to make clay pipe." [1]

In the first case, an action at law, the court held that the plaintiffs, by their specifications and claim, were confined to the particular apparatus which they described, and that being shown to be old, the patent was held invalid.

The court said (after quoting the claim) : —

"The patentees have founded their claim on this specification, and they can neither modify nor abandon it in whole or in part. The combination of the machinery is claimed, through which the new property of lead was developed, as a part of the process in the structure of the pipes. But the jury were instructed 'that the originality of the invention did not consist in the novelty of the machinery, but in bringing a newly discovered principle into practical application.' The patentees claimed the combination of the machinery as their invention in part, and no such claim can be sustained without establishing its novelty, —

of the particles composing the wall of the pipe was nowhere broken. But the liability of the long core to be warped out of a true line by the great pressure necessary to form the pipe rendered it impossible to produce uniformity of thickness and an even bore.

"On the other hand, the great feature of the invention which the plaintiffs claimed consisted in the discovery of the fact that lead, when recently set, and still under heat, will reunite perfectly around a core, under extreme pressure, *notwithstanding* the particles have been separated, and will thus form pipe of great solidity and unusual strength. This beautiful discovery was made available by the substitution of a short, immovable core in front of the die, supported by a bridge or cross-bars, and extending into and through the die, so that the true centrality of the core in reference to the die was constantly preserved; and although the particles of the metal, when forced through the apertures in the bridge, were necessarily separated, they reunited perfectly around the core, and formed a pipe superior in quality and cheaper in production than had ever been made before."

[1] We quote from Judge Blatchford's opinion in the case of Poillon *v.* Schmidt, 6 Blatch. p. 304.

not as to the parts of which it is composed, but as to the combination. *The question whether the newly developed property of lead, used in the formation of pipes, might have been patented if claimed as developed, without the invention of machinery, was not in the case.*"

Nelson, J., Wayne, J., and Grier, J., dissented, on the ground that the patent might be construed to claim the application of the newly discovered property in lead to the making of lead pipe, in which view of the patent the novelty of the apparatus was immaterial.

In the second suit, a bill in equity, the patent was sustained. The opinion, by McLean, J., is so extremely obscure that it cannot be quoted as supporting any view of the law upon the subject of principle.

Judge Blatchford, in the opinion from which we just quoted, thus stated the effect of the decision in the second suit of Le Roy *v.* Tatham : —

"The claim was stated by the court to be a claim to the machinery only when used to form pipes of metal under heat and pressure; and it was sustained by the court against the objection that it only claimed the application of an old machine to a new use, or to produce a new result. The claim in the Hanson patent would have been the same, to all intents, if it had claimed the method of causing lead to separate and reunite, at a welding heat, under pressure in a close vessel, by the use of the machinery described, to form lead pipe in the manner set forth."

In the first case, the court differed as to the construction of the particular patent before them, and not, it would seem, as to the law. The dissenting opinion, by Nelson, J., contains an able and exhaustive discussion of the subject. We quote first from the opinion of the majority, by McLean, J.: —

". . . The word 'principle' is used by elementary writers on patent subjects, and sometimes in adjudications of courts, with such a want of precision in its application as to mislead. It is admitted that a principle is not patentable. A principle, in the abstract, is a fundamental truth, an original cause, a motive; these cannot be patented, as no one can claim in either of them an exclusive right. Nor can an exclusive right exist to a new power, should one be discovered in addition to those already known. Through the agency of machinery a new steam power may be said to have been generated. But no one can appropriate this power exclusively to himself, under the patent laws. The

same may be said of electricity, and of any other power in nature, which is alike open to all, and may be applied to useful purposes by the use of machinery.

"In all such cases, the processes used to extract, modify, and concentrate natural agencies constitute the invention. The elements of the power exist; the invention is not in discovering them, but in applying them to useful objects. Whether the machinery used be novel, or consist of a new combination of parts known, the right of the inventor is secured against all who use the same mechanical power, or one that shall be substantially the same.

"A patent is not good for an effect, or the result of a certain process, as that would prohibit all other persons from making the same thing by any means whatsoever. This, by creating monopolies, would discourage arts and manufactures, against the avowed policy of the patent laws.

"A new property discovered in matter, when practically applied, in the construction of a useful article of commerce or manufacture, is patentable; but the process through which the new property is developed and applied must be stated with such precision as to enable an ordinary mechanic to construct and apply the necessary process. This is required by the patent laws of England and of the United States, in order that, when the patent shall run out, the public may know how to profit by the invention. It is said, in the case of The Houshill Company *v.* Neilson, Webster's Pat. Cas. 683: 'A patent will be good, though the subject of the patent consists in the discovery of a great, general, and most comprehensive principle in science or law of nature, if that principle is by the specification applied to any special purpose, so as thereby to effectuate a practical result and benefit not previously attained.' In that case, Mr. Justice Clerk, in his charge to the jury, said: 'The specification does not claim anything as to the form, nature, shape, materials, numbers, or mathematical character of the vessel or vessels in which the air is to be heated, or as to the mode of heating such vessels,' &c. The patent was for 'the improved application of air to produce heat in fires, forges, and furnaces, where bellows or other blowing apparatus are required.'

"In that case, although the machinery was not claimed as a part of the invention, the jury were instructed to inquire 'whether the specification was not such as to enable workmen of ordinary skill to make machinery or apparatus capable of producing the effect set forth in said letters-patent and specification.' And that, in order to ascertain whether the defendants had infringed the patent, the jury should inquire whether they 'did by themselves or others, and in contravention of the privileges conferred by the said letters-patent, use machinery or apparatus substantially the same with the machinery or apparatus

described in the plaintiff's specification, and to the effect set forth in said letters-patent and specification.' So it would seem that where a patent is obtained, without a claim to the invention of the machinery, through which a valuable result is produced, a precise specification is required; and the test of infringement is, whether the defendants have used substantially the same process to produce the same result."

Nelson, J., with whom concurred Wayne and Grier, JJ., dissented, as follows (after considering the proper construction of the specification and claim): —

"I conclude, therefore, that the claim in this case is not simply for the apparatus employed by the patentees, but for the embodiment or employment of the newly discovered property in the metal, and the practical adaptation of it, by these means, to the production of a new result, namely, the manufacture of wrought pipe out of solid lead.

"Then, is this the proper subject-matter of a patent? This question was first largely discussed by counsel and court in the celebrated case of Boulton *v.* Bull, 2 H. Black. 463, involving the validity of Watt's patent, which was for 'a new invented method for lessening the consumption of fuel and steam in fire-engines.' This was effected by enclosing the steam vessel or cylinder with wood or other material, which preserved the heat in the steam vessel; and by condensing the steam in separate vessels. It was admitted on the argument that there was no new mechanical construction invented by Watt, and the validity of the patent was placed on the ground that it was for well-known principles, practically applied, producing a new and useful result. On the other hand, it was conceded that the application of the principles in the manner described was new, and produced the result claimed; but it was denied that this constituted the subject-matter of a patent.

"Heath and Buller, Justices, agreed with the counsel for the defendant.

"But Lord Chief Justice Eyre laid down the true doctrine, and [*sic*] which, I think, will be seen to be the admitted doctrine of the courts of England at this day.

"'Undoubtedly,' he observed, 'there can be no patent for a mere principle; but for a principle so far embodied and connected with corporeal substances as to be in a condition to act, and to produce effects in any art, trade, mystery, or manual occupation, I think there may be a patent. Now this,' he continues, 'is, in my judgment, the thing for which the patent stated in the case was granted; and this is what the specification describes, though it miscalls it a principle. It is not that the patentee conceived an abstract notion that the consumption of steam in fire-engines may be lessened, but he has discovered a

practical manner of doing it; and for that practical manner of doing it he has taken this patent. Surely,' he observes, 'this is a very different thing from taking a patent for a principle. The apparatus, as we have said, was not new. There is no new mechanical construction, said the counsel for the patentee, invented by Watt, capable of being the subject of a distinct specification; but his discovery was of a principle, the method of applying which is clearly set forth.'

"Chief Justice Eyre admitted that the means used were not new, and that if the patent had been taken out for the mechanism used it must fail.

"He observed: 'When the effect produced is some new substance or composition of things, it should seem that the privilege of the sole working or making ought to be for such new substances or composition, without regard to the mechanism or process by which it has been produced, which, though, perhaps also new, will be only useful as producing the new substance.' Again: 'When the effect produced is no new substance, or composition of things, the patent can only be for the mechanism, if new mechanism is used; or for the process, if it be a new method of operating with or without old mechanism, by which the effect is produced.'

"And again he observes: 'If we wanted an illustration of the possible merit of a new method of operating with old machinery, we might look to the identical case before the court,' pp. 493, 495, 496.

"This doctrine in expounding the law of patents was announced in 1795, and the subsequent adoption of it by the English courts shows that Chief Justice Eyre was considerably in advance of his associates upon this branch of the law. He had got rid, at an early day, of the prejudice against patents so feelingly referred to by Baron Parke in Neilson *v.* Harford, and comprehended the great advantages to his country, if properly encouraged.

"He observed, in another part of his opinion, that '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.'

"This doctrine was recognized by the Court of King's Bench in The King *v.* Wheeler, 2 B. & Ald. 350. . . .

"In Forsyth's patent, which consists of the application and use of detonating powder as priming for the discharge of fire-arms, it was held that, whatever might be the construction of the lock or contrivance by which the powder was to be discharged, the use of the detonating mixture as priming, which article of itself was not new, was an infringement. Webster's Pat. Cas. 94, 97 (n.); Curtis on Pat. 230.

"This case is founded upon a doctrine which has been recognized in several subsequent cases in England; namely, that where a person discovers a principle or property of nature, or where he conceives of a new application of a well-known principle or property of nature, and also of some mode of carrying it out into practice, so as to produce or attain a new and useful effect or result, he is entitled to protection against all other modes of carrying the same principle or property into practice for obtaining the same effect or result.

"The novelty of the conception consists in the discovery and application in the one case, and of the application in the other, by which a new product in the arts or manufactures is the effect; and the question, in case of an infringement, is as to the substantial identity of the principle or property, and of the application of the same, and consequently the means or machinery made use of [are?] material only so far as they affect the identity of the application.

"In the case of Jupe's patent, for 'an improved expanding table,' Baron Alderson observed, speaking of this doctrine: 'You cannot take out a patent for a principle; you may take out a patent for a principle coupled with the mode of carrying the principle 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 the jury as piracy of your original invention.' Webster's Pat. Cas. 146. The same doctrine was maintained also in the case of Neilson's patent for the hot-air blast, in the K. B. and Exchequer in England. Webster's Pat. Cas. 342, 371; Curtis, 74, 148, 232; Webster's Pat. Cas. 310.

"This patent came also before the Court of Sessions in Scotland; and in submitting the case to the jury the Lord Justice remarked: 'That the main merit, the most important part of the invention, may consist in the conception of the original idea, — in the discovery of the principle in science, or of the law of nature, stated in the patent; and little or no pains may have been taken in working out the best mode of the application of the principle to the purpose set forth in the patent. But still, if the principle is stated to be applicable to any special purpose, so as to produce any result previously unknown, in the way and for the objects described, the patent is good. It is no longer an abstract principle. It becomes to be [*sic*] a principle turned to account, to a practical object, and applied to a special result. It becomes, then, not an abstract principle, which means a principle considered apart from any special purpose or practical operation, but the discovery and statement of a principle for a special purpose; that is, a practical invention, a mode of carrying a principle into effect.

" ' That such is the law,' he observes, ' if a well-known principle is applied for the first time to produce a practical result for a special purpose, has never been disputed; and it would be very strange and unjust to refuse the same legal effect when the inventor has the additional merit of discovering the principle, as well as its application to a practical object.'

" Then he observes again: ' Is it an objection to the patent that in its application of a new principle to a certain specified result it includes every variety of mode of applying the principle according to the general statement of the object and benefit to be obtained? This,' he observes, ' is a question of law; and I must tell you distinctly that this generality of claim — that is, for all modes of applying the principle to the purpose specified, according to or within a general statement of the object to be attained, and of the use to be made of the agent to be so applied — is no objection to the patent. The application or use of the agent for the purpose specified may be carried out in a great variety of ways, and only shows the beauty and simplicity and comprehensiveness of the invention.' . . .

" I shall not pursue a reference to the authorities on this subject any further. The settled doctrine to be deduced from them, I think, is, that a person having discovered the application for the first time of a well-known law of nature or well-known property of matter, by means of which a new result in the arts or in manufactures is produced, and has pointed out a mode by which it is produced, is entitled to a patent; and if he has not tied himself down in the specification to the particular mode described, he is entitled to be protected against all modes by which the same result is produced, by an application of the same law of nature or property of matter.

" And, *a fortiori*, if he has discovered the law of nature or property of matter, and applied it, is he entitled to the patent and aforesaid protection.

" And why should not this be the law? The original conception, the novel idea, in the one case, is the new application of the principle or property of matter, and the new product in the arts or manufactures; in the other, in the discovery of the principle or property, and application, with like result. The mode or means are but incidental, and flowing naturally from the original conception, and hence of inconsiderable merit.

" But, it is said, this is patenting a principle or element of nature. The authorities to which I have referred answer the objection. . . . And what if the principle is incorporated in the invention, and the inventor protected in the enjoyment for the fourteen years? He is protected only in the enjoyment of the application for the special purpose

and object to which it has been newly applied by his genius and skill. For every other purpose and end the principle is free for all mankind to use. And where it has been discovered as well as applied to this one purpose, and open to the world as to every other, the ground of complaint is certainly not very obvious. Undoubtedly, within the range of the purpose and object for which the principle has been for the first time applied, piracies are interfered with during the fourteen years. But anybody may take it up, and give to it any other application to the enlargement of the arts and of manufactures without restriction. He is only debarred from the use of the new application for the limited time, which the genius of others has already invented and put into successful practice. The protection does not go beyond the thing which for the first time has been discovered and brought into practical use, and is no broader than that extended to every other discoverer or inventor of a new art or manufacture.

"I own I am incapable of comprehending the detriment to the improvements in the country that may flow from this sort of protection to inventors.

"To hold, in the case of inventions of this character, that the novelty must consist of the mode or means of the new application producing the new result, would be holding against the facts of the case, as no one can but see that the original conception reaches far beyond these. It would be mistaking the skill of the mechanic for the genius of the inventor.

"Upon this doctrine some of the most brilliant and useful inventions of the day, by men justly regarded as public benefactors, and whose names reflect honor upon their country: the successful application of steam power to the propulsion of vessels and railroad cars; the application of the electric current for the instant communication of intelligence from one extremity of the country to the other; and the more recent but equally brilliant conception, — the propulsion of vessels by the application of the expansibility of heated air, the air supplied from the atmosphere that surrounds them. It would be found, on consulting the system of laws established for their encouragement and protection, that the world had altogether mistaken the merit of their discovery; that, instead of the originality and brilliancy of the conception that had been unwittingly attributed to them, the whole of it consisted of some simple mechanical contrivances which a mechanician of ordinary skill could readily have devised. Even Franklin, if he had turned the lightning to account in order to protect himself from piracies, must have patented the kite and the thread and the key as his great original conception, which gave him a name throughout Europe as well as at home, for bringing down this element from the heavens and subjecting it to

the service of man. And if these simple contrivances, taken together, and disconnected from the control and use of the element by which the new application and new and useful result may have been produced, happen to be old and well known, his patent would be void; or if some follower in the track of genius, with [*sic*] just intellect enough to make a different mechanical device or contrivance, for the same control and application of the element, and produce the same result, he would, under this view of the patent law, entitle himself to the full enjoyment of the fruits of Franklin's discovery.

"If I rightly comprehend the ground upon which a majority of my brethren have placed the decision, they do not intend to controvert so much the doctrine which I have endeavored to maintain, and which, I think, rests upon settled authority, as the application of it to the particular case. They suppose that the patentees have claimed only the combination of the different parts of the machinery described in their specification, and therefore are tied down to the maintenance of that as the novelty of their invention. I have endeavored to show that this is a mistaken interpretation, and that they claim the combination only when used to embody and give a practical application to the newly discovered property in the lead, by means of which a new manufacture is produced; namely, wrought pipe out of a solid mass of lead, which, it is conceded, was never before successfully accomplished."

O'REILLY *v.* MORSE, 15 How. 62 (1853).

Professor Morse's patent, granted in 1840, and reissued in 1848. The apparatus of Morse is described and his famous eighth claim is stated at page 543, *ante*. The opinion of the majority of the court holding the claim invalid is summarized and quoted from, beginning at page 544, *ante*. Also, in a long quotation from the opinion of Mr. Justice Bradley, in the case of Tilghman *v.* Proctor, will be found those passages of the opinion of the court in the Morse case which set forth their views of the law upon the general subject of principle. *Vide* pages 549, 550, *ante*.

It is also to be remarked that the novelty of the Morse invention was contested. The evidence on that head, however, was not very important. It appeared that many men of science in Europe had been engaged, as Morse had been, in an attempt to devise some means of telegraphing by the use of electro-magnet-

ism, and several inventions for the purpose were completed soon after Morse had filed his caveat. There was evidence, indeed, that some of them were completed before that; but it was fully established that Morse had reduced his invention to successful practice before any earlier invention had been "patented or described." Moreover, "it is impossible," said the court, "to examine them, and look at the process and the machinery and results of each, so far as the facts are before us, without perceiving at once the substantial and essential difference between them [and the invention of Morse], and the decided superiority of the one invented by Professor Morse." And they continued:—

"Neither can the inquiries he made, or the information or advice he received from men of science in the course of his researches, impair his right to the character of an inventor. No invention can possibly be made, consisting of a combination of different elements of power, without a thorough knowledge of the properties of each of them and the mode in which they operate on each other. And it can make no difference in this respect whether he derives his information from books or from conversation with men skilled in the science. If it were otherwise, no patent in which a combination of different elements is used could ever be obtained. For no man ever made such an invention without having first obtained this information, unless it was discovered by some fortunate accident."

We have already given the chief objection made by the majority of the court to the validity of the eighth claim, and the answer to that objection contained in the opinion of the minority (*ante*, page 545).

The following quotation contains the substance of Mr. Justice Grier's dissenting opinion:—

"When a new and hitherto unknown product or result, beneficial to mankind, is effected by a new application of any element of nature, and by means of machines and devices, whether new or old, it cannot be denied that such invention or discovery is entitled to the denomination of a 'new and useful art.' . . . A construction of the law which protects such an inventor in nothing but the new-invented machines or parts of machinery used in the exercise of his art, and refuses it to the exercise of the art itself, annuls the patent law. . . .

"The reason given for thus confining the franchise of the inventor . . . is, that it would retard the progress of improvement if those who can devise better machines or devices, differing in mechanical principle

from those of the first inventor of the art, — or, in other words, who can devise an improvement in it, — should not be allowed to pirate it. To say that a patentee, who claims the art of writing at a distance by means of electro-magnetism, necessarily claims all future improvements in the art, is to misconstrue it, or draw a consequence from it not fairly to be inferred from its language. An improvement in a known art is as much the subject of a patent as the art itself; so also is an improvement in a known machine. Yet if the original machine be patented, the patentee of an improvement will not have a right to use the original. This doctrine has not been found to retard the progress of invention in the case of machines; and I can see no reason why a contrary one should be applied to an art."

It may be instructive to add here what was said in regard to the statute provision requiring a description of the invention claimed.

The majority, Taney, C. J., delivering their opinion: —

"If the eighth claim of the patentee can be maintained, there was no necessity for any specification, further than to say that he had discovered that, by using the motive power of electro-magnetism, he could print intelligible characters at any distance. We presume it will be admitted on all hands that no patent could have issued on such a specification; yet this claim can derive no aid from the specification filed. It is outside of it, and the patentee claims beyond it."

Grier, J., with whom concurred Nelson and Wayne, JJ.: —

"Is it not true, as set forth in this eighth claim of the specification, that the patentee was the first inventor or discoverer of the use or application of electro-magnetism to print and record intelligible characters or letters? It is the very ground on which the court agree in confirming his patent. Now, the patent law requires an inventor, as a condition precedent to obtaining a patent, to deliver a written description of his invention or discovery, and to particularly specify what he claims to be his own invention or discovery. If he has truly stated the principle, nature, and extent of his art or invention, how can the court say it is too broad, and impugn the validity of his patent for doing what the law requires as a condition for obtaining it? And if it is only in case of a machine[1] that the law requires the inventor to specify what he claims as his own invention and discovery, and to distinguish what is new from what is old, then this eighth claim is superfluous, and cannot affect the validity of his patent, provided his art is new and

[1] *Vide* the statute quoted at page 527, *ante*.

useful, and the machines and devices claimed separately are of his own invention. If it be in the use of the words 'however developed' that the claim is to be adjudged too broad, then it follows that a person using any other process for the purpose of developing the agent or element of electro-magnetism than the common one now in use, and described in the patent, may pirate the whole art patented.

"But if it be adjudged that the claim is too broad because the inventor claims the application of this element to his new art, then his patent is to be invalidated for claiming his whole invention, and nothing more. If the result of this application be a new and useful art, and if the essence of his invention consists in compelling this hitherto useless element to record letters and words, at any distance and in many places, at the same moment, how can it be said that the claim is for a principle or an abstraction? What is meant by a claim being too broad? The patent law and judicial decisions may be searched in vain for a provision or decision that a patent may be impugned for claiming no more than the patentee invented or discovered. It is only when he claims something before known and used, something as new which is not new, either by mistake or intentionally, that his patent is affected."

WINANS *v.* DENMEAD, 15 How. 330 (1853).[1]

The plaintiff claimed "making the body of a car in the form of a frustum of a cone, substantially as herein described, whereby," &c., and "extending the bottom of the car below the truck frame by passing," &c. For this he alleged and proved two advantages: 1. The circular shape gave him the advantage of the tensile strength of the iron. 2. The tapering shape enabled him to project part of the load between the wheels, and thus to lower the centre of gravity. 3. Easy discharge of the load.

The defendant used a tapering octagon. Held, that he infringed.

Curtis, J.: —

". . . In this, as in most patent cases founded on alleged improvements in machines, in order to determine what is the thing patented, it is necessary to inquire: —

"1. What is the structure or device described by the patentee as embodying his invention?

[1] We insert this case with some hesitation as to its properly belonging in this chapter. It is, however, often referred to in cases of principle.

"2. What mode of operation is introduced and employed by this structure or device?

"3. What result is attained by means of this mode of operation?

"4. Does the specification of [*sic*] claim cover the described mode of operation by which the result is attained? . . .

"By means of this change of form, the patentee has introduced a mode of operation not before employed in burden cars; that is to say, nearly equal pressure in all directions by the entire load, save that small part which rests on the movable bottom; the effects of which are, that the load in a great degree supports itself and the tensile strength of the iron is used, while at the same time . . . the centre of gravity of the load is depressed and its discharge facilitated. . . .

"To change the form of an existing machine, and by means of such change to introduce and employ other mechanical principles or natural powers, or, as it is termed, a new mode of operation, and thus attain a new and useful result, is the subject of a patent. Such is the basis on which the plaintiff's patent rests.

"Its substance is a new mode of operation by means of which a new result is obtained. It is this new mode of operation which gives it the character of an invention, and entitles the inventor to a patent; and this new mode of operation is, in view of the patent law, the thing entitled to protection. The patentee may and should so frame his specification of claim as to cover this new mode of operation which he has invented; and the only question in this case is whether he has done so, or whether he has restricted his claim to one particular geometrical form. . . .

"It is only ingenious diversities of form and proportion, presenting the appearance of something unlike the thing patented, which give rise to questions; and the property of inventors would be valueless if it were enough for the defendant to say, Your improvement consisted in the change of form; you describe and claim but one form; I have not taken that, and so have not infringed. The answer is, My improvement did not consist in a change of form, but in the new employment of principles or powers in a new mode of operation, embodied in a form by means of which a new or better result is produced; it was this which constituted my invention; this you have copied, changing only the form. And that answer is justly applicable to this patent.

"Undoubtedly there may be cases in which the letters-patent do include only the particular form described and claimed. . . . The reason why such a patent covers only one geometrical form is not that the patentee has described and claimed that form only; it is because that form only is capable of embodying his invention, and consequently if the form is not copied the invention is not used. Where form and

substance are inseparable, it is enough to look at the form only. Where they are separable, where the whole substance of the invention may be copied in a different form, it is the duty of courts and juries to look through the form for the substance of the invention, for that which entitled the inventor to his patent, and which the patent was designed to secure. Where that is found there is an infringement, and it is not a defence that it is embodied in a form not described and in terms claimed by the patentee." . . .

Taney, C. J., Catron, Daniel, and Campbell, JJ., dissented.

Campbell, J. (page 345) : —

" . . . There arises in my mind a strong, if not insuperable, objection to the admission of the claim in the patent for ' the conical form,' or the form of the frustum of a cone, as an invention ; or that any machinist or engineer can appropriate by patent a form whose properties are universally understood, and which is in very common use, in consequence of those properties, for purposes strictly analogous. The authority of adjudged cases seems to me strongly opposed to the claim. Hotchkiss *v.* Greenwood, 11 How. 248 ; Losh *v.* Hague, Web. Pat. Cas. 207 ; Winans *v.* Providence R. R. Co., 2 Story, 412 ; 2 ibid. 190 ; 2 Car. & Kir. 10, 22 ; 3 W. H. & Gord. 427."

The learned judge held also that the defendants had not infringed the claim of the patent. Upon this point he said : —

" In theory, the plaintiff's car is superior to all others. His car displays the qualities which his specification distinguishes. The equal pressure of the load in all directions ; the tendency to preserve the form, notwithstanding the pressure of the load ; the absence of the cross strain ; the lowering of the centre of the gravity of the load, — are advantages which it possesses in a superior degree to that of the defendants'. Yet the experts say that there is no appreciable difference in the substantial results afforded by the two.

" The cause for this must be looked for in a source extrinsic to the mere form of the vehicles. Nor is it difficult to detect the cause for this identity in the results in such a source.

" The coarse, heavy, cumbrous operations of coal transportation do not admit of the manufacture of cars upon nice mathematical formulas, nor can the loads be adjusted with much reference to exactness. There is a liability to violent percussions and extraordinary strains, which must be provided for by an excess in the weight and thickness of the material used. Then, unless the difference in the weight of the load is great, there will be no correspondent difference in the receipts of the transportation companies.

"The patentee, not exaggerating the theoretical superiority of the form of his car, overlooked those facts which reduced its practical value to the level of cars of a form widely variant from his own. The object of this suit is to repair that defect of observation. It is that this court shall extend, by construction, the scope and operation of his patent to embrace every form which in practice will yield a result substantially equal or approximate to his own.

MORTON *v.* NEW YORK EYE INFIRMARY, 5 BLATCH. 116.

S. D. OF N. Y., 1862. NELSON AND SHIPMAN, JJ.

The patent of W. T. G. Morton for "an improvement in surgical operations on animals," discovered by himself and C. T. Jackson jointly. This patent was based upon the famous discovery that the inhalation of ether fumes produces insensibility to pain.

"This," said the specification, "is our discovery; and the combining it with, or applying it to, any operation of surgery, for the purpose of alleviating animal suffering, as well as of enabling a surgeon to conduct his operation with little or no struggling or muscular action of the patient, and with more certainty of success, constitutes our invention. . . . Various modes may be adopted for conveying the etheric vapor into the lungs. A very simple one is to saturate a piece of cloth or sponge with sulphuric ether and place it to the nostrils or mouth, so that the person may inhale the vapors. . . .

"We are fully aware that narcotics have been administered to patients undergoing surgical operations, and, as we believe, always by introducing them into the *stomach*. This we consider in no respect to embody our invention, as we operate through the *lungs* and *air passages*, and the effects produced upon the patient are entirely or so far different as to render the one of very little, while the other is of immense, utility. . . . *What we claim as our invention is the hereinbefore described means by which we are enabled to effect the above highly important improvement in surgical operations; namely, by combining therewith the application of ether, or the vapor thereof*, substantially as above specified."

The court decided against the patent, Shipman, J., delivering the opinion, as follows: —

". . . Very little light can be shed on our path by attempting to draw a practical distinction between the legal purport of the words 'discovery' and 'invention.' In its naked, ordinary sense, a discovery

is not patentable. A discovery of a new principle, force, or law operating, or which can be made to operate, on matter will not entitle the discoverer to a patent. It is only where the explorer has gone beyond the mere domain of discovery, and has laid hold of the new principle, force, or law, and connected it with some particular medium or mechanical contrivance by which, or through which, it acts on the material world, that he can secure the exclusive control of it under the Patent Act. He then controls his discovery through the means by which he has brought it into practical action, or their equivalent, and only through them. It is then an invention, although it embraces a discovery. Sever the force or principle discovered from the means or mechanism through which he has brought it into the domain of invention, and it immediately falls out of that domain and eludes his grasp. It is then a naked discovery, and not an invention.

"These remarks are not made for the purpose of laying down sweeping general propositions. We are too well aware of the futility, or, we might say, mischief, of that practice of expounding the law of patents, to embark in it. But these suggestions are submitted for the purpose of showing the relation of the terms 'discovery' and 'invention,' and especially the dependence of the former upon the latter, as used in the statute. Every invention may, in a certain sense, embrace more or less of discovery, for it must always include something that is new; but it by no means follows that every discovery is an invention. It may be the soul of an invention, but it cannot be the subject of the exclusive control of the patentee, or of the patent law, until it inhabits a body, any more than a disembodied spirit can be subjected to the control of human laws. . . . The origin and existence of ethers, those wonderful agents that produce a harmless insensibility to pain, formed no part of the discovery. No one of them was brought to light by these patentees, for they were all well known before. . . . The real discovery that was made . . . [was], that this well-known inhalation of well-known agents (in increased quantities) would produce a state of the animal analogous to complete intoxication, accompanied by total insensibility to pain. It [the specification] appropriately adds: 'This is our discovery.' It is not important to inquire here whether this was the discovery of an increased and more perfect effect, the same in kind with that already well known, or whether it was the discovery of an entirely new effect. The effect discovered was produced by old agents, operating by old means upon old subjects. The effect alone was new, and to that only can the term 'discovery' apply. That this mere discovery, however novel and important, is not patentable, needs neither argument nor authority to prove. This the specification impliedly concedes; for after thus clearly setting forth the discovery, a struggle

is made to grapple it to something in active existence, and thus make the two, in this new special relation, a patentable *invention*. This is done by 'combining it with or applying it to any operation of surgery.' 'This is our invention.' The beneficial effects described as resulting from the application refer merely to the utility of the alleged invention, which is not in question, and may, therefore, be laid out of the case. The object of thus combining the discovery with, or applying it to, surgical operations is apparent. It was to shelter the discovery under those terms of the Patent Act which protect 'any new and useful improvement on any art.' It was clearly not the discovery or invention of an 'art,' or 'machine,' or 'manufacture,' or 'composition of matter.' Nor was it an 'improvement' on any one of the last three. It was therefore called, in substance, an improvement on the art of surgery. But we cannot change a thing by a name. In a certain general sense, it is an improvement on the art of surgery. So would the invention of a new and useful lancet, saw, forceps, or bandage be an improvement on the same art. But the patent securing the exclusive use or sale of such an instrument must rest exclusively upon the novelty of its construction. It could borrow no element of patentability from the art in which it was designed to be used, except merely the element of utility. Of this latter the art would furnish the test. Now this discovery of the effect of ether on the patient, in holding him motionless and insensible during the operation, has the same *legal relation* to the art of surgery that a machine or other mechanical contrivance for holding him would have. It holds him better, stiller, and with less discomfort and danger to himself than any mechanism could; but its office is to hold and protect the patient. It has no other relation to, or connection with, the art of the surgeon. We use the word 'protect' as applied to the patient in the largest sense, and as including not only exemption from pain during the operation, but also from the shock which such operations often give the system. The only legal quality or aid, then, which this alleged invention can draw from the art with which it is connected in the specification is that which relates to its utility. Of this it supplies undoubted evidence. The eminent surgeons who testified on the trial concurred in stating that its usefulness could not be overrated. We must, then, leaving the art of surgery to supply the evidence of its utility, contemplate the discovery as separated from the use to which it is applied. At this point the patent breaks down; for the specification presents nothing new except the *effect* produced by well-known agents, administered in well-known ways on well-known subjects. This new or additional effect is not produced by any new instrument by which the agent is administered, or by any different application of it to the body of the patient. It is simply produced by increasing the quantity of the

vapor inhaled. And even this quantity is to be regulated by the discretion of the operator, and may vary with the susceptibilities of the patient to its influence. It is nothing more, in the eye of the law, than the application of a well-known agent, by well-known means, to a new or more perfect use, which is not sufficient to support a patent.

"But it was insisted on the argument that the claim, at the close of the specification, when properly understood, discloses the true character of the invention, and furnishes ground upon which the patent can stand. This clause declares that 'what we claim as our invention is the hereinbefore described means by which we are enabled to effect the above highly important improvement in surgical operations; namely, by combining therewith the application of ether, or the vapor thereof, substantially as above described.' The plaintiffs' counsel insists that the true reading of the claim, in the light of the preceding part of the specification, is not that which asserts a *combination* of the discovery with *surgical operations*, but rather an application of the discovery to surgical operations by the means described; 'and that the means described, and the only means described, are the process of rendering the system insensible to pain by the inhalation of ether.' But we do not discover that this exposition of the claim relieves the difficulty. What is the *process* which is here set forth? The process of inhalation of the vapor, and nothing else. To couple with it the *effect* produced by calling it a process of rendering the system insensible to pain is merely to connect the results with the means. The *means*, that is, the process of inhalation of vapors, existed among the animals of the geologic ages preceding the creation of our race. That process, in connection with these vapors, is as old as the vapors themselves. We come, therefore, to the same point, only by a different road. We have, after all, only a new or more perfect effect of a well-known chemical agent, operating through one of the ordinary functions of animal life.

"It is curious and instructive to observe the perpetual struggle in the specification to draw from the surgical operation some support to the patent beyond that of its utility. 'We are fully aware,' says the paragraph immediately preceding the claim, 'that narcotics have been administered to patients undergoing surgical operations, and, as we believe, always by introducing them into the *stomach*. This we consider in no respect to embody our invention, as we operate through the *lungs* and *air passages*.' An examination of this single passage in the specification will demonstrate the impossibility of sustaining this patent on any grounds known to the law. Now, suppose these agents had been fluids instead of elastic vapors, and their effect had been known, when taken into the stomach, to be the same as that now long known to have resulted from their inhalation, namely, a state of partial intoxication,

would the discovery that an increased quantity of the fluid produced a more perfect effect, by rendering intoxication complete, accompanied by total insensibility to pain, have rendered the discovery patentable? We think clearly not. In this view of the subject, we here lay out of the case the application of the new effect to surgical operations. We will allude to that again in a moment. Now a precisely parallel case is presented, by the actual facts before us, to the one just supposed. The inhalation of the ethers had long been known. By increasing their quantity it was discovered that a new or more complete effect was produced, by which the subject was rendered wholly insensible. This can be no more patentable than the discovery that the increased quantity of liquor, taken into the stomach, would produce a like result. In both cases there is only a naked discovery of a new effect, resulting from a well-known agent, working by a well-known process. This effect is a temporary suspension of sensibility and motion in the animal body. What is new in the alleged invention begins and ends here. The fact that the surgeon can operate upon the body in the condition to which it is thus reduced forms no part of the invention or discovery. It simply furnishes evidence that it can be applied to at least one useful purpose; a fact quite independent of the other elements necessary to make a discovery patentable.

"Before dismissing this case, it may not be amiss to speak of the character of the discovery upon which the patent is founded. Its value in securing insensibility during the surgical operation, and thus saving the patient from sharp anguish while it is proceeding, and mitigating the shock to his system, which would otherwise be much greater, was proved on the trial by distinguished surgeons of the city of New York. They agreed in ranking it among the great discoveries of modern times; and one of them remarked that its value was too great to be estimated in dollars and cents. Its universal use, too, concurs to the same point. Its discoverer is entitled to be classed among the greatest benefactors of mankind. But the beneficent and imposing character of the discovery cannot change the legal principles upon which the law of patents is founded, nor abrogate the rules by which judicial construction must be governed. These principles and rules are fixed, and uninfluenced by shades and degrees of comparative merit. They secure to the inventor a monopoly in the manufacture, use, and sale of very humble contrivances, of limited usefulness, the fruits of indifferent skill and trifling ingenuity, as well as those grander products of his genius which confer renown on himself, and extensive and lasting benefits on society. But they are inadequate to the protection of every discovery, by securing its exclusive control to the explorer to whose eye it may be first disclosed. A discovery may be

brilliant and useful, and not patentable. No matter through what long, solitary vigils, or by what importunate efforts, the secret may have been wrung from the bosom of nature, or to what useful purpose it may be applied. Something more is necessary. The new force or principle brought to light must be embodied and set to work, and can be patented only in connection or combination with the means by which, or the medium through which, it operates. Neither the natural functions of an animal upon which or through which it may be designed to operate, nor any of the useful purposes to which it may be applied, can form any essential parts of the combination, however they may illustrate and establish its usefulness."

MITCHELL *v.* TILGHMAN, 19 WALL. 287 (1873).

TILGHMAN *v.* PROCTOR, 102 U. S. 707 (1880).

We have stated already the decisions in these two cases, and we have quoted from the exposition of the law made by the court in the second of them.[1] The patent in question was that of Tilghman, dated Oct. 3, 1854, numbered 11,766, afterward extended.

Tilghman discovered that fat might be separated into its component parts, free fat acids and glycerine, by subjecting it in a close vessel to the action of highly heated water under a pressure sufficient to prevent conversion of the water into steam. He claimed: —

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

And he described an apparatus for the purpose.

The chemical operation is as follows: The fat acids —oleate, margarate, and stearate— and the glycerine are in the original fat chemically combined with the oxide of glyceryl as an acidifying base. A high temperature will decompose the fat, but the acids and glycerine cannot be obtained without the presence of water or its equivalent to supply the place of oxide of glyceryl. Water oxidizes the olein, the margarine, and the stearine, and hydrates the glyceryl. It was known before Tilghman's discovery that heat would decompose fat, and that the presence of water was necessary in order that the acids and the glycerine might be

[1] Pages 548–554, *ante*.

obtained; but it was not known that the separation and combination above described could be effected by the action of highly heated water under great pressure.

Before Tilghman's discovery the fat acids and glycerine had been obtained by either of two methods: one a process of lime saponification, the other of distillation. These processes bore no resemblance to the process of Tilghman, and they were less efficient and more costly than it.

In the Mitchell case the court held that Tilghman had not discovered the action of highly heated water, which was the gist of his process, and therefore they restricted his patent to the apparatus described by him. In the case against Proctor they said: —

"On further reflection, we are of opinion that in the case referred to sufficient consideration was not given to the fact that the patent is for a process, and not for any specific mechanism for carrying such process into effect. . . . Tilghman's discovery . . . was in brief this: That the fat acids can be separated from glycerine without injury to the latter by the single and simple process of subjecting the neutral fat, whilst in intimate mixture with water, to a high degree of heat, under sufficient pressure to prevent the water from being converted into steam without the employment of any alkali or sulphuric acid or other saponifying agent; the operation even with the most solid fats being capable of completion in a very few minutes when the heat applied is equal to that of melting lead, or 612° Fah., but requiring several hours when it is as low as 350° or 400° Fah. *The only conditions are a constant and intimate commixture of the fat with the water, a high degree of heat, and a pressure sufficiently powerful to resist the conversion of the water into steam.* The result is a decomposition of the fatty body into its elements of glycerine and fat acids, each element taking up the requisite equivalent of water essential to its separate existence, and the glycerine in solution separating itself from the fat acids by settling to the bottom when the mixed products are allowed to stand and cool. In this process a chemical change takes place in the fat, in consequence of the presence of the water and the active influence of the heat and pressure upon the mixture."

The court held, therefore, in the case against Proctor, that he had infringed the patent, inasmuch as his process fulfilled the conditions stated in the passage italicized in the above quotation, although Proctor's process differed from that of Tilghman in the following particulars: The apparatus used; the manner of mixing

the fat and water; the manner of applying the heat; the degree of heat and pressure employed; the addition to the mixture by Proctor of a small quantity of lime. In regard to this last difference, the court said: —

"Even if the saponifying process partly takes place, they [defendants] use Tilghman's process for effecting the balance of the operation."

CROWELL *v.* HARLOW, 1 FED. REP. 140.

D. OF MASS., 1880. LOWELL, J.

John Atwood's patent, No. 90,334, dated May 25, 1869, for an improved process of curing and putting up fish.

He declared in his specification that the cause of the disagreeable odor of fish cured in the ordinary way was the mucous membrane between the skin and the flesh, which, when dried and afterward moistened, became slimy and offensive. His new method was thus described: —

"When the fish is fresh, I take out the principal bones and fins, the fish remaining whole or split in halves. When partially dried and cured with salt, I remove the skin, and with it the entire mucous membrane, the cause of the offensive odor of salt fish. I then pack in light wood boxes of convenient size. . . ."

He claimed: —

"The method or process for curing and putting up fish substantially as described."

The statements of the patentee as to the existence of the membrane (by others called an inner skin or film), and its effect in causing the offensive odor of cured fish, were proved to be true. It was also shown that the membrane was not removed by the ordinary process of skinning. It was not denied that the patentee was the first to make the discovery upon which his process was based; and the court held that it was patentable.

"... It would not be invention to salt a fish more or less thoroughly. But a patent might properly be granted for curing fish with a substance which had never before been used for any similar purpose, and which would effect the old result of curing the fish in a better or

cheaper way, of which last fact the infringement would be sufficient. I am unable to distinguish between adding and taking away, if the result is to improve the art." [1]

AMERICAN BELL TELEPHONE CO. *v.* SPENCER, 8 FED. REP. 509.

D. OF MASS., 1881. LOWELL, J.

Lowell, J.: —

"The bill alleges an infringement of two patents granted to Alexander Graham Bell. The defendants admit that they have infringed some valid claims of the second patent, but the plaintiffs are not content with this admission; they rely besides upon the fifth claim of the first patent, which is much more comprehensive in its scope.

"Patent No. 174,465, issued to Bell, dated March 7, 1876, is entitled 'improvement in telegraphy,' and is said in the specification to consist in 'the employment of a vibratory or undulatory current of electricity in contradistinction to a merely intermittent or pulsatory current, and of a method of and apparatus for producing electrical undulations upon the line wire.' The patentee mentions several advantages which may be derived by the use of this undulatory current, instead of the intermittent current, which continually makes and breaks contact, in its application to multiple telegraphy, that is, sending several messages, or strains of music, at once over the same wire; and the possibility of conveying sounds other than musical notes. This latter application is not the most prominent in the specification; though, as often happens, it has proved to be of surpassing value. This part of the invention is shown in figure 7 of the drawings, and is thus described in the text: —

"'The armature, *c*, Fig. 7, is fastened loosely by one extremity to the uncovered leg, *d*, of the electro-magnet, *b*, and its other extremity is attached to the centre of a stretched membrane, *a*. A cone, A, is used to convey sound vibrations upon the membrane. When a sound is uttered in the cone, the membrane, *a*, is set in vibration, the armature, *c*, is forced to partake of the motion, and thus electrical undulations are created upon the circuit, *E*, *b*, *c*, *f*, *g*. These undulations are similar in form to the air vibrations caused by the sound; that is, they are represented graphically by similar curves. The undulatory current passing through the electro-magnet, *f*, influences its

[1] *Vide ante*, page 533.

armature, *h*, to copy the motions of the armature, *c*. A similar sound to that uttered in A is then heard to proceed from L.'

"With the figure 7 before us, this description is readily understood. A cone of pasteboard, or other suitable material, has a membrane stretched over its smaller end; at a little distance is a piece of iron magnetized by a coil through which is passing a current of electricity. When sounds are made at the mouth of cone, A, the membrane vibrates like the drum of a human ear; and the armature, which is directly in front of the magnet, vibrates with the membrane, and its movements cause pulsations of electricity, like those of the air which excited the membrane, to pass over the wire; and the wire stretches to another similar magnet and cone with its membrane and armature. The second armature and membrane take up the vibrations and make them audible by repeating them into the condensing cone, L, which translates them into vibrations of the air.

"The defendants insist that the instrument represented in figure 7 will not transmit articulate speech; that this great result has been reached by Mr. Bell entirely through the improvements described in his second patent, such as the substitution of a metal plate for the stretched membrane, and some others.

"The importance of the point is, that if Bell, who is admitted in this case to be the original and first inventor of any mode of transmitting speech, had not completed his method, and put it into a working form when he took his first patent, he may lose the benefit of his invention; because, in his second patent, he makes no broad claim to the method or process, but only to the improvements upon a process assumed to have been sufficiently described in his first patent.

"There is some evidence that Bell's experiments with the instrument, described in figure 7, before he took out his patent, were not entirely successful; but this is now immaterial; for it is proved that the instrument will do the work, whether the inventor knew it or not, and in the mode pointed out by the specification.

"The fifth claim of this patent is for 'the method and apparatus for transmitting vocal or other sounds telegraphically, by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds, substantially as set forth.'

"The defendants use a method and apparatus for transmitting vocal sounds, which resemble those of the plaintiffs in producing electrical undulations copied from the vibrations of a diaphragm, and sending them along a wire to a similar receiver at the other end. The specific method of producing the electrical undulations is different. It is made on the principle of the microphone, which has been very much improved since the date of the first Bell patent.

"If the Bell patent were for a mere arrangement or combination of old devices, to produce a somewhat better result in a known art, then, no doubt, a person who substituted a new element not known at the date of the patent might escape the charge of infringement. But Bell discovered a new art, — that of transmitting speech by electricity, — and has a right to hold the broadest claim for it which can be permitted in any case; not to the abstract right of sending sounds by telegraph, without any regard to means, but to all means and processes which he has both invented and claimed.

"The invention is nothing less than the transfer to a wire of electrical vibrations like those which a sound has produced in the air. The claim is not so broad as the invention. It was, undoubtedly, drawn somewhat carefully in view of the decision in O'Reilly *v.* Morse, 15 How. 62, and covers the method and apparatus, that is, any process and any apparatus of substantially similar character to those described. The patent points out distinctly that the undulations may be produced in other modes besides the vibration of an armature in front of a magnet; and the defendants make use of a mode not wholly unknown at that time, though much improved, in creating their undulations.

"It seems to me that the defendants use both the method and the apparatus of Bell. The essential elements of the method are the production of what the patent calls undulatory vibrations of electricity to correspond with those of the air, and transmitting them to a receiving instrument capable of echoing them. Granting that the defendants' instrument for converting the vibrations of the diaphragm into vibrations of electricity is an improvement upon that of the plaintiff's, still it does the same sort of work, and does it in a mode not wholly unknown at the date of the patent; though I do not consider that material.

"An apparatus made by Reis, of Germany, in 1860, and described in several publications before 1876, is relied on to limit the scope of Bell's invention. Reis appears to have been a man of learning and ingenuity. He used a membrane and electrodes for transmitting sounds, and his apparatus was well known to curious inquirers. The regret of all its admirers was, that articulate speech could not be sent and received by it. The deficiency was inherent in the principle of the machine. It can transmit electrical waves along a wire, under very favorable circumstances, not in the mode intended by the inventor, but one suggested by Bell's discovery; but it cannot transmute them into articulate sounds at the other end, because it is constructed on a false theory, and the delicacy of use required to make it perform part of the operation is fatal to its possible performance of the other part. A Bell receiver must be used to gather up the sound before the instrument can

even now be adapted to a limited practical use. It was like those deaf and dumb pupils of Professor Bell, who could be taught to speak, but not to hear. That was all, but it was enough. A century of Reis would never have produced a speaking telephone by mere improvement in construction.

"I am of opinion that the fifth claim of patent No. 174,465 is valid, and has been infringed.

"The statute declares that if a patentee has claimed too much in any part of his patent he shall not recover costs, and it has been argued that certain claims of these patents, not relied on by the plaintiffs, are too broad. In this stage of the case the question of costs does not arise; but I may as well say, that there is not sufficient evidence in the record to enable me to find whether these claims are valid or not; and that the statute does not mean that claims not in issue should be contested for the mere purpose of settling the costs. More expense might be incurred in such a mode of trial than depended upon the main issue." Decree for the complainants.

AMERICAN BELL TELEPHONE CO. *v.* DOLBEAR, 15 FED. REP. — :

D. OF MASS., 1383. GRAY AND LOWELL, JJ.

Gray, J.:—

"Few legal rules have been oftener misunderstood and misapplied than the maxim that you cannot patent a principle. But the confusion on this subject has been so effectually cleared up by the recent judgment of the Supreme Court, delivered by Mr. Justice Bradley, in Tilghman *v.* Proctor, 102 U. S. 707, that it will be sufficient for the purposes of this case to state the conclusions there announced.

"There can be no patent for a mere principle. The discoverer of a natural force or a scientific fact cannot have a patent for that. But if he invents for the first time a process by which a certain effect of one of the forces of nature is made useful to mankind, and fully describes and claims that process, and also describes a mode or apparatus by which it may be usefully applied, he is, within the meaning, and the very words, of the patent law, 'a person who has invented or discovered any new and useful art;' and he is entitled to a patent for the process of which he is the first inventor, and is not restricted to the particular form of mechanism or apparatus by which he carries out that process. Another person, who afterwards invents an improved form of apparatus, embodying the same process, may indeed obtain

a patent for his improvement, but he has no right to use the process, in his own or any other form of apparatus, without the consent of the first inventor of the process.

"It was decided by this court in American Bell Telephone Co. *v.* Spencer, 8 Fed. Rep. 509, and is not denied by the present defendant, that Bell is the first inventor of a speaking telephone. The only controversy is of the extent of his patent. . . .

"His fifth and final claim is of 'the method of and apparatus for transmitting vocal or other sounds telegraphically, as herein described, by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds, substantially as set forth.'

"In this claim, as throughout the specification, the word 'method' is evidently used, not as synonymous with 'mode' or 'apparatus,' but as equivalent to 'process;' just as it was used by Chief Justice Taney, delivering the judgment of the majority of the court, in Morse *v.* O'Reilly, 15 How. 62, 117, as well as by Mr. Justice Grier (who dissented in Morse *v.* O'Reilly), in delivering the unanimous judgment in Corning *v.* Burden, 15 How. 252, 267. And the invention claimed is not merely the apparatus described, but also the general process or method, by which the wind, or a musical instrument, or the human voice, produces in a current of electricity a succession of electrical disturbances, not sudden and intermittent or pulsatory, but gradual, oscillatory, vibratory, or undulatory, so as to give out at the farther end of the conducting wire sounds exactly corresponding in loudness, in pitch, and in tone, character, or quality, to the sounds committed to it at the nearer end.

"The opinion in Spencer's case clearly points out that 'Bell discovered a new art, — that of transmitting speech by electricity, — and has a right to hold the broadest claim for it which can be permitted in any case,' and 'the invention is nothing less than the transfer to a wire of electrical vibrations like those which a sound has produced in the air;' and that his patent, while not covering the abstract principle, without regard to means, of transmitting speech by electricity, yet is not limited to a particular form of apparatus, but includes the process or method (using the two words as equivalent), the essential elements of which are 'the production of what the patent calls undulatory vibrations of electricity to correspond with those of the air, and transmitting them to a receiving instrument capable of echoing them.'

"The evidence in this case clearly shows that Bell discovered that articulate sounds could be transmitted by undulatory vibrations of electricity, and invented the art or process of transmitting such sounds by means of such vibrations. If that art or process is (as the witnesses

called by the defendants say it is) the only way by which speech can be transmitted by electricity, that fact does not lessen the merit of his invention, or the protection which the law will give to it.

"The mode or apparatus by which Bell effects his purpose is, by using an electro-magnet in the transmitter, and another electro-magnet in the receiver. But the essence of his invention consists not merely in the form of apparatus which he uses, but in the general process or method of which that apparatus is the embodiment.

"Dolbear likewise uses an electro-magnet in the transmitter; and both his method and his apparatus, as is admitted in his own affidavit, are substantially like Bell's, until he comes to the receiver. For the magneto-receiver, Dolbear substitutes a condenser-receiver, consisting of two thin metal diaphragms or discs, of about the size and thickness of those used in an ordinary Bell telephone, separated by a very thin air space, one or both discs connected with the conducting wire, and the speaking disc, if not so connected, otherwise charged with electricity; so that, as the varying currents flow into and out of this condenser, the two discs attract one another more or less strongly, and thereby vibrations are set up which correspond to the vibrations of the original sound.

"The main difference on which the defendants rely is, that Bell uses what is called dynamic electricity, producing by its motion an electric current; while Dolbear, in his receiver, uses what is called static electricity, producing, while at rest, electrical attraction. And the learned counsel for the defendants illustrate the distinction thus: 'It was known, long before Bell's method, that electricity had two properties, very much as water has two properties, — namely, first, pressure or head, or that property which tends to make it flow, and which can exist by itself only in the case of an insulated and charged body, or a reservoir of water; and, secondly, that dynamic property arising from its motion, and which never can exist by itself, but depends upon the quantity in motion and the rate of motion. This is not an absolutely exact way of expressing it, for the reason that electricity is not a fluid; but, were it a fluid, the statement would be entirely exact.'

"It does not appear to us to be important to determine whether, in scientific exactness, the varying influences of static electricity may properly be called currents; or whether the two properties of electricity differ in kind and in substance, or only in degree, or in the form of manifestation and application; or whether the force of the property which tends to make a fluid, when stationary, change its place and flow, is different in kind from that which it exerts, when changing its place and flowing, — in short, whether the power of the pressure of water in a reservoir is different in kind from water power in a stream or current.

"Whatever name be given to the property, or the manifestation, of the electricity in the defendants' receiver, the facts remain that they avail themselves of Bell's discovery that undulatory vibrations of electricity can intelligibly and accurately transmit articulate speech, as well as of the process which Bell invented, and by which he reduced his discovery to practical use; that they also copy the mode and apparatus by which he creates and transmits the undulatory electrical vibrations, corresponding to those of the air; and that in the plate charged with electricity, which they have substituted for the magnetic coil in the receiver, the charge constantly varies in accordance with the principle which Bell discovered, and by means of the undulatory current caused by the process and in the mode which he invented and patented.

"The defendants have therefore infringed Bell's patent by using his general process or method, and should be restrained by injunction from continuing to do so; and it is unnecessary, for the purposes of this decision, to consider whether the defendants' apparatus is a substantial equivalent of the plaintiff's, or whether it is an improvement for which Dolbear might himself be entitled to a patent." Temporary injunction ordered.

See also —

SMITH *v.* ELY, 5 McLean, p. 91.

ENGLISH CASES.

BOULTON *v.* BULL, 2 H. BL. 463.

COMMON PLEAS, 1795.

J. Watt's patent of Jan. 5, 1769, No. 913, for a "new invented method of lessening the consumption of steam and fuel in fire [steam] engines."

Before this invention the practice had been to admit into the cylinder steam and cold water alternately, and a great waste of fuel was the result.

The idea of Watt's invention was to condense the steam in a separate vessel, and to keep the cylinder as hot as the steam which entered it.

The specification: —

"My method of lessening the consumption of steam, and consequently fuel, in fire-engines, *consists in the following principles: First.*

That vessel in which the powers of steam are to be employed to work the engine, which is called the cylinder in common fire-engines, and which I call the steam vessel, must, during the whole time the engine is at work, be kept as hot as the steam that enters it: (1) By enclosing it in a case of wood or other materials that transmit heat slowly; (2) by surrounding it with steam or other heated bodies; (3) by suffering neither water nor any other substance colder than steam to enter or touch it during that time.

"*Secondly*. In those engines that are to be worked wholly or partially by condensation of steam, the steam is to be condensed in vessels distinct from the cylinders, though occasionally communicating with them. These vessels I call *condensers;* and whilst the engines are working they ought to be kept as cool as the air in the neighborhood by the application of water or other cold bodies.

"*Thirdly*. Whatever air or other elastic vapor is not condensed by the cold of the condenser, and may impede the working of the engine, is to be drawn out of the steam vessels or condensers by means of pumps wrought by the engines themselves, or otherwise."

A jury had found that the specifications were sufficient. The main objection to the patent was that it claimed a principle. The court was divided, and no judgment was given. Eyre, C. J., and Rooke, J., were for the patent. Heath and Buller, JJ., were against it.

Heath and Buller, JJ., held that methods are not patentable; that "vendible substances" only are patentable.

Heath, J., also said: —

"Another objection may be urged against the patent, upon the application of the principle to an old machine, which is, that whatever machinery may be hereafter invented would be an infringement of the patent if it be founded upon the same principle. If this were so, it would reverse the clearest positions of law respecting patents for machinery, by which it has been always holden that the organization of a machine may be the subject of a patent, but principles cannot. If the argument for the patentee were correct, it would follow that where a patent was obtained for the principle, the organization would be of no consequence. Therefore the patent for the application of the principle must be as bad as for the principle itself."

Eyre, C. J., held that *methods* were patentable, though all the means employed might be old; and he instanced Hartley's invention for making buildings fire-proof by a certain disposition

of iron plates forming the walls of them. Such plates were old, he said, and the patent could not be for the "*effect*" produced, because that was "merely negative," — namely, the absence of fire; therefore the patent in that case was for the method. He continued: —

"Undoubtedly, there can be no patent for a mere principle, but for a principle so far embodied and connected with corporeal substances as to be *in a condition to act* and *to produce effects* in any art, trade, mystery, or manual occupation, I think there may be a patent. Now, this is, in my judgment, the thing for which the patent stated in the case was granted, and this is what the specification describes, though it *miscalls it a principle*. It is not that the patentee has conceived an abstract notion that the consumption of steam in fire-engines may be lessened, but he has discovered a *practical manner* of doing it. . . . Surely this is a very different thing from taking a patent for a principle; it is *not for a principle*, but *for a process*. . . . The substance of the invention is a discovery that the condensing the steam out of the cylinder, the 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 the heat within it, and keep your piston air-tight without water.'"

He then goes on to say that the particular manner of doing this hardly needed to be pointed out; but the patentee in his specification had described the manner sufficiently, as the jury found, for the ordinary workman to follow it: —

". . . Some machinery, it is true, must be employed; but the machinery is not of the essence of the invention, but incidental to it. The steam must pass from the cylinder to the condensing vessel; for which purpose there must be a valve to open a pipe to convey, and a vessel to receive the steam. But this cannot be called new invented machinery, whether considered in the parts or in the whole; and therefore there can be no patent for this addition to the fire-engines."

Upon motion, Lord Loughborough, L. C., directed another action at law; which brings us to

HORNBLOWER *v.* BOULTON, 8 TERM R. 95.

KING'S BENCH, 1799.

The patent was sustained, no judge dissenting.

Kenyon, C. J.: —

". . . By comparing the patent and the manufacture together, it evidently appears that the patentee claims a monopoly for an engine or machine, composed of material parts, which are to produce the effect described, and that the mode of producing this is so described as to enable mechanics to produce it. Having said thus much, it appears that the subject, as far as we have to treat it, is exhausted. . . . I have no doubt in saying that this is a patent for a manufacture, which I understand to be something made by the hands of man."

MINTER *v.* WELLS, 5 TYR. 163; 1 WEB. P. C. 134.

COURT OF EXCHEQUER, 1834.

The claim was: —

"My invention is 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 of such chair, as above described."

The following discussion between court and counsel is instructive on the subject of this chapter: —

"Godson . . . moved for a nonsuit, on the ground that the specification is for a principle, the plaintiff having summed up the whole of his patent in his claim to the principle, and not to any particular means. Either the plaintiff claims a principle, or he does not; to the former he is not entitled, and as to the latter, the defendant has not used the mechanical means of the plaintiff. [Lord Lyndhurst, C. B.: He says, 'What I claim as my invention is 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 of such chair, as above described.' This is what he claims, — a self-adjusting leverage acting in that way. Then he points out the particular mode in which that is effected. The question, therefore, is whether you have infringed

that particular method.] [Alderson, B.: All the witnesses proved that there never had been a self-adjusting leverage in a chair before.] That I admit, and contend that this case is nearly the same as K. *v.* Cutler.[1] [Lord Lyndhurst, C. B.: He says, 'I claim the application of a self-adjusting leverage to the back and seat of a chair,' so as to produce such an effect.] Yes, my Lord, that effect being nothing more than the motion of a lever backwards and forwards, producing such an effect. [Lord Lyndhurst, C. B.: It is the application of a self-adjusting leverage to the back and seat of a chair, he having described what that self-adjusting leverage was before. Any application of a self-adjusting leverage to the back and seat of a chair producing this effect, that the one acts as a counterbalance to the pressure against the other, would be an infringement of this patent, but nothing short of that.] [Alderson, B.: The difference between this chair and all others, as it appeared in evidence, was very well described by Mr. Brunton; he says, This chair acts (looking at the one you produced), this chair acts, but not by a self-adjusting leverage. By pressing on the back the seat rises, and, *vice versa*, by pressing on the seat the back rises; that is what he calls a self-adjusting leverage. In the other case, you might sit for ever and the back would never rise.] The plaintiff, by his specification, has appropriated to himself a first principle in mechanics, namely, the lever, and therefore nobody else may use it. [Lord Lyndhurst, C. B.: It is not a leverage only, but the application of a self-adjusting leverage; and it is not a self-adjusting leverage only, but it is a self-adjusting leverage producing a particular effect, by the means of which the weight on the seat counterbalances the pressure against the back.] This is nothing more than one of the first principles of mechanics. [Parke, B.: But that not being in combination before, can that not be patented? It is only for the application of a self-adjusting leverage to a chair, — cannot he patent that? He claims the combination of the two, no matter in what shapes or way you combine them; but if you combine the self-adjusting leverage, which he thus applies to the subject of a chair, that is an infringement of his patent.] What is the combination? [Lord Lyndhurst, C. B.: Why, the application of a self-adjusting leverage producing the effect constitutes the machine, and he claims that machine, and the right to make that machine, by the application of a self-adjusting leverage producing a particular effect. He says, I do not confine myself to the particular shape of this lever.] If your Lordships translate this to mean machine, of course I have no further argument to urge. [Lord Lyndhurst, C. B.: It is every machine consisting of a self-adjusting leverage producing that particular effect in a chair.]

[1] 1 Stark. 354.

That is the extent to which I am putting it. If your Lordships say you can, in favor of the patentee, so read it that it is the machine and the combination only that the plaintiff has claimed, then I should be wasting your Lordships' time if I argued the matter further. [Lord Lyndhurst, C. B.: Substantially that combination.] [Parke, B.: Therefore a chair made upon that principle which you have directed to be constructed here would be an infringement of his patent; that is, the application of a self-adjusting leverage to a chair, such a one as you have produced here to-day.] [Lord Lyndhurst, C. B.: It has the particular effect.]

There was a subsequent case,

MINTER *v.* MOWER, 1 WEB. P. C. 138,

COR. LORD DENMAN, C. J., 1835,

where the defence set up a chair made by one of the defendant's workmen some years before the plaintiff's invention, which the court thus described: —

"A chair is made by Mr. Mower's workman in 1829; that chair has the principle of the reclining back to a certain extent raising the seat in front; it is connected with what is called a rack below, which makes it necessary that a spring should be touched in front to detach it from the catch of the rack; that is the first thing necessary to its going back; and in order to its coming forward, it is necessary the party should extend his hand and take hold of the pad, and should draw himself to a certain degree forward. All the witnesses concur in that to a certain degree. Mr. Newton says, without that pad the self-adjusting leverage would have operated in this chair; but it certainly does not appear that that leverage was so applied to it, or that any chair was ever made without some additional matter which prevented the self-adjusting leverage from having that operation. . . . Now, the questions that I have to leave to you are: Would it have been a chair with a self-adjusting leverage, if those encumbrances had been away? Did those encumbrances prevent its being so, and was this principle of self-adjusting leverage discovered at the time that chair was made, or is it entirely a new discovery made by the plaintiff?"

"The jury found as follows:[1] That the chair made by Brown would have acted so as to produce the equilibrium by a self-adjusting leverage, if the spring and the other things had not been attached to the chair, that is, if it had not been for the encumbering of bad machinery. That

[1] We quote from the report.

Mr. Brown was the inventor, but that Mr. Brown was ignorant of the practical use it might be turned to, and that Mr. Minter was the author of the practical purposes of the thing, although Mr. Brown was the original inventor, but was ignorant of the principle of the machine; in fact, that the other machinery attached to Brown's chair prevented the self-adjusting leverage from producing equilibrium."

"The learned judge directed a verdict for the plaintiff, with liberty for the defendant to move to enter a nonsuit.

"In the ensuing term, Talfourd, Serj., obtained a rule for a nonsuit, on the ground that the finding of the jury showed the plaintiff's invention to be an improvement on the application of the principle of the self-adjusting leverage, whereas the specification claims every application of the self-adjusting leverage."

And the court so held.[1] Lord Denman, C. J., delivering their opinion, remarked: —

". . . The specification thus concludes: 'What I claim as my invention is 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 of such chair, as above described.' Now it was perfectly clear, upon the evidence, that this description applies to Brown's chair, though that was encumbered with some additional machinery. The specification, therefore, claimed more than the plaintiff had invented, and would have actually precluded Brown from continuing to make the same chair that he had made before the patentee's discovery. We are far from thinking that the patentee might not have established his title by showing that a part of Brown's chair could have effected that for which the whole was designed. But his claim is not for an improvement upon Brown's leverage, but for a leverage so described that the description comprehended Brown's. We are therefore of opinion that the patent cannot be sustained, and a nonsuit must be entered."

JUPE *v.* PRATT, 1 Web. P. C. 145.

Court of Exchequer, 1837.

Robert Jupe's patent for "an improved expanding table."

The specification said: —

". . . My invention of an improved expanding table consists in constructing the same so that the sections (*a a*) of which the original

[1] 6 A. & E. 135.

or unexpanded table is composed may diverge from a common centre, and the table be enlarged or expanded by inserting leaves or pieces in the openings or spaces caused by the divergence, as hereinbefore described."

The patentee described tables of various shapes expanded according to his method; and he included in his patent all tables, of whatever shape,

" provided the property of expanding the surface of the original table, by causing the sections to diverge from a common centre, be retained, and the table be enlarged or expanded by inserting leaves or filling pieces in the spaces caused by such divergence, in the manner hereinafter mentioned."

The point that this patent claimed a principle was raised and discussed, but never passed upon; the Court of Exchequer (where the motion for a new trial was argued, the jury having found a verdict for the plaintiffs) holding that this question was not raised by the pleadings.

The learned judges, however, let fall some valuable remarks, not on the whole favorable to the patent.

Alderson, B., said: —

" The difficulty which will press on you, and to which your attention will be called in the present case, is this: You cannot take out a patent for a principle; you may taken 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 the jury as piracy of your original invention.

" But then the difficulty that will press on you here is, that on the evidence there does not appear to have been any mode of carrying the principle into effect at all invented by you."

Neilson's Case.

NEILSON *v.* HARFORD, 8 M. & W. 806; 1 WEB. P. C. 295.

COURT OF EXCHEQUER, 1841.

J. B. Neilson's patent, dated Sept. 11, 1828.[1]

Before the time of Neilson, furnaces for the smelting of iron were worked by a cold-air blast. The cold blast was supposed to be superior to a hot blast, because the fires had been observed to burn better in winter than in summer. In reality, however,

[1] We copy the specification in full (Web. p. 273): —

"I, the said James Beaumont Neilson, do hereby declare that the nature of my said invention for the improved application of air to produce heat in fires, forges, and furnaces, where bellows or other blowing apparatus are required, and the manner in which the same is to be performed, is particularly described and ascertained as follows: that is to say, a blast or current of air must be produced by bellows or other blowing apparatus in the ordinary way, to which mode of producing the blast or current of air this patent is not intended to extend.

"The blast or current of air so produced is to be passed from the bellows or blowing apparatus into an air vessel or receptacle made sufficiently strong to endure the blast, and through or from that vessel or receptacle, by means of a tube-pipe or aperture, into the fire, forge, or furnace. The air vessel or receptacle must be air-tight, or nearly so, except the apertures for the admission and emission of the air; and, at the commencement and during the continuance of the blast, it must be kept artificially heated to a considerable temperature.

"It is better that the temperature be kept to a red heat, or nearly so, but so high a temperature is not absolutely necessary to produce a beneficial effect.

"The air vessel or receptacle may be conveniently made of iron; but as the effect does not depend upon the nature of the material, other metals or convenient materials may be used.

"The size of the air vessel must depend upon the blast and on the heat necessary to be produced. For an ordinary smith's fire or forge, an air vessel or receptacle capable of containing 1,200 cubic inches will be of proper dimensions; and for a cupola of the usual size for cast-iron founders, an air vessel capable of containing 10,000 cubic inches will be of a proper size. For fires, forges, or furnaces upon a greater scale, such as blast-furnaces for smelting iron and large cast-iron founder's cupolas, air vessels of proportionably increased dimensions and numbers are to be employed.

"The form or shape of the vessel or receptacle is immaterial to the effect, and may be adapted to the local circumstances or situation. The air vessel may generally be conveniently heated by a fire distinct from the fire to be affected by the blast or current of air, and generally it will be better that the air vessel and the fire by which it is heated should be enclosed in brickwork or masonry, through which the pipes or tubes connected with the air vessel should pass. The manner of applying the heat to the air vessel is, however, immaterial to the effect, if it be kept at a proper temperature."

the fires burned better in winter because the air is drier then, not because it is colder. Neilson discovered this fact. He discovered that the use of a hot blast in smelting iron greatly improves the quality and diminishes the cost of the article produced. He described an apparatus for the use of the hot blast, which consisted chiefly in the interposition of a heated receptacle between the air blast and the furnace. He gave directions as to the size of the receptacle, the degree of heat, &c.; and he added: —

"The form or shape of the vessel or receptacle is immaterial to the effect, and may be adapted to the local circumstances or situation."

This last statement, if construed to mean immaterial to the *extent* of effect, was untrue and misleading; for it appeared at the trial that the shape of the receptacle was material to the extent of the effect produced. The patentee used a chamber, but the defendants' receptacle was a series of horizontal and vertical pipes or coils; and this receptacle was much more effective than the plaintiff's.

The patent came before Parke, B., and a jury.

Baron Parke's own opinion was that the stricter construction of the patent was the true one. However, he put two questions to the jury. First, Was a person of ordinary skill in the business likely to be misled by the statement quoted? second, Would such a person, from the specification alone, be able to construct an apparatus productive of some benefit?

The jury answered the first question in the negative; the second, in the affirmative.

The case then came before the Court of Exchequer, the verdict to be entered according to the construction the court should give to the patent.

The court held, with some hesitation, that Baron Parke's construction of the patent was incorrect; that the word "effect," in the passage of the specification which we have quoted, meant beneficial effect (this, they said, being the obvious meaning of the word in other parts of the specification).

Baron Parke concurred in this reversal of his construction, and he delivered the opinion of the court. On the main question, the patentability of the improvement, which had been

argued with great skill and thoroughness, he said (Web. p. 370, *ad fin.*) : —

"Then taking the construction of this specification upon ourselves, as we are bound to do, it becomes necessary to examine what the nature of the invention is which the plaintiff has disclosed by this instrument. It is very difficult to distinguish it from the specification of a patent for a principle, and this at first created in the minds of some of the court much difficulty; but after full consideration, we think that the plaintiff does not merely claim a principle, but a machine embodying a principle, and a very valuable one.

"We think the case must be considered as if, the principle being well known, the plaintiff had first invented a mode of applying it by a mechanical apparatus to furnaces; and his invention then consists in this, — by interposing a receptacle for heated air between the blowing apparatus and the furnace. In this receptacle he directs the air to be heated by the application of heat externally to the receptacle, and thus he accomplishes the object of applying the blast, which was before of cold air, in a heated state to the furnace."

Afterward Lord Chancellor Lyndhurst revived an injunction (which had been dissolved pending the trial at law), holding that the construction given to the patent by the Court of Exchequer was a reasonable one, but saying nothing further.

Later, the patent came before the House of Lords on appeal from the Scotch Court of Session, —

THE HOUSEHILL CO. *v.* NEILSON, 9 Cl. & F. 788; 1 Web. P. C. 673 (1843).

Here the case turned on a misdirection given by Lord Justice Clerk Hope to the jury in the Court of Session in regard to prior use, and a new trial was granted on that account. But his direction that the patent was valid was sustained.

Lord Campbell said (Web. p. 715) : —

"Now, in one stage of these proceedings, I certainly did entertain some doubt on that subject.[1] But after the construction put upon it by the learned judges of the Court of Exchequer, sanctioned by the high authority of my noble and learned friend now upon the woolsack, when presiding in the Court of Chancery, I think the patent must be taken to extend to all machines, of whatever construction, whereby the air

[1] His Lordship had been leading counsel for the defence at the trial before Baron Parke.

is heated intermediately between the blowing apparatus and the blast-furnace. That being so, the learned judge was perfectly justified in telling the jury that it was unnecessary for them to compare one apparatus with another, because, confessedly, that system of conduit pipes was a mode of heating air by an intermediate vessel between the blowing apparatus and the blast-furnace, and therefore it was an infraction of the patent."

The charge of which Lord Campbell thus speaks was, on the point in question, as follows (Web. p. 683) : —

"It is quite true that a patent cannot be taken out solely for an abstract philosophical principle — for instance, for any law of nature, or any property of matter, apart from any mode of turning it to account in the practical operations of manufacture, or the business and arts and utilities of life. The mere discovery of such a principle is not an invention, in the patent-law sense of the term. Stating such a principle in a patent may be a promulgation of the principle, but it is no application of the principle to any practical purpose. And without that application of the principle to a practical object and end, and without the application of it to human industry or to the purposes of human enjoyment, a person cannot in the abstract appropriate a principle to himself. But a patent will be good, though the subject of the patent consists in the discovery of a great, general, and most comprehensive principle in science or law of nature, if that principle is by the specification applied to any special purpose, so as thereby to effectuate a practical result and benefit not previously attained.

"The main merit, the most important part of the invention, may consist in the conception of the original idea, — in the discovery of the principle in science, or of the law of nature, stated in the patent; and little or no pains may have been taken in working out the best manner and mode of the application of the principle to the purpose set forth in the patent. But still, if the principle is stated to be applicable to any special purpose, so as to produce any result previously unknown, in the way and for the objects described, the patent is good. It is no longer an abstract principle. It comes to be a principle turned to account, to a practical object, and applied to a special result. It becomes, then, not an abstract principle, which means a principle considered apart from any special purpose or practical operation, but the discovery and statement of a principle for a special purpose; that is, a practical invention, a mode of carrying a principle into effect. That such is the law, if a well-known principle is applied for the first time to produce a practical result for a special purpose, has never been disputed. It would be

very strange and unjust to refuse the same legal effect, when the inventor has the additional merit of discovering the principle as well as its application to a practical object. The instant that the principle, although discovered for the first time, is stated in actual application to, and as the agent of, producing a certain specified effect, it is no longer an abstract principle, it is then clothed with the language of practical application, and receives the impress of tangible direction to the actual business of human life.

"Is it any objection, then, in the next place, to such a patent that terms descriptive of the application to a certain specified result include every mode of applying the principle or agent so as to produce that specified result, although one mode may not be described more than another, — although one mode may be infinitely better than another, — although much greater benefit would result from the application of the principle by one method than by another, — although one method may be much less expensive than another? Is it, I next inquire, an objection to the patent, that, in its application of a new principle to a certain specified result, it includes every variety of mode of applying the principle according to the general statement of the object and benefit to be attained? You will observe that the greater part of the defenders' case is truly directed to this objection. This is a question of law, and I must tell you distinctly that this generality of claim — that is, for all modes of applying the principle to the purpose specified, according to or within a general statement of the object to be attained, and of the use to be made of the agent to be so applied — is no objection whatever to the patent.

"That the application or use of the agent for the purpose specified may be carried out in a great variety of ways, only shows the beauty and simplicity and comprehensiveness of the invention. But the scientific and general utility of the proposed application of the principle, if directed to a specified purpose, is not an objection to its becoming the subject of a patent. That the proposed application may be very generally adopted in a great variety of ways, is the merit of the invention, not a legal objection to the patent.

"The defenders say, You announce a principle, that hot air will produce heat in the furnace; you direct us to take the blast without interrupting or rather without stopping it, to take the current in blast, to heat it after it leaves the blast, and to throw it hot into the furnace. But you tell us no more, — you do not tell us how we are to heat it. You say, You may heat in any way, in any sort of form of vessel. You say, I leave you to do it how you best can. But my application of the discovered principle is, that if you heat the air, and heat it after it leaves the blowing engine (for it is plain you cannot do it before),

you attain the result I state; that is the purpose to which I apply the principle.

"The benefit will be greater or less. I only say, benefit you will get. I have disclosed the principle. . . . You . . . are not under the necessity of describing and confining yourself to one form of apparatus. If that were necessary, you see, what would be the result? Why, that a patent could hardly ever be obtained for any mode of carrying a newly discovered principle into practical results, though the most valuable of all discoveries. For the best form and shape or modification of apparatus cannot, in matters of such vast range, and requiring observation on such a great scale, be attained at once; and so the thing would become known, and so the right lost, long before all the various kinds of apparatus could be tried. Hence you may generally claim the mode of carrying the principle into effect by mechanical contrivance, so that any sort of apparatus applied in the way stated will, more or less, produce the benefit; and you are not tied down to any form," &c.

Cases of discovery, but not of *principle*, in its restricted sense, are illustrated by —

MUNTZ *v.* FOSTER, *ante*, page 379.
NEWTON *v.* VAUCHER, *ante*, page 381.
GOODYEAR *v.* DAY, *post*, page 655.

Idea, Effect, Function.

In addition to the cases stated *ante*, pp. 73, 74, 75, we give the following: —

BELL *v.* DANIELS, 1 FISH. 373.

S. D. OF OHIO, 1858. LEAVITT, J., AND A JURY.

Patent for "an improvement in the mode of applying the waste heat of blast-furnaces to steam-boilers."

Quoting from the report: —

". . . The boilers stood on the stack by the side of the tunnel-head, with which they were connected by a short flue. The heat and gas passed by this flue to the end of the boiler nearest the tunnel-head, thence to the end of the boiler, thence back under the other boiler (the boilers being separated by a brick partition-wall dividing the fire-bed longitudinally), and so out through a chimney."

The claim was:—

"The arrangement of flues and their necessary appendages, by which the flame and gas escaping from the tunnel-head are applied to the boilers for the creation of steam."

The defence alleging that this was a claim for a principle, Leavitt, J., (after quoting the claim and specification) said:—

"The court has had occasion to construe this specification and claim in a former trial. In the case referred to, a motion for a new trial was fully argued, Judge McLean being present. Both judges held that the words 'arrangement of flues and their necessary appendages,' as used by the patentee, were equivalent to a combination of mechanical structures producing the result stated. It is true that a patent cannot be valid for a principle merely, but must be for the application of a principle to some practical and useful purpose; but in this case it is not claimed as a discovery that heated air applied to a boiler will make steam, but that the mode of applying the heated air of a furnace in a way to save fuel and labor has been discovered, the invention patented consisting in the contrivances by which the hot air is applied. These contrivances as described in the specification are called flues and their appendages, and consist of: 1. The mode by which the heated air passes from the top of the stack into the flues; 2. The mode of bringing the heated air in contact with the boilers, which is by means of a flue passing under one boiler and then under the other, and escaping through an outlet at the end of the boilers at which it entered; and, 3. The position or arrangement of the boilers. Neither the flues nor any of the appendages are new, but the claim is that the combination of the whole is new and useful. And there would seem to be no doubt that this is a patentable combination, including the application of principles, not separately claimed to be new, to the production of a new and useful result."

And on another point, that of double use:—

"It is insisted by the defendants that the invention is not new and original, because heated air has been before applied to other purposes.

"The test of novelty as applied to a combination seems to be whether the application of heated air, by such means and appliances as the plaintiff claims to have invented, has been before known as an agent for raising steam in boilers; for, as already stated, this is a principle of the plaintiff's invention, and the fact that heated air had been before used in a different way, and for a different purpose, would not be within this principle, and would not defeat the patent for want of novelty."

No evidence to support this last defence is reported.

The charge proceeds: —

"In this connection I remark that it is no evidence of such a prior knowledge of the invention as will defeat the patent, that other persons have made suggestions to the patentee as to the possibility of making the improvement subsequently patented. Others may have thought upon the subject, and made experiments with reference to it; but unless they accomplished the object, unless their experiments resulted in discovery, such approaches to it would be no bar to the granting of a patent to one who was successful in making the discovery and perfecting it."

The evidence which called forth this instruction is not reported. The opinion also states the familiar truth that, to be patentable, the invention need be but slightly useful, and not the most useful of its kind.

DOWNTON *v.* YAEGER MILLING CO., 1 FED. REP. 199.

E. D. OF MO., 1880. TREAT, J.

Treat, J. (orally): —

". . . To summarize, the claim of the patent[1] is specific: 'The herein-described process of manufacturing middlings flour by passing the middlings, after their discharge from a purifier, through or between rolls, and subsequently bolting and grinding the same, for the purposes set forth.' . . . Rolls at other stages of the milling process had been previously used, and even rolls by Mowbray at that particular stage. . . . No one in the then existing state of the art could by the use of any rolls known, or by any modes of operating the same, have effected the designed end. Consequently, to uphold this patent for a process which would have been ineffective without some inventions thereafter had, would be to block the path to all future progress in the art of milling. . . . I dismiss the bill, the patent being void for want of novelty and uncertainty."

[1] The name of the patentee, and the date and number of the patent are not stated.

ENGLISH CASES.

BOOTH *v.* KENNARD, 1 H. & N. 527.

EXCHEQUER CHAMBER, 1856.

Gas had been made from seeds containing oil by first pressing the oil out of the seeds, and then projecting it upon incandescent retorts.

The patentee discovered that the first process was unnecessary, and his patent for extracting gas directly from seeds, in substantially the same manner that it had been extracted from oil, was held to be valid.

After describing the process and the apparatus, the patent concluded thus: —

"I claim for making gas direct from seeds and matters herein named, for practical illuminations, or other useful purposes, instead of making it from the oils, resins, or gums previously extracted from such substances."

At a subsequent trial (Exchequer of Pleas), 2 H. & N. 84, the novelty of the patent was disproved by evidence of prior inventions.

And on the point, also taken by the defence, that the patent claimed a principle or abstract idea, the court (Pollock, C. B., delivering the opinion) said: —

"We are also of opinion that the claim is too large, and that such claim cannot be supported. It is a claim to make gas direct from seeds, — not in any mode pointed out in the specification, but generally. After the publication of Heard's specification [which described substantially the same process as the plaintiff's], no patent could be taken out for the process generally, though a patent might be taken out for a particular method of doing it. We think the plaintiff's . . . patent was not for any particular method of doing it, but for the doing of it by any method; and we think even if it had been new (which it turns out not to be), such a mode of specifying and claiming the invention cannot be sustained as a good specification."

SEED *v.* HIGGINS, 8 El. & Bl. 754.

Queen's Bench, 1858.

A claim to "the principle, or to the universal application of the principle, of centrifugal force to the flyers employed in machinery, for the purpose of producing the required elasticity or pressure on the bobbin," would not be valid; but a claim to the particular method of such application described in the patent was supported.

There was an appeal to the Court of Exchequer Chamber,

HIGGINS *v.* SEED, 8 El. & Bl. 769,

when a new trial was granted, on the ground that infringement had not been proved; but Williams, J., stated that the majority of the court were of opinion that the decision made by the Court of Queen's Bench on the point of law was correct.

Other English cases are: —

Electric Telegraph Co. *v.* Brett, 10 C. B. 838.
Crossley *v.* Potter, Macr. P. C. 240.
Ormson *v.* Clarke, 14 C. B. n. s. 475.

See also —

Sangster *v.* Miller, *ante*, page 92.
Seymour *v.* Osborne, *ante*, page 99.
Smith *v.* Frazer, *ante*, page 121.
Renwick *v.* Pond, *ante*, page 128.
Paper-Collar Co. *v.* White, *ante*, page 352.
White *v.* Allen, *post*, page 705.

And —

Blanchard *v.* Sprague, 2 Story, 164.
Burr *v.* Duryee, 1 Wall. p. 579.
Sickels *v.* Borden, 3 Blatch. 535.
Sickels *v.* The Falls Co., 4 Blatch. 508.
Hitchcock *v.* Tremaine, 8 Blatch. 440.
Union Mfg. Co. *v.* Lounsbury, 2 Fish. 389.
Smith *v.* Fay, 6 Fish. 446.
Evarts *v.* Ford, 6 Fish. 587.
Wheeler *v.* Simpson, 6 O. G. 435.
Matthews *v.* Shoneberger, 18 Blatch. 357.

CHAPTER VIII.

PRIOR KNOWLEDGE OR USE.

The Subject defined.

239. THE present chapter has to do with the limitation in section 4886, Rev. Stat., expressed by the words, "not known or used by others [1] in this country . . . before his [the inventor's] invention or discovery thereof;" [2] and the addition to or confirmation thereof contained in the fourth clause of section 4920, where it is provided that the defendant in a suit for infringement may prevail, by proving that the patentee "was not the original and first inventor or discoverer of any material and substantial part of the thing patented." Slight reference should also be made to that part of section 4886, providing that "any person who has invented or discovered any *new* and useful art," &c.[3]

According to the statute, then, first, knowledge or use of an invention must be shown to have existed prior to the time of a particular inventor's *invention* or *discovery*, in order to invalidate his patent, — it is not sufficient that it should have existed prior to the date of his patent, or of his application for a patent;[4] and, secondly, the prior knowledge or use of an invention in a foreign country, without its being "patented or described in any printed

[1] In the act of 1793 this clause was "not known or used before the application," — language which excludes knowledge and use by the very inventor, or by one who had stolen the invention. The Supreme Court, however, construed it to mean, not known or used by *the public* before the application. Pennock *v.* Dialogue, 2 Peters, 1. The words "by others" were introduced by the act of 1836; when, also, the time of the *invention* or *discovery*, instead of the time of the application, was fixed as that before which such knowledge and use must exist, in order to anticipate.

[2] The words "in this country" were not added until the year 1870.

[3] For a possible case in which the clause, "not in public use or on sale for more than two years prior to his application," would apply to use or sale by persons other than the patentee, and defeat the patent, see *post*, page 630, section 303.

[4] Klein *v.* Russell, 19 Wall. 433.

publication,"[1] is no bar to the patent of a domestic inventor *ignorant* of the foreign use.

"Proof of such foreign manufacture and use," said Mr. Justice Clifford, "if known to the applicant for a patent, may be evidence tending to show that he is not the inventor of the alleged new improvement; but it is not sufficient to supersede the patent if he did not borrow his supposed invention from that source, unless the foreign inventor obtained a patent for his improvement, or the same was described in some printed publication."[2]

240. The reader will bear in mind that prior knowledge or use is not the same as prior invention. In the case of prior knowledge or use, the question is whether a patent has been anticipated; and anticipation can be made out only by showing the prior existence of a completed and practical invention, or by proving that the patentee substantially derived his invention from some other person, or from some patent or publication. Whereas, in the other case, that of prior invention, or race of diligence as it is called, the question is, Who shall have the patent? And in this case much slighter evidence will carry back the date of an invention than will suffice to prove the existence of a prior invention. Thus, in a contest between rival inventors, the making of a drawing will be a sufficient proof of the date of conception, and the invention will relate back to the time when the drawing was made.[3] But the existence of a drawing is not such a reduction to practice as will defeat a subsequent invention on the ground of prior knowledge or use.[4]

Woodbury, J., in the case of Colt *v.* Mass. Arms Co., 1 Fish. p. 116, said:—

"Here the reliance is not on prior use; therefore it is of no consequence whether it is abandoned or not, but whether it was the prior invention. When I say "it," I mean a machine involving the same or a similar principle."

[1] Sect. 4923, Rev. Stat., provides as follows:—

"Whenever it appears that a patentee, at the time of making his application for the patent, believed himself to be the original and first inventor or discoverer of the thing patented, the same shall not be held to be void on account of the invention or discovery, or any part thereof, having been known or used in a foreign country before his invention or discovery thereof, if it had not been patented or described in a printed publication."

The clause, "patented or described in a printed publication," is considered in Chapter IX. of this book.

[2] Roemer *v.* Simon, 95 U. S. p. 218.

[3] *Vide post*, page 694.

[4] Draper *v.* Potomska Mills, 13 O. G. 276.

241. The distinction between prior knowledge or use and prior invention was not, in terms, recognized in the early cases. This appears, for instance, from the opinion in the case of Bedford *v.* Hunt,[1] decided by Judge Story. But practically the distinction was acted upon in the cases as they came up. Thus, in Reed *v.* Cutter,[2] an instance of prior invention, the rule governing cases of that sort is distinctly stated; whereas, again, in Washburn *v.* Gould,[3] a case of prior use, the doctrine properly applicable there was laid down; but in each of these cases the law of the decision was stated as if it applied to all cases of novelty, including both prior knowledge or use and prior invention. Both cases were decided by Judge Story.

242. Cases of prior knowledge or use fall into one of three classes, accordingly as it is contended that the alleged anticipation was

(1.) A mere idea or hint never embodied; or,

(2.) An experiment of no practical value; or,

(3.) Something which, though of practical value, was never communicated to the public, and has been laid aside and abandoned.

The principle which governs all questions of patentability, namely, that a benefit to the public is the consideration upon which the granting of a patent depends, is especially applicable to cases of prior knowledge or use; and it should be kept in mind as a criterion of resort when difficulties arise in considering them. We proceed to discuss them in the order indicated.

Unembodied Anticipations.

243. Of the first class, an early case,[4] decided by Judge Story, is a perfect instance, and the rule there laid down by the learned judge covers the whole ground.

One Draper had suggested to one Pierce that scythes might be fastened by applying the nut and screw to the rib or thole. Pierce laughed at the idea, but afterward carried it out; and he obtained a patent, the validity of which was contested on the ground that he had derived the idea of his invention from Draper.

[1] 1 Mason, 302.
[2] 1 Story, 590.
[3] 3 Story, 122.
[4] Alden *v.* Dewey, 1 Story, 336.

On this state of facts Judge Story instructed the jury as follows: —

"Did Draper communicate to Pierce substantially the improvement for which he took out his patent, so that, *without more inventive power*,[1] Pierce could have applied it? It was not enough that Draper gave a hint; nor, on the other hand, was it necessary that he should communicate every minute thing about the invention; but he must have communicated the substance." [2]

244. The words which we have italicized state the true test in such cases. Anything short of a complete invention has no value in the eye of the patent law. Inventive ideas, however valuable or suggestive, are not regarded, patents being granted not for ideas, but for ideas embodied; in other words, for an art, a machine, a manufacture, a composition of matter, or for some improvement of one of these. He, therefore, who has given some such tangible thing to the public is entitled to a patent, provided he has exercised inventive thought in doing so.

245. In the cases now under consideration, two persons may have exercised inventive thought, — both he who made the original suggestion and he who devised a means of carrying it out. In one sense they are both inventors; but the law rewards him only whose inventive thought has issued in a practical and useful contrivance.

[1] So, also, Jones, J., in Matthews *v.* Skates (1 Fish. 602), *post*, page 663.

[2] Judge Nelson expressed the same idea, though somewhat loosely, in Pitts *v.* Hall, 2 Blatch. p. 234, charging a jury as follows: "Now, there is no doubt that a person, to be entitled to the character of an inventor, within the meaning of the act of Congress, must himself have conceived the idea embodied in his improvement. It must be the product of his own mind and genius, and not of another's. . . . At the same time, it is equally true that, in order to invalidate a patent on the ground that the patentee did not conceive the idea embodied in the improvement, it must appear that the suggestions, if any, made to him by others, would furnish *all* the information necessary to enable him to construct the improvement. In other words, the suggestions must have been sufficient to enable [the patentee] to construct a complete and perfect machine. If they simply aided him in arriving at the useful result, but fell short of suggesting an arrangement that would constitute a complete machine, *and if, after all the suggestions, there was something left for him to devise and work out by his own skill or ingenuity, in order to complete the arrangement*, then he is, in contemplation of law, to be regarded as the first and original discoverer," &c. So, also, Leavitt, J., in Bell *v.* Daniels (1 Fish. 372), *ante*, page 616. See also Collar Co. *v.* Van Deusen (23 Wall. p. 562), *ante*, page 337.

The mere conception that a thing may be done, although it requires invention to conceive that it may be done, does not necessarily anticipate the thing done.[1]

246. If, however, the patentee has so derived his invention from another that no inventive thought on his part has been necessary to complete it, but only such knowledge and skill as are possessed by the workman, distinguished from the inventor, then the patentee is neither the first nor an original inventor, and he is therefore entitled to no patent.

247. Sometimes the suggestions by others, relied upon to defeat the patent, are made in the course of the patentee's experiments. Instead of pointing out that a certain thing can be done, the alleged inventor gives a hint as to the manner in which it may be done. In this case, we need not say, the same rule applies. And if the suggestions alleged to invalidate the patent have come from one employed by the patentee to assist him in reducing his ideas to tangible form, the courts are loath to attribute to the assistant the merit of the perfected invention.

248. Furthermore, if one so employed has, in the course of his employment, made a minor invention in aid of his employer's invention, but not essential thereto, it becomes the property of the employer, and may be included by him in his patent.[2]

The law was stated by Mr. Justice Clifford as follows:[3]—

"Where a person has discovered an improved principle in a machine, manufacture, or composition of matter, and employs other persons to assist him in carrying out that principle, and they, in the course of experiments arising from that employment, make valuable discoveries ancillary to the plan and preconceived design of the employer, such suggested improvements are in general to be regarded as the property of the party who discovered the original improved principle, and may be embodied in his patent as a part of his invention.

"Suggestions from another, made during the progress of such experiments, in order that they may be sufficient to defeat a patent

[1] Collar Co. *v.* Van Deusen, *ante*, page 337. See also page 650.

[2] Allen *v.* Rawson, 1 C. B. p. 567. This matter, although proper to be stated here, belongs rather to the subject of prior invention. *Vide* Chapter IX., page 687.

[3] Agawam Co. *v.* Jordan, 7 Wall. p. 602. In this case an assistant of the inventor had made certain suggestions which the inventor at first found impracticable, but afterward, with certain valuable modifications of his own, he adopted them. *Vide post*, pages 700, 713, 735.

subsequently issued, must have embraced the plan of the improvement, and must have furnished such information to the person to whom the communication was made, that it would have enabled an ordinary mechanic, without the exercise of any ingenuity and special skill on his part, to construct and put the improvement in successful operation.

"Persons employed, as much as employers, are entitled to their own independent inventions; but where the employer has conceived the plan of an invention, and is engaged in experiments to perfect it, no suggestions from an employee, not amounting to a new method or arrangement which in itself is a complete invention, is sufficient to deprive the employer of the exclusive property in the perfected improvement. But where the suggestions go to make up a complete and perfect machine, embracing the substance of all that is embodied in the patent subsequently issued to the party to whom the suggestions were made, the patent is invalid, because the real invention or discovery belonged to another."[1]

249. So far we have been considering cases where it is alleged that the inventive idea has been communicated to the patentee. An inventive idea, not so communicated, which has remained locked up in the breast of the conceiver, or has been communicated to persons other than the patentee, but has never been reduced to practice, is, of course, no bar to the patent of a subsequent original inventor. By the terms of the proposition, the patentee in this case is an original inventor. He is also the "first" inventor; in other words, the inventor of something "not known or used by others before his invention," inasmuch as no tangible thing has existed and no process has been employed prior to his invention, and embodying it.

Furthermore, so long as a thing or a process exists in idea only, it scarcely can be affirmed with certainty to be capable of a reduction to practice which will be successful. It is often little, if anything, more than the statement of a problem. Such a result may be accomplished by such and such means. But when those means are set in actual operation, difficulties may arise which require inventive power to surmount them.

250. What is such a reduction to practice as will anticipate a subsequent invention?

The law is very strict upon this point. It is well established

[1] In a recent case, Nat. Feather Duster Co. *v.* Hibbard, 9 Fed. Rep. 558, the principle here stated is, we think, violated. *Vide post*, page 713.

that an application withdrawn or rejected,[1] a drawing,[2] or even a model,[3] will not of itself be such a reduction to practice.

"Nor will an application, accompanied by a full written description, with drawings, and deposited in the Patent Office, be considered such a reduction to practice as will of itself anticipate a subsequent inventor."[4]

What is required is a practical working machine.

Thus Clifford, J.,[5] said: —

"The settled rule is, that it is not enough to defeat a patent to show that another conceived the possibility of effecting what the patentee has accomplished, unless it also appears that he reduced what he conceived to practice in the form of an operative machine.[6] To constitute a prior invention, he who is alleged to have produced it must have proceeded so far as to have reduced his idea to practice."[7]

Unsuccessful Anticipations.

251. We pass now to the second class of cases, where the contention is that the alleged anticipation is in the nature of an experiment, and not a completed practical contrivance.

The rule and the reason for it are clearly stated by Judge Sprague, in the case of Howe *v.* Underwood.[8] He said: —

"The patent law goes undoubtedly upon the ground that when a man by his knowledge and skill has made and perfected a machine, the public are then put in possession of the invention, and have the benefit in some form of that knowledge and skill; and that the man who comes afterward cannot deprive the public of that benefit, though he may be an original inventor of the machine. He has not given the consideration for an exclusive privilege, because the public had it before; and although he may have the merit of invention, he cannot

[1] Corn-Planter Patent, 23 Wall. 181; Howes *v.* McNeal, 15 O. G. 608.

[2] Ellithorpe *v.* Robertson, 2 Fish. 83; Draper *v.* Potomska Mills, 13 O. G. 276; Winans *v.* N. Y. & Harlem R. R. Co., 4 Fish. 1. *Vide* page 694, *post.*

[3] Cahoon *v.* Ring, 1 Fish. 397; Johnson *v.* McCullough, 4 Fish. p. 175.

[4] The Lyman, &c. Co. *v.* Lalor, 12 Blatch. 303, *ante*, page 141. This proposition belongs also under the head of prior publication. *Vide* Chapter X., p. 717.

[5] Union Sugar Refinery *v.* Matthieson, 2 Fish. p. 626.

[6] The Union Mfg. Co. *v.* Lounsbury, 2 Fish. 389; White *v.* Allen, 2 Fish. p. 445; Wayne *v.* Holmes, 2 Fish. p. 28; Winans *v.* N. Y. & Harlem R. R. Co., 4 Fish. 1.

[7] *Vide post*, page 695.

[8] 1 Fish. p. 166.

have the right to take from the community that which they possess by the invention of another. A machine, therefore, in order to anticipate any subsequent discovery, must be perfected; that is, made so as to be of practical utility, and not to be merely experimental and end in experiment. The terms, 'being an experiment' and 'ending in experiment,' are used in contradistinction from the term 'being of practical utility.' Until of practical utility, the public attention is not called to the invention; it does not give to the public that which the public lays hold of as beneficial.

"If it is an experiment only, and ends in experiment, and is laid aside as unsuccessful; however far it may have been advanced, however many ideas may have been combined in it, which, subsequently taken up, might, when perfected, make a good machine, still, not being perfected, it has not come before the public as a useful thing, and is therefore entirely inoperative as affecting the rights of those coming afterward. This is important to be understood, because the idea has been carried all along, that if a prior inventor has gone to a certain extent, although he fall short of making a complete machine, practically useful, those who come after him have no right to secure to themselves the advantage of their invention. That is not the law. If Mr. Hunt did not go to the extent of having perfected a machine, although he made many ingenious devices, it was, in the eye of the patent law, a nullity: it gave nothing to the public; it was only an idea never carried out in a machine that could anticipate one subsequently invented."

252. Judge McLean stated the point at which an anticipating inventor must have arrived, as follows:—

"To constitute a prior invention, the party alleged to have made it must have proceeded so far as to have entitled himself to a patent in case he had made an application." [1]

253. It appears, therefore, and later cases are to the same effect, that a contrivance, however ingenious, which is not so complete as to have practical utility, is no bar to a subsequent invention in which the same idea is successfully carried out.[2]

It is not necessary that the first invention should be perfect in its details, or the best possible of its kind,[3] or that it should be

[1] Allen *v.* Hunter, 6 McLean, 303 (1855).

[2] United Nickel Co. *v.* Anthes, 5 Fish. p. 522; Waterman *v.* Thompson, 2 Fish. 461; Putnam *v.* Hollender, 19 O. G. 1423.

[3] Howe *v.* Underwood, 1 Fish. 160; Aiken *v.* Dolan, 3 Fish. 197. Of course, the second thing may contain a patentable improvement, though it be also an infringement of the first.

of great value; if it has practical utility and value, though it be clumsy, cumbersome, expensive, and defective, still it will anticipate a subsequent and improved machine which is only a better embodiment of the same idea.[1]

In the case of Johnson *v.* Root (1 Fish. p. 366), Judge Sprague said: —

" . . . By being *perfected* in the eye of the law, it is not meant that it should be carried to a point where there could not be any subsequent improvement; that it should have been made then as good as it could possibly be made, as a practicable machine, but that the invention should be completed so as to be of some practical utility. It need not be of any high degree; if it is of *any* practical utility, — although of a very low degree, — and has been completed so as to be of practical utility, and considered as completed, then it may be said to be perfected in the eye of the law. . . . It may often happen that a person in pursuit of an invention goes a certain distance, makes certain parts of an invention, but fails of arriving at any practically useful result, and the whole falls to the ground. Somebody else comes afterward and takes up the invention, and may incorporate into his invention something found by somebody before; but if that somebody has never perfected that part in the eye of the law, as I have explained to you, the second is not to be prevented from having the benefit of that which has been left without practical fruit."

254. It appears, also, and is undoubtedly the law both here and in England, that a subsequent inventor may avail himself of the unsuccessful experiments made by his predecessors.[2] Indeed, it often happens that many persons have expended years of thought and labor in advancing some contrivance to the point where a step, and often but a short one, separates them from success; but they can get no further. Another inventor, however, more

[1] Whittlesey *v.* Ames, 18 O. G. 357. In the English case of Daw *v.* Eley, 3 L. R. Ex. 496, Vice-Chancellor Page "held that the antecedent existence of an invention not shown to have been brought to any successful result, and which was so far similar, that, if subsequent in date to the patent, it would have been held a colorable and clumsy imitation for the purpose of effecting the same result, did not invalidate the patent by anticipation." (*Head-note.*)

[2] Even to this extent, according to Leavitt, J., "experiments made by the patentee with the abandoned and unsuccessful machine constructed by another, are *no evidence* of the want of novelty in an invention subsequently reduced to practice." Latta *v.* Shawk, 1 Bond, 259. It is doubtful, however, if this is not too strong a statement.

fortunate or more skilful, takes up the contrivance where it was left by his predecessors, supplies the one missing link, and obtains a valid patent for the completed invention.[1]

255. In such cases there is usually a contest as to the relative value of the subsequent and the antecedent contrivance, usually a machine ; and often the inferiority of the earlier one is proved chiefly by its failure to go into general use,[2] or by the failure of its alleged inventor to follow it up,[3] or to patent it,[4] or to prosecute an application for a patent.[5]

These facts, if proved, are strong evidence that the alleged prior invention was but an unsuccessful and abandoned experiment. So, also, is a failure to preserve the thing itself, unless it was transitory in its nature, as if it were an article of passing fashion.[6] So, again, failure to remember it on the part of persons to whom it was shown.

256. We may add that the tendency of recent decisions is to uphold a patent for a successful invention against alleged prior inventions unpatented and unused, and to view with suspicion the remains of former unsuccessful contrivances.

We quote some valuable remarks on this point made by Sprague, J., in the case of Howe *v.* Underwood.[7]

[1] Pike *v.* Prov. & Worcester R. R., 1 Holmes, 445.

[2] Hoffman *v.* Stiefel, 7 Blatch. 59. Woodbury, J., in Colt *v.* Mass. Arms Co. (1 Fish. p. 122), speaking of guns alleged to anticipate Colt's, said: "If they were the same in principle, another question occurs in connection with that fact, and which you will consider, and to which you will give its due weight, and no more, — whether you have heard on the stand, in the progress of this case, or anywhere else, of the power and effectiveness of Smith's rifles in the world; have they crossed the Atlantic, or penetrated the wilds of America?

"Coolidge's guns — . . . do you hear or read of them as circulated through both hemispheres? The Ohio gun, the Colburn gun, — have they succeeded? Are they known? Do the experts, the men of science here, speak of them as displaying something new, beautiful, and successful? All this is to be considered.

"On the other hand, it is true, things may fail for a time, and not eventually, — not entirely; the parties may not choose to patent them, even if they gain something valuable. But what is the presumption? If these great improvements were made before Colt made them, what became of them? Why did they disappear any more than his, if they were the same in principle and in substance?"

[3] Hayden *v.* Suffolk Mfg. Co., 4 Fish. p. 102.

[4] Howe *v.* Underwood, 1 Fish. p. 178; Galloway *v.* Bleaden, Webster, 521.

[5] Parham *v.* Amer., &c. Sewing-Machine Co., 4 Fish. 468.

[6] Hayden *v.* Suffolk Mfg. Co., 4 Fish. p. 102.

[7] 1 Fish. p. 175.

Upon the, so to say, resurrected parts of an old machine the learned judge remarked as follows: —

"We come, then, to another part of the evidence, — *these old remains*. These are very important, undoubtedly; for, when a new invention is sought to be intercepted by a former one, the production of a former machine is — I will not say essential — but of very great importance; showing that it does not rest merely in the recollection of witnesses that there was such a thing. These are the remains of a machine . . . found . . . in 1851 [sixteen years after the machine was laid aside, and six years after the plaintiff's patent issued], in the rubbish of his [one of the inventors'] workshop. They exhibit some of the instrumentalities, but certainly to the eyes of those who are not experts, but few of the means of forming a sewing-machine; and to the eyes of the experts they present the same deficiency. One, at least, of the defendants' experts, when he was called upon on a former occasion, looked at them, and then testified that there was nothing there from which a sewing-machine could be constructed. He says now that he has changed his mind, upon a more careful examination.

"At first view, then, they would present no satisfactory evidence of having been a sewing-machine. The experts differ materially as to that old machine. Those for the defendants say that they saw there sufficient to enable them to construct a sewing-machine by the aid — I think all of them put in that — of the reproduction made by Walter Hunt from his memory. I do not think any of them go so far as to say that, from that old machine alone, they could undertake, without other aid, to make a sewing-machine that would operate. They thought that from these old remains there might have been constructed the machine that is described by Walter Hunt; they thought there was room enough to make such a machine. Then a part of that restored machine rests solely upon the recollection of Mr. Walter Hunt. Now, can any man say, from that old machine, that Eleazer Johnson's testimony is not true when he says it did not operate? How can any man say that there was not a defect which prevented the shuttle from going through the race? — a defect of which the persons, and they experts, having the machine entire before them, could not ascertain the cause.

"Can these experts ascertain the cause from the mere dry bones of this old machine, divested of its muscles and nerves? They say it must have operated. Their reasoning is evidently the reasoning from analogy, which is very likely to mislead men. The reasoning of Cuvier, by which, from seeing a few bones, he could reconstruct the whole animal, proceeded upon the assumption that the animal was a perfect work, made by a Creator perfect in his operations; and if the animal was a

perfect work, then he could tell from its remains what must have been necessary to make that perfect work. But that would be assuming the point in controversy here. If that old machine was not a perfect work in the hands of Mr. Hunt, how can these experts say, from those remains, how that machine was made; how the other bones, the other operative parts, were placed? Thus they assume the very question which is here to be tried, — whether the old machine was perfect or not."

Mr. Justice Swayne, in the case of Wood *v.* Cleveland Rolling Mill Co. (4 Fish. p. 559), said: —

"In the fossils of geology, belonging to certain classes of animals, regular gradations from a low form of organism to a much higher one are found to exist. The contrast between the highest and the lowest is very striking. The same thing takes place in the progress of inventions. Models and machines in the same series, upon inspection, not unfrequently exhibit curious points of analogy to such fossils. Sometimes one will be found to reach almost the highest point afterward attained, but to fail short of it. The difference is that between success and failure.

"When a great success is achieved in the field of mechanical invention, and the higher organism is protected by a patent, it is almost as certain that invasions will follow, as that there exists the relation of cause and effect. Such is the voice of universal experience. When the infringer is called to account, one of two defences is usually set up, and frequently both. First, that the invention in one of the lower grades is substantially the same with that of the patentee. The confidence of the attacking witnesses is often in proportion to the distance in time that one is removed from the other. Their imagination is wrought upon by the influences to which their minds are subjected, and beguiles their memory" (the other defence being that of non-infringement).

257. A single success which the inventor is unable to repeat is no bar to a subsequent patent which describes the means whereby such success may be obtained.[1]

258. If parts of a machine are perfected, though they do not operate in the combination for which they are intended, so that there is as yet no practical or valuable use of them, those parts cannot be claimed separately by a subsequent inventor, though, of course, he may claim them in combination with other devices.

[1] Pelton *v.* Waters, 1 Bann. & Ard. 599.

This rather unusual point was decided by the Supreme Court in the case of Corn-Planter Patent,[1] as follows: —

"It is urged by the appellees that all those parts of Kirkman's machine which were completed in 1850, and not subsequently altered, should be considered as perfected, although the machine as a whole was not perfect, and did not subserve the expectation of the inventor until the alterations were made in the seeding apparatus in 1852. It is undoubtedly true that a subsequent inventor could not claim as his original and first invention the several parts of which Kirkman's machine consisted; but it would not prevent him from claiming such new combination of those parts with the devices of his own, as would result in a useful and satisfactory machine adapted to the purposes of its construction." [2]

259. This point also came up in the case of Union Paper-Bag Machine Co. *v.* The Pultz & Walkley Co. (*post*, page 678), where it was held that a knife in an automatic paper-cutting machine, claimed by itself, but used in a combination, was not anticipated by a similar knife which formed part of a prior abandoned and unsuccessful machine known to the patentee. The court, Shipman, J., said: —

"Inspection would show that such a knife [*i. e.* the prior knife] would cut out pieces of paper in the form of a blank. Inspection would not show that it would operate in the place where it necessarily must be used. The fact that such a knife would do the work was not a part of the fund of knowledge which the patentee had when he commenced to plan his invention."

This decision is not, it would seem, in accordance with the doctrine just quoted from the Supreme Court; and it does not appear why a claim for the knife separately was valid, though, of course, a claim for its use in the combination invented might have been so.

260. The English statute [3] is substantially the same as ours on the subject of prior knowledge or use, and its interpretation by the courts is the same. A leading case is that of Jones *v.* Pearce.[4]

The patent sued on was for a new kind of wheel made on the principle of suspension. The defence offered evidence that, many

[1] 23 Wall. p. 220 (1874). Mr. Justice Bradley delivered the opinion.
[2] See also Pitts *v.* Wemple, 1 Biss. 87.
[3] *Vide* Appendix.
[4] 1 Web. P. C. 122.

years before, one Strutt had caused wheels of the same kind to be made for his own use, and had used them on a cart until they were worn out. The evidence conflicted as to whether they worked on the same principle as the plaintiff's wheel.

Mr. Justice Patterson instructed the jury as follows: —

"If on the whole of this evidence, either on the one side or the other, it appeared this wheel, constructed by Mr. Strutt's order, in 1814, was a wheel on the same principles and in substance the same wheel as the other, for which the plaintiff has taken out his patent, and that it was used openly in public, so that everybody might see it, and had [*sic*] continued to use the same thing up to the time of taking out the patent,[1] undoubtedly, then, that would be a ground to say that the plaintiff's invention is not new, and if it is not new, of course his patent is bad . . . ; but if, on the other hand, you are of opinion that Mr. Strutt's was an experiment, and that he found it did not answer, and ceased to use it altogether, and abandoned it as useless, and nobody else followed it up, and that the plaintiff's invention, which came afterwards, was his own invention, and remedied the defects, if I may so say; although he knew nothing of Mr. Strutt's wheel, he remedied the defects of Mr. Strutt's wheel [*sic*], then there is no reason for saying the plaintiff's patent is not good."

Abandoned Anticipations.

261. We come now to the third class of cases, which we have termed that of a lost art.

The question is, whether a thing or a process which has once been known and used in this country, by persons other than a subsequent original inventor of it, can be the subject of a patent.

It is plain that it cannot be, according to the literal meaning of the statute, which requires that the patentee shall be the *first* as well as the original inventor. Now, if an invention has formerly been known and used, though by one person only, and though he has kept such knowledge and use to himself, and though he has forgotten the invention and cannot reproduce it, still it is clear that he is the first inventor; and the subsequent inventor cannot be so considered, as it is obviously impossible that there should be two first inventors.

[1] This clause is impertinent here, and inaccurate anywhere. *Vide post*, page 644..

The other words of limitation in regard to prior knowledge and use can be gotten over a little more easily; thus, a person may be held to have invented something "new," if he invent something new to the public of his time, although it was formerly known. So, also, the words, "not known or used by *others* in this country . . . before his [the inventor's] invention or discovery thereof," might possibly be construed to imply knowledge or use by a considerable number of persons, — at least by more than one person.

262. The statute, however, has not been construed strictly in this regard. The principle, of which we reminded the reader at the beginning of this chapter, that a benefit conferred upon the public is the consideration for a patent, has been brought into play; and the Supreme Court have held that the intention of Congress was to confer a patent upon him who first not only invents or discovers, but also reveals to the public, a patentable improvement. The meaning of the act, they said, must be gathered from a consideration of the whole thereof; and when the act is so treated it appears that the section (the fifteenth) which in one case, namely, that of a previous knowledge or use in a foreign country, provides for the granting of a patent to one who is not the first inventor,[1] qualifies the whole act, and shows that its intendment was that the patentee should be not literally the first inventor, but the first to make an invention known to the public.

263. The question next arises, under what circumstances and conditions is the rediscovery patentable. In other words, how extensively must the prior invention have been known and used, what recollection of it must remain, in order to defeat a subsequent patent granted to an original inventor for the same thing.

The following conditions are possible: —

(1.) Knowledge of the prior invention may have been confined to the inventor or possessed by other persons.

(2.) So of its use; and if used by the inventor alone, it may have been in secret, or publicly, as in his factory.

(3.) It may have been tested or not.

(4.) The extent of its value may be known or not.

(5.) It may have perished, or it may still exist in a complete or in a mutilated state.

[1] *Vide ante*, page 622, foot-note.

(6.) Remembrance of it may be proved to exist in the mind of one person or in the minds of two or more persons; or it may completely be forgotten; or — and upon this point the case of Gayler *v.* Wilder turned — it may be *potentially* in the memory of the inventor, so that he had forgotten it, until the production of the second invention caused him to recollect it.

264. We proceed to show how, and how far, these points have been settled by the courts.

The decision in Gayler *v.* Wilder,[1] the first and the most important case on the subject in the Supreme Court, is not entirely satisfactory. Three judges dissented from it; it has been doubted in a later case; and it puts the matter upon a very narrow, if not illogical, footing. We state here the facts, which are very simple, and the grounds upon which the decision proceeded.

The patentee was one Fitzgerald; the patent, for a safe, was granted in the year 1843.

One Conner, between the years 1829 and 1832, had made a similar safe, to protect his papers against fire; and he used it in his counting-room till 1838, when it passed out of his hands. He was a stereotyper, and the safe was known to persons engaged in his foundry. What became of it after 1838 does not appear, according to the bill of exceptions.

The judge below instructed the jury, —

"That if Conner had not made his discovery public, but had used it simply for his own private purpose, and it had been finally forgotten or abandoned, such a discovery and use would be no obstacle to the taking out of a patent by Fitzgerald or those claiming under him, if he be an original, though not the first, inventor or discoverer."

Interpreting the statute in the manner which we have described, the majority of the court held that this instruction was correct. Taney, C. J., delivered their opinion, which concluded as follows: —

"We do not understand the Circuit Court to have said that the omission of Conner to try the value of his safe by proper tests would deprive it of its priority; nor his omission to bring it into public use. He might have omitted both, and also abandoned its use, and been ignorant of the extent of its value; yet, if it was the same with Fitz-

[1] 10 How. 477.

gerald's, the latter would not upon such grounds be entitled to a patent, provided Conner's safe and its mode of construction were still in the memory of Conner before they were recalled by Fitzgerald's patent.

"The circumstances above mentioned, referred to in the opinion of the Circuit Court, appear to have been introduced as evidence tending to prove that the Conner safe might have been finally forgotten, and upon which this hypothetical instruction was given. Whether this evidence was sufficient for that purpose or not was a question for the jury, and the court left it to them. And if the jury found the fact to be so, and that Fitzgerald again discovered it, we regard him as standing upon the same ground with the discoverer of a lost art or an unpatented and unpublished foreign invention, and, like him, entitled to a patent. For there was no existing and living knowledge of this improvement or of its former use at the time he made the discovery. And whatever benefit any individual may derive from it in the safety of his papers, he owes entirely to the genius and exertions of Fitzgerald."

265. The learned Chief Justice therefore made the patentability of Fitzgerald's safe depend finally upon the fact that Conner's safe was so far forgotten by him that he could not have recollected it had it not been for Fitzgerald's invention. If Conner's safe was still fresh in his mind, although the safe itself had perished, had never been tested or brought into public use, and although its great value had never been ascertained, still it would be a bar to Fitzgerald's patent. But Conner having no remembrance of it until the production of Fitzgerald's safe caused him to recollect it, it was not such a bar.

266. The ground upon which this memory test may be supported is not elaborated in the opinion. In order to hold Fitzgerald's invention patentable, it was necessary to show that, at the time of his making it, the prior invention of Conner had practically ceased to exist, either in its tangible physical form or in the memory of Conner. This explains the necessity which the court felt of diving into the mind of Conner; for if Conner still remembered his invention, then to that extent the invention continued to exist, and there was a possibility of its being communicated to the public. But if Conner did not remember it until after Fitzgerald had reproduced it, then practically it had no existence at all, even in Conner's mind, at the time of Fitzgerald's invention.

It being proved in this way that the invention of Conner had no existence at the time that Fitzgerald's invention was made, the next step in the argument of the Chief Justice was to show that the former existence of an invention since lost and forgotten is not of itself a bar to the patent of a subsequent original inventor; and for this purpose he likened the safe case to the rediscovery of a lost art.

But it may be said that in the case of a lost art the result is known, and it is the process only that is lost; whereas the safe, were it in existence, would carry with it information of the way to make it. Moreover, if an inventor should discover a method of producing the fruit of some lost art, it would be impossible to prove that the new art or process was the same as the old; for the only evidence would be this, — that the result was the same.

267. Whether the analogy between the safe case and the rediscovery of a lost art is a true or false one, there is a practical objection to the rule of Chief Justice Taney.

It is impossible for the law successfully to penetrate the depths of a prior inventor's mind in order to ascertain whether or not he has forgotten as well as abandoned his invention. If this were understood to be the final test of the patentability of a subsequent invention of the same thing, then it would be easy enough and natural enough for the prior inventor to swear that he had not forgotten his invention; and it would be impossible to prove that he had forgotten it, — unless, indeed, it should be held in every case that total abandonment of it on his part was sufficient proof that he had forgotten it. But this, of course, would be the same as abolishing the memory test altogether.

268. It may also be said that, according to the rule of the learned Chief Justice, the words of the statute, "not known or used before his discovery," &c., are construed to mean, not only what they literally intend, — namely, knowledge or use at some time prior to the discovery, — but also that such knowledge or use must continue up to the time of the discovery or invention. This is more than the language actually calls for. It has been decided that the prior use need not so continue. *Vide* the cases cited below. And prior knowledge stands on the same footing.

269. We need not, however, pursue this subject any further. The memory test of Gayler *v.* Wilder is somewhat discredited

by the succeeding case in the Supreme Court upon this subject, namely, Coffin *v.* Ogden.[1] The patent in that case was for a lock. The prior lock set up had been made and used, only two years before, on one or more doors in a counting-room attached to the lock factory where the inventor worked. He had applied for a patent, but, for some reason unstated, he had failed to obtain it.

The court said:—

"The prior knowledge and use by a single person is sufficient. The number is immaterial. Until his work *is done*, the inventor has given nothing to the public. In Gayler *v.* Wilder the views of this court upon the subject were thus expressed: 'We do not understand the Circuit Court to have said that the omission of Conner to try his safe by the proper tests would deprive it of its priority, nor his omission to bring it into public use. He might have omitted both, and also abandoned its use, and been ignorant of the extent of its value; yet, if it was the same with Fitzgerald's, the latter would not, upon such grounds, be entitled to a patent, provided Conner's safe and its mode of construction were still in the memory of Conner before they were recalled by Fitzgerald's patent.'

"Whether the proposition expressed by the proviso in the last sentence is a sound one, it is not necessary in this case to consider. Here it is abundantly proved that the lock originally made by Erbe was complete and capable of working. The priority of Erbe's invention is clearly shown. It was known at the time to at least five persons, . . . and probably to many others in the shop where Erbe worked; and the lock was put in use, being applied to a door. . . . It was thus tested and shown to be successful. These facts bring the case made by the appellee within the severest legal tests which can be applied to them."

270. In this case, then, although the memory test is doubted, the other points decided by Gayler *v.* Wilder are upheld, and, undoubtedly, they are sound.[2] They are, that Conner's safe would still be an anticipation of Fitzgerald's; although

(1.) Conner had not ascertained the value of his safe by proper tests;

(2.) Had not brought it into public use;

(3.) Had abandoned it;

[1] 18 Wall. 120, *post*, page 669.

[2] See also Pickering *v.* McCullough, 13 O. G. 818.

(4.) Had been ignorant of the extent of its value.

Coffin *v.* Ogden, as we have seen, adds this: "The prior knowledge and use by a single person is sufficient."[1]

271. These two cases, then, decide that an invention to anticipate need not be brought into public use, by which we understand that it need not be sold to the public, or used in a public place; but in each case the use was in public, that is, it was in a place accessible to the public or to some portion of the public; and this degree of publicity we understand to be required by the law, although the point has not been decided by the Supreme Court.[2] Open use in a house would, in this sense, be a use in public.

[1] In Judson *v.* Bradford (16 O. G. 171), Judge Clifford said: "Since the decision in the case of Coffin *v.* Ogden (18 Wall. 120), it must be considered that the evidence is sufficient to support the defence of prior knowledge and use, if it proves that the invention was complete and capable of working, if it had been put in use, and was known to any considerable number of persons."

By this he means put in use by the inventor. In an earlier part of his opinion he had given his own view of the statute requirement, different from that contained in Coffin *v.* Ogden, as follows: "Prior knowledge of the thing patented, and where and by whom it has been used, are required to be stated in [the answer], which shows very clearly that, in order to defeat the patent in suit by such a defence, there must have been some use of the alleged prior invention." But the statute says not known *or* used; and the requirement as to the answer states how want of use shall be pleaded, not that it must be pleaded in order to prove want of novelty in the patent sued on.

The clause to which the learned judge referred is as follows: —

"And in notices as to proof of previous invention, knowledge, or use of the thing patented, the defendant shall state the names of patentees, and the dates of their patents, and when granted, and the names and residences of the persons alleged to have invented, or to have had the prior knowledge of, the thing patented, and where and by whom it had been used; and if any one or more of the special matters alleged shall be found for the defendant, judgment shall be rendered for him with costs."

[2] We do not understand that the public use indicated by the statute in the clause, "not in public use or on sale for more than two years prior to his [the inventor's] application," is the same as the public use here considered. An exhibition of a prior invention, though not for profit, and though made but to one person, is such a knowledge or use as will be covered by the clause "not known or used by others in this country," and will defeat a subsequent invention of the same thing; whereas such an exhibition made by the inventor himself, though in the presence of many persons, "more than two years prior to his application," would not, we conceive, necessarily be included by the clause "in public use or on sale," so as to deprive him of a patent. On the subject of the statute, "public use," see Egbert *v.* Lippman, 104 U. S. 333; City of Elizabeth *v.* Pavement Co., 97 U. S. 126; Consolidated Fruit-Jar Co. *v.* Wright, 94 U. S. 92; American Hide, &c. Co. *v.* American Tool Co., 1 Holmes, 503; Winans *v.* N. Y. & Harlem R. R., 4 Fish. 10.

272. Such is the law in England, where, however, a patent is granted on condition that the invention claimed is "a new invention as to the *public* use and exercise thereof" in the realm.[1] In the case of Carpenter *v.* Smith (9 M. & W. 300), Alderson, B., said: —

"'Public use' means a use *in public*, so as to come to the knowledge of others than the inventor, as contradistinguished from the use of it by himself in his chamber."

In the same case, Lord Abinger, C. B., referring to two earlier cases, which might seem to hold that a use *in public* was not sufficient, said: —

"I was counsel in the cases of Lewis *v.* Marling and Jones *v.* Pearce, and I recollect that those cases proceeded on the ground of the former machines being in truth mere experiments, which altogether failed. The 'public use' and exercise of an invention means a use and exercise *in public*, not *by the public*."

And at the *nisi prius* trial of this case, Lord Abinger, C. B., had also said, according to the report, —

"that the word 'public' was not equivalent to *general*, but was distinguished from *secret* use."[2]

273. In the case of the Household Co. *v.* Neilson,[3] Lord Chancellor Lyndhurst said that if the prior machine was in "public use, that is, if use or if trials had been made of it in the eye and in the presence of the public," &c.

274. If, however, the invention is made known to the public, or the public obtain knowledge of it in any other way, then use in public would not be necessary to anticipate.

[1] *Vide* Appendix.

[2] In Tennant's case, however (1 Web. P. C. 125, A. D. 1802), Ellenborough, C. J., appears to have held that a *secret* use of an invention was sufficient to invalidate a subsequent patent for the same thing.

In Dolland's case the patent was for a new method of making the object-glasses of refracting telescopes. Before the date of the patent one Dr. Hall had made and used object-glasses of a precisely similar construction in his own observatory, but he had not made any publication of their mode of construction or use. *Held*, that this was not such a prior use as to invalidate the patent. 1 Web. P. C. 43, A. D. 1766.

On the other hand, in the case of Manton *v.* Manton (Dav. P. C. p. 353, 1815), Giles, C. J., charged the jury as follows: "If any one man made those locks, and was in possession of the secret of making them upon the same principle as Joseph Manton's [the patentee's] locks, there would be an end of the patent."

[3] Web. P. C. p. 765.

275. The point that a mere secret guarded use, unaccompanied by knowledge on the part of the public, does not anticipate, has been decided by Woodbury, J.,[1] who said: —

"If a man has an invention and uses it privately, and nobody knows of it, then the use of it cannot debar another person from inventing or patenting it. What is the evidence of a public use as opposed to a private use? It need not be a general use by the community; but it must be an open use, however, so that the structure and *modus operandi* are apparent."

And by Sprague, J.,[2] as follows: —

"The article must be completed for public use and the result must be known, although it is not necessary that it should be actually used by the public."

And by Clifford, J.,[3] in a charge to the jury: —

"You are also instructed that, as a single specimen only of such a machine was made, whether capable of use, and whether actually used or not by the party making it, for the purpose of testing its operation, if you find from the evidence that the same was kept in his own possession from the knowledge of the public, and was subsequently broken up and its materials used for other purposes" [adding the memory test of Gayler *v.* Wilder], "then there will have been no proper anticipation of the subsequent invention."

So, also, Sherman, J.,[4] and Blatchford, J.[5]

276. Lowell, J., however, held that a machine

"which was not patented, and was somewhat guarded from view, perhaps for the very purpose that its mode of operation might not be generally known, was yet, by the law, such an anticipation of the plaintiffs' combination that they were not the first, though they were original, inventors thereof."[6]

277. It would seem to follow from this, and to be good law, that if the prior invention can be proved to have been practically like the subsequent one, no use, but only public knowledge of it, need be shown. The statute does not say "known *and* used," but "known *or* used." Such was the decision of Judge Nelson

[1] Adams *v.* Edwards, 1 Fish. 1 (1848).

[2] Many *v.* Sizer, 1 Fish. 17.

[3] Cahoon *v.* Ring, 1 Cliff. 592.

[4] Haselden *v.* Ogden, 3 Fish. 378.

[5] Hall *v.* Bird, 6 Blatch. 438.

[6] Spring *v.* Packard, 1 Bann. & Ard. 531 (1874).

(in the early case of Parker *v.* Ferguson [1]), who held that the following evidence was sufficient:—

A witness testified that, ten years before, he helped to build a water-wheel like the patented one; that it was for a man living twelve miles away, who carried it to his mill, when it was finished, and the witness never saw it afterward.[2] So also McLean, J.[3]

But in the same year, in another suit by Parker in a different circuit, Judge Kane held that the making of a prior invention is not sufficient,—its use must be proved.[4]

278. In this connection the reader is reminded that an invention is anticipated if it has clearly been described in some prior patent or publication, although it never has been put in practice; and that the validity of a patent is not affected by the fact that the invention it describes has never been made or used.[5] Wheeler *v.* The Clipper Mower, &c. Co., 10 Blatch. 181;[6] Broadnax *v.* The Central Stock-Yard, &c. Co., 4 Fed. Rep. 214;[7] Household Co. *v.* Neilson, Web. P. C. 718, n.; Newall *v.* Elliott, 10 Jur. N. S. 959;[8] Patterson *v.* Gas Light & Coke Co., 3 App. Cas. 239.[9]

279. A curious point in regard to knowledge without use has arisen, but it has not been decided.

In the case of Illingworth *v.* Spaulding[10] the defendants moved that they might be allowed to amend their answer by inserting an allegation that the invention patented was "known to the following-named persons in this country; namely, John Hogan, who resides in the city of Brooklyn, State of New York, *by whom it had been used in the city of Sheffield, England*, and who knew of its use by J. & Riley Carr & Co. at said city of Sheffield, England." This raised the question whether a knowledge by persons in this country of a foreign use is meant to be included by the words of the statute, "*not known or used by others in this country*." The court allowed the amendment, in order that the

[1] 1 Blatch. 407 (1849).

[2] Uncorroborated evidence of one witness that in a large city, twenty-two years before, he saw a machine like the patented one at work, is not sufficient. Blake *v.* EagleWorks Mfg. Co., 3 Biss. 77.

[3] Pitts *v.* Wemple, 6 McLean, 558 (1855).

[4] Parker *v.* Hulme, 1 Fish. 45, *ante*, page 563.

[5] *Vide*, *post*, page 692.

[6] *Ante*, page 242.

[7] *Post*, page 680.

[8] *Post*, page 684.

[9] *Post*, page 735.

[10] 9 Fed. Rep. 611, before Nixon, J.

matter might remain upon the record, and be decided at the final hearing, or upon appeal.

The learned judge, remarking that prior foreign use does not of itself invalidate a patent, continued: —

"But the offer goes further, and includes proof of a knowledge of such use by persons residing in this country. This suggests a defence different from that of a foreign patent or of a description in a printed publication, and one, I believe, that has never been adjudicated. The nearest approach to it is the case of Judson *v.* Cope (1 Fish. 623).

"A careful examination of the questions raised on the trial leads to the conclusion that the learned judge who presided was inclined to regard as tenable the defence here proposed. A witness named French was on the stand, and the defendants' counsel asked: 'Have you any knowledge of such valve being known and used prior to 1850 by James Watt, at the manufactory in Birmingham called Soho?'

"The question was objected to for want of sufficient notice under the statute, inasmuch as the notice had not stated 'who had knowledge' of the use of the valve by James Watt, but stated simply that it had been used by him at the place named in the interrogatory. The judge said that the question was new; and although he had serious doubts whether any proof was competent to render void an American patent, except that it had been patented abroad, or had been described in a printed publication, yet, in speaking of the defective notice, he said: —

"'If the averment had been that the witness French, residing at a certain place described, had knowledge of the fact that James Watt had known and used this invention in England, perhaps the proof would be competent. If the notice had averred that this witness had knowledge of the use of this invention at Birmingham at the time stated, the question perhaps might be admissible.'"

280. The prior use need not be continuous to the time of the later invention. The prior use need not be repeated. One use is sufficient, provided it be the successful use of a completed invention.[1] *Vide* page 348, *ante*. Shipman, J., in Waterman *v.*

[1] Story, J., in Reed *v.* Cutter, 1 Story, 590: "If the invention is perfected and put into actual use by the first and original inventor, it is of no consequence whether the invention is extensively known or used, or whether the knowledge or use thereof is limited to a few persons, or even to the first inventor himself."

Shepley, J., in Boston Elastic Fabric Co. *v.* East Hampton Rubber Thread Co., 9 O. G. 745: "A patent may be defeated by showing that the thing secured by the patent had been invented and put into actual public use prior to the discovery by the patentee, however limited such use (other than experimental) or knowledge of the prior discovery may have been."

Thompson, 2 Fish. 461; Drummond, J., in Sayles *v.* Chic. & N. W. Railroad Co., 2 Fish. p. 529; McKennan, J., in Shoup *v.* Henrici, 9 O. G. 1163; Clifford, J., Kelleher *v.* Darling, 14 O. G. p. 676.

281. The law in England is the same. In the case of the Household Co. *v.* Neilson[1] (Web. 673), in the House of Lords, Lord Chancellor Lyndhurst said: —

"... If it is proved distinctly that a machine of the same kind was in existence and was in public use, — that is, if use or if trials had been made of it in the eye and in the presence of the public, — it is not necessary that it should come down to the time when this patent was granted. If it was discontinued, still that is sufficient evidence in support of the prior use so as to invalidate the letters-patent. ... If it has been discontinued, provided it has been once in public use and the recollection of it has not been altogether lost, if it has been once publicly used, it will be sufficient to invalidate the letters-patent, although the use may be discontinued at the time when the letters-patent were granted."

The Lord Chancellor, and Lord Campbell, also in this case, explained the bearing of certain expressions used by the judges in the cases of Jones *v.* Pearce and Cornish *v.* Keene (at *nisi prius*), which had been thought to mean that a prior use, continuing to the time of the subsequent letters-patents, was necessary in order to invalidate them.

Lord Campbell said: —

"... What Mr. Justice Patteson may have said in that case,[2] and what Lord Chief Justice Tindal may have said in the other case,[3] taken in conjunction with the whole of their direction, amounts to this, that the abandonment may be material for the assistance of the jury to consider whether it be a perfect invention or not; but assuming it to be a perfect invention, the abandonment becomes wholly immaterial."

282 Present existence of an abandoned, forgotten, and never publicly used invention is no bar to a subsequent patent to an original inventor of the same thing. Hall *v.* Bird, 6 Blatch. 438 (Blatchford, J.).

283. It has been held that anticipation is not proved when

[1] 9 C. & F. 788. The case came up on exceptions to the charge of Lord Justice Clerk Hope in the Scotch Court of Session.

[2] Jones *v.* Pearce, 1 Web. P. C. 122.

[3] Cornish *v.* Keene, 1 Web. P. C. 501; 3 Bing. N. C. 570.

it is shown that the thing patented has existed before merely as a curiosity. In the case of Gibson *v.* Brand,[1] Sir N. C. Tindal instructed the jury as follows: —

"It would not be sufficient to destroy the patent to show that learned persons in their studies had foreseen or had found out this discovery that is afterwards made public, or that a man in his private warehouse had by various experiments endeavored to discover it, and failed, and given it up."

It is doubtful if the first of the statements here quoted should not slightly be qualified. If the prior thing were capable of practical use, though not put to it, it would, we conceive, unless secretly kept, anticipate a subsequent patent for the same thing.

284. If, however, the prior thing were too expensive for practical purposes, or otherwise unfitted for them, it would not anticipate a subsequent invention in the production of which this disadvantage was avoided.

In the case of Young *v.* Fernie,[2] Vice-Chancellor Stuart said: —

"What the law looks to is the inventor and discoverer who finds out and introduces a manufacture which supplies the market, for useful and economical purposes, with an article which was previously little more than the ornament of a museum."

In the case of the Wood-Paper Patent,[3] Mr. Justice Clifford said of Young *v.* Fernie: —

"In that case Vice-Chancellor Stuart remarked upon a distinction between the discoveries of a merely scientific chemist, and of a practical manufacturer who invents the means of producing in abundance, suitable for economical and commercial purposes, that which previously existed as a beautiful item in the cabinets of men of science."

285. An accidental and unrepeated anticipation is no bar to the patent of a subsequent original inventor. Thus, in Hartshorn *v.* Tripp,[4] where the patent was for a carriage curtain-roller, it was proved that the roller acted in the same way that a worn-out roller on an old carriage had been observed to act thirty-five years before by a workman who repaired it. This quality of

[1] 1 Web. P. C. page 628.
[2] 10 L. T. R. 861.
[3] 23 Wall. 566; *vide ante*, page 146.
[4] 7 Blatch. 120; *vide ante*, page 44.

the worn-out roller was not apparent on inspection, and it led to nothing; and it was forgotten, for aught that appeared, until recalled to the memory of the workman who noticed it by the subsequent invention.

Recapitulation.

286. We may now, in conclusion of this chapter, recapitulate the points which we have found to constitute the law of prior knowledge or use, bearing in mind, first, that the statute intends that the patentee shall be he who reveals as well as invents; and, secondly, that in the eye of the law an invention is made public when the community, or some portion thereof, have access to it, or may inform themselves of it.

287. (1.) A suggestion made to the patentee, before his invention, as to the improvement afterward patented by him, renders his patent invalid, if it has enabled him to construct the thing patented *without the exercise of inventive thought on his part;* a suggestion which falls short of having this character is no bar to the patent. *Ante*, pages 623–625.

288. (2.) And so of a suggestion made in the course of the patentee's experiments and in aid thereof. *Ante*, page 625.

289. (3.) A prior inventive idea conceived by some one other than the patentee, not communicated to him, and not reduced to practice, though it be such as, if communicated to the patentee, would have enabled him to construct the thing patented, does not affect the validity of his patent. *Ante*, page 626.

290. (4.) Where it is alleged that substantially the invention patented has had an actual prior existence, there must be shown, in order to defeat the patent, the prior existence of a complete working machine, or of a practically successful article or device; a drawing or a model is not sufficient, nor is an application to the Patent Office, rejected or withdrawn. *Ante*, pages 626, 627.

291. (5.) So, also, of an imperfect prior contrivance, though it contain inventive ideas, and though it needs but a finishing touch to complete it; yet if that finishing touch requires invention, and is necessary to make the improvement practically successful, such prior imperfect contrivance is no bar to the patent of him who has completed it, even though he has taken it as the basis of his experiments. *Ante*, pages 627–632.

292. (6.) *a*. Failure of the alleged anticipation to go into general use;

b. Failure of persons to whom it was shown to remember it;

c. Failure on the part of its maker or owner to patent or preserve it.

These points, especially the first, are, if established, strong evidence that the alleged anticipation was an abandoned experiment. *Ante*, pages 630–632.

293. (7.) Completed, but unused, parts of an incomplete combination anticipate their separate use, though not necessarily their use in a new combination. *Ante*, pages 632, 633.

294. (8.) A single success which the inventor is unable to repeat is no bar to the patent of a subsequent, original inventor, who describes the means whereby such success may be attained. *Ante*, page 632.

295. (9.) An invention, being a complete and practical thing, which has once been used in public, though used but once (whether its value has fully been ascertained or not), or which, though not used, was capable of use and known to the public, but was afterward laid aside and abandoned, is yet a sufficient anticipation of a subsequent original invention of the same thing; provided it is still in the memory of the first inventor, and is not recalled thereto solely by the subsequent production of the same thing. *Ante*, pages 634–644.

296. (10.) The proviso just stated, though laid down by the case of Gayler *v.* Wilder, is somewhat discredited by later cases, and is doubtful law. *Ante*, pages 637–639.

297. (11.) The use in public above referred to need not be a use by the public, or by sale to the public, or in a public place. It may be any but a secret or guarded use. Thus a use in a man's counting-room is for this purpose a use in public. *Ante*, pages 640–642.

298. (12.) It has been said that the present existence of an abandoned and "substantially" forgotten invention, never publicly used, is not a bar to the patent of a later, original inventor of the same thing. *Ante*, page 645; *post*, page 667.

299. (13.) A patent, it has been said, is not invalidated by proof that the invention which it claims has already existed, not as a practical thing, but as a curiosity in the hands of private persons; as, for instance, if it were found in the laboratory of a chemist. *Ante*, pages 645, 646.

ALDEN *v.* DEWEY, 1 STORY, 336.

D. OF MASS., 1840. STORY, J., AND A JURY.

Dexter Peirce's patent of March 11, 1837, for improvement in scythes.

The claim was for —

"Constructing the nib or thole irons and woods, so as, by the extension of the iron beyond the wood [*sic*] with a screw and nut, to regulate and fasten the nibs or tholes in any situation desirable on the snead."

Before the patent of Peirce the nibs of scythes had clumsily been fastened to the snathe by means of an iron ring tightened by wedges. These wedges quickly became loose when the scythe was used.

One Draper testified that he had remarked to the patentee, early in 1835,

"that he found great difficulty in suiting his customers in respect to the nibs of scythe snathes, and that he thought they might be improved by the application of the nut and screw to the nib or thole. He did not suggest any mode of doing this. He never reduced his idea to practice. The witness said that Peirce treated the idea as impracticable, and laughed at it."

Draper knew that Peirce had taken out his patent and afterward sold it; but though he was in the habit of seeing Peirce, he never made any claim to the invention.

Story, J., on these facts, submitted to the jury this question: —

"Did Draper communicate to Peirce substantially the improvement for which he took out his patent, so that without more inventive power Peirce could have applied it? It was not enough that Draper gave a hint; nor, on the other hand, was it necessary that he should communicate every minute thing about the invention; but he must have communicated the substance."

Verdict for the plaintiff.

MANY *v.* JAGGER, 1 BLATCH. p. 385.

N. D. OF N. Y., 1848. NELSON AND CONKLING, JJ., AND A JURY.

Patent, dated March 17, 1838, for a cast-iron railroad wheel. One question being whether the patentee's invention was anticipated by a wheel made by one James, Nelson, J., charged the jury as follows: —

"The James wheel was in general use on the Harlem Railroad in 1834, and to some extent on the New Jersey Railroad. Baldwin, in Philadelphia, in 1835, and Tiers, in the same city, in 1836, one of them a year after, and the other a year and a half after the James wheel was in common use on these two roads, made trials to cast the double-plate wheel [that afterward invented by the patentee]; and we think, on the evidence [just stated] in the case, it is fair to infer that they made their experiments with full knowledge of the James wheel. . . . If this inference be a fair one, — and it is for the jury to say whether it is or not, — then, with the James wheel before them, Baldwin and Tiers both failed to make a double-plate wheel. *They had the idea of such a wheel in their minds, but were unable to perfect it.* The conclusion would seem to follow, that the James wheel and the double-plate wheel were not necessarily identical, or that the former would naturally lead to the making of the latter without any ingenuity other than ordinary mechanical skill."

ADAMS *v.* EDWARDS, 1 FISH. 1.

D. OF MASS., 1848. WOODBURY, J., AND A JURY.

Fitzgerald's patent of June 1, 1843, for making a fire-proof safe by filling a three-inch space between an inner and an outer iron chest with plaster of Paris, either raw or baked, as directed, and alone or with mica. The defence contending that this was not a patentable invention, the court said: —

"It could hardly be justifiable, I think, for the court to say that it is not patentable for want either of importance, apparent novelty, or usefulness."

The defence also alleged that substantially the same thing had been invented before, and they set up several prior devices. It became necessary, therefore, to fix the time of Fitzgerald's

invention; and on that point the court instructed the jury as follows: —

"The law means by invention, not maturity. It must be the idea struck out, the brilliant thought obtained, the great improvement in embryo. He must have that; but if he has that, he may be years improving it, maturing it. It may require half a life. But in that time he must have devoted himself to it as much as circumstances would allow. But the period when he strikes out the plan which he afterward patents, — that is the time of the invention, that is the time when the discovery occurs."

Substantially the same instructions were given to the jury by Grier, J., in a subsequent suit on this patent, Rich *v.* Lippincott (W. D. of Penn., 1853), 2 Fish. 1. But between these two cases occurred the case of

GAYLER *v.* WILDER, 10 How. 477 (1850).

The facts in the case, the charge of the circuit judge, and the chief parts of the opinion of the court, delivered by Taney, C. J., may be found *ante*, at pages 636, 637.

After referring to the fact that, under the statute, the practice of an invention in a foreign country, without its being patented, or described in a publication, is no bar to the patent of an original inventor of the same thing,[1] the Chief Justice continued: —

"So, too, as to the lost arts. It is well known that centuries ago discoveries were made in certain arts, the fruits of which have come down to us, but the means by which the work was accomplished are at this day unknown. The knowledge has been lost for ages. Yet it would hardly be doubted, if any one now discovered an art thus lost, and it was a useful improvement, that upon a fair construction of the act of Congress he would be entitled to a patent. Yet he would not literally be the first and original inventor; but he would be the first to confer on the public the benefit of the invention. He would discover what is unknown, and communicate knowledge which the public had not the means of obtaining without his invention.

"Upon the same principle, and upon the same rule of construction, we think that Fitzgerald must be regarded as the first and original inventor of the safe in question. The case as to this point admits that

[1] *Vide ante*, page 622, foot-note.

although Conner's safe had been kept and used for years, yet no test had been applied to it, and its capacity for resisting heat was not known. There was no evidence to show that any particular value was attached to it after it passed from his possession, or that it was ever afterwards used as a place of security for papers; and it appeared that he himself did not attempt to make another like the one he is supposed to have invented, but used a different one. And upon this state of the evidence the court put it to the jury to say, whether this safe had been finally forgotten or abandoned before Fitzgerald's invention, and whether he was the original inventor of the safe for which he obtained the patent; directing them, if they found these two facts, that their verdict must be for the plaintiff. We think there is no error in this instruction; for if the Conner safe had passed away from the memory of Conner himself and of those who had seen it, and the safe itself had disappeared, the knowledge of the improvement was as completely lost as if it had never been discovered. The public could derive no benefit from it until it was discovered by another inventor. And if Fitzgerald made his discovery by his own efforts, without any knowledge of Conner's, he invented an improvement that was then new, and at that time unknown; and it was not the less new and unknown because Conner's safe was recalled to his memory by the success of Fitzgerald's.

"We do not understand the Circuit Court to have said that the omission of Conner to try the value of his safe by proper tests would deprive it of its priority, nor his omission to bring it into public use. He might have omitted both, and also abandoned its use, and been ignorant of the extent of its value; yet, if it was the same with Fitzgerald's, the latter would not upon such grounds be entitled to a patent, *provided Conner's safe and its mode of construction were still in the memory of Conner* before they were recalled by Fitzgerald's patent.

"The circumstances above mentioned, referred to in the opinion of the Circuit Court, appear to have been introduced as evidence tending to prove that the Conner safe might have been finally forgotten, and upon which this hypothetical instruction was given. Whether this evidence was sufficient for that purpose or not was a question for the jury, and the court left it to them. And if the jury found the fact to be so, and that Fitzgerald again discovered it, we regard him as standing upon the same ground with the discoverer of a lost art, or an unpatented and unpublished foreign invention, and, like him, entitled to a patent. For there was no existing and living knowledge of this improvement or of its former use at the time he made the discovery; and whatever benefit any individual may derive from it in the safety of his papers, he owes entirely to the genius and exertions of Fitzgerald."

McLean, Daniel, and Grier, JJ., dissented, the latter giving no opinion, so that it is impossible to say on what ground he dissented, for there were other questions in the case beside the question of patentability.

McLean, J., held that the law did not inquire whether Conner had tested his safe, or used it for private purposes only, or had forgotten it. All these inquiries, he held, were beside the real question, which was simply this, Was Fitzgerald's safe substantially the same as Conner's?

He held, also, that there was no evidence that the invention of Conner had been "forgotten" or "abandoned," and that, supposing it to be abandoned, it was abandoned to the public and not to Fitzgerald. As to its having been forgotten he said: —

"In 1838 it passed into other hands; but into whose hands it does not appear. In 1843 Fitzgerald obtained his patent. How long before that he made experiments to test the invention is not proved. At most, the time must have been less than five years. This is a short period on which to found a presumption of forgetfulness. The law authorizes no such presumption. It can never become the law. It is not founded on probability or reason. The question is, Was Conner's invention prior to that of Fitzgerald?"

Daniel, J., said: —

". . . This charge, it must be recollected, admits that Conner was, or might have been, the first inventor; and, notwithstanding, asserts that Fitzgerald, though posterior in time, might, upon the conditions and considerations assumed by the judge, become the owner of the right. Are these conditions warranted either by the rules of public policy, or by the terms and language of legislative provisions on such subjects? It is said that patent privileges are allowed as incitements to inventions and improvements by which the public may be benefited. This position, that may be conceded in general, should not be made a means of preventing the great and public purposes its legitimate enforcement is calculated to secure. The admission of this principle leaves entirely open the inquiries, whether he is more the benefactor of the public who makes a useful improvement which he generously shares with his fellow-citizens, or he who studies some device which he denies to all, and limits by every means in his power to a lucrative monopoly; and still more, whether the latter shall be permitted to seize upon that which had already (as is here admitted) been given to the public, thereby to levy contributions, not only on the community at large, but upon

him even who had been its generous benefactor. It was doubtless to prevent consequences like those here presented that the priority and originality of inventions are so uniformly and explicitly insisted upon in all the legislation of Congress, as will presently be shown."

He held, also, that the judge below had left unsettled the degree of publicity necessary to make Conner's invention an anticipation of Fitzgerald's; on this point, as well as on that of Conner's forgetfulness of his safe, he agreed substantially with Judge McLean.

And upon the subject of lost arts he said: —

"An attempt has been made to compare the doctrine propounded by the court to what it might be thought is the law as applicable to the discovery, or rather recovery, of the processes employed in what have been called the lost arts. This illustration is in itself somewhat equivocal, and by no means satisfactory; for if that process could certainly be shown to be the same with one claimed by the modern inventor, his discovery could scarcely have the merit of originality, or be the foundation of exclusive right. But, in truth, the illustration attempted to be drawn from a revival of a lost art is not apposite to the present case. The term 'lost art' is applicable peculiarly to certain monuments of antiquity still remaining in the world, the process of whose accomplishment has been lost for centuries, has been irretrievably swept from the earth. . . . And if a means of producing the effect we see and have amongst us be discovered, and none can either by history or tradition refer to a similar or to the identical process, the inventor of that means may so far claim the merit of originality, though the work itself may have been produced possibly by the same means. But not one principle drawn from such a state of things can be applied to a recent proceeding, which counts from its origin scarcely a period of fifteen years."

PARKHURST *v.* KINSMAN, 1 BLATCH. p. 494.

S. D. OF N. Y., 1849. NELSON, J.

The facts are not reported. The court said: —

"The imperfect and unsatisfactory nature of the experiments made by Sargent, and his subsequent conduct in throwing aside his temporary model and wholly neglecting for years to follow up his experiments, so as to produce a perfect machine, afford strong and decisive evidence of an abandonment of the thing as a failure. It is not enough to defeat a

patent already issued that another conceived the possibility of effecting what the patentee accomplished. To constitute a prior invention, the party alleged to have produced it must have proceeded so far as to have reduced his idea to practice, and embodied it in some distinct form. It must have been carried into practical operation; for he is entitled to a patent who, being an original inventor, has first perfected the invention and adapted it to practical use. Crude and imperfect experiments, equivocal in their results, and then given up for years, cannot be permitted to prevail against an original inventor, who has perfected his improvement and obtained his patent. Gibson *v.* Brand, Webst. P. C. 628; The Household Co. *v.* Neilson, id. 708, 713; Jones *v.* Pearce, id. 124; Galloway *v.* Bleaden, id. 525, 526; Cornish *v.* Keene, id. 508; Hindm. on Pat. 448, 449; Bedford *v.* Hunt, 1 Mason, 302; Reed *v.* Cutter, 1 Story, 590; Curtis on Pat. §§ 40 to 49."

GOODYEAR *v.* DAY, 2 WALL. JR. 283.

D. OF N. J., 1852. GRIER, J.

Goodyear's famous patent for vulcanizing caoutchouc.

Before Goodyear's invention, sulphur and heat had been applied to caoutchouc, but the result had never been successful. The discovery of Goodyear is well described by the reporter as follows: —

"The great peculiarity of the vulcanizing process may be thus stated: If you take a compound of sulphur and rubber in a dry state, and grind and mix them together, and apply heat, the consequence is, that the substance softens and softens as the heat increases, until it reaches a certain height in the thermometer, say 212° Fahrenheit. All the experimenters but Goodyear, while they knew the effect of heat to a certain extent, and knew that it was valuable in producing the compound of the gum with sulphur, yet having found that a considerable degree of heat softened and rendered it more and more plastic, were of opinion, naturally enough, that if heat were carried still higher the whole substance would melt. They reasoned *a priori*, and founded their conclusions upon a general knowledge of the effect of heat. But Goodyear, as the result of untiring experiment, found out that although the application of heat produced a melting effect upon this compound, rendering it more and more plastic and soft, as the degree of heat augmented, *yet when that heat, going on, had got up to a certain much higher*

degree, its effect was the reverse of what it had been, and then the rubber composition commenced to vulcanize and harden, in fact, to make metallic the vegetable substance. And in *adding* to the compound of sulphur and gum used by Hayward *a carbonate or other salt, or oxide of lead*, and subjecting the whole to this *high* degree of heat, was the distinguishing merit of Goodyear's process."

The defence contended that the prior use of sulphur and heat in treating caoutchouc invalidated Goodyear's patent.

Grier, J.: —

" . . . The testimony shows that many persons had made experiments — that they had used sulphur, lead, and heat — before Goodyear's patents, and probably before his discovery. But to what purpose? Their experiments ended in discovering nothing, except, perhaps, that they had ruined themselves. The great difference between them and Goodyear is, that he persisted in his experiments, and finally succeeded in perfecting a valuable discovery; and they failed. It is usually the case when any valuable discovery is made, or any machine of great utility has been invented, that the attention of the public has been turned to that subject previously, and that many persons have been making researches and experiments. Philosophers and mechanicians may have, in some measure, anticipated, in their speculation, the possibility or probability of such discovery or invention; many experiments may have been unsuccessfully tried, coming very near, yet falling short of, the desired result. They have produced nothing beneficial. The invention, when perfected, may truly be said to be the culminating point of many experiments, not only by the inventor, but by many others. He may have profited indirectly by the unsuccessful experiments and failures of others; but it gives them no right to claim a share of the honor or the profit of the successful inventor. It is when speculation has been reduced to practice, when experiment has resulted in discovery, and when that discovery has been perfected by patient and continued experiments, — when some new compound, art, manufacture, or machine has been thus produced, which is useful to the public, — that the party making it becomes a public benefactor, and entitled to a patent.

" And yet, when genius and patient perseverance have at length succeeded, in spite of sneers and scoffs, in perfecting some valuable invention or discovery, how seldom is it followed by reward! Envy robs him of the honor, while speculators, swindlers, and pirates rob him of the profits. Every unsuccessful experimenter who did or did not come very near making the discovery now claims it. Every one who

can invent an improvement, or vary its form, claims a right to pirate the original discovery. We need not summon Morse or Blanchard or Woodworth to prove that this is the usual history of every great discovery or invention."

McCORMICK *v.* SEYMOUR, 3 BLATCH. 209.

N. D. OF N. Y., 1854. NELSON, J., AND A JURY.

Patent for a reaping-machine.

In regard to certain prior machines set up by the defence, Nelson, J., said: —

"There are one or two general observations on this part of the subject which we think it proper to submit to you. With the exception of the patent and machine of Hussey, for aught that appears before us on this trial, not one of the machines referred to ever went into general or successful operation. Why they failed we do not know. What was the secret of their failure we are not informed. What were the defects in their arrangement or construction we are not told. All we know is that, from the evidence in the case, every one of them turned out, in the end, to be an unsuccessful experiment in the way of the construction of a mechanical reaper. It has been supposed that Bell's machine was an exception. But, upon looking into the evidence bearing upon this machine, we scarcely think it an exception to the other machines that turned out to be failures. Bell, it seems, constructed his machine as early as 1828 or 1829. The last account given of it in Loudon's work was in 1829. From that work it appears that, at that time, it succeeded in cutting some one or two acres or more of grain. But from 1829 down to 1853, at which latter date the witness Hussey testifies to its operation, we have no account whatever of this machine. We have no evidence here showing that during that interval the machine was in operation at all; and, in the absence of such proof, it seems to us that no other inference can be drawn than that there must have been some defects in the arrangement and construction of that machine. It is true, as testified to by Hussey, that in 1853, on a trial which took place in Scotland or the North of England, between Bell's and Hussey's and McCormick's machines, Bell's proved the most successful in cutting and laying the grain; and, from that testimony, it would seem to have become a practical machine. But this was in the harvest of 1853, two years after the exhibition in the Crystal Palace, where Hussey's and McCormick's machines were exhibited. During the harvest of 1851

those two machines were repeatedly tried in the neighborhood of the Crystal Palace, and they were again tried in the harvest of 1852.

"Bell's machine was not on exhibition in the Crystal Palace, for aught that appears. We hear nothing of it there, and it was not a competitor with either Hussey's or McCormick's machine during the harvest of 1851. Nor do we hear of it in 1852, in any trial with the other machines; and it is not till the harvest of 1853 that we hear of the Bell machine coming into competition with the two American machines, as a successful reaping-machine. In point of fact, therefore, it would seem, for aught that appears from the testimony in this case, that notwithstanding there have been seven attempts, and six of those American, to construct a successful reaping-machine, but two out of the seven have ultimately become beneficial and useful instruments for the purposes for which they were constructed; that is, the machine of Hussey and the machine of McCormick. It appears from the evidence in the case that Hussey and McCormick turned their attention to the construction of a reaping-machine very nearly at the same period, — McCormick two or three years the earlier. They have persevered from that time down to the present, and they have, each of them, it is conceded, brought out a successful reaping-machine. All the others failed; failed early, gave up the pursuit, and abandoned their machines."

LIVINGSTON *v.* JONES, 1 Fish. 521.

W. D. of Penn., 1859. Grier, J.

The first claim of the patent (issued to one Sherwood, Dec. 14, 1842, afterward extended) was admitted to be infringed, but its originality was contested. It was for

"making cases of door locks and latches double-faced, or so finished that either side may be used for the outside, in order that the same lock or cased fastening may answer for a right or left hand door, substantially as described."

An interior device to effect this alternative use of the lock was the subject of other claims of the patent, but not being used by the defendants it was not in issue in this case. At the trial in the Circuit Court several locks offered in evidence by the defendants were thus disposed of by Mr. Justice Grier:—

"Not one of these locks was ever intended to be a right and left hand, or *Janus*-faced lock. The custom-house lock is from an open

out-door gate. Its inside is necessarily covered tight to preserve the works of the lock from weather and from rust, — a device necessary in all out-door gate-locks. It is not suited, and never was intended, for a *Janus*-faced lock. It is evidently finished on one side only. It is a left-hand lock, and is not a door-lock at all.

"The lock taken from the City Hospital gate is a dead-lock, a right-hand lock. By putting it wrong side out and making some alterations, it might be converted into a left-hand dead-lock. The same may be said of the gate-lock of St. Mark's Church, and all the others. The mechanic who made the custom-house lock in 1840 swears that it was intended and finished only as a left-hand lock. That he never thought of a *Janus*-faced lock, and never manufactured one — but had different patents for right and left hand locks.

"It is abundantly clear from the inspection of these locks that the makers of them were not in search of a plan for *Janus*-faced locks, or aware of the value of such an invention. They may have stumbled over it, but, not seeking it, did not think it worth picking up or examining. As in many other cases, they were near the invention, and might have made it if *they had only thought of it.* Those who are wise *after* the event, and who have been examined as experts, have given testimony, which, when analyzed, amounts to this and nothing more: that these gate-locks, being covered on the inside, might, by a little change, have been made into *Janus*-faced locks, though not so intended by the maker. This fact is *now* apparent to a mechanic who has seen the patented invention before him.

"Experience has caused me to have little confidence in the opinions of experts and professors, who often have more knowledge than judgment. Courts and juries may be much benefited in their researches by the one, while they would be led into great error by confiding too much to the other. The art of printing was stumbled over for five thousand years, and if a patent for it were now presented to our expert, he would show you at once that the whole art consisted in multiplying impressions from a combination of movable types. He would point you to the tracks of animals as original impressions from movable types, and show the invention of printing-letters to be as old as Adam.

"Few patents could stand the test of such ingenuity as this. Incredible as it may appear, yet it is nevertheless true, that, on the trial of the originality of Morse's telegraph, it was gravely argued that two thieves in the penitentiary, who had corresponded by means of scratches and dots on the prison wall, had preceded Morse in the invention of this most astonishing and useful art."

This decision was reversed by the Supreme Court in the case of Jones *v.* Morehead,[1] 1 Wall. 155 (1863). Mr. Justice Miller delivered the opinion as follows: —

"It is the first claim as set forth which the defendants charge to be invalid for want of novelty, and in this we think they are sustained by the testimony. Indeed, it may be doubted if the making of the case which encloses the internal works of the lock with two faces just alike, and so well finished off in point of style that either side may be presented outwards, is a matter which could be patented, if no locks with such cases had ever been made before. But we are not called on to decide this point, and therefore pass it without further comment.

"Several locks were produced on the trial below, and were shown to us here, — being made exhibits by the record, — which we are satisfied are the same in principle as the double faces of the Sherwood lock. Two of these locks are from the gates of the New York City Hall. They are cased both sides alike, enclosing the internal works completely, and are so finished that one side may be presented outward as well as the other, and the locks can be applied to a door swinging from right to left, or from left to right. Locks from the City Hospitals, having the double-faced case, both sides alike, have also been produced, and one from the entrance gate of St. Mark's Church. A lock from the custom-house is shown, which has the double-faced case, both sides alike, and which, by being turned laterally, can be used for a door opening either to the right or left, without even turning the key-hole upside down. These locks are all proven to have been in use several years before Sherwood set up any claim to his invention. They are taken from the most public places in the great commercial city of the Union. These facts are incompatible with the claim of novelty on the part of Sherwood for this part of his patent."[2]

ADAMS *v.* JONES, 1 Fish. 527.

W. D. of Penn., 1859. Grier and McCandless, JJ.

Adams's patent of Feb. 24, 1857, for an "improved keeper for right and left hand door-locks."

The claim was: —

"The use of a bevelled keeper such as described, when employed in connection with a double-faced lock, having a blunt bolt, so that the

[1] Morehead was one of the plaintiffs in the case of Livingston *v.* Jones.

[2] *Vide ante*, page 309.

lock may be used on a right or left hand door without changing any of its parts, as set forth."

Of this invention, Grier, J., said: —

"It purports to be an improvement in the manufacture of an article now known under the appellation of 'Janus-faced door-locks.' That species of lock was invented and patented by Sherwood. But in order to accommodate it to either a right or left hand door, it was necessary to open it so as to change the bevelled side of the bolt. When this was done by a careless or inexperienced workman, the internal works of the lock were liable to become displaced. The object of complainant's invention is to obviate this difficulty. It is accomplished by making the bolt blunt, with rounded edges, and making a keeper, whose lip is an inclined plane the whole length of the keeper, so that the lock is available for either a right or left hand door, without opening it to change the bolt, as the keeper may be turned with either side up and catch the bolt. This is undoubtedly a valuable improvement in the manufacture of 'Janus-faced door-locks,' as it simplifies and cheapens the article. Drop-catch keepers had before used a slightly inclined plane on the lip of the keeper, but it could be used only for such a door as they were specially made for. . . . The spring-bolt brought from Birmingham clearly shows that the device invented by Adams to improve Janus-faced locks had never entered into the conception of the maker of it. As the bolt was only partially bevelled, he had somewhat inclined the lip of the catch to make it slide with more ease.

"Everything which we have said[1] with regard to the New York gate-locks, got up to defeat the Sherwood patent, applies with double force to the rusty sample brought to our notice from Birmingham.

"In both cases the defence amounts to no more than this, that the persons who made these supposed originals came so near the patented device or machine that they might have discovered it if they had only thought of it, or could have anticipated that at some future day it could be converted to some useful practical purpose for simplifying, cheapening, and improving an important article of our manufacture. It is only when some person, by labor and perseverance, has been successful in perfecting some valuable manufacture by ingenious improvements and labor-saving devices that their patents are sought to be annulled by digging up some useless, rusty, forgotten contrivances of unsuccessful experimenters."

[1] *Vide* page 659, *ante*.

CAHOON *v.* RING, 1 CLIFF. 592.

D. OF ME., 1859. CLIFFORD, J., AND A JURY.

See this case at page 88, *ante*.

In regard to alleged prior inventions, the court said: —

"In respect to these machines, you are instructed to inquire whether either of those persons made an operating machine, or whether they only made models or drawings from which machines might be constructed. If the latter only were made, and although such models might be capable of operation for the purpose of experiments, yet, unless it is proved to your satisfaction that a machine or machines, capable of being used for actual agricultural purposes, was or were made prior to Cahoon's invention, then, as a matter of law, I instruct you that such alleged inventions never were completed, and cannot affect the validity of Cahoon's patent."

In regard to the machine of one Luce, set up by the defence: —

"You are also instructed that, as a single specimen only of such a machine was made, whether capable of use, and whether actually used or not by the party making it for the purpose of testing its operation, if you find from the evidence that the same was kept in his own possession from the knowledge of the public, and was subsequently broken up and its materials used for other purposes; that the substantial parts of it were finally lost prior to May 14, 1857 [date of Cahoon's original application]; and that its construction was only recalled to the memory of the maker by the present controversy, and, when so recalled, that the essential parts of the machine did not exist, so that the public could not derive the knowledge of it from the machine itself, but only from the memory of the alleged inventor, — the existence of such prior machine will not invalidate the patent under consideration, even if the invention of Cahoon was subsequent in date, and although such machine may have embodied all the improvements subsequently invented by Cahoon, if he was an original inventor of his improvements without knowledge of such machine, and did not derive any of them from Luce."

MATTHEWS *v.* SKATES, 1 Fish. 602.

S. D. of Ala., 1860. Jones, J. and a Jury.

The court charged as follows:—

"In order to constitute a man an inventor, it is generally necessary that he must have exercised some inventive faculty of his own. I say generally necessary, because there might, no doubt, be cases in which an invention might be the result of pure accident. But the fact that he has received some ideas, hints, or suggestions on the subject from others would not prevent him from being considered an inventor, and entitled to a patent as such. To have that effect it must appear that the invention was substantially communicated to him by some other person, so that, without the exercise of any inventive power of his own, he could have applied it in practice. Though others may have previously had similar ideas, and may have experimented upon them, the person who first perfected the idea, and made it capable of practical use, is the inventor, and entitled to a patent. . . .

"If the composition described in Cox's patent was known and used, either for packing or other purposes, before his invention of it, in a form or manner substantially the same as that described by him, it would not be a new invention. A mere new use or application of a material or composition previously known is not a new invention.

"The point of time to which you are to look in deciding this question is *the time of the invention.* It is neither the date of the patent, nor is it the time when the idea was first conceived by the inventor. It is the time when the idea is not only distinct and complete in the mind of the inventor, but that idea is reduced to practice and embodied in some distinct form. Curtis, 43. This must necessarily be some time, more or less, before the date of the patent, and some time, more or less, after the first conception by the inventor.

"When the idea first entered into the mind of the inventor, it is almost necessarily in a crude and imperfect state. His mind will naturally dwell and reflect upon it. It is not until his reflections, investigations, and experiments have reached such a point of maturity that he not only has a clear and definite idea of the principle, and of the mode and manner in which it is to be practically applied to useful purposes, but has reduced his idea to practice, and embraced it in some distinct form, that it can be said he has achieved a new and useful invention. That is the real time of his invention, though it may be months or years before he obtains a patent for it. Indeed, he would be none the less an inventor though he never obtained a patent for it."

HAYDEN *v.* SUFFOLK MANUFACTURING CO., 4 Fish. p. 102.

D. of Mass., 1862. Sprague, J.

On the question of abandoned experiment, Sprague, J., instructed the jury as follows: —

"... If there were experiments made, gentlemen, and they tend to a certain point, and there is no certainty to what extent they went, then the subsequent conduct of the parties who made experiments and were interested in it may aid you in forming an opinion of what they accomplished. If they preserved it as a thing valuable, it has a weight in one direction as showing that they had accomplished something. If they did not preserve it, but abandoned it, — the evidence is to be weighed whether it was abandoned or not, whether a success had been obtained in anything that was worthy of preservation, or could accomplish a practical and useful purpose; and the weight of this, you will probably know, is in proportion to the importance of the thing. There may be an invention, gentlemen, of so unimportant a character that, although it be really an invention, something of practical use, it may be in relation to a subject-matter of so little importance or of transient interest that the occasion may pass by, and it may be laid aside and never used afterward, because there is no occasion for it, as there are many patents for articles of dress of the day, which are patented for the day, while the fashion lasts, and pass away when the fashion passes away. On the other hand, if the invention be of something which can be of great practical importance, an enduring importance, then you will consider how much stronger will be the incentive to success in perfecting that which would have been of importance; and the greater the importance of the invention, the less probable that, if achieved, it would have been laid aside and not extended itself to others interested in its use."

WATERMAN *v.* THOMPSON, 2 Fish. 461.

S. D. of N. Y., 1863. Shipman, J., and a Jury.

Waterman's patent of Aug. 24, 1858, for a process of tempering iron and steel.

The claim was for —

"The process of hardening steel wire or thin steel in long sections, being kept under a longitudinal strain by means of the wheels D D,

while passing through the fire in the furnace to the guide H, to conduct the wire directly from the fire into the hardening bath, in combination with such hardening bath as specified."

A prior invention of one Ely was set up in defence, but it is not described in the report.

In regard to it Judge Shipman charged as follows:—

"Now, if the jury are satisfied that Ely did work this process substantially as he has described on this trial, at the time he states, then the defendants are entitled to a verdict.

"By working this process I mean successfully working it, by performing substantially the same thing as the plaintiff performs with his machine in substantially the same manner. It is not necessary that Ely's wire should have been flat; the process applies to round as well as flat wire. It is not necessary that he should have used his wire for skirts, or that any one should have done so; nor is it necessary that he should have worked the process with the same degree of skill and success as the plaintiff has attained. It is sufficient if he performed the operation of hardening his wire substantially upon the method which the plaintiff claims, and that he did it with that degree of success which demonstrated its usefulness. If he merely made an experiment and failed, abandoning his contrivance because it would not work, then it is of no account. But the mere fact that he ceased to use it because he had no further occasion to do so is of itself of no importance."

WOODMAN *v.* STIMPSON,[1] 3 Fish. p. 105.

D. of Mass., 1866. Lowell, J.

Lowell, J.:—

"Now, the defendant says that there were machines which were substantially like the plaintiff's invention before the date of his discovery. On that point there is this to be observed in the outset: They must have been working machines, not mere experiments. They must have done work, or been capable of doing work, and not been mere experiments afterward abandoned. Whether they were in fact operated for a greater or less time is of no importance, except so far as that may tend to make you believe that they were or were not mere experiments; in that view, the fact is of some consequence. But if you are satisfied that they were machines capable of doing work sub-

[1] *Vide ante*, page 429.

stantially by the same arrangement as the plaintiff's actual working machines, then the fact that they were operated but a short time, and then abandoned for other reasons than because they had failed as machines, is of no consequence."

WHITELY *v.* KIRBY, 11 WALL. 678 (1868).

Kirby & Osborn's reissued patent of Jan. 28, 1862, for harvesting and mowing machines.

The court, by Mr. Justice Nelson, said: —

". . . The defendants set up in their answer, and gave in evidence, two patents for harvesters, which, they claimed, antedated this invention of Dinsmore. The first, Nelson Platt's, . . . June 12, 1849; the second, Alfred Churchill's, . . . March 3, 1841. There is no proof in the record in respect to these patents. Whether any machine was ever constructed under either of them, or went into practical use if constructed, or whether each were but an imperfect or abandoned experiment, are matters apparently regarded by the counsel who introduced them as of no great importance. Nothing appears to be known in respect to them except that they were found among the records of the Patent Office, and have relation to the subject of grain harvesters. Whatever may have been their merit, however, as harvesters, they can have no material bearing that we can perceive upon this invention of the complainants; for, as it respects the peculiar device for which the present patent was granted, it is not to be found in either of them, neither in the specification or claims."

HASELDEN *v.* OGDEN, 3 FISH. 378.

S. D. OF OHIO, 1868. SHERMAN, J., AND A JURY.

"The prior use of an alleged invention must be a public use, and not a private use. If an invention is made and used in a private way, and then thrown aside and not given to the public, a patent granted to a subsequent inventor would be a valid patent. But if, in the use of the invention by the first inventor, the second inventor had access to it and could have had knowledge of it, then the patent subsequently issued would be void and invalid."

HALL *v.* BIRD, 6 BLATCH. 439.

S. D. OF N. Y., 1869. BLATCHFORD, J.

A patent granted in August, 1864, for an improved machine for stretching chains.

Chain links all stretch when first used, but unequally; and the plaintiff's invention was designed to obviate such inequality by stretching each link until it attained a certain length, determined by the gauge which formed a part of the machine. It is necessary that the links of chains which are to be used over pulleys should be equal in length, in order that each link may "engage with the teeth on the pulleys, or fit . . . snugly in recesses made therein."

The defendant asserted that a machine, substantially identical with that of the plaintiff, had been made and used by his father many years before the plaintiff's invention.

Blatchford, J.: —

"It is in evidence that the defendant's father, in 1852, procured to be constructed in New York a machine for stretching chains. . . . This machine he placed in a cellar, where he used it, keeping it concealed, however, from persons in general. The door of the cellar was kept locked, and, so far as appears, the existence of the machine was known only to the machinist who put it up, to the defendant's father, to the defendant's brother, and to the defendant himself. The defendant states, in his testimony, that the machine was locked up to keep people from seeing it; that his father always locked the door of the basement or cellar where it was when he came out; that the machine was kept secret; that it was not used very often, perhaps not once in a month, or six months, or a year; that finally he took from off the machine a pair of boxes which he wished to use for another purpose; and that the machine thereafter remained in the cellar unused, until it was removed from there by him, his father having died in 1862. It also appears that the machine was removed from this cellar into the defendant's shop in July, 1865; that when taken out it was in a rusty condition; that prior to its being so taken out, the defendant, in making chains which required the links to be of equal length, stretched the links by hand, by means of the hammer and the anvil, and not by any machine; that during 1864 the plaintiff's machine was described to the defendant by a workman who was at the time in his employ, and who had previously been in the plaintiff's employ and used his machine; and that thereafter the rusty machine was exhumed from the cellar and

cleaned and fitted up in the defendant's shop, and used to stretch the links of chains. It does not satisfactorily appear that during the time that the machine in the cellar was used by the defendant's father he made any chains which required the links to be stretched to uniform lengths, or that he used the machine to stretch the links of chains to a uniform length.

"On the foregoing facts, I think that this case fairly falls within the case of Gayler *v.* Wilder, 10 How. 477, even assuming that the old machine, in the condition in which it was while in the cellar, was substantially identical in construction with the machine as used by the defendant after July, 1865, and with the plaintiff's machine."

Judge Blatchford then rehearsed the facts in Gayler *v.* Wilder, and he continued: —

"Now, although the old machine in the present case was constructed in 1852, and had been kept in the cellar of the defendant's father under the circumstances stated, and had been occasionally used there, and although it had not bodily disappeared from view, yet its existence and use were not made public, the knowledge and use of it did not exist in a manner accessible to the public, it had been substantially abandoned, and it had substantially passed away from the memory of those who had used it, as is shown by the fact that when they were called on to stretch the links of chains to a uniform length — a purpose to which it is not shown that the defendant's father ever applied the machine — it did not occur to them to use the machine for the purpose, until after they had learned of the existence and use of the plaintiff's machine. The knowledge of the machine was therefore as effectually lost as if it had never been constructed, and the public could derive no benefit from the invention embodied in it until such invention should be discovered by another inventor. As it clearly appears that the plaintiff made his invention by his own efforts, without any knowledge of the machine in the cellar of the defendant's father, he invented an improvement which was then new and was at the time unknown; because the old machine was recalled to the memory of the defendant, and of his brother, and of the machinist who put it up, by the success of the plaintiff's machine."

He then goes on to show that an important element of the plaintiff's machine did not exist in the machine of the defendant's father, but did exist in the machine used by the defendant after July, 1865, so that on this ground the identity of the plaintiff's machine with that alleged to anticipate it failed to be established.

COFFIN *v.* OGDEN, 7 BLATCH. 61.

S. D. OF N. Y., 1869. BLATCHFORD, J.

Infringement of a patent for improvement in locks and latches, reissued Jan. 27, 1863, to Charles A. Miller, assignee of the inventor Kirkman, to whom the original patent was granted.

The objection being taken that the reissued patent claimed an "effect or function, irrespective of any particular mechanism," the court held that it was founded upon a wrong construction of the patent.

The chief defence, however, was that the invention of one Erbe anticipated that of Kirkman. The identity of the two inventions was obvious, and the court so held; but the plaintiff contended that Erbe's was an abandoned or incomplete invention, and this point only was considered by the Supreme Court, on appeal, in the case of

COFFIN *v.* OGDEN, 18 WALL. 120 (1873).

The facts were as follows: Kirkman made his invention in March, 1861; Erbe made his not later than Jan. 1, 1861.

Erbe said in his deposition that he first made his lock in the latter part of the year 1860. The first lock he gave to Jones, Wallingford, & Co., his employers; the second he sent to Washington in 1864, when he applied for a patent (which he did not obtain); the third he made for a friend of Jones. He thought the first lock was applied to a door, but he was not certain.

One Brossi testified that in 1860 he was engaged in lock-making; that in that year the plaintiff showed him the lock which he had made (exactly like the one produced in court), and that in the same year he saw the lock, or one like it, on the office-door of Jones, Wallingford, & Co.

One Masta, also an employee of Jones, Wallingford, & Co., was shown the lock by Erbe, in 1860.

One Patterson, superintendent in 1860 of Jones, Wallingford, & Co.'s factory, testified that Erbe showed him the lock about the 1st of January, 1861. Patterson also said: "It was our uniform custom to put our new locks on the doors about the office to test them, and I believe that one was put on; but at this distance of time I cannot say positively that it was."

"There is no proof," said the court, "that Erbe made any locks according to his invention here in question but those mentioned in his testimony. He applied for a patent in 1864, and failed to get it. Why, is not disclosed in the record."

The testimony for the plaintiff was not contradicted.

Mr. Justice Swayne, for the court, said: —

"The case arose while the Patent Act of 1836 was in force, and must be decided under its provisions. The sixth section of that act requires that, to entitle the applicant to a patent, his invention or discovery must be one 'not known or used by others before his invention or discovery thereof.' The fifteenth section allowed a party sued for infringement to prove, among other defences, that the patentee 'was not the original and first inventor of the thing patented, or of a substantial and material part thereof claimed to be new.' The whole act is to be taken together and construed in the light of the context. The meaning of these sections must be sought in the import of their language and in the object and policy of the legislature in enacting them.[1] The invention or discovery relied upon as a defence must have been complete, and capable of producing the result sought to be accomplished; and this must be shown by the defendant. The burden of proof rests upon him, and every reasonable doubt should be resolved against him. If the thing were embryotic or inchoate; if it rested in speculation or experiment; if the process pursued for its development had failed to reach the point of consummation, — it cannot avail to defeat a patent founded upon a discovery or invention which was completed, while in the other case there was only progress, however near that progress may have approximated to the end in view. The law requires not conjecture, but certainty. If the question relate to a machine, the conception must have been clothed in substantial forms which demonstrate at once its practical efficacy and utility.[2] The prior knowledge and use by a single person is sufficient. The number is immaterial.[3] Until his work *is done*, the inventor has given nothing to the public. In Gayler *v.* Wilder, the views of this court upon the subject were thus expressed: 'We do not understand the Circuit Court to have said that the omission of Conner to try his safe by the proper tests would deprive it of its priority, nor his omission to bring it into public use. He might have omitted both, and also abandoned its use, and been ignorant of the extent of its value; yet if it was the same with Fitzgerald's, the latter would not, upon such grounds, be entitled to a patent; provided Conner's

[1] Gayler *v.* Wilder, 10 How. 496.
[2] Reed *v.* Cutter, 1 Story, 590.
[3] Bedford *v.* Hunt, 1 Mason, 302.

safe and its mode of construction were still in the memory of Conner before they were recalled by Fitzgerald's patent. Whether the proposition expressed by the proviso in the last sentence is a sound one, it is not necessary in this case to consider.

"Here it is abundantly proved that the lock originally made by Erbe was 'complete and capable of working.' The priority of Erbe's invention is clearly shown. It was known at the time to at least five persons, including Jones; and probably to many others in the shop where Erbe worked; and the lock was put in use, being applied to a door, as proved by Brossi. It was thus tested and shown to be successful. These facts bring the case made by the appellees within the severest legal tests which can be applied to them. The defence relied upon is fully made out."

PARHAM *v.* AMERICAN BUTTON-HOLE, OVERSEAMING, AND SEWING MACHINE CO., 4 Fish. 468.

E. D. of Penn., 1871. Strong and McKennan, JJ.

The plaintiff's sewing-machine was completed in 1852. Three prior machines were adduced. The court held that they did not anticipate the plaintiff's invention, and that they were abandoned and unsuccessful experiments. The evidence on the latter point was as follows. Of the first two the court said: —

"Their history is somewhat extraordinary. The first one was made by Fisher, and he never saw it in practical operation. It was made for E. D. Leavitt, and the only use he knew or 'thought' was made of it is stated in his answer to the 38th cross-interrogatory propounded to him: 'I think samples were sewed by it, enough to show the working of the principle; but very little.' It was delivered to Wickersham, as a model for a duplicate, and remained in his shop at the Mechanic Mills, at Lowell, until 1857, when it was disentombed from the attic of that establishment and carried to Boston, to Martin and Rufus Leavitt, by whom it had been purchased. To them it belonged when the proofs were taken. At no time during all this period was it employed in any operative use, except as stated by E. D. Leavitt.

"The Fisher-Wickersham machine was delivered to E. D. Leavitt in October, 1850, and he sewed with it a pair of pants and a jacket for a small boy, and a pair of pants for a larger boy. It was kept most of the time until April, 1857, in a small room upstairs in his house, when it also was sold to Martin and Rufus Leavitt for $200; but no use was made of it during this time, not even by Leavitt's wife in making cloth-

ing for their children. When the Leavitts got it, it was boxed up, and only taken out to be used in a lawsuit in Baltimore, after which it was returned to the box, and remained there until it was reproduced in this case."

After remarking that at the time these machines were made the value of the sewing-machine was known, &c., and commenting on the fact that no patent was applied for, and no further effort to test them made, the court said : —

"While, therefore, there has been no satisfactory trial of the efficiency of these machines, and the persons interested in them have thus indicated so decided a judgment against their practical utility, we but enforce a logical sequence in assigning them to the category of unsuccessful and abandoned experiments."

UNITED NICKEL CO. *v.* ANTHES, 1 HOLMES, 155.

D. OF MASS., 1872. SHEPLEY, J.

Adams's patents of Aug. 3, 1869, for the electro-deposition of metal.

The learned judge, in his opinion, showed that the electro-deposition of nickel was first practically accomplished by the patentee, and he thus referred to an alleged prior discoverer : —

"The evidence of Remington shows an experiment with a cast-nickel anode, and we may, perhaps, reasonably conclude from the conditions under which that experiment was made, that the product of the casting was a carbide of nickel. But if such was the result, it was one apparently not designed, appreciated, or discovered. The experiments of Remington with a cast-nickel anode appear to have been suggested by the discoveries of the patentee, and to have been unsuccessful and abandoned experiments. However suggestive the experiments of others may have been in electro-deposition of nickel from different solutions, or in the mere casting of nickel, they cannot be made available to defeat a patent granted to one who, after all the experimenters had failed to secure a practical and successful result beneficial to the community, and a valuable contribution to the useful arts, first succeeded so as to be able to disclose to the public a practically useful and successful process, by him first brought to perfection and first made capable of useful application."

This patent was also sustained in the cases of the same plaintiff *v.* Keith, 1 Holmes, 328; *v.* Harris, 15 Blatch. 319; *v.* The Manhattan Brass Co., 16 Blatch. 68.

SHOUP *v.* HENRICI, 9 O. G. 1162.

W. D. of Penn., 1872. McKennan, J.

Patent for a pump.

"Years before" the patentee conceived of his invention, — a pump, — a similar device was used *once*. It effected the same object that the patentee's pump did; but inasmuch as the volume of water was restricted by its use (a consequence which, for all that appears, appertained to the patentee's pump also), its use was discontinued. The court held that this was not an "abandoned experiment," and that it anticipated the patentee's device.

AULTMAN *v.* HOLLEY, 11 Blatch. p. 333.

S. D. of N. Y., 1873. Woodruff, J.

Woodruff, J.: —

"The suggestion, that where . . . experiments are made without resulting in a useful machine, and the product thereof is abandoned on that ground, whatever devices it contained become public property, and can be dug up in after years and produced to defeat the patent of an independent and successful inventor, is not, I think, sound or warranted by the law."

THE CORN-PLANTER PATENT,[1] 23 Wall. p. 210 (1874).

Of an abandoned experiment for which a patent had unsuccessfully been sought the court said: —

"Can the fact that such an application was made and afterwards voluntarily withdrawn, and never renewed, make any difference? We think not. . . . It can only have a bearing on the question of prior invention or discovery. If upon the whole of the evidence it appears

[1] *Vide* also page 146 and page 633, *ante*.

that the alleged prior invention or discovery was only an experiment, and was never perfected or brought into actual use, but was abandoned and never revived by the alleged inventor, the mere fact of having unsuccessfully applied for a patent therefor cannot take the case out of the category of unsuccessful experiments."

PELTON *v.* WATERS, 1 BANNING & ARDEN, 599.

S. D. OF OHIO, 1874. EMMONS AND SWING, JJ.

Patent for an improvement in lubricators.

The court: —

"He [Waters, the defendant] says, most explicitly, that though he did succeed accidentally in making one close joint upon the neck of that single globe, he tried in vain for five months thereafter to make another. He says he broke many bottles in the attempt; that he did not even partially succeed, but in a single instance, during the five months, and that one leaked so badly it was unfit for use. . . . He not only had not invented a close joint, but he had so little hope of success, that he prepared extensively for the making of a different and inferior lubricator. In these circumstances, a single fortuitous success is by no means invention, within the protection of the patent law. He not only did not, and could not, give it to the public, but he did not possess it himself. It might as well be claimed that if he should be carrying three bottles in a basket, which being accidentally broken, their contents mixing in unknown quantities upon the earth, makes some useful compound, and he should enter upon a series of experiments for the purpose of ascertaining, if possible, its relative proportions, but does not succeed in doing so until after another has successfully completed the discovery, he could antedate him by proof of the casualty, by which he saw the same thing produced."

RAILWAY CO. *v.* SAYLES, 97 U. S. 554 (1878).

Patent, dated July 6, 1852, granted to Henry Tanner, assignee of Thompson & Bachelder, for a double-acting car-brake.

The claim ran as follows: —

"What is claimed by us is so to combine the brakes of the two trucks with the operative windlasses or their equivalents at both ends of the cars, by means of the vibrating lever A, or its equivalent or

mechanism, essentially as specified, as to enable the brakeman, by operating either of the windlasses, to simultaneously apply the brakes of both trucks, or bring or force them against their respective wheels, and whether he be at the forward or rear end of the car."

The only question raised in this case was that of infringement; but in order to determine the scope of the plaintiff's patent, the court considered certain prior inventions. It appeared that "double brakes" — that is, brakes so connected that those on both trucks of a car may be moved simultaneously and by one operation — were not original with Thompson & Bachelder. The patent for their invention was therefore restricted by the court to that form of double brake which they described.

Mr. Justice Bradley, delivering the opinion of the court, said: —

"Like almost all other inventions, that of double brakes came when, in the progress of mechanical improvement, it was needed; and being sought by many minds, it is not wonderful that it was developed in different and independent forms, all original, and yet all bearing a somewhat general resemblance to each other. In such cases, if one inventor precedes all the rest, and strikes out something which includes and underlies all that they produce, he acquires a monopoly, and subjects them to tribute.

"But if the advance towards the thing desired is gradual, and proceeds step by step, so that no one can claim the complete whole, then each is entitled only to the specific form of device which he produces, and every other inventor is entitled to his own specific form so long as it differs from those of his competitors and does not include theirs. These general principles are so obvious that they need no argument or illustration to support them."

Two kinds of double brake, the court found, had been in use prior to Tanner's invention. These were called respectively the Springfield brake and the Millholland brake.

The Springfield brake, made in 1842 or 1843, was used for a year or two on a freight car belonging to the Western Railroad of Massachusetts, until the car was broken up. Afterward, in 1856 and 1857, this brake, slightly modified, was used on the passenger cars of the same railroad for more than a year.

"It was undoubtedly," said the court, "attended with some inconveniences in its operation, especially in going around sharp curves.

But this did not prevent it from being used; and on a straight track, or on a track having only slight curves, it operated very satisfactorily."

The Millholland brake, the court said, approached much nearer, in its mode of operation, to the Tanner brake than did the Springfield. They continued as follows: —

"According to the testimony, it was placed on a passenger car of the Baltimore and Susquehanna Railroad, in or about the year 1843, and was continued in use for a considerable period, — one witness says a year or eighteen months. It was taken off because the brakemen were opposed to it, inasmuch as it had to be worked by hand by means of a windlass, whilst they were used to brakes that were operated by the foot. Whilst used, however, it worked with entire success. It is thus described by the inventor, James Millholland, in his testimony. He says: 'It broke upon all of the eight wheels from either end of the car. The brakes were operated by means of a drum placed under the car, about the centre. There were connections running from this drum to the levers on each truck, and also from the drum to the windlasses of the car.' . . . The drum performed almost precisely the same office which is performed by the vibrating lever in the Tanner brake, operating by means of the connecting rods upon the brakes in nearly the same manner.

"In 1846 Millholland applied a double brake somewhat like the last named to car-tenders, using a rock shaft with an arm on it instead of the drum, as a means of connecting the brakes to the two trucks. This brake was continued in use for many years.

"The subsequent invention of double brakes of improved and better forms superseded these early brakes, it is true; so that, excepting the modified forms in which they were applied to tenders, and excepting the temporary resuscitation of the Springfield brake in 1856, and again in 1871, they went entirely out of use. But their construction and use, though with limited success, are sufficient to show that Thompson & Bachelder . . . were not the originators of the double brake, nor of the use of rods, chains, and similar appliances for connecting the brake systems of two trucks under a car. They invented a particular apparatus for doing the desired work; and they can only claim their particular apparatus, or that which is substantially the same."

At the trial of this case in the court below,[1] Judge Drummond said: —

"It is asked, How often shall a brake be used to antedate the invention of Bachelder & Thompson? The answer is, Until that

[1] Sayles *v.* Chicago & Northwestern R. R. Co., 3 Biss. 52.

which is claimed as new in the patent is complete, although the thing may have been imperfect as an instrument or a machine. If it were manifest that the thing claimed in the patent was accomplished, one use would be sufficient. If the construction of the thing of itself demonstrated that it was within the principle here stated, then perhaps no use need be established. It might then be said to prove itself. But in most cases sufficient use must be shown to prove it will accomplish what is claimed; and while this is generally true of a patent, it is equally true of that by which a patent is sought to be defeated. Otherwise, it rests in the region of mere experiment."

PICKERING *v.* McCULLOUGH,[1] 13 O. G. 818.

W. D. of Penn., 1878. McKennan, J.

Nimmo's patent for a machine for manufacturing plumbago crucibles. Proof of a prior machine was offered, as an anticipation of Nimmo's. The court: —

"The argument against this hypothesis is, that it was an abandoned experiment. But the proof is that it was a complete machine; that it operated for nearly a year; that crucibles were made upon it without any imperfection in form. . . . True it is that it was not produced in evidence, and that it was not shown what had become of it. But these considerations tend rather to discredit the testimony touching the existence, construction, and operation of the machine than to impress upon it the character of a mere experiment. If that testimony is believed, there can be no doubt that the machine was neither incomplete in construction nor ineffective in adaptation to the work for which it was intended. And it is now too well settled to admit of controversy that an abandonment of the use of a mechanical structure which has been brought to such a degree of maturity, and whose operative merit has been demonstrated by trial, will inure to the benefit of the public, and not to that of even an original but subsequent inventor. Bedford *v.* Hunt, 1 Mas. 305; Reed *v.* Cutter, 1 Story, 600; Gayler *v.* Wilder, 10 How. 498; Coffin *v.* Ogden, 18 Wall. 124."

[1] *Vide* this case in the Supreme Court, *ante*, page 400, *post*, page 725.

DRAPER *v.* POTOMSKA MILLS, 13 O. G. 276.

D. OF MASS., 1878. SHEPLEY, J.

"An imperfect and incomplete invention, resting in mere theory, or in intellectual notion, or in uncertain experiments, and not actually reduced to practice and embodied in some distinct machinery, apparatus, manufacture, or composition of matter, is not, and indeed cannot be, patentable under our patent acts, since it is impossible, under such circumstances, to comply with the fundamental requisites of these acts. Reed *v.* Cutter, 1 Story, 590. Illustrated drawings of conceived ideas do not constitute an invention; and unless they are followed up by a seasonable observance of the requirements of the patent laws, they can have no effect upon a subsequently granted patent to another. But a patentee whose patent is assailed upon the ground of want of novelty may show by sketches and drawings the date of his inceptive invention; and if he has exercised reasonable diligence in perfecting and adapting it, and in applying for his patent, its protection will be carried back to such date. Reeves *v.* The Keystone Bridge Co., 1 O. G. 466.

THE UNION PAPER-BAG MACHINE CO. *v.* THE PULTZ & WALKLEY CO., 15 BLATCH. 160; 16 BLATCH. 76.

D. OF CONN., 1878, 1879. SHIPMAN, J.

William Goodale's patent of July 12, 1859 (extended), for improvements in machinery for making bags.

The invention was thus stated by the court in Machine Co. *v.* Murphy (97 U. S. 120), where infringement only was in question: —

"An operative machine to make paper bags from a roll of paper in the flat sheet, by a transverse cut across the same with a knife having five planes, so that the blanks, so called, when cut and folded, will present a paper bag of the form . . . given in the specifications and drawings of the patent."

The chief question in the first case, and the only one in the second, was whether a previous, abandoned device should limit the patentee's invention or not. This previous machine was made by the patentee's brother, E. W. Goodale, in 1856. He applied for a patent, and made a small model; but his application was rejected, and the inventor never made a working machine or

used the invention in any way, but he abandoned it and purchased his brother's invention, and used that. His brother, W. Goodale, the patentee, worked for E. W. Goodale, and was familiar with the abandoned machine. That machine is not described in either report, but it appears that the knife in it would substantially have done the work of the knife in the patentee's machine, though it was admitted that the latter knife had a patentable improvement upon it. The question, then, was whether William Goodale's invention should be limited to that patentable improvement, or should include the knife itself, although the knife in the abandoned machine was substantially identical with it.

Said the court, in the second case, page 78: —

"It is said, and said truly, that the subject of the first claim is a knife not in combination with any other part of the machine, and therefore, for the purposes of this case, the knife *per se* was the thing which the patentee invented; and it is strenuously insisted that the court must look at the two knives, disconnected from any other mechanism, and that it is obvious that the patentee knew, or must have known, that his brother's knife would cut the desired blank, and that there could have been no ignorance in regard to the feasibility of the device, for simple inspection would impart knowledge, and no experiment was necessary. But the knife was not to be a hand-tool. It was to be a part of an automatic bag-machine, and, therefore, a knife was to be invented which could be used in connection with other parts of the machine, although in the claim it is properly separately claimed. Inspection would show that such a knife would cut out pieces of paper in the form of a blank. Inspection would not show that it would operate in the place where it necessarily must be used. The fact that such a knife would do the work was not a part of the fund of knowledge which the patentee had when he commenced to plan his invention.

"If, then, as I think was the case, all that William Goodale knew was that the three-cutter system had been represented in a model, with which model he was familiar, and that the model had been laid aside, but did not, therefore, know that it was adequate to do the work, he started as an independent inventor into an unoccupied field of invention, and his invention is as broad as the territory which he actually reduced to possession."[1]

[1] We quote the following from the opinion in the first case: "The patentee has the right to take up the improvement at the point where it was left by his predecessor, and if by the exercise of his own inventive skill he is successful in first perfecting and reducing to practice the invention which his predecessor undertook to make, he is entitled to the merit of such improvement as an original inventor. Whitely *v.* Swayne, 7 Wall. 685."

In the first case, there was a feeble defence of non-patentability, in regard to which the court said: —

"The history of the art of paper-bag manufacture, and of the various patents which have been granted for paper-bag machines [none of them is reported], shows that this is a theoretical defence. As a matter of fact, there was invention. The inventor was required to make a knife which should cut from a roll of paper in the flat sheet, by one cut, a blank which could be folded into a bag without further cutting out. That had not been done before, although paper-bag machines are old and have been constructed by many persons and in various forms for more than twenty years, and with more or less utility. Machine Co. *v.* Murphy, cited *supra*." [1]

BROADNAX *v.* THE CENTRAL STOCK-YARD & TRANSIT CO., 4 FED. REP. 214.

D. OF N. J., 1880. NIXON, J.

Invention of apparatus for rendering lard and tallow, &c.

The court: —

"The proof was that the complainant had never put his alleged invention into practical use, and it was insisted from this fact that the inventor could not maintain a suit for its infringement. But this is not the law when the patentee is a citizen of the United States. In Wheeler *v.* The Clipper Mower Co., *supra*,[2] Judge Woodruff, in considering this objection to the validity of a patent, says: 'If the invention be such that when the thing invented shall be constructed according to the model and specification filed, it will operate successfully as a practical and useful thing, the inventor has satisfied the law, and his patent is valid. He is not bound by law to construct it in order to preserve his patent.'"

PUTNAM *v.* HOLLENDER, 19 BLATCH. 48.

S. D. OF N. Y., 1881. BLATCHFORD, J.

The patent was for a compound, lever bottle-stopper, which could easily be moved in and out of position.

The defence set up an old bottle-stopper, which had been made

[1] *Vide ante*, page 633.

[2] *Vide ante*, page 242.

in 1874 by one Otto, and was used by him for two years in the beer saloon which he kept. He then laid it by, and finally stowed it away in a trunk full of old bottles, where it remained till 1879, when it was raked out to be produced in this suit. While he was using the stopper in his saloon, he was also selling bottles of beer to be carried away; but although he was a locksmith, and might himself have made many such stoppers for the bottles sold by him, he did not do so. Judge Blatchford held that the evidence was defective as to the efficiency of this stopper, and he concluded as follows: —

"If it had the use which Otto says it had, it never was subjected to the strain necessary to close the bottle securely and tightly sufficient for handling and transportation, and it amounted only to an experiment which was abandoned.

"The whole evidence shows that it must fall into the rank of abandoned experiments. To no one of those who saw it, nor to Otto himself, did it suggest the idea of being a stopper which was fit to use on bottles which were to be sent out with beer. . . . The defendants have not shown that the invention was complete and capable of producing the result sought to be accomplished, — the result accomplished by the De Quillfeldt device. The thing was inchoate, and rested in experiment. The process pursued for its development failed to reach the point of consummation. However nearly Otto approximated to the end in view, he only made progress. The world derived no benefit from what he did. The recollection of it was stimulated by the success of De Quillfeldt's invention. But for that, Otto's structure would have still been reposing in the old trunk beneath the stairs, forgotten and worthless. The substantial form in which Otto clothed his conception, so far as it [is] preserved, and so far as its original arrangement and operation can be understood, does not demonstrate that it had the practical efficacy and utility which characterize the De Quillfeldt stopper. Otto's work was not complete, and he gave nothing to the public."

ENGLISH CASES.

CARPENTER *v.* SMITH, 9 M. & W. 300.

EXCHEQUER OF PLEAS, 1842.

The report says: —

"At the trial before Lord Abinger, C. B., . . . the main question . . . was whether the plaintiffs' invention, the principle of which was a combination of the bolt and latch of the lock within one hasp, was or was not a novelty.

"A witness called by the defendant proved that in the year 1816 he received from a house in the United States a pattern of a lock similar in principle to the plaintiffs', and that he procured several dozens to be made at Birmingham according to the pattern, and sent them to America.

"The defendant also produced a lock similar to that of the plaintiffs', which he proved to have been used for sixteen years on a gate adjoining a public road belonging to a clergyman of the name of Davies, residing near Birmingham. For the plaintiffs it was contended, that inasmuch as there was no proof that the locks in question had been brought into public general use in this country, the plaintiffs' might nevertheless be considered a new invention. The Lord Chief Baron, in summing up, stated that an invention could not be considered new which had been in *public use* before; that the word 'public' was not equivalent to *general*, but was distinguished from *secret*, use; and he expressed his opinion that the circumstance of a lock, similar in principle to the plaintiffs', being on Mr. Davies's gate for so long a period, and the manufacture of several dozens by an English artist for money, without secrecy, amounted to a public use of those locks."

The jury having found for the defendant, there was a motion for a new trial on the ground of misdirection.

In moving for a new trial, Kelly said: —

". . . The statute intended to prevent loss to the inventor of a useful instrument, who brings it into public use and exercise, by reason of the making of a former similar invention *not* brought into practice, or the use whereof may be said to have ceased. [Lord Abinger, C. B.: By how many of the public would you allow it to be known, and what are the public? How vague a rule you would establish for each case! Would you say that the use by a particular club would be a use by the public? or suppose the inventor of a machine gives away a hundred

among his friends and they use it.] (Kelly, *loq.*) . . . In Jones *v.* Pearce, . . . Patterson, J., in summing up to the jury, said, that if it appeared that the wheel 'was openly used in public, so that everybody might see it, and the plaintiffs had continued to use the same thing up to the time of taking out the patent, undoubtedly that would be a ground to say that the plaintiffs' invention was not new.' [Alderson, B.: That is the very same principle of law as was laid down by my Lord in the present case; the only restriction I should put upon it would be that it need not appear that the machine was used up to the time of taking out the patent.]"

A new trial was refused.

Alderson, B.:—

". . . 'Public use' means a use *in public*, so as to come to the knowledge of others than the inventor, as contradistinguished from the use of it by himself in his chamber. . . . If the plaintiffs' doctrine is correct, it would follow that if Mr. Davies were to change his lock to another gate he would be liable to an action for an infringement of the plaintiffs' patent. The case of Lewis *v.* Marling [1] went to the very extreme point of the law."

Gurney, B., concurred.

Lord Abinger, C. B.:—

"I agree in thinking that there is no ground for disturbing the verdict. I was counsel in the cases of Lewis *v.* Marling and Jones *v.* Pearce, and I recollect that these cases proceeded on the ground of the former machines being in truth mere experiments, which altogether failed.

"The 'public use and exercise of an invention means a use and exercise *in public*, not *by the public*.'

"There are some expressions in former cases which were referred to on the trial which rather leant towards Mr. Kelly's arguments, and I therefore thought it fit to lay down the rule of law in the broad terms I did. I have always entertained the same opinion on the subject." Rule refused.

YOUNG *v.* FERNIE, 4 GIFF. 577.

VICE-CHANCELLOR STUART, 1864.

James Young's patent of Oct. 17, 1850, for "improvements in the treatment of certain bituminous mineral substances and mat-

[1] 10 B. & C. 26. *Vide ante*, page 641.

ters, or products, therefrom." It was a method of extracting paraffine oil from certain bituminous coals, — namely, parrot coal, cannel coal, and gas coal, — by heating the coals in a retort so that they should keep a temperature of "a low, red heat," and no higher one. Full directions were given.

Others had extracted the oil from such coals, but in very small quantities and of poor quality. The plaintiff's process was the first practically successful one, chiefly on account of the temperature which he used; other experimenters having used a higher temperature, which converted a large portion of the oil into gas and tar. The patent was upheld.

The Vice-Chancellor said: —

"What the law looks to is the inventor and discoverer who finds out and introduces a manufacture which supplies the market for useful and economical purposes with an article which was previously little more than the ornament of a museum." [1]

NEWALL *v.* ELLIOTT, 10 JUR. N. S. 954.

EXCHEQUER OF PLEAS, 1864.

R. S. Newall's patent of May 14, 1855, for "improvements in apparatus employed in laying down submarine electric telegraph wires."

The claims were: —

"1. Coiling the wire or cable around a cone.

"2. The supports placed cylindrically outside the coil round the cone.

"3. The use of rings in combination with the cone as described."

Pollock, C. B.: —

". . . Then it was said that the specification discloses a matter which is not the subject of a patent; and Mr. Cleasby, with a great deal of ability and ingenuity, put a variety of cases which I agree could not be; but this does not come in that shape. This professes to be a discovery of an apparatus, and for anything that I can see, looking at it judicially, there is nothing to prevent a man from making an apparatus of this sort, and having it ready for sale. It is very true that it

[1] *Vide* also *ante*, pages 645, 646.

never has been done, and it is not professed to be done; and the reason is because every vessel which generally contains spars and spare timber quite sufficient to make either a cone or cylinder, contains materials for the purpose of making the apparatus which the plaintiff has invented."

Martin, B.: —

". . . It is an apparatus for carrying out a most important object, namely, laying down submarine electric telegraphs. Although it does not appear that the plaintiff is a manufacturer of it, that is quite an immaterial circumstance. The patent is for this apparatus, which, if it be new and useful, in my judgment it is within the statute of James; and according to all the evidence it is both novel, taken in combination, and useful."

See also —

LEWIS *v.* MARLING, 10 B. & C. 22.
CORNISH *v.* KEENE, 1 Web. P. C. 501.
GALLOWAY *v.* BLEADEN, 1 Web. P. C. 521.
MULLINS *v.* HART, 3 C. & K. 297.
HEATH *v.* UNWIN, 2 Web. P. C. p. 276.
MURRAY *v.* CLAYTON, L. R. 7 Ch. App. 570.

See also, besides the cases stated in the remarks at the beginning of this chapter, *ante*, —

HARTSHORN *v.* TRIPP, page 44.
STAINTHORP *v.* ELKINTON, page 86.
HUSSEY *v.* BRADLEY, page 89.
MASURY *v.* ANDERSON, page 114.
REEVES *v.* KEYSTONE BRIDGE Co., page 119 (foot-note).
MURPHY *v.* EASTMAN, page 130.
THE LYMAN, &c. Co. *v.* LALOR, page 141.
THE WOOD-PAPER PATENT, page 143.
JOHNSON *v.* RAILROAD Co., page 185.
UNION PAPER-COLLAR Co. *v.* LELAND, page 339.
COLGATE *v.* THE W. U. TEL. Co., page 359.
WINANS *v.* NEW YORK & HARLEM R. R. Co., page 421.
JUDSON *v.* BRADFORD, page 466.
SMITH *v.* GOODYEAR DENT. VUL. Co., page 516.
O'REILLY *v.* MORSE, page 583.
AMERICAN BELL TEL. Co. *v.* SPENCER, page 598.

And —

WAYNE *v.* HOLMES, 1 Bond, 27.
POPPENHUSEN *v.* N. Y. GUTTA-PERCHA COMB CO., 2 Fish. 62.

JOHNSON *v.* MCCULLOUGH, 4 Fish. p. 175. (To the point that a model is not a sufficient anticipation.)

MILLER *v.* ANDROSCOGGIN PULP CO., 1 Holmes, 142.
ROOTS *v.* HYNDMAN, 6 Fish. 439.
RICHARDSON *v.* NOYES, 10 O. G. 507.

HOWES *v.* MCNEAL, 17 Blatch. 396. (Rejected application for a patent does not prove prior knowledge or use.)

SINCLAIR *v.* BACKUS, 17 O. G. 1503.
WHITTLESEY *v.* AMES, 13 Fed. Rep. 893.
THE YALE LOCK MFG. CO. *v.* THE SCOVILL MFG. CO., 18 Blatch. 248.

DETROIT LUBRICATOR MFG. CO. *v.* RENCHARD, 9 Fed. Rep. 293. (A drawing not sufficient, even though "it seems to exhibit a perfect machine in all its parts.")

STEPHENSON *v.* BROOKLYN CROSSTOWN R. R. CO., 19 Blatch. 473.

CHAPTER IX.

PRIOR INVENTION.

NOTE. — For the distinction between prior knowledge or use and prior invention, and the difference in the law governing the two classes of cases, the reader is referred to Chapter VIII. page 621, *ante*.

300. By section 4920 of the Revised Statutes it is provided that, in a suit for infringement, it shall be a sufficient defence to prove that the patentee

"had surreptitiously or unjustly obtained the patent for that which was in fact invented by another, who was using reasonable diligence in adapting and perfecting the same;"

or that the patentee

"was not the original and first inventor or discoverer of any material and substantial part of the thing patented;"

or

"that it [the invention] had been in public use or on sale in this country for more than two years before his [the inventor's] application for a patent."[1]

301. Cases to which these provisions apply are designated as occurring in the "race of diligence;" a phrase, however, which is somewhat misleading. If two persons conceive of the idea of an invention simultaneously but independently, then indeed there is a race of diligence; and he who first completes his invention, reduces it to successful practice, is the first inventor in the eye of the law. But if one conceives before the other, then the second to conceive cannot become the first inventor by being the first to reduce his invention to practice; unless, indeed, he

[1] The words, "with his consent or allowance," followed here prior to the Patent Act of 1870.

who was first to conceive fails to use due or reasonable diligence in perfecting his invention. In such case, therefore, the second to conceive is so handicapped that he cannot win by excess of diligence on his own part, but only by want of diligence on the part of his rival.

We state the rule again: He who first conceives the idea of an invention, and uses reasonable diligence in reducing it to practice, is the prior inventor as against one whose conception of the idea was later, though he was the first to make a complete invention. If, however, the first conceiver has not used reasonable diligence in perfecting his invention, then he who was later to conceive, but first to complete, his invention is the meritorious inventor.

302. It is important to add, that the obtaining of a patent does not place the inventor in any better position than he would have otherwise. Thus (1), if the second to conceive, but the first to reduce to practice, has also first obtained a patent, his patent is voidable, provided the first inventor has used reasonable diligence to perfect his invention.

Again (2), if the first conceiver has lost his right to a patent by want of diligence in reducing his invention to practice, and a second conceiver has anticipated his reduction to practice, — in such case the first conceiver cannot regain his right to a patent by obtaining it before his rival. We apprehend that no delay in applying for a patent which does not amount to abandonment will defeat the right of a first inventor, provided his invention has not been "in public use or on sale for more than two years prior to his application." See Ryan *v.* Goodwin, 3 Sumner, 519; Bentley *v.* Fleming, 1 Car. & Kirw. 587. In the case of Kendall *v.* Winsor, 21 How. p. 330, there are *dicta* by Mr. Justice Daniel which seem to imply that such delay, for the purpose of concealing a perfected invention, would defeat the right to a patent. The reader is also referred to the remarks of Mr. Justice Clifford in the case of White *v.* Allen, *post*, page 698.

The cases stated in these two propositions, so far as we know, have not been adjudicated. We can, therefore, bring no authority to support the positions advanced.[1]

[1] In the case of Reed *v.* Cutter, 1 Story, p. 600, Story, J., said: "If . . . the text of Mr. Phillips [Phillips on Pats. p. 395] means to affirm (what

303. One qualification should be added to the foregoing remarks. The clause, "not in public use or on sale for more than two years prior to his [the inventor's] application,"[1] might shut out a patent on the ground of prior knowledge or use, when other parts of the statute would not. Thus, it is a possible case that an invention should be "not known or used by others before his [the inventor's] invention or discovery thereof," and yet that the inventor should be so long either in reducing his invention to practice, or afterward, in applying for a patent, that the same invention (subsequently invented by another) should have been "in public use or on sale for more than two years prior to his application."[2] Of course, this last clause commonly applies to use or sale by the inventor himself;[3] and of such use or sale we do not treat.[4]

304. The general rule was stated by Judge Story, in an early case,[5] as follows: —

"In a race of diligence between two independent inventors, he who first reduces his invention to a fixed, positive, and practical form would seem to be entitled to a priority of right to a patent therefor. The clause of the fifteenth section [act of 1836] now under consideration seems to qualify that right by providing that in such cases he who invents first shall have the prior right, if he is using reasonable diligence in adapting and perfecting the same, although the second inventor has in fact first perfected the same, and reduced the same to practice in a positive form."

I think it does not) that he who is the original and first inventor of an invention so perfected and reduced to practice will be deprived of his right to a patent, in favor of a second and subsequent inventor, simply because the first invention was not then known or used by other persons than the inventor, or not known or used to such an extent as to give the public full knowledge of its existence, I cannot agree to the doctrine; for, in my judgment, our patent acts justify no such construction; *and, a fortiori, he will not so be deprived if he does not apply for a patent.*"

[1] *Vide* foot-note 3 to page 621.

[2] *Vide ante*, page 621.

[3] Prior to the act of 1870, the clause under consideration was followed by the words, "*with his consent or allowance.*" Prior to that time, therefore, this clause did not apply to public use or sale of a precisely similar invention, invented by another. Since the act of 1870, it does so apply. This has been held by the Supreme Court, *vide* page 712, *post*, and by Judge Lowell, Burton *v.* Greenville, 18 O. G. 411.

[4] *Vide* Kendall *v.* Winsor, 21 How. 322, and foot-note 2 to page 640, *ante*.

[5] Reed *v.* Cutter, 1 Story, 120.

So also Judge Woodbury, in the case of Allen *v.* Blunt;[1] and in a later case,[2] where the conflict was between two patents for one invention, he instructed the jury as follows: —

"The date of the invention is the date of the discovery of the principle involved, and the attempt to embody that in some machine, — not the date of the perfecting of the instrument. It was on that account that I did not consider it pertinent to go into the testimony as to the progress of the perfecting of the machine. If the invention was made, — if it was set forth in a machine which would and did discharge a fire, — that is all which is necessary to constitute the invention. But the party cannot get a patent until he perfects it in some sense of the word, — that is, until he goes on and makes improvements to render it practical and useful, — for it is one element of a machine necessary to sustain a patent, that it is useful."

And he went on to state the distinction between prior use and prior invention as follows: —

"It is a very different thing to sustain a patent when it is attacked by another patent, from what it is to show the invention compared with a prior invention; for invention is the discovery of the main principles of the machine, and embodying it in wood or iron, or of whatever it is to be composed, and making it act."

And earlier in the charge he said, speaking of the alleged prior invention: —

"And it is of no consequence, if it existed, that the party did not choose to patent it. In some aspects of the patent law it might be important to show that it had been abandoned; that is, when the party undertakes to rely on priority of use to defeat the plaintiff. But here the reliance is not on prior use; therefore it is of no consequence whether it is abandoned or not, but whether it was the prior invention. When I say 'it,' I mean a machine involving the same or a similar principle."

305. The rule as to conception and diligence in reducing to practice is also stated to the same effect by Hall, J., in Ransom *v.* Mayor of New York, 1 Fish. p. 272; by Sprague, J., in Johnson *v.* Root, 1 Fish. p. 369; by Drummond, J., in Cox *v.* Griggs, 2 Fish. p. 176; by Mr. Justice Clifford, in White *v.* Allen, 2 Fish. p. 446; by McKennan, J., in Reeves *v.* Keystone Bridge

[1] 2 Wood. & M. 121.

[2] Colt *v.* Mass. Arms Co., 1 Fish. p. 120.

Co., 1 O. G. 466 (*ante*, page 119); by Ingersoll, J., in Ellithorpe *v.* Robertson, 2 Fish. 83. The last named was an interference case, appealed to the Circuit Court. The plaintiff did not allege that he had exercised due diligence in reducing his invention to practice, but only that he conceived it before the defendant's patent issued. This fact explains the decision, which was couched in the following language:—

"To defeat a patent which has been issued, it is not enough that some one, before the patentee, conceived the idea of effecting what the patentee accomplished. To constitute such a prior invention as will avoid a patent that has been granted, it must be made to appear that some one, before the patentee, not only conceived the idea of doing what the patentee has done, but also that he reduced his idea to practice, and embodied it in some practical and useful form. The idea must have been carried into practical operation. The making of drawings of conceived ideas is not such an embodiment of such conceived ideas into practical and useful form as will defeat a patent which has been granted."[1]

306. In Taylor *v.* Archer (8 Blatch. p. 320), a case decided by Judge Blatchford, it is held that one who "started later in his experiments" than the alleged prior inventor, but made a completed invention first, was entitled to the patent.

If this means that he began to search, as it were, for the desired invention later, but conceived the idea of it earlier, than his rival, the law of the decision is good. And it is an instance of a point which should be borne in mind; namely, that the conception of an invention—in other words, the striking out a way of accomplishing the desired result—is a very different thing from, and is often subsequent to, the beginning of experiments or of thought, with the view of reaching the desired end. This latter is often a mere groping in the dark, which may or may not lead to a useful result; whereas the conception of the inventive idea is a hitting upon the very kernel and gist of the subsequently completed invention. An invention cannot be carried back to the beginning of the search for it, inasmuch as at that time there was not anything of value accomplished, and no certainty that it ever would be; whereas it may be carried back to the conception of the inventive idea, because the inventive idea is that on account

[1] *Vide post*, page 702.

of which, though not for which, the patent is granted. Moreover, once given the inventive idea, its reduction to practice — in other words, the complete invention — is certain to follow.

307. In a recent case, Electric Railroad-Signal Co. *v.* Hall Railroad-Signal Co. (6 Fed. Rep. 603), it was held by Shipman, D. J., that one Pope, who first conceived the inventive idea, and about six months afterward received a patent for his invention, never having used the apparatus invented, or even made a model of it, but yet having so described it in his patent that it could be employed successfully therefrom, — this inventor the judge held, was anticipated by one Hall, who conceived the inventive idea a month or more later than Pope, tested his invention between the time at which Pope conceived his invention and the time at which Pope obtained a patent, and found a practical difficulty, which he solved nine months after the issue of Pope's patent. Hall's invention then went into use, whereas Pope's never went into use; but it was not denied that his patent described a practical and valuable invention.

Here, then, was a clear case for Pope within the rule on this subject, unless it be that his failure to reduce his invention to tangible form should deprive him of a patent. Such reduction is required when a prior device is set up to defeat a patent. This is because the existence of a practical and valuable anticipation cannot be proved with sufficient strictness in any other way. If the device was never used, remained only an idea or a drawing, then its efficiency — and that is in question — was never tested.

But here the practical value of Pope's invention was admitted. It is, therefore, of no consequence that he never used it himself. The invention was a complete one; it was conceived before Hall's, and there was no want of diligence between the conception and the application for a patent. Pope's patent was therefore good, if any patent for a thing or a process, never given a tangible form, is good; and that such omission to use or test the invention does not invalidate a patent from the perusal of which one skilled in the art can construct a useful thing, or employ a valuable process, is undoubtedly the law. *Vide* the cases cited *ante*, page 643.[1]

[1] In the case of Cammeyer *v.* Newton (94 U. S. 225), the patent was for an elaborate dam arrangement designed to facilitate the blasting of

The learned judge said: —

"The just . . . pr ciple of the law which gives a patent to the inventor who first conceives of the invention, provided he is diligently engaged in perfecting it and adapting it to use, and overcoming the practical difficulties, . . . although he was slower in the race than the one who was second to conceive, does not apply to Pope. Who faintly conceived the idea is not known. [This refers, apparently, to the starting in search of the invention.] Pope first attained a mental result [and this to the conception of the inventive idea]. After that, he was actively occupied in the same branch of study; but he did not develop this system in wood and metal. Hall did develop it, made it useful and practicable, and achieved success. In my opinion it would be a great wrong to decide that the defendant is liable as an infringer."

308. We have seen that the right to a patent as between rival inventors depends upon three things: —

(1.) Conception of the invention.

(2.) Reduction to practice.

(3.) Reasonable diligence.

We have, therefore, to consider what, according to the court, is conception of an invention, what is reduction to practice, and what is reasonable diligence. The cases on these points are very few.

I. What is conception of an invention?

309. We have already partly answered this question in our remarks upon the case of Taylor *v.* Archer, *ante*, page 691. The reader is also referred to pages 27–29 of the Introduction to, and page 71 of the first chapter of, this book.

In the case of Adams *v.* Edwards,[1] Judge Woodbury thus defined it: —

"It must be the idea struck out, the brilliant thought obtained, the great improvement in embryo. He must have that; but if he has that, he may be years improving it, maturing it. . . . But the period when he strikes out the plan which he afterward patents, that is the time of the invention; that is the time when the discovery occurs."

rocks in river-beds. The case was one of infringement, and infringement was not proved. The court, however (Mr. Justice Clifford delivering the opinion), stated that the process had never been tested; but they did not intimate that this circumstance affected the validity of the patent therefor.

[1] 1 Fish. p. 8.

In the case of Colt *v.* Mass. Arms Co.,[1] the same judge said:—

"The date of the invention is the date of the discovery of the principle involved, and the attempt to embody that in some machine."

Judge Lowell's admirable statement of the law upon this point is as follows:[2]—

"Another point which I have not before seen in the precise way in which I am about to put it, is the principle of law which is to govern you in determining the time when this invention was made. For the purposes of this case, I shall rule that the principle of law is, that he is the original and first inventor of a machine or combination, or whatever it is, if it was not known or used by others before his discovery or invention; the man who has made an invention that was not known before he made it. That does not mean that he got his machine into the complete state in which you find it in the patent. Neither does it mean the first moment at which he conceived the idea that it would be a good thing to do that. *It means not only when he conceived that such a thing would be a desirable thing to do, but when he had conceived the idea of how to do it substantially as he has done it.*"

The words which we have italicized cover the whole ground.

There is no limit of time within which an inventor can carry back the date of his invention. At least, it is determined only by his failure to use reasonable diligence in completing his invention. This point we shall consider presently.

310. As to how the date of conception of an inventive idea may be proved, the only point we find decided by the courts is that the making of drawings and sketches is sufficient evidence of it. Kneeland *v.* Sheriff, 2 Fed. Rep. 901; Reeves *v.* The Keystone Bridge Co., 1 O. G. 466; Draper *v.* Potomska Mills, 13 O. G. 276; Loom Co. *v.* Higgins, 105 U. S. p. 594. But it would seem that a "rude" sketch is not. Knox *v.* Loweree, 6 O. G. 802.

311. If, however, the invention were, as some inventions are, of a character so simple that, once conceived, its reduction to tangible form requires neither thought nor experiment, then it would seem, on principle, that evidence of written or oral communication of the idea by the inventor to some other person should be sufficient to fix the date of conception. In the case we suppose such evidence would be as instructive and trustworthy

[1] 1 Fish. p. 120.

[2] Woodman *v.* Stimpson, 3 Fish. p. 105.

as drawings are in the case of a complicated and difficult invention. This point, however, has not, we believe, been settled by any of the Federal courts, unless in the case of Sayles *v.* Hapgood (2 Biss. 189), where Judge Drummond said: —

"When a man conceived a certain machine, no one knows except the man himself; when he described it, no one knows except himself and the person to whom he describes it. We have to rely upon their testimony in order to determine."

312. II. Reasonable or due diligence in reducing to practice, and

III. What is reduction to practice? Drawings are not. (We take up the last-named topic first.)

In Ellithorpe *v.* Robertson, *ante*, it is said: —

"The making of drawings of conceived ideas is not such an embodiment of such conceived ideas into practical and useful form as will defeat a patent which has been granted."

So also Shepley, J., in the case of Draper *v.* Potomska Mills, *ante*: —

"An imperfect and incomplete invention, resting in mere theory, or in intellectual notion, or in uncertain experiments, and not actually reduced to practice, and embodied in some distinct machinery, apparatus, manufacture, or composition of matter, is not, and indeed cannot be, patentable under our patent acts, since it is impossible, under such circumstances, to comply with the fundamental requisites of those acts. Reed *v.* Cutter, 1 Story, 590.

"Illustrated drawings of conceived ideas do not constitute an invention; and unless they are followed up by a seasonable observance of the requirements of the patent laws, they can have no effect upon a subsequently granted patent to another."

And he continued: —

"But a patentee whose patent is assailed upon the ground of want of novelty may show, by sketches and drawings, the date of his inceptive invention," &c.

313. In the case of Ransom *v.* Mayor of New York, 1 Fish. p. 268, Judge Hall instructed the jury as follows: —

"In order to avoid the plaintiff's patent on the ground of want of originality, . . . it will become necessary . . . that you should determine the precise date of the plaintiff's invention. In order to determine that, the jury must determine at what time the plaintiffs (not one of

them, for the patent is an invention by the plaintiffs jointly) first perfected the intellectual production, or the idea or conception of the thing patented, so that, without more inventive power or further trial or experiment, they could have successfully applied it in practice, and could at once have complied with that provision of the statute which requires that an inventor, before he shall receive a patent for the invention or discovery, shall deliver to the Patent Office a written description of his invention, and explain the principles 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 that, in order to determine whether any other person has invented 'the same thing patented' by the plaintiffs prior to the plaintiffs' invention thereof, they must apply the same rules in determining the date of such alleged prior invention."

314. The filing of a *caveat* does not of itself prove that the invention claimed by it was not reduced to practice when the *caveat* was filed. In the case of Johnson *v.* Root, 1 Fish. p. 367, Sprague, J., instructed the jury as follows: —

"It is contended, on the part of the defendants, that the *caveat* itself is conclusive evidence that that invention was not perfected.

"You will observe that the application which is in the *caveat* before you, made to the Patent Office by Mr. Johnson for leave to file a *caveat*, sets forth that he has made a certain new and useful improvement in the sewing-machine, and that he is then making experiments to perfect it, and asks leave to file a *caveat* to secure it. The defendant insists that that application is of itself conclusive evidence that he has not perfected it. We will look at it, gentlemen, and see. I do not instruct you that it is conclusive evidence; but it is evidence for you to take into view in connection with the other evidence, and in connection with the other parts of the same instrument, in which he begins by saying that he has made a new and useful invention in the sewing-machine. Now, gentlemen, although a *caveat* is understood to be, and in this instance is, filed in order to allow the party to perfect his machine, yet if, in point of fact, the invention had been perfected in the eye of the law, as I have explained to you, then, if you are satisfied of that from the evidence, you may deem it, for the purpose of this trial, as perfected. Or it may happen that a person may choose to file a *caveat* while he is going on and making improvements upon an invention which he has already completed, so as to be of practical utility. Therefore, gentlemen, I would say to you, that you will take into consideration the declaration of the plaintiff himself in the appli-

cation, that he had made a new and useful improvement in sewing-machines, and the further declaration that he is making experiments in order to perfect his invention, and the subsequent declaration that he *has made* a new and useful improvement in sewing-machines, and the other evidence in relation to the case, — that is what was described in the *caveat* and the model which was made in 1848, — and see if that exhibits to you a perfected machine; and then such further evidence as you have of the actual operation of the machine that will be before you."

315. It appears, then, that the reduction to practice contemplated by the law, as a step in the race of diligence, must be the making of a complete practical machine or apparatus, or the actual employment of a process. This, as we have seen, is the law in the analogous case of prior use, where nothing short of a complete invention is held to anticipate a patent subsequently granted for the same thing. *Vide ante*, page 626 *et seq.*

316. We now turn back to

II. Reasonable or due diligence in reducing to practice. What this is depends in every case on two things: first, the nature of the invention; and, secondly, the personal circumstances of the inventor. Strictly speaking, indeed, the same diligence must be exercised, whatever the invention; but the length of time which may elapse without proving want of diligence depends on the character of the invention.

Thus, if it be a complicated machine, or a long and difficult process, or if it has to do with little-known materials, then many experiments may be required to complete the invention, and much time may necessarily be consumed in doing so. If, on the other hand, the invention may easily be reduced to practice, delay in completing it would show want of diligence.

317. As to the personal circumstances of the inventor, poverty or ill health will excuse want of diligence. If, however, the inventor lay aside his incomplete invention without some such excuse, or if he neglect it in order to labor upon other inventions, want of diligence is established. Johnson *v.* Root, 2 Cliff. 108; White *v.* Allen, 2 Cliff. 224.

318. In the case of White *v.* Allen, Judge Clifford held that want of diligence in applying for a patent,[1] during five years, was excused by the fact that the patentee was deterred from making

[1] The reader is referred to page 688, § 302, *ante*.

his application by a reasonable fear that his employer would discharge him if he did so.

The learned judge said: —

" . . . The patentee made the invention . . . and reduced it to practice as an operative fire-arm, within the meaning of the patent law, as early as the fall of 1849, or the fore part of the year 1850, when his fourth experiment was completed. [His patent was granted April 3, 1855.] . . . It is insisted by the respondents that the supposed inventor afterward deserted and abandoned his invention, and, consequently, that he cannot be regarded in this controversy as the original and first inventor of the improvement. But if that proposition cannot be sustained, then they contend that the proofs show that he took the pistol he constructed apart, and laid the materials aside for years, as something incomplete and requiring more thought and experiment, before he attempted to restore the invention, and without any definite intention of resuming the undertaking; and they insist that the rule of law upon that state of the case is, that if another, in the mean time, invents the same thing, without any knowledge of that which is so suspended, and reduces the same to practice, applies for and takes out his patent, and introduces the patented invention into public use, he is entitled to the benefits of his skill and diligence, and must, in judgment of law, be regarded as the original and first inventor of the improvement, although it may appear that the final experiment of the other party was so far completed that the machine or other invention was, in fact, the proper subject of a patent, and that the materials were laid aside to preserve the parts, to be used or not, in the future, as circumstances should arise, or as he should thereafter determine, yet without any positive, unconditional intention of relinquishing what he had accomplished, or of abandoning the invention. Nothing need be remarked in respect to the first of these propositions, except to say that the evidence in the case is not sufficient to support it, and it is accordingly overruled. Unlike the first, the second deserves to be more carefully considered. Cases undoubtedly occur, such as are supposed in the proposition, where an individual employed in inventing, or in making experiments in that behalf, feeling dissatisfied with the result of his efforts, becomes discouraged in prosecuting the investigation, and finally loses all confidence in the prospect of his ultimate success; and under the influence of such discouragements, or from a desire to engage in more profitable business, or to pursue a more pressing or favorite undertaking, decides to break up what he has accomplished, and lays the parts aside, not positively intending to abandon the subject, yet wholly uncertain whether he will ever resume it or make any further use of the

parts so laid aside. Such cases are doubtless of frequent occurrence; and while they do not show an unconditional abandonment of the undertaking, they do show an indefinite suspension of the same, and an entire uncertainty during such suspension whether the interested party will ever furnish the invention to the public. Where an invention is thus voluntarily broken up and laid aside, without any controlling impediment in the way of an application for a patent, and under all the other conditions specified in the preceding proposition, and another, in the mean time, invents the same thing, without any knowledge of that which is so suspended, and reduces the same to practice, applies for and takes out his patent, and introduces the patented invention into public use, I am of the opinion that he must be regarded as the original and first inventor of the improvement. . . .

"Some of the parts used in the several experiments, to which reference has been made, were preserved, as, for example, the revolving breech, constructed with the nipples in it, as used in the sixth experiment, and it is an exhibit in the case; and the cylinder used in the same experiment, and several others of the identical parts used in those experiments, were also preserved and put into one or the other of his Patent Office models.

"Most or all of the other parts were put into a box, and were kept for a time in the attic of the house where he lived; and he states that when he moved from there, in shipping his goods he lost the box, together with the materials, and it is upon the loss of these materials, and the delay that ensued in applying for a patent, that the respondents chiefly rely to support the theory of fact involved in the proposition. On the other hand, it undeniably appears that the invention held by the complainants is only an improvement upon the patented invention of Samuel Colt, who, for a long series of years, was an extensive and successful manufacturer of revolving pistols. Full proof also is exhibited that the patentee of the invention, under whom the complainants hold, was in the employment of that same manufacturer from the time he made his first experiment until he commenced to make his preparations with a view to apply for his patent, and that throughout that entire period the well-known patent of his employer was in full operation. Direct inquiry was made of the patentee in this case why it was that his application for a patent was so long delayed; and his answer was, that it was because his employer had a patent for the mode of revolving the pistol embraced in his improvement, and which he desired to use, and also because his employer had discharged certain men who had been experimenting on revolving pistols. Two or more of his brothers were employed in the same establishment, and on one or more occasions, when the witness exhibited his pistol to his brothers, he pro-

posed to show the same to his and their employer; but they objected, and remonstrated against the suggestion, upon the ground that if it were done they would all lose their places. Meeting with these discouragements, he delayed his application for a patent; but there is no ground whatever to conclude that he ever, for a moment, intended to postpone his application for a patent any longer than it became necessary that he should do so in order to overcome those difficulties, and, consequently, the theory of fact involved in the proposition cannot be sustained."

319. It is scarcely necessary to add that evidence sufficient to prove abandonment of an invention (and an invention may be abandoned at any stage) will also prove lack of reasonable diligence; but lack of reasonable diligence may be shown without proving a degree of negligence that would amount to abandonment.

320. For the rule of law governing those cases in which an invention is claimed by each of two persons, one of whom, commonly, has been employed as an assistant by the other, the reader is referred to pages 625, 626, *ante*. Important cases on this point are the case quoted from at page 625, namely, the Agawam Co. *v.* Jordan, the facts in which, as reported, are meagre and uninstructive, so that we do not rehearse them; Sparkman *v.* Higgins, *post*, page 701; Blandy *v.* Griffith, *post*, page 705; and Allen *v.* Rawson, an English case, *post*, page 715. See also Minter *v.* Mower, *ante*, page 608.

321. The following unusual but simple point was decided by Judge Shepley in the case of Kendrick *v.* Emmons (9 O. G. 201):—

"An English patent taken out surreptitiously by any person who, without the knowledge of the American inventor, and without authority from him, endeavored to appropriate the benefits of his invention, would not thereby deprive the real inventor of any of his rights."[1]

[1] We add the head-note of a somewhat analogous case in the Supreme Court (that of Shaw *v.* Cooper, 7 Peters, 292), which runs as follows:—

"An alien patentee made an invention in England, and came to this country in 1817; his invention was fraudulently disclosed in England, and went into public use there, and also in France, in 1820; the patentee knew of this use, but neglected to apply for a patent until 1822; the court below instructed the jury that the patentee had slept too long on his rights to be entitled to the benefit of a patent under the act of April 17, 1800 (2 Stats. at Large, 37). *Held*, that this instruction was correct."

SPARKMAN *v.* HIGGINS, 1 BLATCH. 208.

S. D. OF N. Y., 1846. BETTS, J.

The patent was for a design for an oil-cloth. It was granted to Sparkman and Kelsey.

The defendants contended that the invention was made by a workman of the plaintiffs', one Berry.

The court: —

"The defendants lay before the court the declarations of Berry in connection with his working without any draft, design, or model before him, which, the defendant insists, proves him to be the inventor.

"But, on the other hand, Mr. Kelsey details very minutely the suggestion he made, his superintendence, his suggesting alterations in a design got up, his disapproving that, and the adoption of his views in the design now patented. And Mr. Berry gives his own account of the matter, and explains the declarations attributed to him, as referring to his working without a copy before him, and to the design being an original and not a copy. He does not intimate that he did not receive suggestions, alterations, and directions from Mr. Kelsey which were carried out in this design.

"To constitute an inventor, it is not necessary he should have the manual skill and dexterity to make the drafts. If the ideas are furnished by him for producing the result aimed at, he is entitled to avail himself of the mechanical skill of others to carry out practically his contrivance. Here the devising of the pattern in this sense appears to have been by the plaintiffs."

PHELPS *v.* BROWN, 1 FISH. 479.

D. OF CONN., 1859. NELSON AND INGERSOLL, JJ.

Head-note: "A. filed a *caveat* in the Patent Office, April 17, 1854. B. made application for a patent for the same invention, November, 1854. No notice was given to A. of this application, but a patent was granted to B., Jan. 9, 1855. A patent was subsequently granted to A. In a suit by the assignee of B. against the assignees of A., — *Held*, that the omission to give notice to A. might be set up as one of the defences under section 15 of the act of July 4, 1836, as proof that B. had surreptitiously or unjustly obtained the patent for that which was in fact discovered by another,' &c.

"A patentee is not to be prejudiced by the error or oversight of the Patent Office."

ELLITHORPE *v.* ROBERTSON, 2 Fish. 83.

S. D. of N. Y., 1850. Ingersoll, J.

The bill charged that Ellithorpe invented certain improvements in sewing-machines in July, 1847, and made drawings of them in that month preparatory to applying for a patent; that he was delayed in doing so till April 10, 1858, for want of money; that his house, in which he supposed the drawings to be, was burned in August, 1848; that he did not find the drawings till within less than six months of April 10, 1858, when he applied for a patent, which was refused on the ground that he was anticipated by Robertson, whose patent issued Nov. 28, 1854.

The court said (in addition to what is quoted at page 691, *ante*): —

"Experiments equivocal in their results, and given up for years, will not be permitted to prevail against an original inventor who has reduced his invention to practice, and has without fraud obtained a patent.

"An invention is not patentable until it is perfected and adapted to use. In a race of diligence between two independent inventors, he who first reduces his invention to a fixed, positive, and practical form has a priority of right to a patent. Many *v.* Jagger, 1 Blatch. 372; Parkhurst *v.* Kinsman, 1 Blatch. 488; Reed *v.* Cutter, 1 Story, 590. . . . The making of the drawings is all he claims to show what his idea was. The bill does not show there was any reducing of the invention to any practical and useful form, or that it had been adapted to use. The allegations of the bill, therefore, are not sufficient to defeat the patent to Robertson.

"If there had been any fraud in obtaining the patent of Robertson, or if it had been unjustly issued, then the case would have been presented in another aspect; for it is provided by section 1 of the act of 1836 that a patent issued may be avoided if the patentee has surreptitiously or unjustly obtained his patent for that which was in fact invented or discovered by another, who was using reasonable diligence in adapting and perfecting the same. But there are no allegations of this kind in the bill."

COX *v.* GRIGGS, 1 Biss. 362.

N. D. of Ill., 1861. Drummond, J., and a Jury.

The plaintiff's patent was granted Aug. 16, 1859.

In 1855 and 1856 he was making drawings and a model; he explained his invention (a plough) to his son in 1857; in December, 1858, he made a model and casting; he was experimenting continually, and put his improvement into use in 1859.

The defendant's patent issued in November, 1859.

Witnesses testified to having seen various models made by the defendant, "*something like*" the plaintiff's invention, in 1853 or 1854.

Some experiments were made by the defendants in 1857 with their plough, built of wood.

The delay from 1857 to 1859 they did not account for.

The court: —

"It is the right and privilege of a party, when an idea enters his mind in the essential form of invention, — inasmuch as most inventions are the result of experiment, trial, and effort, and few of them are worked out by mere will, — to perfect, by experiment and reasonable diligence, his original idea, so as not to be deprived of the fruit of his skill and labor by a prior patent, if he is the first inventor. But there must be what we would consider reasonable diligence, looking at all the facts of the case. The defendants do not explain their delay from 1853 to 1857, when nothing was done, and the models were not reduced to practice. It is necessary, in order to prevent a man from having the benefit of his patent, that another person should first have discovered the thing and reduced it to actual practice. It is not pretended by the defendants that they reduced to actual practice the crude model of 1853. [He then rehearses the plaintiff's evidence, already stated, and concludes:] The preponderance of proof should be in favor of the plaintiff; but if they were jointly experimenting and equally meritorious, a doubt should be solved in favor of him who first obtains a patent."

JOHNSON *v.* ROOT, 2 CLIFF. 103.

D. OF MASS., 1862. CLIFFORD, J.

Motion for a new trial, the jury having found a verdict for the plaintiff.

The plaintiff applied for his patent March 31, 1853, and received it March 7, 1854.

The defendant's machine was made under patents issued in 1852, or earlier. But the plaintiff attempted to carry back his invention to 1848. On November 7 of that year he went to Washington, taking with him a model. The main device of his patented invention was omitted from this model, having been introduced into the invention, but not successfully, before he left home. This model was not deposited in the Patent Office; the plaintiff brought it home, and afterward used parts of it in the construction of other machines. While in Washington he filed a *caveat*, which he allowed to expire; and he did nothing further in the matter till the last of December, 1852, or the first of January, 1853, when he set about completing the invention. He testified that poverty and ill health caused the delay; but the evidence was conflicting on this point, and, according to his own testimony, he had in the mean time worked upon other inventions.

The court: —

"Considering all the circumstances, and giving them all due weight, still the inference was a clear one, that the plaintiff on his return from Washington had laid aside the materials as something incomplete, and which required more thought and experiment, before he attempted to restore the invention. Regarding the inference to that effect as a clear one, and wholly unopposed by other evidence of any importance, I am of opinion that the verdict in this view of the case was clearly against the evidence. Walker *et al. v.* Greely, 1 Curt. 63." [1]

[1] *Vide ante*, pages 629, 696, for other parts of the opinion.

WHITE *v.* ALLEN, 2 CLIFF. 224.

D. OF MASS., 1863. CLIFFORD, J.

Patent for a revolving pistol.

The patent was granted April 3, 1855. A foreign patent, dated June, 1853, was set up in defence. The plaintiff, however, succeeded in showing that he had substantially completed his invention in 1849 or 1850. His delay in applying for a patent was excused under the circumstances of the case. *Vide* page 698, *ante*. The plaintiff offered evidence to show that he had conceived the idea of his invention in the year 1839.

On this head the court remarked as follows: —

"Useful as the fire-arm suggested might have been, if the plan had been carried into effect, and the invention had been completed, still it is obvious that a mere conception of the improvement by the witness, however perfect the idea may have been, and although he actually described the plan to one person, cannot benefit the complainant in this case, because his own testimony shows that he never completed the invention, and reduced it to practice, in the form of an operative fire-arm. . . . Mere discovery of an improvement does not constitute it the subject-matter of a patent, although the ideas which it involves may be new; but the new set of ideas, in order to become patentable, must be embodied into working machinery, and adapted to practical use. Sickels *v.* Borden, 3 Blatch. 535. . . .

"He who invents first shall have the prior right, if, as is prescribed in section 15 of the Patent Act, he is using reasonable diligence in adapting and perfecting the same within the meaning of that provision. Reed *v.* Cutter, 1 Story, 600; Marshall *v.* Ure, Law's Dig. 426, per Dunlop, J.; Bartholomew *v.* Sawyer, Law's Dig. 427 (vol. i. p. 516)."

BLANDY *v.* GRIFFITH, 3 FISH. p. 615.

S. D. OF OHIO, 1869. SWAYNE, J.

The invention was an improvement in steam-engines. For a description of it the reader is referred to page 97, *ante*, where this case is set out, so far as the defence of anticipation is concerned.

The defendants also contended that the invention in question

was really made by one Wedge. On this head the court remarked as follows, rehearsing the evidence: —

"It appears by the testimony that Wedge was the draftsman in the complainant's foundry. He devised the Hicks engine, as it is called. He says it was a copy from one he had seen in England. . . . . There was difficulty in removing the castings from the moulds, and the parts did not fit well together. Frederick Blandy said that another like it should not be made. He suggested the plan of an engine substantially the same with that described in the patent, and marked a diagram to illustrate his ideas in the sand upon the floor. Wedge objected to it strenuously as of no value. Blandy replied that it could not turn out worse than the Hicks engine of Wedge, and directed him to prepare the drawings, and ordered the engine to be made."

These facts were not denied on the part of Wedge. He testified, however, that the invention was his; and there was evidence that Blandy had admitted it to be his. Wedge stood by and made no claim to the invention while licensees were negotiating with Blandy for its use.

The court said: —

"The conflict is not irreconcilable. The error of Wedge arose probably from a misapprehension of the law. Having made all the drawings for the first engine, and superintended exclusively its construction, he finally came to the conclusion that he, and not Blandy, was the inventor. The declarations of Blandy, if made as proved, it may fairly be presumed, had reference to this agency of Wedge, and nothing more. It is also to be observed, that all the facts tending to prove Wedge to be the inventor are posterior in date to the time when Blandy described the design to Wedge and directed him to carry it into execution.

"Invention is the work of the brain, and not of the hands. If the conception be practically complete, the artisan who gives it reflex and embodiment in a machine is no more the inventor than the tools with which he wrought. Both are instruments in the hands of him who sets them in motion and prescribes the work to be done. Mere mechanical skill can never rise to the sphere of invention. The latter involves higher thought, and brings into activity a different faculty. Their domains are distinct. The line which separates them is sometimes difficult to trace: nevertheless, in the eye of the law it always subsists. The mechanic may greatly aid the inventor, but he cannot usurp his place. As long as the root of the original conception remains in its complete-

ness, the outgrowth, whatever shape it may take, belongs to him with whom the conception originated.

"In the case before us there does not seem to be any pretence for saying that Wedge invented anything. He simply executed the design drawn by Blandy in the sand. All the engines since made have been substantially like the first one."

SAYLES *v.* HAPGOOD, 2 Biss. 189.

N. D. of Ill., 1869. Drummond, J.

One Dundas conceived the idea of a new cultivator in June or July, 1850. He built it in the winter of 1850–51, completing it about June 1, 1851; he used it in June or July, 1851; and he applied for a patent, Aug. 1, 1851.

One Marsh conceived the same idea prior to 1850; had his machine built in January, 1851; tried it in the presence of numerous witnesses early in March of that year, and used it throughout the month. In the same year he left his home in Mississippi, and came to Illinois, whither the machine was shipped; but it never reached there, and it is not known what became of it. Marsh had all along intended to apply for a patent, and early in July he did so; but his application was rejected, July 30, 1851, and he did not apply again.

Summing up this evidence, the court said: —

"If it were clear, in view of the fact that the invention was followed up by the issuing of the patent to Dundas, that he was prior in point of conception, then, perhaps, he would be entitled to the monopoly which is claimed by the plaintiff in this case. . . . On the whole, I think the weight of the evidence in this case is that the conception and construction of the Marsh machine was prior in point of time to that of the Dundas machine, and therefore that Dundas was not the first and original inventor of the improvement in a cultivator which was patented to him."

RAILROAD CO. *v.* DUBOIS, 12 Wall. 47 (1870).

The following facts constitute no fraud upon the Patent Office, or bar to an action for infringement: —

(*Head-note:*) "That before making his application to the Patent Office, the patentee had explained his invention orally to several persons, with-

out making a drawing, model, or written specification thereof; and that subsequently, though prior to his application for a patent, the defendant had devised and perfected the same thing, and described it in the presence of the patentee without his making claim to it."

WEBB *v.* QUINTARD, 9 BLATCH. 352.

S. D. OF N. Y., 1872. BLATCHFORD, J.

Patent granted to Heaton, 14th April, 1863, for an "improved defensive armor for ships and other batteries."

The question in this case was whether or not Heaton invented the armor before it was described in a printed publication at London in 1861, entitled "Transactions of the Institution of Naval Architects, Vol. II." The invention consisted in placing over the iron armor that encased a wooden hull an outer layer of timber, and over the timber a thin sheathing of metal. The gist of the invention was the use of the timber covering for the iron armor, the effect of which was to lessen the momentum of a ball, so that, when it reached the iron, its force was too slight to fracture the iron or start the bolts which fastened it. The object of the thin outside sheathing of metal was to prevent a raking shot from tearing the timber, and also, by exclusion of air, to retard combustion of the wood when set on fire by a shot. But the claim of the patent was only for

"the employment of wood, or its equivalent, when used in the manner and after the purpose substantially as described."

The patentee testified that in 1856, while in England, he conceived the idea of his invention, and suggested it, but without effect, to the British Admiralty; that in September or October, 1858, while in the United States (we quote from the opinion of the court), —

"he fired a revolver at the wooden head of a nail-keg, fastened by a wire to the sheet-iron top of the perpendicular lever of a railroad switch, and hit the wood obliquely, and concluded that an oblique shot would damage the side of a ship more than a shot striking it squarely would; that a few days afterwards he fastened a piece of plank between a thin piece of sheet-iron and a thick piece of sheet-iron, and laid the article

down on a railroad tie, with the thin iron piece uppermost, and fired at it with a revolver straight down and also obliquely, and found that the thick iron under the plank was not affected by the shots, and that the thin iron prevented the oblique shots from damaging the plank; that he made no experiments from the fore part of 1859 till the latter part of 1861; that at the latter date he began to make a model of a war vessel to illustrate his new system of armor; that early in 1862, about the time the model was done, he wrote to the Secretary of War asking to have the model examined; that the first trial he made with real armor on his plan, by firing at it with cannon, was made in New York in March, 1863; and that a like trial was made by him at Washington City about the same time. On these facts it is contended for the plaintiff that Heaton completed in 1856 the invention of putting wood outside of iron for armor; and that he completed in the fall of 1858 the invention of the wood outside of the iron, and the thin iron outside of the wood. . . . The occurring of the idea to him in England in 1856, and his letter to the British Admiralty, certainly cannot be regarded as a making of the invention; nor can his pistol practice in 1858 be so regarded. The first attempt he made to embody his ideas in a practical form by constructing a model was in the latter part of 1861, the model having been finished early in 1862. This was all of it . . . after the publication had been made in England from which the 'Onondaga' [the ship on which the defendant used the armor in question] was armored as she was. . . . Heaton may have used reasonable diligence in developing his ideas towards making an invention. But that is not the point. To give him a precedence over the English publication, he must have first made the invention, and then have been using reasonable diligence in adapting and perfecting the invention so made. When did he make the invention? Not until he made the model. . . . Looking at the English publication as a patent issued, which is the proper view in respect to this case, it cannot be defeated by showing that Heaton previously conceived the possibility of accomplishing what the publication makes known so satisfactorily that it has been followed in armoring the 'Onondaga.' To constitute Heaton a prior inventor, he must have proceeded so far as to have reduced his idea to practice, and embodied it in some distinct form. Parkhurst *v.* Kinsman, 1 Blatch. 488, 494; . . . Cox *v.* Griggs, 2 Fish. 174, 177."

KNOX *v.* LOWEREE, 6 O. G. 802.

D. OF N. J., 1875. NIXON, J.

"Reduction to practice" defined.

The patentee conceived the idea of his invention (a fluting-machine) in 1852, and he made a "rude" sketch of it in that year. In June, 1862, he delivered this sketch to some one to have a drawing made, from which the machine could be built. His invention was embodied in a complete working machine as early as the spring of 1863;

"and it is to that date," said the court, "to [*sic*] which we must refer, in considering the claim of prior knowledge and public use of the alleged invention."

He kept the invention secret till 1866, when it was patented; and the court held that the disturbed state of the country from 1862 to 1866 (the patentee lived in Alabama) excused the delay.

ELECTRIC RAILROAD-SIGNAL CO. *v.* HALL RAILROAD-SIGNAL CO., 6 FED. REP. 603.

D. OF CONN., 1881. SHIPMAN, J.

The question in this case was, who was the first inventor, under the patent law, of the system in which signals are operated automatically by passing trains, through the use of *but a single battery*.

One Pope, assignor to the complainant, first conceived the idea; Hall, assignor to the defendant, first reduced it to practice. The particular facts are as follows:—

"During the week prior to Nov. 6, 1872," Pope described to his partner, Hendrickson, a plan for effecting the result mentioned. Hendrickson "thereupon drew a very rude and scanty pencil sketch, which Pope said represented his idea." On Dec. 3, 1872, Hendrickson showed Pope a rough drawing of an improved signal machine which he thought would work well with a single battery. Pope agreeing with him, a model was made and successfully operated. (Apparently this model did not include the one-battery part of the device.) Dec. 26, 1872, Pope applied

for a patent for the signal machine; but inasmuch as the machine could be used as well without the one-battery system, he did not mention that system, intending, as he testified, to take out a separate patent for it, after he had tested it, and not wishing to disclose it before doing so.

He intended to test it, but did not do so; and, in fact, never embodied the idea at all. He applied for a patent, however, May 15, 1873, and it was granted.

"The system was not afterwards placed by Pope upon any road, and there is no evidence that anybody else, professing to act under this patent, has ever reduced it to practice, except that Pope constructed a working model of the whole apparatus in 1875 or 1876, which was set up in his shop in the city of New York."

In February, 1873, he told a railroad officer of his plan, and that he was ready to put it in operation; but this was never done.

It was not denied that his patent described a practical and valuable invention.

Hall's conduct in the matter of his invention (substantially the same as Pope's) was as follows: —

During the summer of 1872, he was cogitating the one-battery plan. About Dec. 21, 1872, he concluded that it was feasible, and "forthwith" he sent for his son, who was at Boston, to join him at Meriden, where a working model of Hall's invention was then made. In January, 1873, he described his invention to the manager of the Eastern Railroad Company, and obtained permission to apply it to that road. In April, 1873, he tested it on one-eighth of a mile of railroad track near Meriden, and found it successful. In December, 1873, he began to put it in operation on the Eastern Railroad. A practical difficulty was encountered in adapting it to this greater length of track, which was solved by a change made Feb. 14, 1874. After that the system was sold by the defendant corporation to other railroads. It does not appear that it was ever patented.

The court said (p. 611): —

". . . The just . . . principle of the law which gives a patent to the inventor who first conceives of the invention, provided he is diligently engaged in perfecting it and adapting it to use, and overcoming the practical difficulties, . . . although he was slower in the

race than the one who was second *to* conceive,[1] does not apply to Pope. Who faintly conceived the idea is not known. Pope first attained a mental result. After that, he was actively occupied in the same branch of study; but he did not develop this system in wood and metal. Hall did develop it, made it useful and practicable, and achieved success. In my opinion, it would be a great wrong to decide that the defendant is liable as an infringer." [2]

LOOM CO. *v.* HIGGINS,[3] 105 U. S. p. 593 (1881).

Bradley, J.: —

" . . . It is contended by the defendants that Davis had conceived the idea of using a rigid lathe with his wire-bar in the early part of 1868, and that, in the model which he prepared at that time for obtaining his patent, he exhibited the same latch devised by Webster, and operated in the same way by contact with the wire-box; and that he showed to the witness Crossley, by pinning his sliding shuttle-box fast to the lay, how it could be used with a rigid lay and shuttle-box. Then, why did he not claim the whole device when Webster exhibited it to him? Why did he advise the defendants that Webster's arrangement was no improvement on Weild's? But if it were true that he did show these things in his model, and had he shown a trough instead of parallel bars; and if it were true that he regarded the idea as anything more than a possibility; and that he did, in fact, contemplate it as a perfected and practicable arrangement, so as to amount to invention, — the question would still remain, whether he or Webster was the first inventor? Both may have been original inventors, but only one of them could be the first. If Davis had put the invention into practical form and operation more than two years before Webster applied for his patent, then the patent would be void by reason of prior use. But the evidence is conclusive that he never undertook to put it into practical form until he made the Sterling loom, which was only commenced in 1870. Webster's application for his patent was made in June, 1870. Though this was proved without objection, and substantially conceded, the defendants say that it does not appear what the application was, nor how much it was altered before the patent was

[1] In an earlier part of the opinion he said: "It is also true that the determination of the fact of diligence is not to be reached by comparison of the diligence of the two inventors. If Pope was reasonably diligent in perfecting his idea, it does not matter that Hall was exceedingly diligent, and made more rapid advances."

[2] *Vide ante*, page 602.

[3] *Vide* page 475, *ante*, for a description of the invention.

issued. This argument cannot avail, for the application is a public record, the contents of which the defendants and all others are presumed to know; and since they had it in their power to produce it, and did not, it must be presumed that it would not have served their purpose, but corresponded with the patent. The defence of prior use for two years, therefore, is not sustained; and the question comes back to simple priority of invention. Conceding that Davis was an original inventor, the earliest point of time that he can be regarded as such was in the spring of 1868. But Webster had invented it before that time, and had made a drawing of it, which, in March, 1868, he exhibited and explained to Davis. An invention relating to machinery may be exhibited either in a drawing or in a model, so as to lay the foundation of a claim to priority, if it be sufficiently plain to enable those skilled in the art to understand it. There is no doubt that Davis understood Webster's drawing; and he did not then claim that the invention belonged to himself. . . . Another circumstance seems to us as having much weight in this connection. It was found that the loom No. 50, and the Sterling loom, when completed in 1871, worked with wonderful success, sometimes as many as sixty yards being woven on one loom in ten hours. If Davis was the inventor of the wire motion applied to these looms, why did he never apply for a patent for it? He was already a patentee of a different and inferior apparatus. He knew all about the method of going about to get a patent. He belonged to a profession which is generally alive to the advantages of a patent-right. On the hypothesis of his being the real inventor, his conduct is inexplicable."

NATIONAL FEATHER-DUSTER CO. *v.* HIBBARD, 9 FED. REP. 558.

N. D. OF ILL., 1881. BLODGETT, J.

Patent for improvement in feather dusters, namely; a feather duster "having the stems of the feathers split longitudinally, and a part thereof severed from the remaining part."

Before this invention, dusters were made from ostrich feathers only. The patentee conceived the idea of making them of turkey feathers. The difficulty was to make the turkey feathers pliable.

We quote now from the opinion of the court: —

"He experimented some time in this direction with chemicals, for the purpose of softening the stem or rib of the feathers, and, not succeeding to his satisfaction in any of these experiments, was discussing

the subject on one occasion with his wife, when she suggested to try cutting or shaving down the stem of the feathers, so as to make them pliable and limber. The suggestion was at once acted upon, and a duster made which proved satisfactory. . . . The proof on the part of Mrs. Hibbard fails to show — indeed it falls far short of showing — that she ever made a feather duster, or thought of making one, from turkey feathers made pliable by splitting them, until after her husband had been for some time at work in that direction. The most the proof does show is that she suggested the mode of making feathers limber and pliable, which were used for the purpose of making the feather dusters described in this patent. . . . While he [the patentee] was experimenting — I may say, perhaps, groping — for some method of rendering his feathers pliable, Mrs. Hibbard suggested the experiment of splitting the feathers. He acted upon that suggestion, and, finding that the feathers were thereby made pliable, combined them with the other material, and made the feather duster which before that time had only had existence in his mind. Although Mrs. Hibbard may have made a valuable suggestion in the progress of the experiment, yet that does not make her the inventor. Agawam Co. *v.* Jordan, 7 Wall. 612; Pitts *v.* Hall, 2 Blatch. 229."

The case was decided mainly upon the ground that Mrs. Hibbard, by allowing her husband to take out and to sell a patent for the invention, was estopped to claim it as her own. The conclusion, however, arrived at in the quotation we have made is open to doubt. Mrs. Hibbard's suggestion was not only a valuable one, — it contained the inventive idea which made the improvement practicable. Mr. Hibbard had conceived the possibility of using turkeys' feathers; but Mrs. Hibbard suggested the manner in which it could be done. They were perhaps joint inventors; if not, Mrs. Hibbard was, we think, the true inventor.

HOE *v.* KAHLER, 12 Fed. Rep. p. 118.

S. D. of N. Y., 1882. Blatchford, J.

The court: —

"It is clear that Hoe and Tucker made the invention before Campbell did, and clearly described it in the *caveat* and drawings filed in 1854. No press containing the invention of claim 3 was made before 1871, because a printing-press of the kind and capacity shown

in the *caveat* is a structure of large cost, not to be made with the chance of a sale, but only to be made on an order of a particular size for a particular newspaper." [1]

ENGLISH CASE.

ALLEN *v.* RAWSON,[2] 1 C. B. p. 567.

COMMON PLEAS, 1845.

Erle, J., instructed the jury as follows: —

"I take the law to be that if a person has discovered an improved principle, and employs engineers or agents, or other persons, to assist him in carrying out that principle, and they, in the course of the experiments arising from that employment, make valuable discoveries accessory to the main principle, and tending to carry that out in a better manner, such improvements are the property of the inventor of the original improved principle, and may be embodied in his patent; and if so embodied, the patent is not avoided by evidence that the agent or servant made the suggestions of that subordinate improvement of the primary and improved principle. The improvement claimed by Shaw is that, after the bat has been formed upon a revolving apron by successive folds or layers of sliver, three or more revolving aprons should be placed one above another, and connected with each other. That is but a more convenient mode of carrying out the principle of the patentee."

And as to the improvement suggested by one Milner, — the introduction of the longitudinal guides for the purpose of keeping the travelling apron evenly extended, — the judge told the jury that it was one of those subordinate improvements helping to carry out the general principle, which the patentee had a right to adopt.

On a motion for a new trial, Tindal, C. J., said: —

". . . The real question is, whether or not the improvements suggested by Shaw and by Milner were of such a serious and important character as to preclude their adoption by Williams as part of his invention. . . . The main object and design of the patentee were the obtaining a long, even, and uniform bat, suitable to be made into commercial ends or pieces of cloth.

[1] *Vide ante*, pages 643, 684.

[2] *Vide ante*, page 484.

"The patentee, in his specification, after describing the double or compound revolving apron, thus refers to that which is called Shaw's suggestion: 'As in many manufacturing premises these two long extended aprons could not be so conveniently used for want of room, I sometimes extend them backwards and forwards, and even with several aprons, as shown (in the drawings) at figures 6, 7, and 8, or perpendicularly up and down, where only two are required, as shown at figures 9 and 10.'

"This is obviously a mere matter of convenience, suggested to and adopted by the inventor. It would be difficult to define how far the suggestions of a workman employed in the construction of a machine are to be considered as distinct inventions by him, so as to avoid a patent incorporating them, taken out by his employer. Each case must depend upon its own merits. But when we see that the principle and object of the invention are complete without it, I think it is too much that a suggestion of a workman employed in the course of the experiments, of something calculated more easily to carry into effect the conceptions of the inventor, should render the whole patent void. It seems to me that this was a matter much too trivial, and too far removed from interference with the principle of the invention, to produce the effect which has been contended for. If that be so with respect to the suggestion made by Shaw, much more is it so as to that made by Milner, which does not appear to have been altogether adopted."

Other cases are:—

WHITELY *v.* SWAYNE, 7 Wall. 685.
GARRATT *v.* SEIBERT, 98 U. S. 75.
DAMON *v.* EASTWICK, 14 Fed. Rep. 40.
HAPGOOD *v.* HEWIT, 11 Fed. Rep. 422.
WORDEN *v.* FISHER, 11 Fed. Rep. 505.
WASHBURN *v.* GOULD, 3 Story, p. 133.
JOHNSON *v.* ROOT, 2 Cliff. 108.
ALLEN *v.* HUNTER, 6 McLean, 303.
SMITH *v.* O'CONNER, 2 Sawyer, 461.
SMITH *v.* DAVIDSON, 19 C. S. 691.

See also, *ante*, page 338.

An important case as between employer and employee is that of Patterson *v.* Gas-Light & Coke Co., *post*, page 735.

CHAPTER X.

PRIOR PATENT OR PUBLICATION.

The Statute Provisions.

322. THE statute provisions on this subject are as follows: — Section 4886 (Revised Statutes) declares, —

"That any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country, *and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof*, . . . may . . . obtain a patent therefor." [1]

Section 4920 provides that it shall be a sufficient defence to an action for infringement of a patent if it be proved that the invention therein described

"had been patented or described in some printed publication prior to his [the patentee's] supposed invention or discovery thereof."

And, lastly, though what we are about to quote adds nothing on this point, section 4923 runs as follows: —

"Whenever it appears that a patentee, at the time of making his application for the patent, believed himself to be the original and first inventor or discoverer of the thing patented, the same shall not be held to be void on account of the invention or discovery, or any part thereof, having been known or used in a foreign country before his invention or discovery thereof, *if it had not been patented, or described in a printed publication.*"

323. It clearly appears, then, that the prior publication relied upon to defeat a patent must have been anterior not only to the

[1] This clause in the act of 1793 read "described" (the word "patented" not occurring therein) "in some public work anterior to the supposed discovery of the patentee."

The present form of this provision was adopted in 1870. See foot-note 1 to page 721, *post*.

date of the later patent or of the application therefor, but to the date of the invention or discovery of the improvement therein described.[1]

This is expressly stated in the statute, and decisions of the courts to the same effect might be cited, if they were necessary. City of Elizabeth *v.* Pavement Co., 97 U. S. 126.

324. As to what stage of the patentable improvement is meant by the time of the *invention* or *discovery* thereof. Briefly, the point here indicated is the time when the inventor or discoverer has struck out or arrived at the idea of his invention; that is, when the object to be attained and the means of attaining it are substantially clear to him. This point of time or of development is distinguishable, on the one hand, from the time when the inventor merely conceives that a certain result may be attained, though he knows not how; and, on the other hand, from the time when the details of his invention are complete, and the difficulties which may attend its reduction to practice are overcome.

Of such *invention or discovery* a drawing is sufficient evidence; and perhaps, when the contrivance invented was simple, — that is, easily reduced to practice, — a verbal description of it to some person by the inventor would be. *Vide* page 694, *ante*.

This subject, however, need not be dwelt upon here. The reader is referred to Chapter IX. pages 693, 694, *ante*, where the time at which it may be said that *invention* of a patentable improvement takes place is discussed with regard to the question of *prior invention*.

What is "Patented;" what is a "Publication."

325. What is meant by "patented, or described in any printed *publication*"?

An application for a patent, withdrawn or rejected, is not such a publication. This has been decided a great many times. The point is considered in the chapter on Prior Knowledge and Use. *Vide ante*, pages 626, 627. In the case of the Lyman Ventilating

[1] "A description in a prior patent is no anticipation of a patent the application for which was filed before the application of such prior patent;" the two patents not being precisely for the same invention, so that the question of "due diligence" did not arise. Allen *v.* City of New York, 17 O. G. 1281.

and Refrigerator Co. *v.* Lalor (*ante*, page 141), Judge Blatchford remarked, upon a rejected application, as follows: —

"A written description of a machine, although illustrated by drawings, which has not been given to the public, does not constitute an invention within the meaning of the patent laws. Evidence that such a description was made does not show of itself a prior invention. Such a description has not the same effect as a printed publication. It lacks the essential quality of such publication; for, even though deposited in the Patent Office, it is not designed for general circulation, nor is it made accessible to the public generally, being so deposited for the special purpose of being examined and passed upon by the Patent Office, and not that it may thereby become known to the public. Although it may incidentally become known, the deposit of it is not a publication of it, within the meaning of the statute or the law. Moreover, although the description may be so full and precise as to enable any one skilled in the art to which it appertains to construct what it describes, it does not attain the proportions or the character of a complete invention until it is embodied in a form capable of useful operation." [1]

See also page 348, *ante*.

326. If one invents a contrivance and obtains a patent, in which he claims it only in combination with some other contrivance, such a patent is no bar to a subsequent one, in which the inventor claims the use of the contrivance by itself. This point was decided by the Supreme Court in the case of the Suffolk Co. *v.* Hayden, 3 Wall. 315; *post*, page 733.

327. In the case of McMillin *v.* Rees (17 O. G. 1222), it was held that a patent for a specific device is not invalidated by the fact that a prior patent issued to the same inventor, in which he described, without claiming, the invention claimed in the second patent. But see a *dictum* in James *v.* Campbell, 104 U. S. 356.

In a later case, Graham *v.* Geneva Lake Crawford Mfg. Co. (11 Fed. Rep. 138), Dyer, J., said: —

"It is insisted, first, that complainant's patent is invalid because, previous to its issuance, the patentee had procured a patent to himself and others as his assignees, in the specifications and drawings of which the invention now in question was described and delineated, and that,

[1] *Vide ante*, page 626, sect. 250, and pages 141, 461; also N. W. Fire Ex. Co. *v.* Philadelphia Fire Ex. Co., 6 O. G. 84; Barker *v.* Stowe, 14 O. G. 559.

therefore, the prior patent (meaning the patent of 1867) can be reissued so as to cover all that was invented by the applicant for the patent in suit; and also that the inventor, A. B. Graham, prior to his application for the patent of 1868, applied for the patent of 1867, in which application he set forth, but did not claim, the invention now in controversy; and that, by his failure at that time to make such claim, he impliedly admitted his device to be old, and was thereby estopped from afterwards claiming the same to be new in any subsequent application. In the McCormick case [an unreported suit on this patent], the court had occasion to consider this objection, and it was held untenable. It was there decided that it was not a proper case for reissue; that there was no defective or insufficient specification; and that the inventor had not claimed more than he had a right to claim as new. In the opinion, delivered by Drummond, J., it is said: —

" 'On general principles, we think that where a person has, within the meaning of the patent law, made an invention which he has described in specifications, including other matters of invention, for which last a patent has been issued, that he should not be precluded, for that reason alone, from applying for and obtaining a patent for that which was not claimed in the first patent. The object of the patent law was to protect a party who made an invention which was useful, provided he complied with the terms of the law and a patent issued for the invention; and unless there is something in the law which declares a patent issued under such circumstances to be invalid, it is the duty of the courts to sustain a patent for an invention thus made. It is to be borne in mind that the application for the second patent — that of 1868, the one in controversy here — was made while that for the previous patent was pending, and before the prior patent had been issued. There were thus pending before the Patent Office two applications at the same time where the claims were different; and we understand it to be in accordance with the practice of the Patent Office to allow applications to be made at the same time by the same party for different parts of the same machine.'"

328. It is scarcely necessary to add that, inasmuch as the statute says *printed publication*, an unprinted or manuscript[1] book will not satisfy its requirement.[2]

[1] Keene *v.* Wheatley, 9 Am. Law. Reg. p. 65.

[2] Under the English statute, however, it would seem that a written book, if publicly circulated, would be a sufficient anticipation. In Stead *v.* Williams (2 Web. P. C. 126; 8 Scott N. R. 449), Tindal, C. J., said: "We think, if the invention had already been made public in England by a description contained in a work, whether written or printed, which has been

329. A published drawing, or series of drawings, unaccompanied by any text, would be, we conceive, a "publication," if it were perfectly intelligible without explanation. This point, so far as we know, has arisen but once. It was in the case of Judson *v.* Cope, 1 Bond, p. 331. Judge Leavitt said: —

"I suppose it is not a matter of great importance in this case, but I should hesitate very much to accept a mere drawing, unaccompanied by any description whatever. I think it is not admissible under the present notice," *i. e.* of prior description in certain printed publications.

330. It is a question whether a book printed for private circulation, not sold or given to all comers, but given to special individuals, would be held to be a "printed publication."[1] We find no authority on this point, excepting a remark of Judge McKennan, in the case of Reeves *v.* Keystone Bridge Co. (5 Fish. p. 467), which implies that a book privately circulated would not be a "publication." He said: —

"Whether the work in evidence is a public or only a private work, intended merely for private circulation, is fairly a disputable question. It contains an illustration by a drawing of the thing intended to be represented, without verbal description; and whether this is a description at all, or such a one as the act contemplates, may well be denied on the authority of Seymour *v.* Osborne (11 Wall. 516), and the cases there referred to with approval. But it is unnecessary to decide *these* questions, as the proof is deficient in another essential particular; it is not shown that the work was published before the date of the complainant's patent."[2]

publicly circulated, in such case the patentee is not the true and first inventor within the meaning of the statute, whether he has himself borrowed his invention from such publication or not; because we think the public cannot be precluded from the right of using such information as they were already possessed of at the time of the patent granted."

[1] The act of 1793 used the expression, "some public work." And in the act of 1836 that expression and the present one are both used. *Ante*, page 51, note 2. Mr. Curtis argues from the use of the phrase, "some public work," and from "the apparent policy of the statute," that by "printed publication" is meant a book publicly printed and circulated, and not a book privately circulated. Curt. on Pat. § 376.

[2] It has lately been decided by Judge Wheeler that a "circular to the trade" is not a "publication." Parsons *v.* Colgate, 15 Fed. Rep. 600. We doubt very much if this decision will hold.

What Exactness of Description necessary.

331. Two important questions arise in construing this part of the statute. They are, first, how full and exact must be the description in a prior patent or printed publication; and, secondly, what, precisely, is a publication.

The first question is easily answered, and there is no conflict of authorities upon the point. In the case of Seymour *v.* Osborne (11 Wall. 516, *ante*, p. 99), the Supreme Court, by the mouth of Mr. Justice Clifford, said: —

"Patented inventions cannot be superseded by the mere introduction of a foreign publication of the kind, though of prior date, unless the description and drawings contain and exhibit a substantial representation of the patented improvement in such full, clear, and exact terms as to enable any person skilled in the art or science to which it appertains to make, construct, and practise the invention to the same practical extent as they would be enabled to do if the information was derived from a prior patent. Mere vague and general representations will not support such a defence, as the knowledge supposed to be derived from the publication must be sufficient to enable those skilled in the art or science to understand the nature and operation of the invention, and to carry it into practical use. Whatever may be the particular circumstances under which the publication takes place, the account published, to be of any effect to support such a defence, must be an account of a complete and operative invention capable of being put into practical operation. Web. Pat. Cas. 719; Curtis on Patents (3d ed.), § 278 *a*; Hill *v.* Evans, 6 L. T. N. S. 90; Betts *v.* Menzies, 4 Best & Smith (Q. B.), 999."

So also in the case of the Cawood Patent, *ante*, page 161.[1]

Cases in which the sufficiency of a prior patent or publication, as an anticipation of the patent in suit, was considered, may be found *ante*, at pages 91, 110, 114, 120, 122, 124, 125, 133, 135, 138, 151, 153, 155, 157, 160, 162, 165, 166, 167, 173, 175, 177, 179, 180, 182, 314, 319, 328 *et seq.*, 359, 361, 363, 420, 458, 464, 564 *et seq.*

332. In the case of McMillin *v.* Rees,[2] McKennan, J., said: —

"Of the publications exhibited, it may be said generally that they do not describe McMillin's invention. Remotely suggestive of it they may

[1] See also Webster Loom Co. *v.* Higgins, 16 O. G. 675; Jones *v.* Sewall, 3 Cliff. 563; Hays *v.* Sulsor, 1 Bond, 279; Judson *v.* Cope, id. p. 336.

[2] 17 O. G. 1222.

be, but they do not describe it in such terms that the public could construct and put it in practice without further invention.

"Prior publications must come up at least to this measure of fulness and precision. Even a stricter rule is prescribed by high authority; for in Hill *v.* Evans (6 L. T. N. S. 90), it is held that the publication must furnish knowledge equal to that required to be given by a patent; namely, such knowledge as will enable the public to perceive the very discovery and to carry the invention into practical use."

We quote in a foot-note the remarks of the Lord Chancellor, from which it will appear that Judge McKennan correctly reported them.[1] In a subsequent case, however, Neilson *v.* Betts,[2] the Lord Chancellor said: —

"I will merely note for a moment some little difficulty that appears to have been felt about an opinion I expressed in the case of Hills *v.* Evans. . . . In that case, as in the present, we were dealing with processes. My opinion was that the antecedent process, if it is to be relied upon as forestalling the second, must be so clearly and distinctly described, that those who read it, bringing to it competent mechanical

[1] "The information as to the alleged invention given by the prior publication must, for the purposes of practical utility be equal to that given by the subsequent patent. The invention must be shown to have been before made known. Whatever, therefore, is essential to the invention must be read out of the prior publication. If specific details are necessary for the practical working and real utility of the alleged invention, they must be found substantially in the prior publication. Apparent generality, or a proposition not true to its full extent, will not prejudice a subsequent statement which is limited and accurate, and gives a specific rule of practical application. The reason is manifest, because much further information, and, therefore, much further discovery, are required before the real truth can be extricated and embodied in a form to serve the use of mankind. It is the difference between the ore and the refined and pure metal which is extracted from it.

"Again, it is not, in my opinion, true in these cases to say that knowledge, and the means of obtaining knowledge, are the same. There is a great difference between them. To carry me to the place at which I wish to arrive is very different from merely putting me on the road which leads to it. There may be a latent truth in the words of a former writer, not known even to the writer himself; and it would be unreasonable to say that there is no merit in discovering and unfolding it to the world.

"Upon principle, therefore, I conclude that the prior knowledge of an invention to avoid a patent must be knowledge equal to that required to be given by a specification; namely, such knowledge as will enable the public to perceive the very discovery, and to carry the invention into practical use."

[2] L. R. 5 H. L. 1.

skill, would be enabled to work it out to the same result as that arrived at by the process contained in the subsequent patent."

333. In the case of Betts *v.* Neilson, L. R. 3 Ch. App. Cas. p. 432 (from which that of Neilson *v.* Betts was an appeal), Lord Chelmsford, Lord Chancellor, said: —

"The Court of Queen's Bench in the case of Betts *v.* Menzies (1 E. & E. 990) held (and I think correctly held) that Dobbs's specification [the alleged anticipation] might insufficiently describe the process so as to make the specification bad, and yet might disclose enough to show that what was claimed in the plaintiff's specification was not wholly new. I entirely agree with the opinion of Mr. Justice Williams in the case of Betts *v.* Menzies, that the publication of a notion that a certain useful art may be discovered without any information or knowledge of the means of discovery cannot preclude a subsequent first inventor of those means from taking out a patent for the entire art."

334. In the case of Stead *v.* Anderson (4 C. B. p. 823), Baron Parke said of a prior publication alleged to anticipate the patented invention in the case before him: —

"The question on this part of the issue will be, not whether the description furnished by Heard in his communications to the Society of Arts would have been sufficient to sustain a patent, or whether, if Heard had taken out a patent, the plaintiff's mode would have been an infringement, — but whether Heard's letters made known to the world a mode of paving substantially like the plaintiff's."

335. A prior publication stands on the same footing with communications, oral or otherwise, made to a patentee before or in the course of his invention.

In discussing that subject (*ante*, pages 623–625) we found, as the reader will remember, that the communications to a patentee which will defeat his patent must be such as to enable him to complete the patentable improvement *without the exercise of invention on his part*. And this, the reader will have observed, is the rule laid down by Judge McKennan with regard to prior publications; for he says of those set up in the case before him: —

"They do not describe it [the invention] in such terms that the public could construct and put it in practice *without further invention*. Prior publications must come up, at least, to this measure of fulness and precision."

336. It is not a sufficient objection to a prior patent or other publication that it describes the invention imperfectly, provided its deficiencies are such only as mechanical skill can correct.

In a recent case,[1] the Supreme Court said of two prior patents: —

"It is objected, however, that the machines described in these patents are mere paper machines, not capable of successful practical working; but on examination it sufficiently appears, we think, that the objections can be sustained only as to minor matters of detail in construction, not affecting the substance of the invention claimed, and *could be removed by mere mechanical skill, without the exercise of the faculty of invention*. In this view, the Wise and Smith patents are not rendered inefficient as defences in this suit by reason of the alleged imperfections of the machines described in them."

See also the case of Seymour *v.* Osborne, *ante*, page 103.

337. We may note here the obvious point that if a patent in suit claims an article, and not the process by which it is made, a prior publication which describes that article, but not the way to make it, is a sufficient anticipation. Cohn *v.* United States Corset Co., 93 U. S. 366; *ante*, page 158.

Date of Publication.

338. It is scarcely necessary to say that the defendants who set up a prior patent or publication are not allowed to prove that the invention therein described was made prior to the date thereof. Kelleher *v.* Darling, 14 O. G. p. 676.

339. The date of publication must, it would seem, be proved otherwise than by the date printed on the book. In the case of Reeves *v.* Keystone Bridge Co. (5 Fish. p. 467), McKennan, J., referring to a publication set up by the defendants, said: —

"It is not shown that the work was published before the date of the complainant's patent. This must be directly proved. It is not deducible from the imprint on the titlepage. That the work was then printed may be inferred from this imprint; but when it was put in circulation or offered to the public is a distinct fact, which must be proved independently. The intended circulation of a book of a public nature may be presumed from its being put into print; but it does not follow that a work, such as the one in question, was made accessible to the public as

[1] Pickering *v.* McCullough, 104 U. S. p. 319.

soon as it was printed, or that it was actually published at all. As it does not appear that this book was published before the patentee's invention, as evidence it is altogether inconsequential."

Foreign Patents.

340. "An invention is not 'patented' in England, within the meaning of the acts of Congress, until the specification is enrolled. The enrolled specification takes effect only from the date of its enrolment, and not from the date of the filing of the provisional specification."

This was the decision of Judge Sprague in the case of Howe *v.* Morton, 1 Fish. 586.

It was confirmed by the case of Smith *v.* Goodyear Dental Vulcanite Co., 93 U. S. 486. In that case it was proved that the invention patented was made in the spring of 1855.

An English provisional specification and patent were set up by the defence, of which the court said (p. 498):—

"Of the English patent of Charles Goodyear it is enough to say that, though the provisional specification was filed March 14, 1855, the completed specification was not until the 11th of September following. It was therefore on the last-mentioned date that the invention was patented."[1]

341. In case of a failure to file the complete specification, the English Patent Office publishes the provisional specification. It would seem that such a publication would be included by the words of our statute, "described in a printed publication." This point has arisen twice, at least; but it has not been decided, so far as we know.

In the case of Goff *v.* Stafford (14 O. G. 748), Clifford, J., held that the provisional specification adduced did not describe the patentee's invention with sufficient accuracy to anticipate it. He said, however:—

"Grave doubts are entertained whether such a publication, without more, is sufficient to show that the patentee of an American patent is not the original and first inventor of the improvement described in his patent; but it is not necessary to decide that question."

[1] A Canadian patent takes effect, not from its delivery to the patentee, but when it is signed, sealed, and registered. Bate Refrigerating Co. *v.* Gillett, 13 Fed. Rep. 553.

342. In the second of the cases referred to, namely, Coburn *v.* Schroeder (11 Fed. Rep. 425), before Wheeler, J., the invention covered by the patent in suit was made in February, 1866. The provisional specification relied on was left with the English Commissioner of Patents, Jan. 22, 1866. It was published in 1866, in a book deposited in the Astor Library in that year. Wheeler, J., said: —

"If this would be a sufficient printed publication, it would not be printed until the specification had been left, for some time at least; and this invention was so soon after that, that this publication would not appear to be, and probably was not, made until after the invention."

343. The following point was decided by Shepley, J., in the case of Kendrick *v.* Emmons, 9 O. G. 201 :—

"An English patent, taken out surreptitiously by any person who, without the knowledge of the American inventor, and without authority from him, endeavored to appropriate the benefits of his invention, would not thereby deprive the real inventor of any of his rights."

344. In France, "private" as well as public patents are granted. The object of the private patents is to prevent "strangers" and "vagabonds" from obtaining the inventions covered thereby, and carrying them out of the country. Reynault on Patents, pp. 113, 150. Such private patents are not within the language of our statute, and they do not invalidate patents granted for the same thing to inventors in this country. Brooks *v.* Norcross, 2 Fish. 661; Schoerken *v.* Swift & Courtney & Beecher Co., 19 Blatch. 209.

345. In the last case, the French patent was proved by a "copy certified by the Director of the Conservatoire National des Arts et Métiers of France, under the seal of that department, verified by the Minister of Agriculture and Commerce and the Minister of Foreign Affairs, under their seals, but not by the great seal of France."

Wheeler, J., held, under what evidence does not appear, that this certification proved that the patent was a public and not a private patent. We quote his remarks with regard to this patent in full: —

"This defence, as formulated in the Revised Statutes, is that the invention shall have been patented before the supposed invention by the patentee. Section 4920, par. 3. There are patents in France which

may, for public and special reasons, be kept secret. The expression 'patented,' in the statute, would seem, from the signification of the word, to mean only inventions laid open to the public and protected to the inventors; and such appears to be the construction which the expression has heretofore received. There is nothing to show whether this is an open patent or one made secret, except what can be gathered from the copy itself, and the fact of its production. Only public records are provable by copy certified merely; and these departments of the government of France would not have the patent in condition to certify by copy, if it was secret and not public. So the fact that it is certified shows it to be what could be certified, and that the invention described by it was, in the sense of the patent law, patented by the original patent of the copy produced."

346. Another point, also, was decided in the first of these cases, Brooks *v.* Norcross, *supra*. The French law formerly required that patents should be published for a certain length of time in the *Bulletin des Lois*, as a condition of validity.[1] This condition not having been complied with in the case of the French patent before them, the court held that the invention described by it was not "patented," in the sense of our statute.

347. The present French patent law directs that patents shall be published, but does not make such publication a condition of their validity. The provisions are as follows.[2] Act of 1854, art. 14:—

"A royal ordinance inserted in the *Bulletin des Lois* shall proclaim every three months the patents delivered."

"Art. 24. After the payment of the second annuity, the specifications and drawings shall be published, either without curtailment or by extracts. Moreover, at the beginning of each year a catalogue shall be published containing the titles of the patents delivered in the course of the preceding year."

When and how does a Publication become such.

348. When and how does a printed book become a "publication"?

This question has never arisen in the Federal courts, so far as we know, but in England it has thoroughly been discussed.

Three views are possible:—

I. By "publication" in the statute is meant a technical publi-

[1] The court so stated.

[2] 2 O. G. 565.

cation; and in this sense a book is published when it is offered to the public by exposure for sale in a shop, or, we conceive, by advertisement. When the book is published to this extent, the courts will not inquire whether the book has, in fact, been read by any of the public or not.

II. By "publication" is meant a technical publication, as above described, except that evidence may be given to show that the book has not been read; and if that fact be proved, "publication" is disproved.

III. The whole question is a matter of evidence. The courts will decide, upon the facts of the particular case before them, whether the information contained in the book has become public or not, technical publication being *prima facie* evidence of that fact.

349. In this country we conceive that the first and strictest of these rules would obtain. though perhaps, in an extreme case, it would be relaxed; as, for instance, in the contingency suggested by an English judge of an author's buying up and destroying the whole edition of his work the day after it was exposed for sale, and before a single copy had been bought or read. In such a case it might be maintained that publication was defeated.

350. Before examining the English authorities, it is very important to remark that the English statute contains no special provision in reference to prior publications. In the English cases, therefore, the question of publication is considered solely with a view to determine whether the invention described in a given book has been communicated to the public, so as to anticipate the patent of a subsequent original inventor of the same thing. Moreover, in England the fact that the invention in question has previously been described in a book published abroad and not brought into England, is no bar to a patent for the same thing.[1] However, as the question what constitutes "publication" was discussed and decided in the English cases, we present them.

351. In Heurteloup's case (Web. 553), no principle was announced. The publication relied upon was a French one, and a copy of it had been placed in the British Museum; and there was some other evidence of its introduction into England. This, by implication, was held to be a publication. But the case is of little authority.

[1] See the English statute provisions in the Appendix.

Stead *v.* Williams (8 Scott N. R. 449) is the first case of importance on this point. It was alleged that a description of the invention patented had been published in the Transactions of the Society of Arts.

Creswell, J., having instructed the jury that this would not invalidate the plaintiff's patent unless he had derived his invention from the publication, his charge was excepted to. In sustaining the exception, Tindal, C. J., said that the fact of publication must depend on the circumstances of each case; that it was a matter of evidence.

"The existence of a single copy of a work, though printed, brought from a repository where it had long been kept in obscurity, would afford a very different inference from the production of an encyclopædia. . . . The question will be whether, upon the whole evidence, there has been such a publication as to make the description a part of the public stock of information."

There was another suit (Stead *v.* Anderson, 4 C. B. 806), tried before Baron Parke, who adopted the statement of law made by the Court of Common Pleas in the case of Stead *v.* Williams; "without, however," he said, "holding myself bound by that opinion should the point ever come before me sitting in a court of error."

352. Next is the case of Lang *v.* Gisborne, 31 Beav. 133. This was decided by Lord Romilly, Master of the Rolls. The publication set up was a French one; and it was proved that four copies of it had been sold in England, one copy going to the Cambridge University Library.

Lord Romilly laid down the strict rule which we first stated, saying: —

"I am, however, of opinion that a publication takes place when the inventor of any new discovery, either by himself or by his agents, makes a written description of it, and prints it in a book, and sends it to a bookseller's to be published in this country. It is not at all necessary to establish the fact that one volume of that book has been sold."

353. But in the later case of Plimpton *v.* Malcolmson (L. R. 3 Ch. D. 531), Jessel, M. R., said, after quoting from his predecessor's opinion: —

"Now, there is no law upon the subject except this, that the judge, on the facts proved, has to come to a certain conclusion. If it were

necessary to express an opinion upon that, I should say it must depend on circumstances. It by no means follows, because the book has been printed and published and sent to a bookseller for sale, that it is part of the public knowledge."

And he reviews the authorities at great length.

The facts in the case before him were as follows: The publication was an American one. It was sent to the English Patent Library some years before 1865, the date of the English patent. It was stowed away in a room not open to the public, and by some mistake it was not entered upon the catalogue. There was evidence to show that its existence was unknown in England.

The Master of the Rolls said that this was not such a publication of the invention "as to deprive the man who first made it known to the world of that merit — the only merit, so far as the importer is concerned — which consists in making known a useful invention to the public."

354. There was another suit on this patent, the facts being substantially the same; namely, Plimpton *v.* Spiller, L. R. 6 Ch. D. 412.

Additional evidence was offered tending to show that in July of the year 1865 (the patent sued on was dated later in the year 1865) the book lay upon the top shelf of a corridor, open to the public, and leading from the reading-room of the library. But it appeared that the book was not catalogued, and that the chief librarian had no knowledge of it.

The Master of the Rolls did not feel compelled by this evidence to change his former decision; and the whole case now went up to the Lords Justices, who affirmed the decision of the Master of the Rolls. L. R. 6 Ch. D. p. 425, A. D. 1877.

355. James, L. J., after saying that he agreed with the Master of the Rolls in his conclusion that the book was not in the library in such a way as to be accessible to the public, continued as follows (p. 429): —

"That being so, it is not necessary to go further; but I should, if it were necessary, desire much further time to consider whether, even if it were proved that the book, one copy of which had been sent over as a present from a gentleman in America, was on the shelf in the library between the 20th of July and the 25th of August, that would be a sufficient publication, and would be such an addition to the stock of common knowledge in this country as would have prevented a man

from being the first and true inventor of this patent, — such an addition to the stock of common knowledge as a man was not entitled (to use the language of one of the cases) to deprive the public of."

356. Brett, L. J., in his *dicta*, went further than this; and he intimated that it would not be sufficient to prove that a prior publication had been offered for sale, or had been regularly placed in a library. He said: —

"With regard to the question of publication, I must say I entirely and absolutely agree with the proposition of law laid down by the Master of the Rolls. It seems to me that the real question to be decided by the court with regard to this matter is whether the invention was, before the patent in question, known to the public in the sense that the Master of the Rolls has described; *i. e.*, not known to all the public, but known to a sufficient number, so that you may properly say that it was known in England.

"In order to prove or disprove that fundamental proposition, you may show by way of evidence that there has been a prior invention, and that it has become as a fact, although it has never been written, known to the people in the trade. That is what Baron Parke says in Stead *v.* Anderson,[1] that it has become generally known in the sense that it has become known to the people in the trade. That is only one form of evidence which may be given in proof of the fundamental proposition. Another mode of proving the fundamental proposition is to show that a description of the invention has been published. But then, to show that, it is not sufficient merely to show that it has been published in one sheet or book. As Baron Parke himself says, '"published" means offered or dedicated to the public.' He then goes on to say that the question with regard to that is, Was the invention published or offered to the public to such an extent as that it was generally known among engineers or persons interested in the matter? The mere fact of its being dedicated, the mere fact of its being published, is not sufficient; it must be so far published as that you may fairly say it is known to a sufficient number of the public.

"Therefore I cannot agree with Mr. Davey [counsel for the defence] when he says that it is sufficient to show that the thing has been printed in a book, and that that book has been so placed that it might have been known to the public. It must be not only printed in a book, but that book must be placed in such a position and so used that you may fairly infer or assume that the contents of the book have become known to a sufficient number of people. Therefore, when you prove that this

[1] 2 Web. P. R. 147, 148.

book was put in the Patent Library, — I care not into what part, — I do not say that is no evidence of its having become known to the public; but I say that when you have other facts which show that, although it was put in the Patent Library, the proper inference is that nobody ever did see it there or elsewhere, then, although it has been in one sense, if you please, published, or in one sense, if you please, intended to be dedicated to the public, all I can say is that the public have not been able to take advantage of the dedication or the publication, and therefore you do not show that it was known to the public."

357. Baggally, L. J., however, appears to have leaned the other way. He said (p. 430): —

"I do not propose to express any opinion as to what might have been the case if there had been evidence that the volume of illustrations had been sent over to England, and had been placed in the library a sufficient time before the date of the letters-patent, had been catalogued in the usual way, and had been so placed in the library as to be accessible to the public using that library. That, certainly, would be evidence of prior publication, and I must say very strong evidence indeed."

358. Finally, we have the recent case of United Telephone Co. *v.* Harrison, 30 W. R. 724. It was proved in this case that a German scientific journal of telegraphy, containing a description of the invention in question, was placed in the library of the Patent Office, and also in that of the Institute of Civil Engineers, in London; but only one person was shown to have read the article in question, and he read it imperfectly.

Fox, J., held, though with hesitation, that the evidence of publication was sufficient.

In addition to the cases considered or mentioned in the foregoing remarks, we have only the following that are important: —

THE SUFFOLK COMPANY *v.* HAYDEN, 3 WALL. 315 (1865).

In December, 1854, Hayden applied for a patent for changes in the *interior* arrangement of an elongated trunk previously in use for cleaning cotton. While this application was pending, he also made an improvement in the exterior form of the trunk, and, wishing to patent this second improvement both separately and

in combination with the earlier one, he filed an application for such a patent in November, 1855, and it was granted March 17, 1857. In this second patent he made no separate claim to the device described in the first patent, but, of course, he described it so as to claim it in combination.

The commissioner not having acted on the first application by June, 1857, Hayden, in that month, made another similar application; and a patent was granted in December, 1857, for the same improvement in the interior of the trunk described in the first application. Subsequently the first application was acted on by the commissioner, and a patent issued in September, 1860.

Here, then, were three patents: —

No. 1. Applied for in December, 1854; granted in September, 1860.

No. 2. A patent for the same thing *in combination with* another thing. Applied for November, 1855; granted March, 1857.

No. 3. For the same invention covered by patent No. 1. Applied for June, 1857; granted December, 1857.

This suit was on the patent of December, 1857.

There were two questions: —

(*a.*) Was the description in No. 2 of the invention claimed in No. 1, and the omission to claim it therein a dedication to the public of such invention, the patent for which was granted after No. 2, though applied for before it? The court held that it was not.

(*b.*) Which patent was void, assuming that both patents were for the same thing, — No. 1 or No. 3? The court held that No. 1, the later patent, was void.

McMILLIN *v.* REES, 17 O. G. 1222.

W. D. of Penn., 1880. McKennan, J.

The patent was attacked on the ground that it was a duplicate of patent No. 52,730, applied for April 25, 1865, and granted Feb. 20, 1866, to the same person.

The patent in suit, and numbered 63,917, though the first ap-

plication was made July 23, 1855, was not granted till April 16, 1867.

Such being the facts of the case, the learned judge, after reviewing the authorities bearing upon it, laid down the following propositions: —

(1.) Of two patents for the same invention, the one last granted is void, although it may have been first applied for.

(2.) Whether two patents cover the same invention must be determined by the tenor and scope of their claims, not by the description in the specifications.

(3.) Separate patents for several parts of the same invention may be granted, although the whole invention is fully described in each of them in order to explain the purpose and mode of operation of the parts covered by the claims in such patents.

(4.) The connection or combination of a patented device or improvement with other devices may be the subject of a valid subsequent patent.

Accordingly, then, the patent of 1867 must be held to be valid.

ENGLISH CASE.

PATTERSON *v.* GAS-LIGHT & COKE CO., L. R. 3 App. Cas. 239.

House of Lords, 1877.

The patentee was one of three referees appointed under an act of Parliament to investigate the mode of purifying gas followed by the different companies, to ascertain the extent to which gas could be purified, to assist the companies with advice and information, and to make a report to the Board of Trade for the benefit of the public.

The patentee having discovered, as he alleged, a patentable improvement in the purification of gas, while conducting experiments at one of the gas factories in his capacity as referee, obtained a patent therefor dated March 9, 1872.

A part, at least, of his alleged invention was described in a report drawn up by the three referees, and dated Jan. 31, 1872, but not delivered to the Board of Trade or otherwise made pub-

lic until March 26, 1872. It was withheld, in order that the plaintiff might obtain his patent before its publication.

There was also evidence to show that the invention had been anticipated; but on this branch the case is not important, and was not much considered in the House of Lords.

On these facts the House of Lords confirmed the decision of the Lords Justices, from which the appeal was taken, holding the patent invalid.

The decision established the following points:—

(1.) That the invention was not novel.

(2.) That it was public property so soon as it was made; and, if not public property at that time, it became such so soon as it was communicated to the other referees.

(3.) Prior knowledge by the public, without use, is sufficient anticipation of a patent.

Lord Blackburn said:—

"It is not necessary that the invention should be used by the public as well as known to the public. If the invention and the mode in which it can be used has [*sic*] been made known to the public by a description in a work which has been publicly circulated, Stead *v.* Williams (7 M. & G. 818, 842); or in a specification duly enrolled, Bush *v.* Fox (5 H. L. C. 707); Betts *v.* Menzies (10 H. L. C. 117),—it avoids the patent, though it is not shown that it ever was actually put in use. . . .

"If the date of the patent had been after the circulation of the report amongst the gas companies, instead of being, as it was, a few weeks earlier, the case would, it seems to me, have been quite unarguable. The date of the patent was, however, before the contents of the report were known to the gas companies, though several weeks after they were known to the whole of the referees and their secretary; and, . . . from the moment the referees became aware of what was in the report, it became the property of the public, and they were bound to make it known. The appellant, indeed, contends that he made it known to the referees only confidentially. I do not pause to inquire whether this was the fact or not, for I think it immaterial. I do not mean to throw any doubt on the doctrine in Morgan *v.* Seaward (2 M. & W. 544), that a disclosure to assistants or partners of an invention whilst it is being perfected, under an obligation to keep it secret till the patent is taken out, is not a disclosure to the public, for such persons could not make the disclosure known without a breach of duty.

"But, in the present case, the disclosure was to paid public officers, who could not keep it secret without a breach of duty. They were

bound to make it known; and even if they, in breach of their duty, kept it back, the invention was not the less the property of the public from the time the referees knew it, which was at least as early as the date of the report." [1]

The following remark, on another point, also occurs in Lord Blackburn's opinion: —

"The appellant appears . . . to be of opinion that, if he first discovered the theory and reason of that which had before been done empirically, he is entitled to a patent.

"I need hardly point out that this is a mistake. If, by reason of knowing the theory, he is enabled to make some improvements, he may take out a patent for those improvements; but he cannot take out a patent to prevent others from using what they had used before, though only empirically." [2]

The Lord Chancellor (Lord Cairns) speaking of the fact that the invention was made known to the other referees before, or when the report was completed, said: —

"It was a communication made to them in the course of their duty as public officers, and the moment it was made to them it became public property. It was not within their power to withhold, in any way, from the public the full benefit of that communication."

[1] His Lordship also quoted as follows from the Lords Justices' decision: —

"It is to be borne in mind that the report then made belonged absolutely to the State. Every fact and figure in it had been ascertained and obtained at the public expense. Every hour of every referee, and of the secretary employed in the production of it, was public time. It was, of course, printed at the public cost. The withholding or wilful delaying of it was a plain breach of public duty, and it is difficult to see how the plaintiff can be in a better position than if he and his colleagues had done their duty, and duly presented their report as soon as it was completed. The consideration for every patent is the communication of useful information to the public. What consideration is there when the information was already the property of the State?"

[2] *Ante*, page 529.

APPENDIX.

I.

DESIGNS.

Rev. Stat. of the U. S., sect. 4929 : —

"Any person who, by his own industry, genius, efforts, and expense, has invented and produced any new and original design for a manufacture, bust, statue, alto-relievo, or bas-relief; any new and original design for the printing of woollen, silk, cotton, or other fabrics; any new and original impression, ornament, pattern, print, or picture to be printed, painted, cast, or otherwise placed on or worked into any article of manufacture; or any new, useful, and original shape or configuration of any article of manufacture, the same not having been known or used by others before his invention or production thereof, or patented or described in any printed publication, may, upon payment of the fee prescribed, and other due proceedings had the same as in cases of inventions or discoveries, obtain a patent therefor." [1]

[1] Act of 1870, § 71. The first act making designs patentable was passed in 1842. It was followed by the act of 1861, and by the present act of 1870.

The act of 1842 is as follows (the act of 1861 differed from it only by omission of the sentence in brackets), sect. 3: —

"And be it further enacted, that any citizen or citizens, or alien or aliens, having resided one year in the United States, and taken the oath of his or their intention to become a citizen or citizens, who, by his, her, or their own industry, genius, efforts, and expense, may have invented or produced any new and original design for a manufacture, whether of metal or of other material or materials [or any new and original design for the printing of woollen, silk, cotton, or other fabrics]; or any new and original design for a bust, statue, or bas-relief, or composition in alto or basso relievo; or any new and original impression or ornament, or [*sic*] to be placed on any article of manufacture, the same being formed in marble or other material; or any new and useful pattern, or print, or picture, to be either worked into, or worked on, or printed, or painted, or cast, or otherwise fixed on any article of manufacture, or any new and original shape or configuration of any article of manufacture, not known or used by others before his, her, or their invention or production thereof, and prior to the time of his, her, or their application for a patent therefor, and who shall desire to obtain an exclusive property or right therein to make, use, and sell and vend the same, or copies of the

It is needless to say that the rules which govern the patentability[1] of inventions apply also to designs. To this statement, however, there is an important exception, for, in distinguishing one design from another, the law regards not the real but the apparent similarity of the two designs; the obvious reason being that designs concern appearances only, and not substances.

The rule was established by the Supreme Court in the case of Gorham Co. *v.* White, 14 Wall. 511. This case raised the question of infringement only, but it settled the point which we have stated as to what constitutes identity in the matter of designs. The particular question in the case was whether a design for ornamentation on a silver or plated fork was infringed by another design apparently the same but really dissimilar. The evidence was that an expert in the trade would not be deceived by the second design so as to mistake it for the first; that an ordinary customer, if he compared the two designs together, would detect the difference, but if he saw them separately, apart from each other, he would suppose them to be the same. The Supreme Court held that apparent, not real, identity was the test of infringement, and consequently that the second design in this case was an infringement of the first. Miller, Field, and Bradley, JJ., dissented from the judgment.

If a design be new and useful, it is of no importance whether it is more or less beautiful than other designs for the same thing. Lehnbeuter *v.* Holthaus, 105 U. S. 94.

Defendants who use a patented design are estopped to deny its utility. *Ibid.*

A design patent is *prima facie* evidence of novelty and utility. *Ibid.*

In the case of Clark *v.* Bousfield, 10 Wall. 133, the question was whether the patent claimed an apparatus or a design.

In the case of Burton *v.* Town of Greenville, 3 Fed. Rep. 642, it was *held* by Lowell, J., that

"a design patent is invalid if the device embraced thereby was in public use or on sale more than two years before the date of the filing of the application on which such patent was granted." (*Head-note.*)

So, also, Theberath *v.* Rubber, &c. Harness-Trimming Co., 15 Fed. Rep. 246.

same, to others, by them to be made, in the case now of application for a patent."

[1] The patentability of designs is most ably treated by Mr. Simonds in his work, "Simonds on Design Patents."

The patent would not be invalidated by such use or sale from a time less than two years before the application. Root *v.* Ball, 4 McLean, 177.

"To constitute an inventor of a design, it is not necessary he should have the manual skill and dexterity to make the drafts. If the ideas are furnished by him for producing the result aimed at, he is entitled to avail himself of the mechanical skill of others to carry out practically his contrivance." Betts, J., Sparkman *v.* Higgins, 1 Blatch. 205.

In the case of Burton *v.* Town of Greenville, *supra*, Judge Lowell also said: —

"A question is made by the defendants whether an inventor is not to be presumed to abandon his design when he exhibits it in the drawings of a mechanical patent. I do not see why this consequence should follow until the design has been in use for two years, but I do not decide this point."

In the following cases the patentability of the design in question was considered: Booth *v.* Garelly, 1 Blatch. 247 (a button); Wooster *v.* Crane, 5 Blatch. 282 (a reel); Collender *v.* Griffith, 11 Blatch. 212 (a billiard-table); Same *v.* Same, 2 Fed. Rep. 206; Adams, &c. Co. *v.* St. Louis, &c. Co., 12 O. G. 940 (a lamp); Northrup *v.* Adams, 12 O. G. 430 (a cheese-safe); Pratt *v.* Rosenfield, 18 Blatch. 234 (a button-card); Miller *v.* Smith, 5 Fed. Rep. 359 (a sleeve-button); Wood *v.* Dolbey, 19 Blatch. 214 (jewelry); Lehnbeuter *v.* Holthaus, 105 U. S. 94 (a show-case); Simpson *v.* Davis, 12 Fed. Rep. 144 (a newel post); Theberath *v.* Rubber, &c. Harness-Trimming Co., 15 Fed. Rep. 246 (harness-trimming).

II.

THE ENGLISH STATUTES CONCERNING PATENTS, SO FAR AS THEY RESPECT PATENTABILITY.

"It is quite clear that the prerogative of the crown to grant the sole use of inventions is derived from the common law itself, and not from any statute."[1]

What inventions are patentable, however, is determined by statute.

The statute abolishing monopolies, 21 Jac. I., A. D. 1623, contained a provision excepting from its operation patents for inventions, as follows: —

Sect. 5. This section excepted patents already granted.

[1] Hindmarch on the Law of Patents, ch. ii. p. 7. But see Macaulay's History of England, ch. iv. p. 127.

Sect. 6:—

"*Provided, also, and be it declared and enacted*, that any declaration, before mentioned, shall not extend to any letters-patents and grants of privilege, for the term of fourteen years or under, *hereafter to be made*, of the sole working or making of any manner of new manufactures within this realm [1] to the true and first inventor and inventors of such manufactures, which others, at the time of making such letters-patents and grants, shall not use, so as also they be not contrary to the law, nor mischievous to the State, by raising prices of commodities at home, or hurt of trade, or generally inconvenient, the said fourteen years to be accounted from the date of the first letters-patents, or grants of such privilege hereafter to be made; but that the same shall be of such force as they should be if this act had never been made, and of none other."

English patents contain the following proviso. We have italicized the only part of it which adds anything as a condition of patentability to the statute.

"*Provided always*, and these our letters-patent are and shall be upon this condition, that if, at any time during the said term hereby granted, it shall be made appear to us, our heirs or successors, or any six or more of our or their Privy Council, that this our grant is contrary to law, or prejudicial or inconvenient to our subjects in general, *or that the said invention is not a new invention as to the public use and exercise thereof* [2] in that part of our United Kingdom of Great Britain and Ireland, called England, our dominion of Wales, and town of Berwick-upon-Tweed [and also in the Islands of Guernsey, Jersey, Alderney, Sark, and Man, and in all our colonies and plantations abroad [3]] aforesaid,

[1] If an invention be unknown in the realm, he who imports it from a foreign country is a true inventor within the meaning of this statute, and he may obtain a patent. Hind. on Pats. ch. iii. p. 28.

[2] *Vide* pages 640, 641 of this book.

[3] Mr. Hindmarch says (ch. iv. p. 63):—

"There was indeed formerly a very general opinion amongst the profession that it was only necessary that an invention should be new in England, Wales, and Berwick-upon-Tweed; but that opinion was exploded by the decision of the House of Lords in Brown v. Annandale (1 Webs. R. 433). In that case it seems to have been erroneously supposed that the effect or intent of a patent is to grant a privilege on the terms merely of the conditions comprised in the patent, excluding all others. But that is clearly not so, for it is declared by the habendum in the patent that the inventor, his executors, administrators, and assigns, shall have and enjoy the privilege *according to the statute in such case made and provided;* and, therefore, it is manifest that the grant is intended to be made subject to all the conditions required by the statute of monopolies. If the patent had provided that novelty within a smaller district than [*sic*] required by law should *be sufficient*, the patent would have been void in that respect, if not *in toto*, for the crown has no power to dispense with the provisions of an act of Parliament. But the crown is not restrained from making conditions which are not *contrary* to law; and a condition which is in accordance with the law will not be bad or avoid the

or not invented and found out by the said J. G., as aforesaid, then upon signification or declaration thereof to be made by us, our heirs or successors, under our or their signet or privy seal, or by the lords and others of our or their Privy Council, or any six or more of them under their hands, these our letters-patent shall forthwith cease, determine, and be utterly void to all intents and purposes, anything hereinbefore contained to the contrary thereof in any wise notwithstanding."

Finally, the statute 5 & 6 Will. IV. ch. 83, § 2, provides that the Privy Council, on petition of the patentee, *may* confirm a patent, when the patentee has discovered that he was not the true and first inventor of the thing patented, *provided* (1) that the patentee, when he obtained his patent, believed himself to be the true and first inventor, and (2) that the invention had not been publicly and generally used before the date of his patent.

"The granting of a confirmation," says Mr. Hindmarch (ch. viii. p. 201), "is entirely discretionary with the Judicial Committee of the Privy Council, and will only be exercised in extreme cases, and where the confirmation will not prejudice any existing rights."

See Heurtelòup's Case, Web. 553, and Wells's Case, Web. 554.
This power has not been exercised of late years.
The statute runs as follows: —

"*And be it enacted*, that if in any suit or action it shall be proved or specially found by the verdict of a jury that any person who shall have obtained letters-patent for any invention or supposed invention was not the first inventor thereof, or of some part thereof, by reason of some other person or persons having invented or used the same, or some part thereof, before the date of such letters-patents, or if such patentee or his assigns shall discover that some other person had, unknown to such patentee, invented or used the same, or some parts thereof, before the date of such letters-patent, it shall and may be lawful for such patentee or his assigns to petition his Majesty in council to confirm the said letters-patent or to grant new letters-patent, the matter of which petition shall be heard before the Judicial Committee of the Privy Council; and such committee, upon examining the said matter, and being satisfied that such patentee believed himself to be the first and original inventor, and being satisfied that such invention or part thereof had not been publicly and generally used before the date of such first letters-patent, may report to his Majesty their opinion that the prayer of such petition ought

patent because it is not so extensive as the law itself. The fact is, that the form of this condition in a patent was adopted at a time when the realm only included England, Wales, and Berwick-upon-Tweed, and the alteration in the law produced by the union with Scotland and Ireland, not being adverted to, the officers of the crown have adhered to the old form which was in use prior to the alteration of the law. The condition ought now to require an invention to be new within the realm."

to be complied with, whereupon his Majesty may, if he think fit, grant such prayer; and the said letters-patent shall be available in law and equity to give to such petitioner the sole right of using, making, and vending such invention as against all persons whatsoever, any law, usage, or custom to the contrary thereof notwithstanding: *Provided*, that any person opposing such petition shall be entitled to be heard before the said Judicial Committee: *Provided also*, that any person, party to any former suit or action touching such first letters-patent, shall be entitled to have notice of such petition before presenting the same."

III.

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