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 continued to use the same thing up to the time of taking out the patent, 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, and he cannot recover in this action ; 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, then there is no reason for saying the plaintiff's patent is not good: it depends entirely upon what is your opinion upon the evidence with respect to that. because, supposing you are of opinion that it is a new invention of the plaintiff's, the patent is good." [1]

§ 90. The trial in the case in which this instruction was given was on a plea of the general issue ; and the question raised and put to the jury was, therefore, directly upon the novelty of the plaintiff's invention, that is to say, whether he was the first inventor, and not whether the thing was in public use at the time of the grant. From the form of the issue, therefore, as well as from the obvious meaning of the learned judge, the facts of the open public use of Mr. Strutt's wheel, or the continued use of it down to the time of the patent, or the abandonment of it, were put to the jury as circumstances from which they were to decide whether it was an incomplete and imperfect experiment, or a completed and successful invention ; and not because these inquiries as to continued or discontinued use were of themselves important, provided the wheel had once been made and used as a successful and substantial application of the principle of the plaintiff's. This instruction appears to me to have been entirely correct, upon the facts of the case, both under the English law and under our own ; for this is one of a class of cases which are entirely distinguishable

[1] Jones *v.* Pearce, 1 Webs. Pat. Cas. 122.

from the case of what is called a lost art, where evidence may be produced of the prior existence of a thing, but there is no living knowledge of the method or process by which it was made, and where there has been a fresh invention or discovery of some method or process of making it, and where the method or process of manufacture is the essential thing demanded by the public wants. This class of cases will be considered by itself.

§ 91. In the same way, where the issue to be tried was raised technically upon the proviso in the letters-patent, by a plea that the article patented was previously in "public use," Sir N. C. Tindal, C. J., instructed the jury that, in order to sustain this issue on the part of the defendant, the alleged former practice of the invention "must not be such a practice of it as is only referable to mere experiments for the purpose of making a discovery, or something secret, or confined to the party who was making it at the time, but that it must be, in order to set aside the patent, a case where it was in public use and operation among persons in that trade and likely to know it." The action was on a patent for a manufacture of elastic fabrics; and it was put to the jury to find whether the various specimens or proofs of such a manufacture brought forward by the defendants amounted to proof that *the patented manufacture* was in public use in England, or whether they fell short of that point and proved only that experiments had been made in various quarters, and had been afterwards abandoned.[1] Again, it is well settled in a case which went to the

[1] Cornish *v.* Keene, 1 Webs. Pat. Cas. 501, 508, 519. The following was the very lucid instruction given to the jury: "If this, No. 3, calling it technically and compendiously by that title, was, at the time these letters-patent were granted, in any degree of general use; if it was known at all to the world publicly, and practised openly, so that any other person might have the means of acquiring the knowledge of it as well as this person who obtained the patent, — then the letters-patent are void; on the other hand, if it were not known and used at the time in England, then, as far as this question is concerned, the letters-patent will stand. Now it will be a question for you, gentlemen, to say, whether, upon the evidence which you have heard, you are satisfied that the invention was or was not in use and operation, public use and operation, at the time the letters-patent were granted. It is obvious that there are certain limits to that question; the bringing it within that precise description which I have just given must depend upon the particular facts that are brought before a jury. A man may make experiments in his own closet for the purpose of improving any art or manufacture in public use; if he makes these experiments and never communicates them to the world, and lays them by as forgotten things,

House of Lords, and there received great consideration, that where the issue is, whether the patentee was the true and first inventor, and evidence of a prior use or exercise of the invention is offered in the defence, the abandonment or discontinuance by the supposed prior inventor is a material fact for the jury, in considering whether there was a prior perfect invention or not; but that if there was a prior perfect invention, the abandonment of its use or exercise before the date of the patent is wholly immaterial.[1] The

another person, who has made the same experiments, or has gone a little further, or is satisfied with the experiments, may take out a patent, and protect himself in the privilege of the sole making of the article for fourteen years; and it will be no answer to him to say that another person before him made the same experiments, and therefore that he was not the first discoverer of it; because there may be many discoverers starting at the same time, — many rivals that may be running on the same road at the same time, and the first which comes to the crown and takes out a patent (it not being generally known to the public), is the man who has a right to clothe himself with the authority of the patent, and enjoy its benefits. That would be an extreme case on one side; but if the evidence that is brought in any case, when properly considered, classes itself under the description of experiment only, and unsuccessful experiment, that would be no answer to the validity of the patent. On the other hand, the use of an article may be so general as to be almost universal. In a case like that, you can hardly suppose that any one would incur the expense and trouble of taking out a patent. That would be a case where all mankind would say, 'You have no right to step in and take that which is in almost universal use, for that is, in fact, to create a monopoly to yourself in this article, without either giving the benefit to the world of the new discovery, or the personal right to the value of the patent, to which you would be entitled from your ingenuity and from your application.' Therefore, it must be between those two (if I may so call it) limits that cases will range themselves in evidence; and it must be for a jury to say, whether, supposing those points to be out of the question, in any particular case, evidence which has been brought before them convinces them to their understandings that the subject of the patent was in public use and operation at that time, — at the time when the patent itself was granted by the crown. If it was in public use and operation, then the patent is a void patent, and amounts to a monopoly; if it was not, the patent stands good. Now, gentlemen, you will have to apply your understanding to-day to the evidence in this case, which is in many parts contradictory, in order to see whether you bring the case within the one or the other of these two descriptions, and whether this patent is or is not a new invention." See also the cases of Walton *v.* Potter and Walton *v.* Bateman, 1 Webs. Pat. Cas. 585, 613.

[1] Household Company *v.* Neilson, 1 Webs. Pat. Cas. 673–718. See also the case of Heath *v.* Smith, 25 Law & Eq. R. 165, 168, and the case of Stead *v.* Williams, 2 Webs. Pat. Cas. 126, 135, in which Mr. Justice Creswell, on the

law has been held in the same way in this country for a long period.[1]

§ 92. We may now recur to the case of Gaylor *v.* Wilder, and to the inquiry whether there is a distinction between cases situated

issue of prior public knowledge, pointed out to the jury the distinction between knowledge of an experiment and knowledge of a thing that would answer, in the following terms: "Now as to its being publicly known in this country, I take it that there is a great difference between the knowledge of it as a thing that would answer and was in use, and the knowledge of it as a mere experiment that had been found to be a failure and thrown aside. If you are dealing with an article of merchandise, or with an article of ordinary use, — if a person has had a scheme in his head and has carried it out, but after a trial has thrown it aside, and the thing is forgotten and gone by, — then another person reintroducing it may, within the meaning of this act, be the inventor and the first user of it, so as to justify a patent. There is one instance where a patent was taken out for wheels on the suspension principle, bearing a proportion of the weight from the upper rim of the wheel, as well as supported on the spokes below by perpendicular pressure. It was proved in that case that Mr. Strutt of Derby had used a cart with wheels upon that principle some time before. After using it a year or two, he threw it aside. It was totally forgotten; and some sixteen years afterwards a man brought the thing to perfection, and took out a patent; and it was held that that former use by Mr. Strutt, having been abandoned as a useless thing, was no impediment in the way of a patent. So, also, in the case alluded to of Cornish *v.* Keene. An attempt had been made to introduce new elastic matters, combined for the purpose of making braces and bandages, and various articles of that sort. I remember well, in that case, the Chief Justice left it to the jury to say whether these were experiments. Some pieces were actually produced which had been manufactured, and some of those things which had been manufactured had been sold. It was left to the jury to say whether that was an introduction of it so manifest, or whether it was a mere failing experiment, which had been abandoned, so as to leave the way open to any new speculator in it, who yet might bring the patent to perfection. In that case, also, the patent was supported. In this case the defendants, in order to negative the first use, have given some evidence of similar pavements in Surrey, Somersetshire, and somewhere else. The ends of fir or oak, or other things of that sort, just in their natural condition, round, driven down to make a firm flooring either in small houses, fronts of doors, or something of that sort. Undoubtedly a very different thing from this, and no further affecting this question than as showing that wood had in some instances been used as a pavement; but as a pavement for a carriage-way, none of these

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[1] Woodcock *v.* Parker, 1 Gallis. 438; Bedford *v.* Hunt, 1 Mason, 302; Reed *v.* Cutter, 1 Story, 590; O'Reilly *v.* Morse, 15 How. 62.

as that was, and cases of what may be called the reinvention of a lost art. The case of Gaylor *v.* Wilder (and also that of Jones *v.* Pearce) was one where the novelty or priority of invention was sought to be impeached by evidence of the former existence of a single specimen of an article made, as was alleged, in the same way and operating upon the same principle as the invention of the patentee. So far as the mere construction was concerned, the article itself, or the recollection of those who had seen it, disclosed the process or mode of making it. But after this was ascertained, the inquiry still remained, whether it operated upon the same principle as the patentee's invention; and to the trial of this question the success with which it operated, as proved by the continuance or abandonment of its use, or, in other words, the fact of its being a completed invention, or an experiment towards the making of an invention, was a most material issue.

§ 93. But when we pass from cases of this description to cases of what have been called the reinvention or rediscovery of a lost art, we shall find a very important distinction, that requires to be

things appear to have been used. But then comes the question of Sir William Worsley's. Now the principle of that may or may not involve entirely the principle of this, according to your judgment. It appears to have been laid down to support the traffic of carriages, in a small place undoubtedly; a portico which was covered in, — the porch to the dwelling-house of Sir William Worsley in Yorkshire. Undoubtedly it has been put there to sustain the traffic of carriages; that there is no doubt of. They are cut into hexagon blocks of equal sizes. There you have the principle of the angular parts corresponding, so that the flat surfaces would come together, and so sustain each other from any lateral motion. They are not driven horizontally against each other, but driven in from the surface, and there are no dowels; but dowels are not claimed as any part of the present invention. Then if you think (though that is a little more bevelled off), — if you think that is essentially the same thing as the hexagon block introduced by the plaintiff for the purpose of making roads, then I should say, in point of law, that makes an end of the patent, because that appears to have been introduced by Sir William Worsley, or to have been used by him in public, not concealed, no secrecy about it, made known to all persons who came to his house, so far as their ocular inspection could make them. It was intended to be public, not to be made a matter of merchandise certainly, but merely for his own private use; but the knowledge of it exposed to the public an article in public use, and continued to be used down to the time in question. Therefore, if you think that is the same thing in substance as that which the plaintiff claims, I think that it was publicly used before, and that he cannot have his patent. Whether it had been used by one or used by five, I do not think it makes any difference."

carefully considered, in applying the test which is to determine the presence or absence of the patentable quality of novelty, or the meaning of the expression "first inventor." There are *dicta*, both of the English and the American judges, to the effect that a patent may be supported for a new discovery or invention of what was once in existence and use, but has been long lost sight of or unknown. But in what sense or under what circumstances the statute may be so construed as to make one the "first inventor" of a thing that has existed before; or, in other words, to make one the inventor of something "not known or used by others before his discovery or invention thereof," when there is evidence of the prior existence of something of the same character, is a topic that has not been made the subject of direct adjudication. The most important of the *dicta*, in reference to lost arts, are what fell from Lords Lyndhurst and Brougham, in the case of The Househill Company *v.* Neilson, and from Mr. Chief Justice Taney, in Gaylor *v.* Wilder.[1] The latter stated the case of a lost art, by way of illustration of the latitude of interpretation which the term "first inventor" might receive, as follows: "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

[1] In delivering the judgment of the House of Lords, in Neilson's case, Lord Lyndhurst observed: "It must not be understood that your lordships, in the judgment you are about to pronounce, have given any decision upon this state of facts, namely, if an invention had been formerly used and abandoned many years ago, and the whole thing had been lost sight of. That is a state of facts not now before us. Therefore, it must not be understood that we have pronounced any opinion whatever upon that state of things. It is possible that an invention may have existed fifty years ago, and may have been entirely lost sight of, and not known to the public. What the effect of this state of things might be, is not necessary for us to pronounce upon." To which Lord Brougham responded: "It becomes like a new discovery." 1 Webs. Pat. Cas. 717.

knowledge which the public had not the means of obtaining without his invention." [1]

§ 94. In the sense in which the learned Chief Justice probably intended to make use of this illustration, the true distinction seems to be recognized. For there may obviously be two classes of cases coming under the general head of a lost or abandoned or forgotten art: one, where an article of manufacture still in existence, or capable of being proved to have once existed, discloses of itself, without other proof of its origin or of its mode of manufacture, the process or method of its construction; the other, where the process or method of manufacture cannot be proved by the article itself or any description of it, and can only be known by the aid of evidence which would show the process or mode of manufacture formerly made use of. In one of these cases, to possess the thing or evidence of its existence, is to possess knowledge of the mode of its construction. In the other, the thing itself may remain, and yet all knowledge of the means of making it may have been lost for centuries.[2] It is of the last class of cases that Mr. Chief Jus-

[1] 10 How. 477.

[2] Mr. Webster, in a note to Neilson's case, thus states the same distinction: "The third class of evidence is the production of a machine or article of manufacture with or without proof of actual user anterior to the date of the patent. On the authority of the above case, it would appear that the production of such a machine or article of manufacture, without actual proof as to its use, or any evidence as to whence it originally came, or as to its mode of manufacture, would vitiate subsequent letters-patent for such a machine or article of manufacture, as negativing the grantee of such letters-patent being the true and first inventor. With reference to this head, two distinct cases may occur, — the one in which the machine or article of manufacture so produced shows at once its mode of manufacture, the other in which the machine or article of manufacture does not present any means of knowledge to the public, so as to enable any person to reproduce the same. There may be many various modes of attaining a result, and an article of manufacture may be the subject of various patents. The term 'new manufacture' may be satisfied either by a thing that is made then for the first time, or that is made in a new way then for the first time. An arrangement of material parts, as a simple combination of the elements of machinery, discloses its mode of manufacture to the eye on inspection, but with respect to a paint, or a dye, or a medicine, and many other inventions, a mere inspection of the result attained will convey no information as to the mode of manufacture. The distinction just adverted to relates to the doctrine 'that knowledge and the means of knowledge are the same'; but independently of this, this last class of cases, depending upon user, differs altogether from the two first-mentioned classes of cases, depending upon publication in such a form as to preserve and communicate the knowledge to the public." 1 Webs. 718 *seq.*

tice Taney is to be understood as speaking. He supposes the case of an art, "the *fruits* of which have come down to us, but the *means* by which the work was accomplished are at this day unknown," and that some one has discovered a process, or means, by which those fruits can be again produced.

§ 95. Now it is of great consequence to know what relation to the issue of priority is borne, in the one or the other of these two cases, by the fact of the existence or absence of what may be called living knowledge, at the time of the supposed reinvention or rediscovery. In the class of cases first supposed, the production of a previously existing machine, or other article of manufacture, or the production of evidence that it once existed, proves of itself the construction, or mode of manufacture; and therefore it cannot be said that the knowledge of it has ever been lost, since the very case supposes that the means of proving it exist, either in the thing itself or in the recollection of witnesses. It is a case where knowledge and the means of knowledge are the same. When, therefore, the means of knowledge are sought in the recollection of witnesses who speak to the former existence of a thing, which of itself proves its own construction, or use, it must be wholly immaterial, as an ultimate test, whether those witnesses have had the thing recalled to their recollection by the subsequent reinvention of that thing. It may not be immaterial to the accuracy or value of their recollections to inquire whether they had once forgotten the former article, and had been reminded of it by the subsequent newly invented specimen; because they may have unconsciously borrowed from the latter the means of describing the former. But assuming the accuracy of their recollections and their title to belief, it can be of no moment to the issue, to inquire whether they had forgotten the knowledge which they once had, unless the statute is to be so construed as to make "existing and living knowledge" the test of priority. Such appears to have been the construction given to it by Mr. Chief Justice Taney, in Gaylor *v.* Wilder; for the bearing which he assigns to the facts that Conner had forgotten his own safe, and that its construction and use were recalled to his memory by the subsequent invention of Fitzgerald, shows that he and the judges who concurred with him intended to put the case upon the want of such knowledge, at the time of Fitzgerald's invention, as would have enabled the public to construct the safe in question, without resorting to Fitz-

gerald. But there does not seem to be any satisfactory reason for construing the phrase "not known or used by others before his [the patentee's] invention or discovery," in cases of this class, so as to confine the knowledge or use to what is in the *present* memory of witnesses, in contradistinction to what may be said to be in their *potential* memory. If a witness, however his memory may be aided or stimulated, can recollect or describe a thing, its former existence is proved, and it was "known or used by others" before the invention of it by the patentee. What, then, is the true relation to the issue, of the fact that the former maker of a thing may have forgotten that he made it, and may have had it recalled to his recollection by a subsequent invention? I conceive that this fact has a twofold relation to the issue, in cases of the first class, namely, where the question is simply whether a particular structure alone existed before, or even in cases where the question is whether a particular structure, operating in a certain way, existed before.

§ 96. In the first place, as the priority, in such cases, depends upon the recollection of a witness, it is very important to be able to test the accuracy of his recollection; and therefore the fact that he had forgotten a thing which he had once made, may be important in ascertaining whether he has borrowed any thing from the subsequent invention which recalls the recollection of his own. In the second place, the fact that a thing has been forgotten, has a most material bearing upon the question of complete or incomplete invention. But, beyond this, it seems to be unimportant, provided the thing was once completely invented and can be described.

§ 97. In the other class of cases, namely, an art (to use the description of Mr. Chief Justice Taney) "the *fruits* of which have come down to us, but the *means* by which the work was accomplished are at this day unknown," it is obvious that the discovery or invention relates to those means, or, in other words, to the process or method by which a thing was produced. If, then, the art is once lost, it cannot be said with certainty, in most cases, that the newly discovered or newly invented method was the same as the old, since there is no knowledge what the old method in fact was. The fact, therefore, that all knowledge of the former method has been lost, occupies a very different place in this class of cases to what it occupies in the other class. I conclude, therefore, that

in construing the clause "not known or used by others," it is necessary to look closely at the subject-matter of the patent, and to try the issue of prior use or knowledge accordingly.[1]

[1] Upon the whole, therefore, I reaffirm what was said in my former edition upon this subject of lost arts, in reference to the issue of *prior use or knowledge*, as follows:—

"This distinction, if sound, presents two important inquiries: first, whether there is any class of cases where the mere previous existence of a thing, the art of making which has been lost, negatives the fact that a subsequent discoverer of an art of making the same or a similar thing is the 'first inventor,' as those words are used in the statute; secondly, whether the use or knowledge intended by the statute, in cases of this kind, means the use or knowledge of the art of making the thing, or whether it means merely the use of the thing itself, or the knowledge that it exists, without the means of practising the invention itself. Both of these questions may arise, for instance, in reference to an article which has been patented in England, to wit, an encaustic tile, a description of which was well known in the Middle Ages, but the art of manufacturing which has been lost; or in reference to such arts as that of staining glass.

"With regard to the first question, — if the words 'first inventor' are to be taken in their literal import, and without reference to the character of the subject-matter, whether it furnishes or does not furnish, on mere inspection or analysis, a knowledge of the means by which it is produced, — then it is only necessary, in any case, to show that the thing itself has existed before, in order to negative the claim that the subsequent patentee is the 'first inventor.' This might be all that would be necessary in cases of machinery, because the machine is a collection of material parts in a certain combination, the existence of which, at any previous time, shows that it cannot have been again invented for the first time. But with regard to the arts and the products of the arts, it may be very different. The same thing may have been produced at one time by one process, now wholly lost sight of, and at another time by another process, or by the independent discovery of the same process. It can never be known with certainty whether the subsequent process of manufacture is the same with the first, which may always have been a secret, and is, at any rate, now unknown. The product alone is the same or similar; and if the mere existence of the same thing, without the knowledge of the mode by which it was produced, excludes a subsequent independent discoverer of a process of making that thing from being regarded as the 'first inventor,' a large class of what are really original inventions — and inventions 'first,' as regards the state of knowledge — are excluded from the benefits of the patent law. The difference between inventions or discoveries of this kind and cases of machinery is, that, in a machine, the invention consists in the putting together, in a certain combination, material parts, intended to operate upon each other according to certain laws of motion, to produce a given effect; and this, when once done, is done forever, and can only be done upon one principle and plan, that remain always the same as long as the same machine is

§ 98. Such appear to be the principles of law applicable to the question of novelty, in respect to the *time* of a supposed prior use

reproduced; but, in the case of a manufacture or product of an art, the invention consists in the process by which the thing itself is produced, which may be invented in one way at one time, and in another way at a subsequent time, so that the subsequent inventor may be, literally as well as metaphysically, the 'first inventor' of *his* process of making the thing.

"With regard to the second question which arises under our statute, upon the clauses which provide against the prior use and knowledge of the thing, it may be considered that those provisions are cumulative upon the previous requisition that the patentee shall be the first inventor. The statute requires that the patentee shall make oath that he verily believes himself to be the original and first inventor, and that he does not know or believe that the thing, art, machine, composition, or improvement was ever before known or used; and it provides that the negative of these propositions may be proved in defence against the patent. In the case supposed, — that of an art long lost, but of which specimens of the manufacture can be proved to be or to have been in existence, — the patent of a subsequent discoverer of a method of making the same or a similar thing, would be *primâ facie* evidence that he is the first discoverer of his particular process of making the thing. The negative is then to be shown in defence; and whether this can be shown by merely producing the thing, without showing the process by which it was formerly made, depends upon the force to be given to the words 'use and knowledge.' If those words mean merely that the prior use of the thing itself, or the prior knowledge of its existence, is, in all cases, an answer to the allegation of the patentee that he is the first inventor or discoverer, without showing that his process is the same as that by which the thing was formerly produced, then, there is no occasion to inquire further. But if, on the contrary, those words are to be taken with reference to the character of the subject-matter, in each case, then it is apparent that there may be cases where, as in such arts as those above referred to, the invention or discovery is not, strictly speaking, the thing itself, but a process of making that thing. The words of the statute must be taken with separate application to each of the subjects recited as the proper subject-matters of a patent. The language is, that 'he is the original and first inventor of the art, machine, composition, &c., and that he does not know or believe that the same was ever before known or used'; and in the subsequent clause the 'thing patented' is declared to be subject to the defence, that the patentee was not 'the original and first inventor or discoverer,' or that 'it' had been described in some public work, or had been in public use. The 'thing patented' is the antecedent of 'it,' and in the case of an art this may be, not the product itself, but the process of producing it; and where it cannot be shown that the process invented by the patentee has been 'known' or 'used' before the mere production in evidence of a similar manufacture, produced at a former period by an unknown art, does not negative the allegation, that the patentee invented or discovered the art by which he has produced that manufacture." Curtis on Patents, 2d edition, 1854, §§ 36–39.

or knowledge; and the next topic for consideration is, whether the novelty required by our statute is relative or absolute, as to the *place* of a prior use or knowledge. Had the phrase "not known or used by others before his or their discovery or invention," as used in the 6th section of the act, been left without qualification by any subsequent clause or clauses, the novelty required for an invention must have been absolute as to all countries. But by the 7th section of the same act, the commissioner is authorized to grant a patent, if it does not appear that the subject applied for "had been invented or discovered by any other person in *this* country prior to the alleged invention or discovery thereof by the applicant, or that it had been patented or described in any printed publication, *in this or any foreign country*." And in the 15th section of the same act, one of the defences that may be made, under the general issue and a special notice, is, that the invention had been "described in some public work, anterior to the supposed discovery thereof, by the patentee"; and this is followed by the proviso, "that whenever it shall satisfactorily appear that the patentee, at the time of making his application for the patent, believed himself to be the first inventor or discoverer of the thing patented, the same shall not be void on account of the invention or discovery, or any part thereof, having been before known or used in any foreign country; it not appearing that the same or any substantial part thereof had before been patented, or described in any printed publication."

§ 99. These provisions are not very skilfully framed, but when collated, they leave the rights of an original inventor in the following position: that an inventor who does not consciously borrow from a foreign discovery, that is, who believes himself to be the first inventor or discoverer of the thing patented, can only be deprived of the benefit of his patent, by showing that the thing had been before patented, or described in some printed publication. It will not be enough to show that the thing had been known or used in a foreign country, if it had not been patented, or described in a printed publication. Thus, while the statute still continues, the presumption that the patentee has seen the prior description contained in a printed publication, and makes that presumption conclusive,[1] it relieves an original inventor from

[1] Upon the former law the Supreme Court of the United States said: "It may be that the patentee had no knowledge of this previous use or previous

the same presumption, arising out of the mere previous knowledge or use of the thing in a foreign country where it had not been patented or described; and if he can take the oath that he discovered or invented the thing, he will not be debarred of his patent, by a prior invention or discovery and use of the thing in a foreign country. The meaning and operation of the terms "patented" and "described in some printed publication" will be considered hereafter in connection with the subject of Defences.

§ 99*a*. But when a prior foreign patent, or a printed publication of a prior foreign invention, is relied upon to defeat a patent, the description and drawings therein must "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 he would be enabled to do if the invention was derived from a prior patent in this country. 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."[1] It must be an account of a complete and operative invention capable of being put into practical operation.

§ 100. We now come to consider the next clause in the 13th section of the act of 1836, which imposes a further condition upon the grant of a valid patent. We have seen that the subject-matter must be new, and that there is superadded the condition that it was not known or used by others before the applicant's discovery or invention of it; to which the statute adds, "*and not at the time of his application for a patent*, in public use or on sale, with his consent or allowance, as the inventor or discoverer."[2] The obvious meaning and effect of this clause establish a distinction between an abandonment or dedication of an invention to the public before a patent has been obtained, and an abandonment of the patent right after it has been obtained.

description; still his patent is void; the law supposes he may have known it." Evans *v.* Eaton, 3 Wheat. 454.

[1] Seymour *v.* Osborne (1870), 11 Wal. 516; Hill *v.* Evans, 6 Law Times, N. S. 90; Betts *v.* Menzies, 4 Best & Smith, Q. B. 999.

[2] Act of 1836, § 6.

§ 101. The terms of this clause recognize the principle that, although the applicant or patentee may be an original and the first inventor, yet that he may have so conducted, before applying for a patent, as to have lost the right to obtain one. That an inventor could lose his right to a patent by an abandonment or dedication of his invention to the public, was held by the Supreme Court of the United States, under the Patent Act of February 21, 1793, which made it necessary to a valid patent that the invention should be one "not known or used before the application." It was considered by the court that these words could not mean that the thing invented was not known or used before the application by the inventor himself, since he must possess the knowledge and practise the use of his invention, in order to test its value. The words, to have any rational interpretation, must mean, not known or used by *others*, before the application. But it was further considered by the court in this case, that the clause "not known or used before the application," after receiving by construction the insertion of the words "by others," were to be considered as intended for a requirement that the applicant for a patent should be the first inventor, and not as a substantive enactment of the doctrine of abandonment or dedication by the first inventor, and before he had applied for a patent. Still, it was held, that, without any enactment or statute declaration to this effect, if the first inventor should put his invention into public use or sell it for public use before applying for a patent, he would create another bar to his claim for a patent, distinct from the question of priority of invention; because his voluntary acquiescence in the public use of his invention would create a disability to comply with the conditions on which alone the proper department of the government was authorized to grant the patent.[1]

§ 102. This construction of the statute of 1793 was not, it must be perceived, entirely consistent; for it did not distinctly rest the doctrine of voluntary abandonment upon general principles, aside from the statute provision, but sought to bring the case of such a dedication within the terms of a clause which were admitted to have been designed to establish the requirement of first invention. This ambiguity led to the incorporation into the act of 1836 of the further condition, that the discovery or invention was "not,

[1] Pennock *v.* Dialogue, 2 Peters, 1–24.

at the time of his application for a patent, in public use or on sale, with his consent or allowance as the inventor or discoverer." The intent of this provision was to cause a public use or sale of the invention in any one instance, if consented to or allowed by the inventor, before his application for a patent, to be a bar to his obtaining a valid patent, and also to recognize such a bar where there had been a general abandonment or dedication to the public.[1] Under this statute, therefore, an invention might be allowed to be in public use by the inventor in two modes. He might allow of its use in public by an individual or individuals, or he might allow the whole public to use it, by having abandoned or dedicated his invention to the public before his application. In either case his patent would be void. But by the act of 1839, § 7, this inconvenience was so far remedied as to confine the forfeiture of the right, in cases of individual use with the permission of the inventor, to such use prior to the two years preceding the application for the patent. This new provision was as follows: "That every person or corporation who has, or shall have, purchased or constructed any newly invented machine, manufacture, or composition of matter, prior to the application by the inventor or discoverer for a patent, shall be held to possess the right to use, and vend to others to be used, the specific machine, manufacture, or composition of matter so made or purchased, without liability therefor to the inventor or any other person interested in such invention; and no patent shall be held to be invalid by reason of such purchase, sale, or use, prior to the application for a patent aforesaid, except on proof of abandonment of such invention to the public; or that such purchase, sale, or prior use has been for more than two years prior to such application for a patent."[2]

§ 103. This enactment relieved the patentee from the effect of the former laws, and the construction that had been put upon them by the courts, and put the person who, by the consent and allowance of the inventor, had had a prior use of the invention, on the same footing as if he had a special license from the inventor to use his invention; and at the same time the patent is valid

[1] McClurg *v.* Kingsland, 1 Howard, 202; Ryan *v.* Goodwin, 3 Sumner, 514.

[2] The words, "any newly invented machine, manufacture, or composition of matter," in this statute, have the same meaning as "invention," or "thing patented." McClurg *v.* Kingsland, *ut supra*.

after it is issued, against all persons except such licensee, who will continue to have the right to use the invention.[1] Inventors may now, therefore, permit the use of their inventions, by individuals, for a period of two years, prior to the application for a patent, and still obtain a valid patent notwithstanding such use. But if the use thus allowed extends over a period of more than two years prior to the application, or if it amounts to an abandonment of the invention to the public, whether for a longer or a shorter period, the patent will be invalid.

§ 104. But to entitle a person to claim the benefit of this statute as a licensee by operation of law, he must be a person who is a purchaser or who has used the patented invention before the patent was issued, by a license or grant or by the consent of the inventor, and not be a purchaser under a mere wrong-doer. What will amount to such a license, grant, or consent, is well shown in a case where a person employed in the manufactory of another, while receiving wages, made experiments at the expense and in the manufactory of his employer, had his wages increased in consequence of the useful result of the experiment, made the article invented, and permitted his employer to use it, no compensation for its use being paid or demanded, and then obtained a patent; it was held, that such an unmolested and notorious use of the invention prior to the application for a patent brought the case within the provisions of the statute.

§ 105. The remaining quality essential to a patentable invention is. that it shall be "useful." Care must be taken, however, to discriminate between what may be called the positive utility of an invention, which is made by the statute a mere description of the class of inventions which can be the subjects of valid patents, and that comparative or relative utility which is sometimes applied as one of the tests of novelty, or of substantial difference of structure or mode of operation. We have already seen in what manner this test of comparative utility may be applied to distinguish one invention from another. But this is not the usefulness which the statute contemplates when it describes the subject for which a patent may be granted as a "new and *useful* invention." Nor must this utility be confounded with the inquiry whether some part of a thing claimed or described in a specifica-

[1] McClurg *v.* Kingsland, *ut supra*.

tion as essential to produce the effect intended is or is not useless to that end. This is an inquiry into the question of whether the patent is void for a false suggestion, or as calculated to mislead the public.

§ 106. But when it is said that an invention, to be the subject of a patent, must be "useful," the term must be construed with reference to the known policy of the law in granting patents for inventions. It cannot be supposed that inventions injurious to the welfare of society are within that policy. But what is not injurious or mischievous to society may be capable of some beneficial use; and when this is the case, that is to say, when the invention is not absolutely frivolous or insignificant, the law takes no notice of the degree of its utility, whether it be larger or smaller as compared with other things of the same class. "By useful invention, in the statute, is meant such a one as may be applied to some use beneficial to society in contradistinction to an invention which is injurious to the morals, the health, or the good order of society. It is not necessary to establish that the invention is of such general utility as to supersede all other inventions now in practice to accomplish the same purpose. It is sufficient that it has no noxious or mischievous tendency, that it may be applied to practical uses, and that so far as it is applied it is salutary. If its practical utility be very limited, it will follow that it will be of little or no profit to the inventor; and if it be trifling, it will sink into utter neglect. The law, however, does not look to the degree of utility: it simply requires that it shall be capable of use, and that the use is such as sound morals and policy do not discountenance or prohibit."[1]

[1] Per Story, J., in Bedford *v.* Hunt, 1 Mason, 301, 303. See also Lowell *v.* Lewis, ibid. 186; Kneass *v.* The Bank, 4 Wash. 9; Many *v.* Jagger, 1 Blatchf. 372; McCormick *v.* Seymour, 2 Blatchf. 240; Wilbur *v.* Beecher, 2 Blatchf. 132; Foote *v.* Silsby, 2 Blatchf. 260; Seymour *v.* Osborne, 11 Wall. 516; Hoffheims *v.* Brandt, 3 Fisher's Pat. Cas. 218.

CHAPTER III.

OF THE SUBJECT-MATTER OF LETTERS-PATENT, IN RESPECT TO UNITY OR DIVERSITY OF INVENTION, AND OF THE RELATION OF THE PATENTEE THERETO.

§ 107. We have seen that the subject-matter of valid letters-patent must possess certain qualities, and must stand in a certain position relatively to the state of the art to which the invention belongs; and we have also seen what are the limits within which the antecedent state of the art is to be confined in the comparison to be instituted between the supposed new invention and what has gone before it. These requisites having been ascertained, there next arises the important inquiry, how far the unity of an invention is consistent with a diversity of objects in the same patent. The terms of the patent acts do not admit of distinct inventions as the subject of a single patent, but, on the contrary, they imply that the subject-matter must be one invention or discovery. How far is it consistent with this unity, that the same patent should be made to cover a new machine or other invention, consisting of several parts working to a common end, and the several new parts, each as working for its separate purpose?

§ 108. In some of the earlier cases on this subject, language was used by the courts tending to create doubts as to the legality of claiming, in the same patent, improvements on different mechanisms, so as to give a right to the exclusive use of the several mechanisms separately, as well as a right to the exclusive use of those mechanisms conjointly. Thus, in reference to the patent granted, under a special act of Congress, to Oliver Evans, for his improvement in the machinery for manufacturing flour, the Supreme Court intimated a doubt whether such a patent as the special act authorized could have been taken out under the general patent law. Evans's invention comprehended five machines, each of which was designed for, and capable of, a distinct operation for a special purpose of its own, in the process of manufacturing

flour, but the whole of which, when combined and operating together, constituted a complete flouring-mill, in which every operation necessary to the converting of the grain into bolted flour could be carried on without the intervention of manual labor, and by the motive-power of the mill. In his specification, Evans claimed the machines both separately and conjointly, giving notice that "they may all be united and combined in one flour-mill to produce my improvement on the art of manufacturing flour complete, or they may each be used separately for any of the purposes specified and allotted to them, or to produce my improvement in part, according to the circumstances of the case." Upon this claim, the Supreme Court said that, under the general patent law alone, it was doubtful whether such a patent would not be irregular; but the special act for the relief of Evans was held to have expressly authorized it.[1]

§ 109. In the subsequent case of Barrett *v.* Hall, Mr. Justice Story made use of the following language: "A patent under the general Patent Act cannot embrace various distinct improvements or inventions; but in such case the party must take out separate patents. If the patentee has invented certain improved machines, which are capable of a distinct operation, and has also invented a combination of those machines to produce a connected result, the same patent cannot at once be for the combination and for each of the improved machines; for the inventions are as distinct as if the subjects were entirely different. A very significant doubt has been expressed on this subject by the Supreme Court, and I am persuaded that the doubt can never be successfully removed."[2]

§ 110. In a subsequent case, however, the same learned judge developed to some extent the distinctions which appear now to be generally recognized between the three cases of, first, a machine new as a machine and an entirety; second, several distinct improvements in an existing machine; and, third, a new combination consisting of elements wholly or partially old.[3] That these three classes of cases are distinguishable from each other, as subjects of letters-patent, there can be no reasonable doubt. An instance of the first class is presented by the sewing-machine invented by Howe, which as an automatic machine for uniting two pieces of

[1] Evans *v.* Eaton, 3 Wheaton, 454, 506.
[2] Barrett *v.* Hall, 1 Mason, 447, 475.
[3] Moody *v.* Fisk, 2 Mason, 112, 117.

cloth by a stitch of thread, in contradistinction to working ornaments of thread on the surface of cloth, is said to have had no predecessor. In such cases where the machine as a whole is claimed to be a new invention, giving rise to an entirely new art, — the art of sewing by automatic machinery, — the subject-matter which it is necessary to secure is the machine itself. This of course can require but one patent; and whether that patent will cover not only the machine as an entirety, but the new sub-combinations embraced in it, will depend upon the manner in which the subject is described and claimed, and upon the character of those sub-combinations. An instance of the second class appears in certain improvements upon the steam-engine, patented by one Emerson, and which became the subject of much litigation, involving the nature and relations of several inventions as capable of being embraced in one patent. The title of this patent was "for certain improvements in the steam-engine, and the mode of propelling therewith either vessels on the water or carriages on the land." The patentee claimed to have invented three distinct mechanisms, contrived with the view of being used conjointly, and as conducing to a common end, namely, the better propelling and navigating a ship; but each of these mechanisms was capable of a distinct use without the other two; and it was suggested in the specification that one of them, by the use of similar gearing, could be applied to the turning of the wheels of carriages on rail or ordinary roads, as it was applied to the turning of the paddle-wheels of a ship. In the Circuit Court it was held, that the patent covering the three inventions was rightly taken, upon the ground that, although each was a distinct invention, yet as they were capable of being used in connection and to subserve a common end, they might be united together in one patent, which would protect the patentee from the wrongful use of either of them separately.[1] This conclusion appears to have been reached in conformity with the views expressed by Mr. Justice Story in the case of Wyeth *v.* Stone, in which he modified his *dicta* in the previous cases of Barrett *v.* Hall and Moody *v.* Fiske. In Wyeth *v.* Stone, it appeared that the patentee had invented an apparatus for cutting surface ice into blocks of uniform size, consisting of two machines capable of being used separately or together. The

[1] Emerson *v.* Hogg, 2 Blatchf. 1, 8.

one, called a cutter, was a contrivance for marking the surface with parallel grooves; the other, called a saw, was a mechanism for working a circular saw in the groove so cut, by means of which the ice could be cut through or so nearly through as to be easily pried off with a chiselled iron bar. The two machines were embraced in one patent, which was construed by the court as a claim, not for the combination of the two, but for each distinct machine as a separate invention, yet conducing to the same common end. It appeared that in practice the patentee had himself discontinued the use of the saw, it being found that after the ice had been marked off in grooves by the cutter, it could be split off without being sawed. The suit was against a party using the cutter only; and consequently the point presented by the case was whether a patent describing and claiming two distinct machines was good as a patent for one of them, it appearing that they were not claimed as a combination. In order to sustain it as a patent for one of the machines, it became necessary to find some rule by which it could be saved from the objection that it embraced more than one subject-matter. Such a rule was supposed to be afforded by the fact that the machines, although capable of distinct use, were auxiliary to one common purpose.[1] Following this rule, the Circuit Court, in Emerson *v.* Hogg, adopted the principle that where distinct inventions are capable of being used in connection, and to subserve a common end, they may be included in one patent, and their actual employment together is not required to sustain the validity of the patent in which they are united; and that the wrongful use of either machine is a violation of the patent right *pro tanto*. Applying this principle to the case before them, the court came to the following conclusion: "We think the specification in this case shows that these three separate machines were contrived with the view of being used conjointly, and as conducing to a common end, in the better propelling and navigating a ship; and in our opinion, their capability of being used separately and independent of each other does not prevent their being embraced in one patent."[2] This case came twice before the Supreme Court, and on each occasion the ruling of the Circuit Court on this point was sustained, although at last there appears to have been a division of opinion among the judges.[3]

[1] Wyeth *v.* Stone, 1 Story, 273, 287.

[2] Emerson *v.* Hogg, 2 Blatchf. 8.

[3] Hogg *v.* Emerson, 6 Howard, 437; s. c. 11 Howard, 587. In delivering

§ 111. The third class of cases embraces what may be called technical combinations. In machinery the distinction between a new combination and a new machine may be illustrated in the history of the sewing-machine, of which there are several different varieties. Assuming that A. was the first person to make a sewing-machine, consisting of certain elemental parts operating together

the opinion of the court in 6 Howard, Mr. Justice Woodbury said: "There seems to have been no good reason at first, unless it be a fiscal one on the part of the government when issuing patents, why more than one in favor of the same inventor should not be embraced in one instrument, like more than one tract of land in one deed, or patent for land. Phillips on Pat. 217.

"Each could be set out in separate articles or paragraphs, as different counts for different matters in libels in admiralty, or declarations at common law, and the specifications could be made distinct for each, and equally clear.

"But to obtain more revenue, the public officers have generally declined to issue letters for more than one patent described in them. Renouard, 293; Phillips on Pat. 218. The courts have been disposed to acquiesce in the practice, as conducive to clearness and certainty. And if letters issue otherwise inadvertently, to hold them, as a general rule, null. But it is a well-established exception, that patents may be united, if two or more, included in one set of letters, relate to a like subject, or are in their nature or operation connected together. Phil. on Pat. 218, 219; Barrett *v.* Hall, 1 Mason, C. C. 447; Moody *v.* Fiske, 2 Mason, C. C. 112; Wyeth *et al. v.* Stone *et al.*, 1 Story, 273.

"Those here are of that character, being all connected with the use of the improvements in the steam-engine, as applied to propel carriages or vessels, and may, therefore, be united in one instrument."

In 11 Howard, the same learned judge said, in answer to the same objection: "But grant that such is the result when two or more inventions are entirely separate and independent, — though this is doubtful on principle, — yet it is well settled, in the cases formerly cited, that a patent for more than one invention is not void, if they are connected in their design and operation. This last is clearly the case here. They all here relate to the propelling of carriages and vessels by steam, and only differ, as they must on water, from what they are on land; a paddle-wheel being necessary on the former, and not on the latter, and one being used on the former which is likewise claimed to be an improved one. All are a part of one combination when used on the water, and differing only as the parts must when used to propel in a different element.

"In Wyeth *et al. v.* Stone *et al.*, 1 Story, 288, in order to render different letters-patent necessary, it is said, the inventions must be 'wholly independent of each other, and distinct inventions for unconnected objects'; as one to spin cotton, and 'another to make paper.'

"Again, if one set of letters-patent is permissible for one combination consisting of many parts, as is the daily practice, surely one will amply suffice for two or three portions of that combination."

automatically, to make a stitch uniting two pieces of cloth, the field of invention is in one direction closed; that is to say, no one can afterwards be the first inventor of a sewing-machine. This result has already been accomplished. But there remained to be invented a great variety of new and different combinations of the parts which go to make up a sewing-machine. A combination, therefore, in machinery, may be defined, not as a new machine, but as a new union of elemental parts not before brought together in that kind of machine. The machine itself may have existed before; and the separate elements of the new combination may have existed before; but if those elements have not been before united so as to produce a method of operation differing from what had been done before in that kind of machine, what is called a new combination is created. An instance of this kind appears in certain improvements in the common cooking-stove. This machine had long existed, and one of the varieties of the previously existing machine contained, among other things, an oven extending under the open hearth of the stove, combined with the reverberating flues. To this an inventor added a flue or fire-chamber in front; making, it was held, a new and patentable combination, which may consist of elements either new or old, provided their union is effected for the first time.[1] So, also, where the invention, being an improvement in the power-loom for weaving figured fabrics, consisted in bringing into use in the machine three elemental parts, each of which performed a certain office in producing one practical result, and the claim was for thus combining those elemental parts, it was held that this was a new combination; for the essence of a combination is this, namely, although each of the several elements perfòrms a distinct function, yet as a whole their joint or successive action contributes to one practical result.[2]

[1] Buck *v.* Hermance, 1 Blatchf. 398.

[2] Forbush *v.* Cook, 20 Law R. 664. In this case Mr. Justice Curtis said: "To make a valid claim for a combination, it is not necessary that the several elementary parts of the combination should act simultaneously. If those elementary parts are so arranged that the successive action of each contributes to produce some practical result, which result, when attained, is the product of the simultaneous or successive action of all the elementary parts, viewed as one entire whole, a valid claim for thus combining those elementary parts may be made. Nor is it requisite to include in the claim for a combination, as elements thereof, all parts of the machine which are necessary to its action,

§ 111 *a*. Mr. Justice Clifford has divided inventions pertaining to machines into four classes, as follows:—

First, those which embrace the entire machine, as a car for a railway, or a sewing-machine. Such inventions are seldom made, but, when made and duly patented, any person is an infringer, who without license makes or uses any portion of the machine. Under such a patent, the patentee holds the exclusive right to make and use, and vend to others to be used, the entire machine; and if another, without license, makes, uses, or vends any portion of it, he invades the right of the patentee.

Second, those which embrace one or more elements of a machine, but not the entire machine, as the coulter of a plow, or the divider of the reaping-machine. In patents of this class, any person may make, use, or vend all other parts of the machine, and he may employ a coulter or divider in the machines mentioned, provided it be substantially different from that embraced in the patent.

Third, those which embrace both a new element and a new combination of elements previously used and well known. In such a case the property of the patentee consists in the new element and in the new combination. No one can lawfully make, use, or vend a machine containing such new element or such new combination. They may make, use, or vend the machine without the patented improvements, if it is capable of such use, but they cannot use either of those improvements without making themselves liable as infringers.

Fourth, those where all the elements of the machine are old, and where the invention consists in a new combination of those elements whereby a new and useful result is obtained. Most of the modern inventions are of this kind, and many of them are of great utility and value. In this class the invention consists solely in the new combination; and the rule is, that the property of an inventor, if duly secured by letters-patent, is in all cases exactly commensurate with his invention. Such an invention, however, is but an improvement on an old machine, and consequently the patentee cannot treat another as an infringer who has also improved the original machine by the use of a substantially dif-

save as they may be understood as entering into the mode of combining and arranging the elements of the combination." See further, in the same case, a very apt illustration of what constitutes a new combination.

ferent combination, although the machine may produce the same result.[1]

§ 111 *b*. In the case of Seymour *v*. Osborne,[2] decided in the Supreme Court of the United States in 1870, the validity of a combination of five patents held by the complainants for improvements in reaping machinery was in issue. The leading parts or features of a reaping-machine were stated to be: first, the reel, which gathers or presses the standing grain to the cutting apparatus; second, the cutting apparatus for severing the stalks; third, a platform on which the cut grain is received. The chief characteristics of the platform are its shape and the arrangements for removing the grain therefrom and depositing it on the ground in gavels or bundles ready for the binder. The reaping-machine is drawn by horses attached in front and to one side of it. The desideratum is to cut the standing grain and deposit it on the ground in bundles adapted to being readily bound into sheaves. In the latter mentioned operation it is of vital importance not to discharge the cut grain directly backwards immediately behind the machine where it will be in the way of the horses on their second round, but to deposit it at the side of the machine in the path just passed over by the horses, thus leaving a clear way for the horses on the next round between the stalks so deposited and the standing grain.

The invention of Seymour consisted in constructing the platform for receiving the grain in the shape of a quadrant or sector of a circle, and placing it immediately behind the cutting apparatus, and in such relation to the main frame that the cut grain could be swept around in the arc of a circle and deposited on the ground behind the horses, so as to leave a clear way between the standing grain and the gavels, thereby obviating the necessity of taking up the grain as fast as cut, and at the same time doing the work more perfectly. For this invention an original patent was granted July 8, 1851, and, by successive reissues, two claims, among other things, were allowed to the patentee. One in reissue No. 72 was: —

"A quadrant-shaped platform, arranged relatively to the cutting apparatus substantially as herein described, for the purpose set forth."

[1] Union Sugar Refinery *v*. Mathiessen (1865), 2 Fisher's Pat. Cas. 600.
[2] 11 Wall. 516.

Reissue number seventy-two, as construed by the court, consisted "in constructing the platform of a reaping machine, upon which the cut grain falls as it is cut, in the shape of a quadrant, or of a sector of a circle, placed just behind the cutting apparatus, and in such relation to the main frame that the grain, whether raked off by hand or machinery located behind the cutting apparatus, can be swept around on the arc of a circle and be dropped heads foremost on the ground, far enough from the standing grain to leave room for the team and machine to pass between the gavels and the standing grain without the necessity of taking up the gavels before the machine comes round to cut the next swath."

The other claim, on the basis of the same original patent, was in reissue No. 1683: —

"The combination in a harvesting machine of the cutting apparatus (to sever the stalks) with a reel and with a quadrant-shaped platform located in the rear of the cutting apparatus, those three members being and operating as set forth." The ingredients of this claim are the cutting apparatus to sever the stalks, the reel to incline the heads of the stalks towards the cutting apparatus, and the quadrant-shaped platform, located in the rear of the cutting apparatus, to receive the cut stalks as they fall, before the operation of the sweep-rake begins. In Seymour's machine the grain was discharged from the platform on to the ground by a hand-rake.

The other inventions in controversy were made by Palmer and Williams, and pertained to the employment of an automatic sweep-rake in combination with the quadrant platform, which, as a separate device, was conceded by these inventors to have been the invention of Seymour. The claims for these improvements were allowed in reissue No. 4 and No. 1682. In the former the claim was: —

"Discharging the cut grain from a quadrant-shaped platform, on which it falls as it is cut, by means of an automatic sweep-rake, sweeping over the same substantially as described." "Explained in general terms, the invention secured in the reissued patent numbered four," said Mr. Justice Clifford, "consists in arranging an automatic sweep-rake in a harvesting machine, in such relation to a quadrant-shaped platform, upon which the cut grain falls as it is cut, that it shall vibrate over the same at suitable intervals to discharge the cut grain in gavels upon the ground."

The claim of reissue No. 1682 was as follows: —

"The combination of the cutting apparatus of a harvesting machine with a quadrant-shaped platform arranged in the rear thereof, and a sweep-rake operated by mechanism in such manner that its teeth are caused to sweep over the platform in curves when acting on the grain, these parts being and operating substantially as hereinbefore set forth."

The court construed this combination to embrace: 1. The cutting apparatus to sever the standing stalks of grain; 2. The quadrant-shaped platform arranged behind the cutting apparatus to receive the severed stalks of grain as they fall; 3. The sweep-rake and the described mechanism to operate the same in such manner that the teeth shall move in circular curves over the platform when they are acting on the grain. The letters-patent covering all these improvements, which were designed to accomplish the same object, became vested in the complainants who sought to restrain their alleged infringement by the defendants.[1]

The defence set up was that the combination claimed in each of the several letters-patent was a combination of old parts, the combining of which involved no invention, but merely the skill of an intelligent mechanic, or other person skilled in the manufacture and use of harvesting machines.

In support of this theory, evidence was adduced to show that the improvements claimed had been embodied in other machines alleged to have been in use prior to those of the complainants. Obed Hussey had made a reaping-machine with a square platform, to the rear of which was bolted an angular addition, giving to the whole where the addition was attached an angular form. The court was of opinion that this machine was "substantially different in several respects" from that of complainants, but deemed it unnecessary to enter that field of inquiry, as Hussey's machine was merely an experiment, and had never been reduced to practice as an operative machine. The machine most relied upon by the defence was the self-raking reaper invented by Nelson Platt, and for which a patent had been granted June 12, 1849. In this machine, the grain, after being cut, was received on a rectangular platform whence it was raked by a set of rake, acting from below, on to a second quadrant-shaped platform. From this platform the

[1] An original patent granted to Palmer and Williams, and assigned to complainants, relating to the mode of supporting the reel, was also in controversy; but it is not necessary to describe it in this connection.

grain was discharged by a vibrating rake, which swept across it in the arc of a circle on to the ground, the heads of the grain lying towards the machine. It was not claimed that this was identical in construction with the complainants' invention, but that the improvements of the latter were within the scope of a skilled mechanic, and did not require invention. This view was adopted by the Circuit Court, which also held that the evidence did not show that the defendants' machine infringed, and dismissed the complaint.[1] The Supreme Court of the United States, when the matter came up on appeal, held that the court below had erred in both of these conclusions, and accordingly reversed the judgment.

Mr. Justice Clifford in pronouncing the judgment of the Supreme Court said: "Particular changes may be made in the construction and operation of an old machine so as to adapt it to a new and valuable use not known before, and to which the old machine had not been and could not be applied without those changes: and under those circumstances, if the machine, as changed and modified, produces a new and useful result, it may be patented, and the patent will be upheld under existing laws. Such a change in an old machine may consist merely of a new and useful combination of the several parts of which the old machine is composed, or it may consist of a material alteration or modification of one or more of the several devices which entered into its construction; and whether it be the one or the other, if the change of construction and operation actually adapts the machine to a new and valuable use not known before, and it actually produces a new and useful result, then a patent may be granted for the same, and it will

[1] "The size and particular form of the platform," said Judge Hall, in rendering the decision of the Circuit Court, "whether square, rectangular, or otherwise shaped, was simply a question of mechanical construction, depending upon the form, construction, and operation of the other parts of the machine; and the actual invention of Palmer and Williams was confined to the devices and organization by which the automatic rake was effectually operated and made to produce the desired result. No one who had any pretension to mechanical skill, or even to practical good sense, could have been stupid enough, after placing the circular fence and rail on the old-fashioned rectangular platform, to leave the useless wood outside that fence and rail, to add unnecessarily to the weight of the machine, and consequently to the force required for its operation. To remove this useless wood, or simply to change the position of Platt's quadrant-shaped platform to the rear of the cutting apparatus, required neither ingenuity nor invention."

be upheld as a patentable improvement. "Improvements for which a patent may be granted must be new and useful, within the meaning of the patent law, or the patent will be void, but the requirement of the patent act in that respect is satisfied if the combination is new and the machine is capable of being beneficially used for the purpose for which it was designed, as the law does not require that it should be of such general utility as to supersede all other inventions in practice to accomplish the same object." In overruling the defence that the difference between Nelson Platt's machine and that of the complainant was "so very slight that it required no invention to pass from the former to the latter," the same learned judge said: "Properly understood, that machine does not contain a combination of the quadrant-shaped platform with the cutting apparatus in any practical sense. On the contrary, it has a square platform combined with the cutting apparatus, and the quadrant-shaped platform is combined with the square platform; nor does it contain any quadrant-shaped platform to receive the grain as it falls, but the ingredients of the invention, as well as the combination, are different from those in the complainants' machine, and the mode of operation is also different, which is all that need be said in response to that defence."

§ 111 *c*. A mere aggregation of parts, whereof the patentee has not the exclusive right to either, and in which the parts have no new operation and produce no result which is due to the combination itself, is not invention, and consequently is not patentable. The combination must be new itself, and must produce a new and useful result, not due to the separate action of any one of the devices used in combination, nor attained thereby, but due to the co-operative or reciprocal action of the combined devices. And in such a case any one may lawfully use any one of the old devices separately, or in new combinations, or may use some of them in combination and omit others. Or if the combination of the old devices be supplemented by other and new devices co-operating therewith, thus producing a new and useful result, that is invention.[1] But if a device in one combination performs mechanically and practically, and in substantially the same manner, the same office of another device in another combination, it is none

[1] Hailes *v.* Van Wormer (1870), 7 Blatchf. 443; Sarven *v.* Hall (1872), 9 Blatchf. 524.

the less an equivalent of the latter because it performs an additional office, not performed by the former, by reason of a difference in its mechanical construction.[1]

[1] Sarven *v.* Hall, *ut supra*. In this case the court said: "The second claim is, 'A carriage wheel constructed with a mortised wooden hub, with tenoned spokes, and with flanges which embrace the faces of the spokes in the immediate vicinity of the hub, and are connected together so as to form a metallic band through which the spokes extend into the mortises in the wooden hub, substantially as before set forth.' This claim, construed by the aid of the specification, is for the combination of the two flanges with tenoned spokes, the two flanges being connected together so as to give lateral support to the spokes.

"This second claim raises three questions involved in the present case, which may be most intelligently discussed in the following order: First, have the defendants used this combination? and if so, then, second, is such combination patentable, or is it a mere aggregation of devices not involving patentable invention? and, third, is it a new combination?

"The defendants have not used — it is not claimed that they have used — flanged collars, constructed separately, to be separately applied, and bolted or screwed together. The mechanical construction of the mortised collar, cast in one piece, with divisions between the mortises for the several spokes, and with tapering sides, formed to receive the spokes driven tightly therein, and give them endwise bearings, is not the same as the plaintiff's flanged collars. They perform a different office in the particular last named, which the plaintiff's flanged collars do not and cannot perform. The defendant's mortised collar and the plaintiff's flanged collars are, therefore, not identical, either in mechanical construction or in the office which they perform. It is, nevertheless, claimed that, in the particular construction and office which is embraced within the plaintiff's second claim, they are the precise equivalent of the plaintiff's flanged collars. This claim suggests a question of some interest: Is a device which, both mechanically and practically, performs the same precise office of another device, in substantially the same manner, any less an equivalent of the latter, because it also performs another office or offices, by reason of a difference in its mechanical construction?

"The mortised collar used by the defendants has its two sides in the same form as the two flanged collars of the plaintiff. In reference to the purpose for which the plaintiff's two flanged collars are used — to wit, to strengthen the hub, and to sustain the spokes against lateral pressure or strain, and to co-operate with the tenons in giving firm support to the spokes — they perform identically the same office as the plaintiff's flanged collars, and in the same way. The circumstance that they are held together by connecting cross-pieces, made solid therewith, instead of by bolts or screws, has no effect on the manner of their operation in this respect. Are they, then, to be deemed any less the equivalent of the flanged collars, because, by reason of the greater number of cross-pieces, they are stronger, or because the cross-pieces between each two spokes and the sides of the mortise are tapered, so as to give an end-

§ 111 *d*. In a very recent case the House of Lords held that a new combination of old and well-known things was a proper

wise bearing to the spokes, and enable the spokes to be driven in and be grasped firmly, and held therein? I think not. In the use, and for the purpose, for which the plaintiff's flanged collars are useful, they are identical in the office they perform, to wit, to sustain the spokes against lateral strain. The mechanical construction, in the parts which perform this office, is substantially the same. The crosswise partitions and form of tapering mortises may be improvements upon the plaintiff's flanged collars, but the mortised collars do, nevertheless, operate, for all the purposes for which the flanged collars are used, in precisely the same way. If the question was between a single patented device, conceded to be new, and a device claimed to infringe, because an equivalent, the alleged infringer could not protect himself by showing that, although his device was an equivalent of the patented device, in all its functions, and in its construction and mode of operation, yet, by other or additional features, it possessed other and further useful functions. Such a device would, perhaps, be an improvement upon the patented device, but must be nevertheless deemed an appropriation of the former.

"This view of the subject of equivalents is not stated in order to a conclusion that, as separate devices, either of these parties has the exclusive right to the flanged collars or to the mortised collar. Both, as hereinbefore stated, are old. It does not follow that the plaintiff's combination of flanged collars with tenoned spokes is old; and the question discussed is, whether, in the combination of flanged collars with the tenoned spokes, the substitution of the mortised collar is not, within the meaning of the law, the substitution of an equivalent in the combination, although such device (being equivalent for the purposes, and in all the functions, of the flanged collars) also contains other and additional functions due to its peculiar construction. In this view, the combination of a mortised collar and tenoned spokes with a wooden hub must be regarded as embracing the combination of the flanged collars and tenoned spokes with a wooden hub, claimed in the plaintiff's patent; and, if that patent is valid in respect of that claim, the defendants must be held to infringe it, notwithstanding the combination used by the defendants may also include other functions and produce effects not attainable by the plaintiff's combination.

"The plaintiff's combination referred to in his second claim is distinguished from a mere aggregation of devices in this, that there is a reciprocal action or operation of the parts upon each other and conjointly upon the entire wheel, each part giving to the other increased support and efficiency, and the two co-operating to make a stronger and more durable wheel than is produced by the use of either without the other, — that is to say, the tenoned spokes are strengthened and sustained in position by the flanged collars, and the flanged collars, bound to the spokes by the connecting bolts or screws, are more firmly held in position by the tenons of the spokes. Combined, they unite hub and spokes, enabling the wheel better to resist a blow or strain either laterally or in the direction of its plane. It must be conceded, within the rule on this subject, that a combination of devices would not necessarily be patentable from

subject for a patent; that a patent may be sustained, though each principle or process in it was previously well known to all persons engaged in the trade to which the patent relates, provided, however, that the mode of combination was new and produced a beneficial result. In this case the specification must claim not the old processes, or any one of them, but only the new combination.[1]

§ 112. The present chapter, which treats of the relation of the patentee to the invention, seems to be the proper place to consider the case of a joint invention made by two or more persons. Practitioners may be, and probably often are, called upon to advise, either before or after a patent has been obtained, in reference to a state of facts from which it would appear that more than one person has been concerned in making the supposed invention. That the statute contemplates the case of a joint invention, the product of the ingenuity and skill of more than one person, is evident from its language.[2] But as it is impossible that an invention should be at the same time the separate production of one person, and the joint production of two or more persons, and as all inventions

the mere fact of their union producing a better wheel. If the superiority arose from the fact that the two devices were intrinsically better than others and the wheel combined both, — each, however, operating independently of the other, — the combination would be but the exercise of judgment in the choice of parts, and not invention in discovering new means to produce useful or better results. For illustration, one mode of securing the tire to the felly, or the felly to the spokes, may be better than any other in use. One form of axle-box, or a mode of securing the axle-box to the hub, may be better than any other in use; and it might so happen that both or all had never been used together in the construction of a carriage wheel; and yet, both being old, one who should adopt both in the construction of a wheel, without other change in its construction, would not be an inventor, and his wheel would have no patentable quality. Each device is complete in itself, it performs the same functions and in the same way, in whatever wheel it is used, and without being influenced or affected by the other. This distinction may often be very nice, and sometimes may, for its application, require very close and careful discrimination; but the distinction is itself a substantial one. It reduces the basis of the second claim in the plaintiff's patent to somewhat narrow grounds, but it is sufficient to sustain it. A new relation is established between the efficient means of strengthening and supporting the parts of the wheel in question, and a new and greater efficiency is given to each, which is due not to their inherent quality, but due to the combination itself."

[1] Cannington *v.* Nuttall (1871), 5 H. L. 205.

[2] Act of 1836, § 6.

must be classed under one or the other of these heads, it becomes important to consider whether one of the authors of a joint invention can apply for and take a patent on it in his own name, or in their joint names, under any and what circumstances.

§ 113. A very singular case occurred in 1816–1818, before Mr. Justice Story, under the Patent Act of 1793. In the year 1809 two persons obtained separate patents for the same invention. One of them instituted a suit against the other, to repeal the patent of the latter, upon the allegation that it was obtained surreptitiously and upon false suggestion. Upon an issue joined on this allegation, the jury found that the plaintiff and defendant were both concerned in making the invention; but as they went on to find a general verdict for the defendant, it was set aside by the court for inconsistency and repugnance, and a new trial was ordered.[1] The parties then, 1818, applied for and obtained a joint patent for a joint invention, leaving their several previous patents outstanding; and on this joint patent they brought an action against a third person for infringement, and obtained a verdict. The defendant, among other grounds, then moved to set this verdict aside because the court at the trial instructed the jury that the existence of the prior patents granted to the patentees respectively for the same thing, and their several oaths of invention on which they obtained those patents, were not an absolute bar to the joint patent declared on, and did not conclude them from showing a joint invention. It was held that the prior patents, although very strong evidence against the claim of joint invention, were not conclusive.[2]

[1] Stearns *v.* Barrett, 1 Mason, 153.

[2] Barrett *v.* Hall, 1 Mason, 447, 474. Some observations may not improperly be made upon the point thus decided, in order to guard against a misapprehension of the distinction on which the learned judge appears to have relied. The prior patents, held by the inventors severally, were still outstanding when their action on the joint patent was tried. The question was, whether those prior patents were not an estoppel to the joint patent. The learned judge stated the position, with great strength, that a subsequent patent is an estoppel to the setting up of a prior grant inconsistent with the terms of the last grant; and also that a repeal for some original defect in a prior patent is necessary to the acquisition of a right under a subsequent patent for the same invention. But he appears to have treated the prior patents, in this case, as having been possibly taken under an innocent mistake, which the plaintiffs were at liberty to show; and he treated their subse-

§ 114. It will be seen, on comparing this case with the Patent Act then in force, that it arose under a statute which unequivocally authorized a joint patent to be issued on a joint invention to joint applicants.[1] A very different case might arise under the statute of 1836, the terms of which, either by accident or design, are somewhat different. The sixth section of that act, after providing, by the use of the plural, that a patent may be granted on the application of more than one person, does not continue, in prescribing the form and substance of the specification, which is to be delivered, to make use of the plural, but speaks of what the inventor or applicant is to do, in the singular only. Looking, however, to the obvious intent of the act, it should doubtless be construed to provide that, in case of a joint invention on which the inventors petition for a joint patent, the specification and oath of invention may be signed and made by the joint inventors. But how would it be in the case of a joint invention, where one party only applies, acting for both? Could a patent for a joint invention be issued to the joint inventors, on the application of one? If one of two joint inventors had, before an application, assigned his interest to the other, how should the patent be applied for,—as for a joint invention, taking a joint patent, or as for an invention part of which had been assigned to the applicant before the application? These are some of the questions which may arise in practice, in regard to which it may be prudent to make only general suggestions respecting the policy and purposes of the statute.

§ 115. These suggestions are: *First*, that the statute evidently contemplates the case of a joint invention and a joint patent. *Second*, that although the statute does not expressly direct that the joint inventors shall all sign the application and make the oath,

quent application for a joint patent as a kind of surrender in law of their prior several patents. It is not easy to reconcile this decision with that in the subsequent case of Odiorne *v.* The Amesbury Nail Factory (2 Mason, 28), in which the same learned judge held that a prior patent, unrepealed, is an estoppel to any future patent for the same thing, unless we make an exception in the case of a joint invention, and treat the subsequent application for a joint patent as a renunciation of all right obtained by the inventors separately by prior separate patents. If such a case were to occur now, the remedy for a third person would apparently be, to bring a bill in equity for interfering patents, and have the one or the other declared void. See Act of 1836, § 16.

[1] Act of 1793, § 1.

it is quite capable of the construction that they may do so, especially if they apply by joint petition for a joint patent. *Third*, that in all applications, the truth of the case should be pursued, and the application of the statute to the facts should be carefully noted. *Fourth*, That while the terms of the statute do not seem positively to preclude an application by one for a joint patent on a joint invention, or for a patent to that one who has received an assignment from the other joint inventor, it would be most prudent to avoid raising the question of the effect of such an assignment, if it be practicable. The subsequent statute, which makes inventions assignable before application for a patent (act of 1837, § 6), seems to embrace the case of a several, and not the case of a joint invention. In the case, therefore, of a joint invention, where one inventor has assigned his interest to the other before application, the assignment would appear to rest upon common-law principles; and if so, the question how the patent should or may be applied for, under the statute, would depend upon the peculiar facts of the case.

§ 115 *a*. In the act of 1870, the language referring to the inventor, discoverer, and applicant, is used in a singular sense.

§ 116. As to what constitutes joint invention, it is obvious that the question may be to some extent different from what would arise where the issue is whether one of two persons is to be considered as the sole inventor. But perhaps the same leading principle is to be applied to ascertain whether A. is to be regarded as a part inventor with B., as to ascertain whether A. is to be regarded as sole inventor against B.

§ 117. This, too, may be an appropriate place to suggest a useful caution against covering by a subsequent patent what has already been described in a previous patent issued to the same inventor. In the first place, if the previous patent describes something which it does not claim as new, its actual novelty may not save it from the peril of having become dedicated to the public. It is a very strong, perhaps a conclusive, presumption, that what is described in a patent and not claimed is given up to public use.[1]

[1] It is not intended, in this passage of the text, to intimate that a technical "claim," or summary, is necessary to support a patent. A specification satisfies the requirements of the statute, if it points out in any manner what the inventor means to secure to himself by the grant of the patent. The summary, technically called a "claim," may or may not be a convenient mode of

Probably this presumption can be removed only by a surrender and reissue of the patent, under the statute which provides for *bonâ fide* inadvertency. At all events, it seems clear that the difficulty cannot be corrected by the issue of a second and independent patent, if the thing that is sought to be covered by the second was already covered by a valid claim in the first patent. But if the subject of a second patent was embraced in a claim of a previous patent, which turns out to have been more extensive than the patentee was entitled to make it, such second patent may be good. To this effect, the case of O'Reilly *v.* Morse is a direct decision. Morse, in the first patent issued for the electro-magnetic telegraph, had inserted, besides the special claims covering the particular machinery then invented by him for the recording or marking of intelligible signs at long distances, a claim of a broad and general character, for the use of the electro-magnetic current as a motive-power, in a printing or recording telegraph, without confining himself to the particular machinery described. Subsequently he invented and took a patent for the local circuits, — a combination of devices by which the message can be recorded at intermediate stations as well as at the terminus of the line. The Supreme Court of the United States held that the general claim of the first patent, if valid, would include the local circuits, but that it was not valid, because it attempted to embrace things not then invented, or at least not described; that this being so, the new patent for the local circuits, being for an invention not described in the first patent, and being a distinguishable improvement upon what was described in the first patent, was properly granted.[1]

§ 118. The several provisions of the patent acts not only require that the invention should possess the qualities of which we have treated in the last preceding chapter, but they also make it necessary that the patentee should be the actual inventor, or the assignee or legal representative of the actual inventor, of the thing

ascertaining what the party means to have the patent embrace. But whether this or some other mode of designating the subject of invention or discovery be employed, there is a necessary presumption that things described, and not represented to be part of the invention or discovery which the patentee intends to cover, are dedicated to the public, even if they are original. This presumption may be removed by a surrender and reissue.

[1] O'Reilly *v.* Morse, 15 Howard, 62.

patented. No person can take a patent for that which he did not invent, unless he derives a legal title from the true inventor, by assignment or by operation of law. In either case, therefore, whether the applicant claims as the inventor or as holding the title of the inventor, a question may arise as to the real authorship of the invention; because suggestions, hints, or conceptions, or practical assistance may have been derived from others, and if so derived, the fact of whether the invention was in truth made by the party claiming to be the inventor may require determination. But it is a presumption of law that the patentee was the inventor of that which he patented, and whoever alleges the contrary assumes the burden of proof.[1]

This is a mixed question of law and fact; or, in other words, it is one of those questions on which no precise and universal rule can be stated, but certain general principles of determination may be laid down, under the guidance of which the facts attending the process of forming or realizing the invention may be investigated. Generally speaking, the cases will divide themselves into two classes: in one of which the effort will be to show that the plan, conception, or suggestion of the thing patented came from some other person than the patentee, and that nothing more was done by him than to supply the mechanical details, or other practical means, of embodying or working the suggestion; while in the other class, it will be found that the patentee had conceived the plan or principle of the invention, but derived from others the practical knowledge or manual skill necessary to give it an operative and useful existence.

§ 119. With respect to the first of these two classes of cases, the general principle seems to be, that, in order to invalidate a patent upon the ground that the patentee received from another person the suggestion of the invention, it is not enough to show that the naked idea, or bare possibility of accomplishing the object, was suggested. On the other hand, it is not necessary that the mere *minutiæ* of the invention should have been communicated by another person. The true test to apply is, to ascertain whether the principle or plan of the invention was substantially communicated to the patentee by some one else, so that nothing remained for the former to do but to apply the skill of a constructor.[2] This

[1] Pitts *v.* Hall, 2 Blatchf. 229.

[2] Alden *v.* Dewey, 1 Story, 336.

test has been applied, with all the precision of which such a question admits, by Mr. Justice Nelson, in the following instruction to a jury: "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. Thus, in this case, the arrangement patented must be the product of the mind and genius of C., and not of B. or F. This is obvious to the most common apprehension. 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 C. [the patentee], in this case, 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. On the other hand, the converse of the proposition is equally true. If the suggestions or communications of another go to make up a complete and perfect machine, embodying all that is embraced in the patent subsequently issued to the party to whom the suggestions were made, the patent is invalid, because the real discovery belongs to another." [1]

§ 119 *a*. Where a master-workman has conceived the plan of an invention and is engaged in experiments to perfect it, suggestions from a person employed by him are not sufficient to deprive the employer of the exclusive property in the perfected improvement, unless such suggestions amount to a new method or arrangement, which in itself is a complete invention. This issue was presented in the case of the Agawam Company *v.* Jordan,[2] decided by the Supreme Court of the United States in 1868. One Goulding had

[1] Pitts *v.* Hall, 2 Blatchf. 229, 234. See also Sparkman *v.* Higgins, 1 Blatchf. 205.

[2] 7 Wall. 583.

invented an improved cording machine, consisting of a combination of known devices or machines. It was alleged by the defence, however, that Goulding had not bestowed any ingenuity upon the invention, but had derived his knowledge from Edward Winslow, who was employed by him. It appeared that Goulding, while experimenting, had adopted certain suggestions of Winslow, which had proved useful in the result.[1] As viewed by the court, they were of value only as an *auxiliary* part of Goulding's invention, and did not either form the entire invention or any one of its separate combinations. After a minute statement of the facts involved, Mr. Justice Clifford, who pronounced the opinion of the court, thus stated the principles of law applicable to the point in dispute: "Suggestions from another, made during the progress of such experiments, in order that they may be sufficient to defeat a patent subsequently issued, must have embraced the plan of the

[1] The following statement of facts is given in the report of the case: "Taken all together, this part of the case, on favorable assumption for the defendant, seemed somewhat thus: After Goulding came to Dedham, and had been experimenting there for a considerable time, one Edward Winslow, a blacksmith by trade, but, if the testimony in his favor was to be believed, an ingenious man, came into his service. Winslow professed no skill out of his business, but made himself useful generally in whatever Goulding found it most convenient to set him to do; working generally in iron. He had no charge of Goulding's machine-shop, but was not unfrequently in it. Goulding himself directed all that was done about machinery, whether as to making or to altering it. In 1824, Winslow having been to a neighbor's factory, where certain devices, meant to produce long or endless rolls, and to serve as receptacles for the rovings, had been introduced on machinery for spinning yarn, Goulding, who had now nearly completed his improvement, and while he was diligently prosecuting his experiments, asked him what he thought of them. Winslow replied that the principle of them was good, but that the agencies employed were bad, and suggested certain substitutes (a spool and drum) for them. 'You don't know any thing,' was Goulding's first reply. However, upon seeing an experiment, apparently at first successful, made at his own mill, on the basis of Winslow's idea, he exclaimed, 'Winslow, you have got it. I will give you $2500 and half of what we can make.' But the experiment broke down in the process of exhibiting it. Goulding then exclaiming, 'Your plan isn't worth a cent, I would not give a fig for it,' left the mill. Upon further conversation and consideration, Goulding saw merit in Winslow's suggestions, and having made them practicable by an addition of his own (the 'traverser,' whose effect was to wind the roving evenly on the spool), he adopted them (instead of cans, the far less convenient agency previously used), as two items of his far larger improvement. As it turned out in the result they proved useful."

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 are made, the patent is invalid, because the real invention or discovery belonged to another."

§ 120. The other class of cases, namely, those in which the author of the plan or principle of an invention has availed himself of the suggestions or skill of workmen or other persons in giving practical embodiment to his ideas, depend upon the relative situations of the parties, the nature of the employment, the fact that the patentee had conceived the main idea of the invention, and the further fact that the suggestions made or the assistance afforded to him by another did not materially affect the result. The general rule being that the person who plans the invention is to be regarded as the inventor, it will make no difference that such person worked as a servant in the employment of another, provided the servant really conceived the improvement patented. Thus, Baron Alderson put this issue to a jury in the following terms: "If Sutton suggested the principle to Mr. Minter (the patentee), then he would be the inventor. If, on the other hand, Mr. Minter suggested the principle to Sutton, and Sutton was assisting him, then Mr. Minter would be the first and true inventor, and Sutton would be a machine, so to speak, which Mr. Minter uses for the purpose of enabling him to carry his original conception into effect."[1] So, too, in Arkwright's case, with respect to a particular roller, part of the machinery, the evidence was that Arkwright had been told of it by one Kay; that, being

[1] Minter *v.* Wells, 1 Webs. Pat. Cas. 132.

satisfied of its value, he took Kay for a servant, kept him for two years, employed him to make models, and afterwards claiming it as his invention, made it the foundation of a patent. The same fact was proved concerning a crank, which had been discovered by a person of the name of Hargrave, and had been adopted by Arkwright. This evidence was fatal to the patentee's claim of invention in respect to both of these improvements.[1]

§ 121. But in these cases, the thing patented was a specific part, or instrument, in a complicated machine, constituting, if it had the merit of novelty, a special improvement. On the other hand, it is obvious that a person may be the real author of the plan of a complicated machine, or other invention, which requires for its perfection the skill, and to some extent the inventive faculties, of workmen or engineers, in adapting the best means to the successful application of the principle. Thus it was objected, at a trial in the King's Bench, that parts of the improvements in Foudrinier's paper machine were the inventions of one Donkin; but Donkin proved that when he made those improvements he was employed as an engineer, for the purpose of bringing the machine to perfection, and was paid for so doing, and that he was acting as the servant of the inventor of the machine, for the purpose of suggesting those improvements. He did not discover the principle of the machine, or invent the important movements of it. The objection did not prevail.[2] But perhaps the most striking case of this class is that of the invention of the electro-magnetic telegraph, by Professor Morse. His plan for combining two or more electric or galvanic circuits, with independent batteries, for the purpose of overcoming the diminished force of electro-magnetism in long circuits, was fully formed in the spring of 1837; and the process, combination, powers, and machinery appeared, on a judicial investigation, to have been then arranged in his own mind. But it could not be brought out without the highest order of mechanical skill; and the want of means to employ the services of workmen capable of affording him the necessary aid was proved to have been the cause for the non-production of his invention until a later period.

[1] The King *v.* Arkwright, Davies's Pat. Cas. 61, 1 Webs. Pat. Cas. 64. See also Barker *v.* Shaw, 1 Webs. 126.

[2] Bloxam *v.* Elsee, 1 Car. & P. 567; Davies's Pat. Cas. 132; Godson on Patents, 27, 28; Hindmarch on Patents, 26.

Upon this state of the case, Mr. Chief Justice Taney, delivering the judgment of the Supreme Court of the United States, said: "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 of 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. And it is evident that such an invention as the electro-magnetic telegraph could never have been brought into action without it. For a very high degree of scientific knowledge and the nicest skill in the mechanic arts are combined in it, and were both necessary to bring it into successful operation. And the fact that Morse sought and obtained the necessary information and counsel from the best sources, and acted upon it, neither impairs his rights as an inventor, nor detracts from his merits."[1]

§ 121 *a*. In the case of Blandy *v*. Griffith,[2] it appeared that the complainant had suggested to a draughtsman in his employ the plan of a portable steam-engine substantially the same as that described in the patent, and had marked a diagram to illustrate his ideas, in the sand upon the floor. He then directed his draughtsman to prepare the drawings, and ordered the engine to be made. Mr. Justice Swayne thereupon stated the distinction between invention and mechanical skill in the following clear and concise language: "Invention is the work of the brain, and not of the hands. If the conception be practically complete, the artist 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,

[1] O'Reilly *v*. Morse, 15 Howard, 62, 111.
[2] (1869), 3 Fisher's Pat. Cas. 609.

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 completeness, the outgrowth — whatever shape it may take — belongs to him with whom the conception originated. In the case before us it does not seem to be any pretence for saying that Wedge invented any thing. He simply executed the design drawn by Blandy in the sand. All the engines since made have been substantially like the first one."

§ 122. In like manner it has been held, that, after the main principle of an invention has been discovered, the suggestion by a workman of subordinate improvements, accessory to the main principle of the invention, and tending to carry it out more conveniently, may be adopted by the patentee and embodied in his specification. The case in which this doctrine was very clearly applied was that of an improvement in the machinery for making cloth by felting, without spinning or weaving. The invention consisted in substituting a compound travelling apron, on which to form the bat, instead of the surface of a perforated cylinder; whereby certain important advantages were gained, and a material change in the process of the manufacture was introduced. A workman employed by the patentee suggested a modification of this principle by means of successive sets of aprons placed one above another, so that the machine might be used in less extensive premises than would be required if two long extended aprons were employed. Upon these facts, Mr. Justice Erle 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 (the workman) is, that, after the bat has been form d 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." This instruction was affirmed by all the judges of the Common Pleas, on a rule to show cause why a new trial should not be granted, Tindal, C. J., saying: "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."[1]

§ 123. From the distinctions thus taken between the cases in which the employer is the real author of the principle or plan of the invention, and those in which the servant, workman, or agent is such real author, it follows that, where the relation between the two parties amounts to a contract, by which one agrees to employ his inventive faculties in the service of another, and the workman, in the course of the employment, makes a substantive invention, the question will arise whether the employer can become the patentee of that invention without a written assignment. In a case tried before Mr. Justice Washington (in 1821), under the statute of 1793, the defence was set up under a special notice authorized by the act, that the plaintiff surreptitiously obtained the patent for a discovery of one Wimbly, who worked as a journeyman in the plaintiff's shop. The learned judge gave the following instruction: "If the jury are satisfied that the discovery was in reality made by Wimbly, they must be also satisfied that the patent was obtained in fraud of any right which such discovery bestowed upon Wimbly. For if, upon the evidence, you should be of opinion that Wimbly gave up his right of discovery to the plaintiff, by expressly or impliedly permitting him to encounter the trouble and expense of obtaining a patent, it cannot

[1] Allen v. Rawson, 1 Man. Granger & Scott, 551. It was certainly worthy of consideration, whether this improvement amounted to a distinct patentable subject.

be affirmed that the plaintiff obtained the patent surreptitiously, or in fraud of Wimbly's discovery."[1] The authority of this instruction is not to be pressed beyond the precise issue in respect to which it was given. It was contended by the defendant, that, inasmuch as no assignment from Wimbly to the plaintiff appeared to have been made, the plaintiff's obtaining the patent must be deemed to have been surreptitious, in relation to Wimbly, and that the patent was therefore void, under the clause of the act which permitted the defendant to show that the patentee "had surreptitiously obtained a patent for the discovery of another person." But this allegation was obviously capable of being rebutted by evidence that Wimbly acquiesced in the plaintiff's application for the patent; and it was in reference to the evidence which tended to show such acquiescence, and to the special issue raised, that the learned judge gave the instruction above quoted. But where, under a plea of the general issue, evidence should be offered that the patentee was not, but that a workman was, the real inventor, could the action be maintained without showing a written assignment, or a written contract that would operate as an assignment, even if the real inventor had acquiesced in the plaintiff's application? This is a distinct question from that which arises under the clause of the statute against surreptitious applications in fraud of the rights of the true inventor. When it is considered that, by the sixth section of the act of 1836, the right to the patent is vested in the inventor, who must himself take the steps requisite to the grant of the patent, and that, by the sixth section of the act of 1837, it is made necessary to the grant of a patent to an assignee, that an assignment should be previously recorded, and that the inventor should make oath to the specification, it can scarcely be doubted that, where the real author of the invention is any other person than the patentee, it is necessary that some contract capable of operating as an assignment should precede the issuing of the patent. But such a case is distinguishable from that of a workman who is employed and paid by one who has conceived the principle or plan of an invention, and who relies on the ingenuity of another to enable him to perfect the details and realize his conception.

[1] Dixon *v.* Moyer, 4 Wash. 68, 71.

CHAPTER IV.

OF THE EXTENT TO WHICH THE PRINCIPLE OF AN INVENTION MAY BE CARRIED BY LETTERS-PATENT. — WHAT IS MEANT BY PATENTING A PRINCIPLE.

§ 124. NOTWITHSTANDING the ambiguity which of necessity attends the use of the term "principle," there is probably no other more convenient term with which to introduce the discussion to which the present chapter is to be devoted. I design to consider, as a branch of the general topic of what may be the subject-matter of a patent, that very difficult question, of how far a discovery or invention which may first disclose and practically embody some truth in physics or some law in the operation of the forces of nature, for a useful purpose, is capable of being carried in the exclusive privileges secured by the grant of letters-patent. The discussion of this question, when followed into some of the adjudicated cases, will be found to be connected with the construction of particular specifications. So, too, it enters into the whole subject of infringements, when the question is whether what the defendant has done is within the scope of the patent that may be before the court in a given case. But notwithstanding the necessity of anticipating, to some extent, what it may be necessary hereafter to say on the topics of construction and infringement, it may be useful to consider the special question, which can, perhaps, be best stated as follows: How far can the characteristic principle of a discovery or an invention be made to extend by letters-patent, when that principle consists in a novel and useful application of some physical law, property of matter, or natural force ?[1]

Perhaps the best method for the treatment of this subject will

[1] Although the reader may object to the terms in which this question is propounded, it is believed that he will have no difficulty in discovering what it is that the writer means to discuss. Considerable difficulty must always attend the use of any terms by which we attempt to designate so abstract and abstruse a subject.

be to select some prominent and peculiar invention, as an illustration of the question, and group the general principles and the prior and subsequent cases around it. By this method it will be seen to what extent the doctrines of the law may be regarded as settled. A very apposite illustration for this purpose is afforded by the invention of the magnetic telegraph.

§ 125. Morse, availing himself of the fact that a current of electro-magnetic fluid may be transmitted from place to place, along a wire, and at the terminus opposite to that from which the fluid proceeds may be used as the means of moving a delicate instrument, adapted an apparatus for throwing a current of such fluid along the wire, and for recording certain signs or marks, according to a system invented by him, at the farther extremity of the wire, by means of the movements of a recording instrument there suspended, and operated upon by the electro-magnetic current. Adopting the results of an adjudication, I assume that he was the first person who, by means of newly invented machinery adapted to the purpose, embodied and made of practical utility the fact in nature that the electro-magnetic current may be used at long distances as a moving force, for the purpose of recording or marking at pleasure intelligible signs or marks. On this hypothesis, the scope of his invention was the application and use of the electro-magnetic fluid, by means of suitable machinery and a concerted system of signs or marks, to the recording of intelligible signs or marks at a long distance from the operator. How far could he make this characteristic or principle of his invention the subject of an exclusive privilege under letters-patent? Could he patent the application and use of the electro-magnetic current, for this purpose, by any and all machinery which would effect the end proposed? or could he patent only the machinery by which he himself effected this application and use, and all other means which were substantially the same?

§ 126. This very grave question arose upon a claim in the early patent obtained by Morse, which was in these words: "I do not propose to limit myself to the specific machinery, or parts of machinery, described in the foregoing specifications and claims; the essence of my invention being the use of the motive-power of the electric or galvanic current, which I call electro-magnetism, however developed, for marking or printing intelligible characters or signs at any distances, being a new application of that power,

of which I claim to be the first inventor or discoverer." It was not denied by the Supreme Court of the United States that he was the first inventor or discoverer of this application and use of the electro-magnetic current; but a great difference of opinion arose among the judges on the validity of this claim; a majority of the court holding it to be invalid, as being a claim without any limitation in respect to the means by which the electro-magnetic current could be used for the purpose described.[1] It is not intended here to state the different views of the judges, or to comment upon the decision. The case is now referred to only as an illustration of the subject before us.

§ 127. It has often been laid down that a mere elementary principle cannot be made the subject of a patent. What has been meant by this, it is of course important to ascertain. One of the earliest cases in which this topic came into consideration was that which arose upon Watt's invention of a separate condenser for the steam-engine. In the engines which preceded Watt's, the steam was condensed in the body of the cylinder. He discovered that, by condensing the steam in a separate vessel, and keeping the cylinder from cooling down, a great saving of steam, and by consequence of the fuel used to produce it, would be effected. In the unskilful fashion of that age, his patent was taken for "a newly invented *method* of lessening the consumption of steam and fuel in fire-engines"; and his enrolled specification proceeded to state that this *method* consisted of certain *principles*, the chief of which consisted in certain modes of preventing the cylinder from being cooled down below the temperature of the steam which entered it, and in the introduction of a separate condensing vessel or vessels. He did not describe any particular engine built according to his method, but a special verdict found that the specification was sufficient to enable a mechanic acquainted with the old engines to build an engine that would operate upon his plan and produce the new proposed effect of saving steam and fuel. It so happened, that, at the time when the action was brought in which this special verdict was found, Watt was entitled to sue by virtue of a special act of Parliament which had extended his patent for twenty-five years, but which had described it as a patent for making and vending certain *engines*, and which vested in him the sole right to

[1] O'Reilly *v.* Morse, 15 Howard, 62.

make and vend the *engines* described therein. The special verdict also found that, at the time of making the letters-patent, the invention was new and useful, and that the defendants had infringed the privilege vested in Watt by the special act of Parliament, as the plaintiffs had declared, namely, by making and selling *engines* in imitation of the *engine* invented by Watt, and vested in him by the special act and the latters-patent.

§ 128. It is manifest that the real question in this case was, whether the patent could be construed as a patent for a machine embodying certain principles of construction and operation; for if the patent covered only a *process*, or a *method*, considered abstractly from a particular organization of machinery, the act of Parliament, which called the subject of the patent an *engine*, could not be regarded as having continued it. All that was said by the judges of the Common Pleas, therefore, on the subject of *principle*, must be taken with reference to this question of construction, on which it was said *arguendo*. Two views were taken of this patent in the Common Pleas. *First*, that it was a patent for a *principle*; and by this it would appear to have been meant that Watt had undertaken to patent the principle of condensing the steam, not in the cylinder, but out of the cylinder, without describing any newly invented machinery for this purpose. The judges, who took this view of it, held that the patent must be void, upon the ground that a principle abstracted from particular organization is not capable of being made the subject of a patent. *Secondly*, the patent was viewed as a new mode of working an old engine by a method pointed out. This would make the invention in effect a new engine, or an improved engine. But on this construction, Mr. Justice Buller held the patent void, upon the ground that the patentee had really claimed the whole of the old engine, without pointing out his own improvement in the mechanism. Lord Chief Justice Eyre, on the other hand, held that it was not a patent for a principle (in the above sense), but for a newly invented method of working with steam, which method was exhibited by, and embodied in, a new mode of constructing engines. By this reasoning he reconciled the patent and the act by which it was continued. No judgment, however, was given in the Common Pleas, and a case was stated to be carried by writ of error to the King's Bench.[1]

[1] Boulton & Watt *v.* Bull, 2 H. Blackst. 463.

§ 129. In the latter court, all difficulty vanished; and it appears somewhat remarkable that the view taken of the patent in that court should not have occurred to those who had to consider the case in the court below. Lord Kenyon, although professedly no friend to patents, proceeded with great directness to hold this to be a patent for a *manufacture*, consisting of an engine or machine composed of material parts, which were to produce the effect described, and the mode of producing which was so described as to enable mechanics to put it in operation.[1] The objection that, if it was a patent for an improved engine, the specification should have pointed out the improvement, whereas the patent embraced, if any thing material, the whole of the old engine, was answered by the very able judgment of Grose, J., by saying that it was not a patent for the old engine, but for the improvement on the old engine.

§ 130. This analysis of the case is sufficient to show that in truth it sheds but little light upon the question now under consideration. The validity of this patent depended upon the question whether the specification had described a thing that could be brought within the term "manufacture," in the statute of monopolies. So far as the case is an authority to the position that the discovery of a law, or truth, or fact, in nature, is not of itself a *manufacture*, — a position which was correctly assumed by all the judges, — so far it elucidates the nature of what may be a patentable subject. But it did not embrace the case of the new application of one of the forces of nature, or properties of matter, to the production of a particular mechanical effect, accompanied by some described mechanical means of producing that effect; or how far such application, when produced by one means, may be made to extend as a patent privilege. Without adverting for the present to any supposed embarrassment arising out of the term "manufacture" in the English law, and to the possibility of a broader scope that may be given to our term "art," there are some observations of Lord Chief Justice Eyre, in the case of Boulton *v.* Bull, which show that at that early period (1795) this distinction between an abstract or unembodied principle, and the application of a principle by a described means, was present to his mind. "Undoubtedly," he said, "there can be no patent for a mere principle; but for a principle, so far embodied and

[1] Hornblower *v.* Boulton, 8 Term R. 95.

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 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 his patent."[1]

§ 131. There is a case prior to this in point of time, which was adverted to by Lord Chief Justice Eyre, in his judgment above cited, as being a case of a valid patent. This was the case of Hartley's patent for "a particular method of securing buildings and ships against the calamities of fire."[2] It consisted in fastening plates of metal and wire to the structure to be protected, joining or overlapping the edges. It was granted in 1773. Lord Chief Justice Eyre considered that this invention consisted in a new method of disposing plates of iron so as to produce the negative effect of preventing combustion, and that as such the patent was properly granted. Mr. Webster regards it in the same light, and says that it satisfies the terms of the statute, "working or making any manner of new manufacture," because it is a new mode of building houses or ships with a view to a particular effect.[3] But it does not appear that this patent was subjected to litigation. It has been frequently referred to, however, as a valid patent. If it was so, it must have been upon the construction above suggested; under which it was simply a patent for a new

[1] 2 H. Blackst. 495.

[2] The specification (1 Webs. Pat. Cas. 54), was in the following terms: "A particular method of securing buildings and ships against the calamities of fire.

"My invention of a particular method of securing buildings and ships against the calamities of fire is described in the manner following: that is to say, by the application of plates of metal and wire, varnished and unvarnished, to the several parts of buildings and slfips, so as to prevent the access of fire and the current of air, securing the several joints by doubling in, overlapping, soldering, riveting, or in any other manner closing them up; nailing, screwing, sewing, or in any other manner fastening the said plates of metal into and about the several parts of buildings and ships, as the case may require."

[3] 1 Webs. Pat. Cas. pp. 55, 56, *note*.

mode of building, and was not of the class of inventions in which a new discovery is made of the application of a force or property of matter never before used for the production of a positive effect, accompanied by some described means of making the application.

§ 132. The next case to be adverted to, after Watt's, is that of Forsyth's patent for a method of discharging cannon, fire-arms, mines, &c., by the application of detonating powder, the invention of which he did not claim. In his specification, he described the manner in which he introduced the detonating powder as priming, by a particular mechanical contrivance, and a mode of causing it to explode by a stroke, or sudden and strong pressure. It is stated by Mr. Webster, that he succeeded in an action of infringement against a party using a lock of a different construction to any shown in the drawing annexed to his patent.[1] Such a verdict must have been rendered upon the ground that this patent, like Hartley's, covered the new application of a known thing to produce a particular effect to which it had never been previously applied. Of the same class is the patent of Hall, for the application of the flame of gas to singe off the superfluous fibres of lace, in the place of a flame of oil or alcohol. This patentee made use of a chimney, above the lace, to create a current of air, which would force the flame of gas through the meshes of the lace; but he disclaimed "the exclusive use of any apparatus or combination of machinery, except in connection with, and in aid of, the application of the flame of inflammable gas to the purposes described." Lord Tenterden directed a verdict for the plaintiff, and it is said that the patentee enjoyed the benefit of his patent during the whole of its term.[2] It does not appear very distinctly how far the verdict depended upon evidence showing the use of the same apparatus as the plaintiff's; but Mr. Webster understands the effect of the case as establishing that the use of gas for singeing lace by any apparatus was within the patent.

§ 133. We now come, however, to a case which presents distinctly the question we are considering. Before the invention of Neilson (1828–29), furnaces for the manufacture of iron, &c., had been worked by a blast of cold air. He discovered that by heating the blast, and introducing it heated into the furnace, a

[1] Forsyth *v.* Riviere, cited 1 Webs. Pat. Cas. p. 97, note from Chit. Prerog. Crown. 182.

[2] Hall *v.* Jervis, 1 Webs. Pat. Cas. 97, 100.

great improvement would be effected in the quality of the manufacture. In other words, he discovered a new application of a natural agent, heated air, by using it as a blast for furnaces. This agent he did not and could not invent. At most, he could only construct an apparatus for heating the air; but he did not take his patent for any particular form of heating apparatus, but he took it for what he denominated "an improved application of air"; which, under the circumstances, was the same as an application of air *improved* by being hot instead of cold. So very general was his description of an apparatus for making the application, that he merely directed heating the air on its passage from the bellows or blowing apparatus, by passing it through a vessel or receptacle artificially heated, and introducing it thence into the furnace. He gave no particular directions as to temperature; left it to workmen to adapt the size of the air-vessel to the temperature desired; and went so far as to declare that "the form or shape of the vessel or receptacle is immaterial to the effect, and may be adapted to the local circumstances or situation. It is obvious that this patent laid claim to the use of air artificially heated between the blowing apparatus and the furnace, in any kind or shape of vessel interposed between those machines, and heated to any degree that would produce the improved effect of using heated air instead of cold. If it was true that the form or shape of the heating vessel was immaterial to the production of *some* effect, namely, the effect produced by blasting with heated air, — and if the specification was rightly to be construed to mean this, so that a workman or builder would understand that all he had to do was to make a vessel that would enable him to give some increased temperature to the air, — then the sole question that would remain would be whether the principle of using heated air as a blast for furnaces was capable of appropriation under a patent, by a party who had described *some* mode by which it could be so used to a beneficial effect.

§ 134. At the trial on this patent before Baron Parke, he construed it as being a claim to "the discovery of heating air in any vessel of any size, provided it is a close vessel, and exposed to heat between the blowing apparatus and the furnace." He did not say that such a patent would in his judgment be valid, if the patentee had not furnished any directions by which a workman of competent skill could apply the new discovery; but being of opin-

ion that the specification contained directions which warranted such an issue, he put it to the jury to find whether a person of ordinary skill and knowledge in the construction of blowing apparatus would be able, from the specification alone, to construct an apparatus that would be productive of some beneficial effect; and he told the jury, if they found this issue affirmatively, the patent was, in his opinion, valid for the claim as he had described it. But being of opinion that the patentee had made an incorrect statement, in saying that the form and size of the heating vessel were immaterial to the effect, — assuming that this meant to the extent of effect, and not to some effect, — he directed the jury to find, upon the evidence before them, whether this statement would mislead a person of ordinary skill and knowledge. The jury found that a person of ordinary skill and knowledge could, from the specification alone, construct an apparatus that would produce some beneficial effect, by using any shape and form of heating vessel, but that the shape and form of the vessel were material to the extent of effect; and they also found that such a person would not be misled by the statement that the form and size of the vessel were immaterial in producing the effect. Thereupon, a verdict was entered for the plaintiff upon issues which assumed that the patent was valid in respect to the application of heated air in any vessel that would produce some beneficial effect; and for the defendant, upon the construction adopted by the court that the statement of the patent meant that form and shape were immaterial to the extent of effect, which the jury found not to be true.

§ 135. In this position, the findings of the jury came before the Court of Exchequer, on leave reserved to the parties to have the verdict entered according to the opinion of the court respecting the construction of the patent. Baron Parke himself pronounced the judgment of the court, in the course of which, speaking of the invention as disclosed by the specification, he said: "It is very difficult to distinguish it [the specification] 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 principle of blowing furnaces with hot air], 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, to the furnace." He concurred with the rest of the court in reversing the construction which he had given at the trial to that clause of the specification which stated that the shape and size of the receptacle were immaterial to the effect. It was construed to mean immaterial to the degree of effect; and the jury having found that any shape which a competent workman would be likely to adopt would produce a beneficial effect, the verdict was entered for the plaintiff.[1]

§ 136. It is quite apparent then, *first*, that in speaking of the specification of a patent for a principle, in reference to this case of the hot blast, the court had in view a specification stating in the abstract that the patentee had found out that furnaces could be advantageously worked with a blast of hot air instead of cold air, without describing any particular means of applying or working out this principle. Hence, it is to be inferred that there is a distinction between the principle itself and the application or working out of the principle, in arts or manufactures. The former cannot be the subject of a pate ; the latter may be. *Secondly*, the case is an authority to show when and how the application of a principle may be made the subject of a patent; for it ascertains that if the specification discloses, by sufficient and clear directions, some practical means by which persons of competent skill in the art can apply the principle and work it, so as to produce the effect contemplated by the patentee, it discloses a patentable invention, that invention consisting in a machine or other thing embodying the principle; or, stated in the other way, the patentable invention consists in the practical application of the principle. *Thirdly*, the case is an authority to show that when a patent covers the application of a principle, in the above sense, it may be infringed by the use of machinery or apparatus

[1] Neilson *v.* Harford, 1 Webs. Pat. Cas. 273–373. After this judgment, an injunction was revived by Lord Chancellor Cottenham (which had been dissolved by his predecessor, pending an action at law), he holding that the construction given to the patent by the Court of Exchequer was a reasonable one. Ibid. 373.

differing as machinery or apparatus from that described by the patentee, provided it effects a practical application of the same principle embodied by the patentee by means of *his* machinery or apparatus.[1]

§ 137. That this is the correct legal result of this decision is apparent from what took place in the Court of Sessions in Scotland, and in the House of Lords, on the same patent. Neilson held a patent in Scotland, the specification of which was a verbal copy of that enrolled under his English patent. At the trial in Scotland, before Lord Justice Clerk Hope and a jury, the learned judge, with much more amplification, but substantially to the same effect, instructed the jury as Baron Parke had done before him, in respect to the invention which the patent was to be considered to embrace. He made it to consist altogether in the application of the principle of using a hot-air blast for furnaces, &c., by means of any form or size of apparatus in which the air could be heated beneficially on its passage from the blowing machinery to the furnace. The jury found the several issues put to them as follows: "That in respect of the matters proven before them, they find for the pursuer on all the issues; and further find, that by the description in the said specification, the patentee did not refer to any particular form, or shape, or mode of constructing the air-vessel or vessels, or receptacle or receptacles, in which the air under blast is to be heated; and further find, that by the use of the term 'effect' in the specification, the patentee did not state that the form and shape, &c., were immaterial for the purpose of heating the air in such vessel or vessels; and further find, that the terms of the specification respecting the air-vessels or receptacles, and the size and number thereof, are not such as to mislead persons acquainted with the process of heating air, &c.; and they assess the damages at £3,000."

§ 138. When this case came by appeal before the House of

[1] This case of Neilson *v.* Harford underwent great consideration. Four actions were consolidated in the Court of Exchequer, under a rule, and after the judgment in that court a perpetual injunction was granted against the four different defendants. In the case, on the facts of which the trial and judgment proceeded in the Court of Exchequer, the heating receptacle used by the defendants consisted of a coil or series of pipes; whereas the patent described the heating to be effected in "an air vessel, or receptacle," and different cubic contents were stated as suitable for different circumstances; but the specification did not undertake to enumerate all the sizes that would be suitable for all circumstances.

Lords, the whole of the charge to the jury appeared in the record, and was excepted to upon various grounds. The judgment was reversed upon one of these exceptions, which related to a point in the charge not involving the nature and scope of the patent, and it was affirmed upon all the other exceptions, thus affirming the construction and extent given to the patent. In delivering his opinion in the House of Lords, Lord Campbell said: "The other exceptions, till we come to the eleventh, turn upon the construction of the patent. 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 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."[2]

[1] His Lordship, while at the bar, had been leading counsel in the defence at the English trial of Neilson *v.* Harford, before Baron Parke, and perhaps alluded here to the views which he had then taken of the patent.

[2] The Household Company *v.* Neilson, 1 Webs. Pat. Cas. 673–718. I insert here the most material parts of the charge thus sanctioned by Lord Campbell, because it contains a very elaborate statement of the doctrine: —

"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

§ 139. To the same effect are the observations made by Baron Alderson in a previous case: "You cannot take out a patent for

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

a principle; you may take out a patent for a principle, coupled with the mode of carrying the principle into effect, provided you

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; I so apply it to a specified purpose by a mechanical contrivance, viz., by getting the heat when in blast, after it leaves the furnace; but the mode and manner, and extent of heating, I leave to you, and the degree of benefit, on that very account, I do not state. The defenders say, the patent, on this account, is bad in law. I must tell you, that, taking the patent to be of this general character, it is good in law. I state to you the law to be, that you may obtain a patent for a mode of carrying a principle into effect; and if you suggest and discover, not only the principle, but suggest and invent how it may be applied to a practical result by mechanical contrivance and apparatus, and show that you are aware that no particular sort or modification or form of the apparatus is essential in order to obtain benefit from the principle, then you may take your patent for the mode of carrying it into effect, and 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 would 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.

"The best illustration I can give you, and I think it right to give you this, is from a case as to the application of that familiar principle, the lever, to the construction of chairs, or what is called the self-adjusting lever. This case, which afterwards came under the consideration of the whole court, was tried in the Court of Exchequer during the presidency of Lord Lyndhurst. The case was as to the patent reclining chair, the luxury of which some of you may have tried; it had a self-adjusting lever, so that a person sitting or reclining, — and I need not tell you what variety can be assumed by a person reclining in a chair, — in whatever situation he placed his back, there was sufficient resistance offered through means of the lever to preserve the equilibrium. Now any thing more general than that I cannot conceive; it was the

have not only discovered the principle, but invented some mode of carrying it into effect. But then you must start with some mode of carrying it 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."[1]

§ 140. It will now be sufficiently apparent what is meant in the English cases by patenting or not patenting a principle; and the question will recur to the reader, does Baron Alderson's language above quoted embrace a correct statement of what is held to be law in England? Of this it would seem there can be no doubt, both from the cases of which an analysis has now been given, and from a much more recent case. A patentee in his specification claimed as his invention exhausting from the cases of mill-stones the dusty air blown between the grinding surfaces by a blast of air, by using a combination of a blast and an exhaust, for the purpose of carrying off the dust which would otherwise be deposited in the meal. A blast had been used before, and an exhaust had been used before; but the combination of the blast and exhaust was new, and productive of great advantages. The claim was not restricted to any particular mode of creating or applying the blast, or the exhaust, but the patentee described a mode of working the exhaust in combination with the blast. The new principle, in this case, was the combined use of a blast and application of a well-known principle, but for the first time applied to a chair. He made no claim to any particular parts of the chair, nor did he prescribe any precise mode in which they should be made; but what he claimed was a self-adjusting lever to be applied to the back of a chair, where the weight of a seat acts as a counterpoise to the back, in whatever posture the party might be sitting or reclining. Nothing could be more general. Well, a verdict passed for the patentee, with liberty to have it set aside; but Lord Lyndhurst and the rest of the court held, that this was not a claim to a principle, in whatever shape or form it may be constructed. Just so as to the hot blast, only the principle is also new. The patentee says: 'I find hot air will increase the heat in the furnace, that a blast of hot air is beneficial for that end.' Here is the way to attain it. 'Heat the air under blast, between the blowing apparatus and the furnace; if you do that, I care not how you may propose to do it, — I neither propose to you, nor claim any special mode of doing it; you may give the air more or less degrees of heat; but if you so heat it, you will get by that contrivance the benefit I have invented and disclosed, more or less, according to the degree of heat.' This is very simple, very general; but its simplicity is its beauty, and its practical value not an objection in law."

[1] Jupe *v.* Pratt, 1 Webs. Pat. Cas. 146.

an exhaust. The application consisted in working this principle by a described means. The patent was held to be valid, as a patent for the application of the principle, because the patentee had described an application of it, although he did not claim any novelty in the apparatus itself by which he produced either the exhaust or the blast. No attempt appears to have been made to establish a defence by showing that the defendant had used a different apparatus. The infringement turned upon the fact that the defendant had used an exhaust and a blast in combination.'[1]

[1] Bovil *v.* Keyworth, 7 Ell. & Bl. Q. B. 724. As the case is very instructive, I cite a portion of Lord Campbell's judgment relating to the validity of the patent: —

"We are of opinion that the objections to the validity of this patent cannot be supported.

"The whole of the plaintiff's process, if the combination be new, is certainly the subject of a patent; and so would the part No. 2, if taken separately, for 'exhausting the air from the cases of mill-stones, combined with the application of a blast to the grinding surfaces,' as they introduce very important 'improvements in manufacturing wheat and other grain into meal and flour.' The combination of the *exhaust* with the *blast*, so as to carry off the warm dusty air blown through between the stones to a chamber above, while the pure flour, in a dry condition, without the stive, descends into a chamber below, added to the quantity and improved the quality of the flour produced in grinding; and its effect was highly favorable to the health and comfort of the men employed in the operation.

"Still, if the specification does not point out the mode by which this part of the process (No. 2) is to be conducted, so as to accomplish the object in view, it would be the statement of a principle only, and the patent would be invalid. But we are of opinion that the specification, on the face of it, cannot (as contended) be pronounced, in point of law, to be bad in this respect; and we are of opinion that the evidence adduced at the trial shows it to be quite sufficient. The specification says: 'In carrying out the second part of my invention, when working mill-stones with a blast of air, I introduce a pipe to the mill-stone case from a fan or other exhausting machine, so as to carry off all the warm, dusty air blown through between the stones to a chamber, as hereafter described.' 'And this part of my invention relates only to sucking away the plenum of dusty air forced through the stones, and not to employing a sufficient exhausting power to induce a current of air between the mill-stones without a blast.' The *exhaust* produced by the pipe and fan is to be proportioned to the plenum caused by the *blast*, taking care not to produce the inconvenient current of air, against which a caution is given. How can a judge take upon himself to say that this may not be enough to enable a workman of competent skill to construct the machinery? According to the evidence, the specification was abundantly sufficient for this purpose; and, therefore, it could be no more necessary in the specification to explain the details, by which the pipe

§ 141. The next inquiry is, Does the doctrine on which these cases turned appear to have been impaired or changed by any thing that has since taken place in the English courts, under the same or other judges? It is to be observed that this doctrine embraces three requisites for a valid patent that is to comprehend the application of a principle, by means which are different from those used by the patentee. *First*, the principle itself must be new in respect to practical application; for as the principle constitutes the basis of the invention, which invention is the application of the principle to practical uses, novelty in the application is of course essential to such a patent as we are here considering. The principle itself, which may be an element, or truth, or force in nature, when abstracted from practical application, is not within the field of invention, in the sense of the patent law. It is brought within the field of invention by practical application. *Second*, the patentee must have invented and described some mode of carrying the principle into effect. He may or he may not have invented new devices, contrivances, or means, in order to give effect to the application of the principle. He has invented what he is required to invent when he has by any means, new or old, but by the use of means, for the first time given practical application to the principle; and he has described what he is required to describe, when he has shown a practical means of effecting the application. The means itself is in such cases new in its relation to the application of the principle, whether it be in other relations and for other uses new or old. It may, however, be a new device or instrument as to all relations or uses; in which case it may be, as an invention, quite distinct

and fan were to be employed to create and to regulate the *exhaust*, than to describe how the mill-stone case or the stones themselves were to be fashioned. The learned counsel for the defendants, after being familiarly acquainted with the manner in which this part of the process is conducted, being asked to suggest the fit language to be employed to instruct the workman how to adjust the *exhaust* so as properly to suck away the plenum, that the stive may be discharged into the chamber above, were unable to devise any improvement upon the specification.

"Therefore, the plaintiff being now allowed to be the inventor, the jury being, in our opinion, fully justified in finding that the process had not been publicly practised at Glasgow before the date of the patent, and the specification being sufficient, the patent is valid; and we have only to consider whether there has been an actionable infringement."

from the subject-matter which is to be embraced in a patent for the application of the principle, and may be of itself the subject of a distinct patent or claim. *Third*, the means described by the patentee must be so described as to enable competent persons skilled in the art to effect a practical application of the principle, or, in other words, to work or practise the invention. It will be found that in recent English cases, in which this subject of patenting or claiming a principle has been touched upon, the absence of one or more of these requisites has occasioned the difficulty that has attended the patents.

§ 142. Thus in a case tried before Pollock, C. B., in 1855, it appeared that, before the plaintiff's invention, vegetable gas had been made from the oil expressed from seeds and other vegetable matter containing oleaginous substance. The plaintiff discovered that such gas might be made direct from the seeds, &c., omitting the intermediate process of pressing out the oil. In his specification, he stated that his process of making gas from seed, &c., might be carried on by the apparatus ordinarily used for making gas from coal, but he preferred projecting the seed into a hot retort, &c., and gave for exemplification a plan of a retort. He then concluded with the following general claim: "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." A verdict was found for the defendant, under the ruling of the court that the invention comprised in the patent was not a matter for which letters-patent could by law be granted. On error to the Exchequer Chamber, it was held that this direction was erroneous, and that the making gas directly from seeds and other oleaginous substances, instead of making it from oils, thus dispensing with one or two processes, was a patentable invention, if new. A new trial was therefore ordered.[1]

§ 143. On the second trial, a previous patent was read in the defence, which described a mode of making gas direct from seeds; and thereupon the Chief Baron directed the jury to find a verdict for the defendant, upon the ground that the previous patent had anticipated the plaintiff's discovery of the general principle that gas may be made direct from seeds, and upon the further ground

[1] Booth *v.* Kennard, 1 Hurlstone and Norman, 527.

that the plaintiff's claim, being merely for making gas direct from seeds, &c., without any reference to any method of doing it, was too large and general a claim, and could not be supported.

A rule *nisi* having been obtained, the Chief Baron, in delivering the judgment of the court, said: "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, 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 if even 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."[1]

§ 144. The next case to be examined in this connection was one tried before Lord Campbell in 1857, in which the patentee supposed himself, when he enrolled his specification, to have been the first to invent the application of the principle of centrifugal force in fliers employed in machinery for preparing, slubbing, and roving cotton, &c., for the purpose of producing a pressure upon the bobbin, in order to make a hard and evenly compressed bobbin. He described one mode of applying the centrifugal force to a flier employed in an ordinary roving machine, by written description and drawing, giving the devices he used. He then added: "I do not intend to confine myself to this particular method; but I claim as my invention the application of the law or principle of centrifugal force to the particular or special purpose above set forth; that is, to fliers used in machinery or apparatus for pre-

[1] Booth *v.* Kennard, 2 Hurl. & Norm. 84. Practitioners who have occasion to prepare specifications should take warning from this and other cases of a similar nature, to avoid falling into the error of summing up the claim of invention in such a way as to separate the principle supposed to have been for the first time discovered, from the means of applying the principle. However novel and meritorious the discovery, a specification which fails to describe definitely a means of applying and working the discovery cannot support a general claim for the principle itself; and the cases of Booth, Seed, and Morse, referred to in the text, have a strong tendency to show that, unless the general claim is so stated as to embrace directly or by implication the particular means described for the application of the principle, and all other means which will substantially perform the like office in the application, it will be in danger of failing.

paring, slubbing, or roving cotton and other fibrous materials, for the purpose of producing a hard and evenly compressed bobbin." Minute as this supposed invention was, it was of great practical utility; and had the patentee in fact been the first person to make a practical application of centrifugal force to the machinery and the special purpose referred to, he would have stood in a different position to that which he in fact occupied. It turned out, however, that an earlier patentee had, by a device or system of devices somewhat different in their operation, anticipated the plaintiff in the application of the principle of centrifugal force to this kind of machinery and for this special purpose. The patentee, after discovering this, filed a disclaimer, which, taken in connection with his original specification, was held by the court to have limited his claim to his *one* described means of using the centrifugal force; and the question tried was, whether the defendant had infringed the claim so limited. After a verdict for the plaintiff, the question came before the Court of Queen's Bench, *in banc*, whether the original specification did not claim something so different from that which was described as the subject of invention in the disclaimer, that the patentee had not properly specified his invention. But it was held that this objection was not tenable; that the patent as amended by the disclaimer was good for the plaintiff's one mode of using the centrifugal force, and that the defendant had infringed it.[1] On appeal to the Exchequer Chamber, this construction of the original specification was not disturbed; but it was held unanimously that there was no evidence of infringement which ought to have been left to the jury.[2] On a final appeal to the House of Lords, the judgment of the Exchequer Chamber was unanimously affirmed.[3] Now it will be found, by examining the opinions of the judges of the Exchequer Chamber, and of the Lords who sat in this case on the final appeal, that the evidence, which failed to show an infringement of the patent as narrowed by the disclaimer, would most probably have been held sufficient to establish an infringement, if the original specification had not been so narrowed, or if the proofs affecting the validity of the patent had left the patentee in a position to claim the application of the principle of centrifugal force by various

[1] Seed *v.* Higgins, 8 Ell. & Bl. 755.
[2] Higgins *v.* Seed, 8 Ell. & Bl. 771.
[3] Seed *v.* Higgins, 3 Law Times R., N. S. 101.

means. It is quite true, undoubtedly, that the claim was a very general one, and may have needed amendment, if it had been adhered to, so as to have let in evidence that the means used by the defendant, although differing in form, performed the like office in the application of the principle as the means used and described by the patentee. But without turning aside to consider this, it may be useful on the topic now treated of, to note the observations of some of the judges upon the nature and position of this claim. Thus, Mr. Justice Williams, observing upon the original intention of the patentee to take out a patent for a principle comprehending every possible mode of applying it, said: "Having that intention, in order to comply with the terms on which the patent was granted, of specifying and describing how the work was to be performed, he attaches to his specification drawings showing *one way* of applying the principle to a roving-machine having a flier. . . . That is, he sets out one mode of application, yet wishes to state that his patent consists in applying the principle in any way. Then seeing that his claim is not good, *either as comprehending something not new, or as not explaining sufficiently so general a claim,* he enters a disclaimer." Willes, J., observed: "The patent was originally taken out generally for an application of centrifugal force to the proposed object. The patentee thought that this was his own discovery, *and did not know of Dyer's patent.* Then he discovered that Dyer had previously applied centrifugal force, and therefore that his own patent could not be sustained. Accordingly he lodged a disclaimer, abandoning his original claim except so far as he had described, in his drawing, *a machine* by which the application of centrifugal force could be effected."[1]

Lord Wensleydale said, in the House of Lords: "They" [the scientific witnesses] "prove — and indeed that is evident from the models — that in the plaintiff's machine the centrifugal force operates on a higher plane than the defendant's, and that in that respect the plaintiff's is a better invention than the defendant's. But that shows that the machines operate differently, although they both operate on the finger or presser by centrifugal force, and if the subject of the patent still were *any mode* of applying centrifugal force to the finger or presser, undoubtedly the defendant's machine would have been an infringement. But the disclaimer

[1] 8 Ellis & Bl. 773, 774.

puts an end to that argument; and the patent being for a particular machine only, which clearly operates differently, it seems, I own, to be very clear that one is not a piracy of the other. It is only by confounding the patent *as it was* with the patent *as it is*, that an infringement of the patent can be made out."[1]

§ 145. These citations are sufficient to show that there were two difficulties attending this original claim. *First*, it was not true that the patentee was the first to apply the principle of centrifugal force to the described purpose; he would have failed therefore in an attempt to enforce this claim, for want of the first requisite in a patent which is to lay claim to the new application of a principle. *Second*, his claim was perhaps too general for the purposes of such a claim; because it omitted to state that he claimed the application of the principle by the means he had described, and by all other means which would perform the like office in the application. This addition to it might or might not have brought the particular means of the defendant within the scope of the patent; but it would have been, apparently, the true way in which to have amended it, if the previous patent of Dyer had not stood in the way.

The facts of this case have been specially examined in this connection, because it does not appear that any thing took place in either of the three tribunals impugning the previously settled doctrine that, in certain conditions, there may be a patent for the application of a principle. I shall have occasion hereafter to point out some resemblances between this claim and that of Morse, and to trace the similarity between the inventions of Morse and Neilson. At present it will be worthy of the reader's notice that Neilson's specification did not contain what is technically called a "claim." But this omission does not effect the doctrine that is to govern the patentable extent of such inventions. If Neilson, after describing the nature of his invention, showing how it was to be performed, and stating that its performance was practicable by a great variety of contrivances of which he did not and could not give the shape or dimensions, had proceeded to sum up in a technical claim, he might have incurred the danger of separating his principle from *all* mechanical means, and thus have made it

[1] Seed *v.* Higgins, House of Lords (6 Jur. N. S. 1264); Law Times Reports, N. S. vol. 3, p. 101, 105.

too general. It will be suggested hereafter, that this may have been the error fallen into by Morse, as it probably was Seed's error. But it is also worthy of suggestion, whether a technical claim, that is apparently open to the criticism of being too general and abstract, ought not to be saved by a construction that will relieve it, if the intention of the patentee not to claim the principle abstractly from application by mechanical means can be fairly gathered from the whole specification.[1]

§ 146. We may now turn to the American cases, in order to ascertain whether there is a substantial difference between the English doctrine and our own. One of the first cases in which this subject appears to have been touched upon is that of Stone *v.* Sprague, tried before Mr. Justice Story in 1840. The patentee was the inventor of an improvement in looms, which consisted in communicating motion from the reed to the yarn-beam, and in the connection of one with the other, which was described as produced by a particular machinery; the invention being claimed as follows: "I claim as my invention the connection of the reed with the yarn-beam, and the communication of the motion from the one to the other, *which may be done as above specified.*" It was contended, in the defence, that this was a claim for an abstract principle, or all modes by which motion could be communicated from the reed to the yarn-beam, and therefore that the patent was void. But the court construed it as a patent for an invention limited to the specific machinery and mode of communicating the motion specially described; at the same time intimating a very decided opinion that, if construed to include all other modes of effecting the object, it would be void, as an attempt to maintain a patent for an abstract principle.[2]

[1] It will be readily understood, that, by a *technical claim*, I mean the summary in which, according to the general practice, the patentee states what he intends his patent shall secure to him.

[2] Stone *v.* Sprague, 1 Story, 270. Mr. Justice Story observed: "Upon the question of the true interpretation of the specification, the court entertain some doubt. But on the whole, *ut res magis valeat, quam pereat*, we decide, that, although the language is not without some ambiguity, the true interpretation of it is, that the patentee limits his invention to the specific machinery and mode of communication of the motion from the reel to the yarn-beam, set forth and specially described in the specification. We hold this opinion the more readily, because we are of opinion, that, if it be construed to include all other modes of communication of motion from the reed to the yarn-beam, and

As the observations made by the court in this case are exceedingly pointed, it may be worth while to inquire whether there was not an intermediate view of it that might have been taken. Was it in truth necessary, in order to support this patent, to construe it as limited to the precise method set forth? This would depend, in part, upon the answer to the further inquiry, whether there was no other construction than the one which would drive the patentee to the extreme consequences indicated by the court. It would scarcely seem that this patent was one covering an abstract principle. At least, the report does not sufficiently inform us what was the real novelty of the invention. If the patentee was the first person to discover and *apply* the principle of communicating motion from the reed to the yarn-beam (on which the case does not inform us), and if he described a means of doing it, then his patent did not claim an abstract principle, unless by his claim he had severed the principle from all mechanical means. By an abstract principle, in the sense of the patent law, I understand a law, or rule of action, or physical truth, disconnected from practical application by means necessary to its working. If this patentee had not pointed out, at the close of his claim, as he did, that the principle or rule of communicating motion from the reed to the yarn-beam might be effected in the mode "above specified," he would have been in the situation of claiming an abstraction. But it would seem that, having described a means of applying the principle, and having claimed its application by that means, the question would arise whether the proper scope of his patent did not embrace all analogous means which will perform the like office in applying the principle as *his* means. The learned judge hints at those considerations which we shall presently find have had great influence in the discussion of this subject; for he alludes to the consequence of making the patent

for the connection of the one to the other generally, it is utterly void, as being an attempt to maintain a patent for an abstract principle, or for all possible and probable modes whatever of such communication, although they may be invented by others, and substantially differ from the mode described by the plaintiff in his specification. A man might just as well claim a title to all possible or practicable modes of communicating motion from a steam-engine to a steamboat, although he had invented but one mode; or, indeed, of communicating motion from any one thing to all or any other things, simply because he had invented one mode of communicating motion from one machine to another in a particular case."

embrace other contrivances of future invention by others, and differing substantially from those described by the patentee. But it is to be observed that the question in all cases is, *first*, what is the invention; and, *secondly*, is that invention a patentable subject; and, if the invention really consists in the new application of a principle not before made use of, the future possible contrivances for applying the principle may stand in the relation of equivalents or substitutions, as means of working the invention, although they may in other senses differ substantially from the contrivances used by the patentee. The coil of pipes used by the defendant in Neilson's case was, in one sense, exceedingly unlike the heating vessel or receptacle which a mechanic would see described in his patent; yet, as the invention covered by the patent was held to consist in using air heated in any vessel capable of answering the purpose of producing a hot blast, the pipes, though of subsequent invention, were equivalent or substituted means in respect to the application of the principle.

§ 147. Upon the whole, the case of Stone *v.* Sprague, in respect to the limitation of the claim to the specific devices or contrivances described in the patent, is probably to be regarded as a case in which some one had preceded the plaintiff in communicating the described motion by another means. Without this hypothesis, it is not clear that the extreme alternative construction suggested by the court would be necessary; but the limited construction which confined the patentee to his device, as in the case of Seed *v.* Higgins, *ante*, would upon this hypothesis be the right one.

§ 148. Next in the order of time is the case of Wyeth *v.* Stone, tried before the same judge in the same year. The patent was granted "for a new and useful improvement in the manner of cutting ice, together with the machinery and apparatus therefor." After setting forth two machines, to be used separately or in combination, for the purpose of cutting ice, the patentee summed up his claim as follows: "It is claimed *as new*, to cut ice of a uniform size, by means of an apparatus worked by any other power than human. The invention of this art, as well as of the particular method of the application of the principle, are claimed by the subscriber." It was held that the first clause of this claim had undertaken to cover an art or principle in the abstract, namely, the cutting of ice of a uniform size by means of an ap-

paratus worked by any other power than human; which would render the patent void, unless a disclaimer had been filed in season to save it as a patent for the machines or machine which constituted the particular method embraced by the second clause of the claim.[1] Certainly if it was necessary to construe this as a claim to the invention and appropriation of an art, being the art of cutting ice by any other than human power, it is an indisputable proposition that it covered no possible subject of a patent privilege. But the first clause of this claim was probably mere surplusage, intended only to state that the patentee was the first person who had invented an apparatus for cutting ice of a uniform size, and that it mattered not by what power the apparatus was moved along the ice. The second clause is the one in which the invention resided; and this appeared on the face of the claim to be a particular method of applying what the patentee miscalled an art or principle, it being in truth no art or principle whatever to cut ice by any other than human power. In other words, the patent was a patent for an apparatus to be used in cutting ice, and all beyond that, which did not mislead any one, might have been rejected as surplusage. The case is not one which belongs strictly to the class we are here considering. The patentee neither discovered nor applied any force, or truth, or element in nature, or any law or property of matter, never before discovered and applied to the same purpose. He merely invented a machine capable of doing what had before been done by hand.

§ 149. From this case we pass to that of Foote *v.* Silsby (1849–1853). The plaintiff claimed "the application of the expansive and contracting power of a metallic rod by different degrees of heat, to open and close a damper which governs the admission of air into a stove, in which such rod shall be acted upon directly by the heat of the stove or the fire which it contains." At the trial before Conkling, J., he ruled that this was a claim for the application of a natural property of metals to the purpose set forth, and was not the fit subject of a patent, although the specification described devices by which a metallic rod was to be made to work in the application of the expansive and contractile property by means of variation in the heat of the stove. Mr. Justice Nelson reversed this construction, on a motion for a new trial,

[1] Wyeth *v.* Stone, 1 Story, 273.

and held that the claim was not for a natural property of the metallic rod, but for a new application of it by means of mechanical contrivances; and it appeared on this trial that the patentee was the first to make this application to the regulation of the heat of a stove. The mechanical devices used by the defendant were, however, substantially the same as those of the plaintiff. Upon this the learned judge observed: "I am not sure that the plaintiff was bound to go to this length in making out a case of infringement. There is some ground for the position that the new application of the principle, by means of mechanical contrivances, constitutes of itself a part of his invention, and that any different or improved mode of application is but an improvement upon his discovery, and not available without his consent."[1] But the verdict that was affirmed by the refusal of a new trial rested on the validity of a claim which covered the particular combination only. In this *dictum* we reach, for the first time in any American case, the suggestion of a doctrine which, in reference to cases of this kind, must either be established in or rejected from the patent law. This doctrine treats the application of the principle, by some mechanical means, as being at least a part of the invention and of the subject-matter of the patent; and, as a corollary of this position, it regards a variation of the means, even if an improvement, as still an infringement, if used without the consent of the patentee. The opposite doctrine is that which is maintained by those who contend that the application of a principle in this sense is not capable of appropriation under a patent; that its appropriation can extend only to the application of the principle as effected by the particular means used by the patentee, and by such other means as may turn out to be colorable imitations, mechanical equivalents, or fraudulent evasions, to neither of which categories is a real improvement to be referred. We have seen what the weight of English authority is on this subject; and, having now contrasted the opposite doctrines, we may continue the investigation of the cases in our own courts.

§ 150. The same patent involved in the case of Foote *v.* Silsby subsequently came before the same court in a proceeding in equity, and feigned issues were ordered to try the question of novelty of the general claim, as well as of one other claim which

[1] Foote *v.* Silsby, 1 Blatchf. 445; s. c. 14 Howard, 218.

covered the particular mechanical combination used by the patentee. Mr. Justice Nelson instructed the jury that the general claim for the application of the principle of contraction and expansion in a metallic rod acted upon by the heat of the stove, to open and close a damper for the regulation of the draft, was valid, independently of the particular device used, provided the patentee was the first person to make the application of this principle to this purpose. In giving this instruction the learned judge followed what he understood to be the doctrine of Neilson *v.* Harford, and the interpretation which the present writer had given to that case in his former treatise. The jury found both the issues against the plaintiff, but on a final hearing in equity the court disregarded the findings, and made a decree for the plaintiff. This decree, however, rested on the validity of the claim which covered the particular combination used by the patentee, and not on the general claim for the application of the principle, the novelty of which was, in this proceeding, disproved.[1]

§ 151. This case of Foote *v.* Silsby reached the Supreme Court of the United States, but not in a position to present for revision the doctrine applied on the trial of the issues in respect to the general claim of the patent; and before it came there, Morse's case had been heard and decided. There is a case, however, which preceded Morse's in the Supreme Court, the history of which should now be stated, because it is supposed to have been decided upon the doctrine that governed the latter case, and was relied upon as a precedent by the majority of the court. This was the case of Le Roy *v.* Tatham. The Tathams were the proprietors of a patent for an invention by which lead pipe could be made by being wrought under heat, by pressure and constriction, from set metal, instead of being cast in a mould. It was conceded, substantially, in the specification itself, that the combination of devices used in the process was not new, excepting in their application for the working of a newly discovered property of lead, which consisted in its capacity to reunite, after separation, by being forced through a peculiar aperture, which admitted of pressing the previously separated particles together, provided the

[1] Foote *v.* Silsby, 2 Blatchf. 260; s. c. 20 Howard, 378. It will be seen, by examining the report in 20 Howard, that the basis of the decree in the court below was differently understood by the different judges; a majority, however, affirmed it, reducing the damages.

lead is worked under heat, although in what is called a set state. The employment of this property in the metal, which was a new discovery, made an essential difference in the character of the article manufactured. The patentees stated their claim thus: "We do not claim as our invention and improvement any of the parts of the above described machinery, independently of its arrangement and combination above set forth. What we do claim as our invention, and desire to secure, is the combination of the following parts above described, to wit, the core and bridge, or guide-piece, with the cylinder, the piston, the chamber, and the die, *when used to form pipes of metal, under heat and pressure, in the manner set forth, or in any other manner substantially the same.*" [1]

§ 152. So far as there is any distinction between this invention and Morse's, it consists in the fact that, in Tatham's case, the combination of machinery made use of is admitted to have substantially existed before, and to have been used in the manufacture of pipe, but not in the manner and for the purpose described in the patent; whereas, in Morse's case, the combination of machinery employed by him was his own invention. But in both cases the inventor effected the application and employment of a property of matter never before used for the production of the result at which he aimed; that result, in the one case, being the solid union of the particles of metal which had previously been out of contact; and, in the other, the recording or marking of intelligible signs at long distances. The decision in the case of Tatham turned upon a construction of the claim, by which it was held, contrary to the view of it taken in the Circuit Court, that it covered, not the practical application of the newly discovered property in the metal, but the combination of the machinery in part, putting the novelty of that combination in issue. The judgment below was reversed, because it was held that the novelty of the combination of machinery was, under the specification, a material fact for the jury; and the case was likened to that of Bean *v.* Smallwood (2 Story, 408), which was an application of an old contrivance to a new purpose. It was not denied that the practical application of a newly discovered property of matter is a patentable invention, if effected by a described process sufficiently

[1] Le Roy *v.* Tatham, 14 Howard, 156.

explained to enable an ordinary mechanic to construct and apply the necessary process. But it seems to have been considered by a majority of the judges, that, unless the machinery by which the process was to be worked was novel, the invention amounted only to the application of an old contrivance to a new purpose.[1]

§ 153. The view taken by the minority of the judges of this patent of Tatham's embraces two important topics: *first*, it was considered that, by the true construction of the claim, it did not put in issue the novelty of the combination of machinery made use of, but that it rested the invention on the new application of that machinery to the development and employment of the newly discovered property of the metal in the art of manufacturing lead pipe; *secondly*, it was deemed important to place upon record an assertion of the doctrine that the discovery and practical application of a new principle in the arts may become the subject of a patent, even where the patentee claims no other novelty in the mechanical means used, excepting the novelty which resides in the employment itself of those means for the working of the new principle. This explanation will be sufficient to show the judicial attitude of this subject at the time when the case of O'Reilly *v.* Morse came before the Supreme Court.[2]

[1] See the opinion delivered as that of a majority of the court, by Mr. Justice M'Lean, 14 Howard, 171, *et seq.* That the doctrine which denies patentability to the use of an old contrivance for a new purpose is not universally true, is established by numerous exceptions. In the previous chapters I have endeavored, as far as practicable, to define what are double or analogous uses; and it is quite well settled, that where the new use of an old contrivance or combination practically results in effects new in kind, as by the development and application of a new property of matter, or a new method of working in the arts, there is an invention which, when rightly stated, may be patented. The case of Le Roy *v.* Tatham (14 Howard) resulted unfavorably to the patentees, by a construction of the claim which, if correct, shows that the real invention was not duly described in the claim itself. But in a subsequent proceeding (in equity), this patent again came before the Supreme Court, and appears to have been construed and sustained as a patent for a new *process*, which it undoubtedly was. In coming to this result, the court necessarily discarded the idea that the patented subject consisted in the application of an old contrivance to a new use, which was merely a double use, and they supported the patent upon the ground that, although the machinery might be old, yet its application to the development and employment of a new property of lead made a new and patentable process. See Le Roy *v.* Tatham, 22 Howard, 132.

[2] The dissenting opinion delivered by Nelson, J., in Le Roy *v.* Tatham, and concurred in by Wayne, J., and Grier, J., is in part as follows:—

§ 153 *a*. In the case of Roberts *v.* Dickey, the invention claimed was a method of increasing the productiveness of oil wells by

"The patentees state, that they do not intend to confine themselves to the arrangement of the apparatus thus particularly specified, and point out several other modes by which the same result may be produced, all of which variations would readily suggest themselves, as they observe, to any practical engineer, without departing from the substantial originality of the invention, the remarkable feature of which, they say, is, that lead, when in a set state, being yet under heat, can be made, by extreme pressure, to reunite perfectly around a core after separation, and thus be formed into strong pipes or tubes. Pipes thus made are found to possess great solidity and unusual strength, and a fine uniformity, such as had never before been attained by any other mode. The essential difference in its character, and which distinguishes it from all other heretofore known, they add, is, that it is wrought under heat, by pressure and constriction, from set or solid metal.

"They do not claim, as their invention or improvement, any of the parts of the machinery independently of the arrangement and combination set forth.

"'What we claim as our invention,' they say, 'is the combination of the following parts above described, to wit, the core and bridge or guide-piece, with the cylinder, the piston, the chamber, and die, when used to form pipes of metal under heat and pressure, in the manner set forth, or in any other manner substantially the same.'

"It is supposed that the patentees claim, as the novelty of their invention, the arrangement and combination of the machinery which they have described, disconnected from the employment of the new property of lead, which they have discovered, and by the practical application and use of which they have succeeded in producing the new manufacture. And the general title or description of their invention, given in the body of their letters-patent, is referred to as evidence of such claim. But every patent, whatever may be the general heading or title by which the invention is designated, refers to the specification annexed for a more particular description; and hence this court has heretofore determined that the specification constitutes a part of the patent, and that they must be construed together when seeking to ascertain the discovery claimed. Hogg *et al. v.* Emerson, 6 How. 437.

"The same rule of construction was applied by the Court of Exchequer, in England, in the case of Neilson's patent for the hot-air blast. Webster's Cases, 373.

"Now, on looking into the specification, we see that the leading feature of the invention consists in the discovery of a new property in the article of lead, and in the employment and adaptation of it, by means of the machinery described, to the production of a new article, wrought pipe, never before successfully made. Without the discovery of this new property in the metal, the machinery and apparatus would be useless, and not the subject of a patent. It is in connection with this property and the embodiment and adaptation of it to practical use, that the machinery is described, and the arrangement

causing an explosion of gunpowder in the particular manner described. This invention was based upon the geological knowl-

claimed. The discovery of this new element or property led naturally to the apparatus, by which a new and most useful result is produced. The apparatus was but incidental, and subsidiary to the new and leading idea of the invention. And hence, the patentees set forth, as the leading feature of it, the discovery that lead, in a solid state, but under heat and extreme pressure in a close vessel, will reunite, after separation of its parts, as completely as though it had never been separated. It required very little ingenuity, after the experiments in a close vessel, by which this new property of the metal was first developed, to construct the necessary machinery for the formation of the pipe. The apparatus, essential to develop this property, would at once suggest the material parts, especially in the state of the art at the time. Any skilful mechanic, with Burr's machine before him, would readily construct the requisite machinery.

"The patentees, therefore, after describing their discovery of this property of lead, and the apparatus by means of which they apply the metal to the manufacture of pipe, claim the combination of the machinery only when used to form pipes under heat and pressure, in the manner set forth, or in any other manner substantially the same. They do not claim it as new separately, or when used for any other purpose, or in any other way; but claim it only when applied for the purpose and in the way pointed out in the specification. The combination, as machinery, may be old; may have been long used; of itself, what no one could claim as his invention, and may not be the subject of a patent. What is claimed is, that it never had been before applied or used in the way and for the purpose they have used and applied it, namely, in the embodiment and adaptation of a newly discovered property in lead, by means of which they are enabled to produce a new manufacture, wrought pipe, out of a mass of solid lead. Burr had attempted it, but failed. These patentees, after the lapse of seventeen years, having discovered this new property in the metal, succeeded by the use and employment of it, and since then none other than wrought lead pipe, made out of solid lead, has been found in the market, having superseded, on account of its superior quality and cheapness, all other modes of manufacture.

"Now the construction, which I understand a majority of my brethren are inclined to give to this patent, namely, that the patentees claim, as the originality of their invention, simply the combination of the machinery employed, with great deference, seems to me contrary to the fair and reasonable import of the language of the specification, and also of the summary of the claim. The tendency of modern discoveries is to construe specifications benignly, and to look through mere forms of expression, often inartificially used, to the substance, and to maintain the right of the patentee to the thing really invented, if ascertainable upon a liberal consideration of the language of the specification, when taken together. For this purpose, phrases, standing alone, are not to be singled out, but the whole are to be taken in connection. 1 Sumner, 482–485.

"Baron Parke observed, in delivering the opinion of the court in Neilson's

edge that petroleum, or other oil taken from oil wells, was contained in seams or crevices, usually in the second or third strata

patent, "that half a century ago, or even less, — within fifteen or twenty years, — there seems to have been very much a practice with both judges and juries to destroy the patent right, even of beneficial patents, by exercising great astuteness in taking objections, either as to the title of the patent, but more particularly as to the specifications, and many valuable patent rights have been destroyed in consequence of the objections so taken. Within the last ten years or more, the courts have not been so strict in taking objections to the specifications, and they have endeavored to hold a fair hand between the patentee and the public, willing to give the patentee the reward of his patent.'

"Construing the patent before us in this spirit, I cannot but think that the thing really discovered, and intended to be described, and claimed by these patentees, cannot well be mistaken. That they did not suppose the novelty of their invention consisted simply in the arrangement of the machinery described, is manifest. They state, distinctly, that the leading feature of their discovery consisted of this new property of lead, and some of its alloys; this, they say, is the remarkable feature of their invention; and the apparatus described is regarded by them as subordinate, and as important only as enabling them to give practical effect to this newly discovered property, by means of which they produce the new manufacture. If they have failed to describe and claim this, as belonging to their invention, it is manifest, upon the face of their specification, that they have failed to employ the proper words to describe and claim what they intended; and that the very case is presented, in which, if the court, in the language of Baron Parke, will endeavor to hold a fair hand between the patentee and the public, it will look through the forms of expression used, and discover, if it can, the thing really invented. Apply to the specification this rule of construction, and all difficulty at once disappears. The thing invented, and intended to be claimed, is too apparent to be mistaken.

"The patentees have certainly been unfortunate in the language of the specification, if, upon a fair and liberal interpretation, they have claimed only the simple apparatus employed; when they have not only set forth the discovery of this property in the metal, as the great feature in their invention, but, as is manifest, without it the apparatus would have been useless. Strike out this new property from their description and from their claim, and nothing valuable is left. All the rest would be worthless. This lies at the foundation upon which the great merit of the invention rests, and without a knowledge of which the new manufacture could not have been produced; and, for aught we know, the world would have been deprived of it down to this day.

"If the patentees had claimed the combination of the core and bridge or guide-piece, with the cylinder, the chambers, and the die, and stopped there, I admit the construction, now adopted by a majority of my brethren, could not be denied; although, even then, it would be obvious, from an examination of the specification as a whole, that the draughtsman had mistaken the thing

of sandstone, or other rock abounding in the oil regions; and that these seams, being of different dimensions and irregularly located,

really invented, and substituted in its place matters simply incidental, and of comparative insignificance. But the language of the claim does not stop here. The combination of these parts is claimed only when used to form pipes of lead, under heat and pressure, in the manner set forth, that is, when used for the embodiment and adaptation of this new property in the metal for making wrought pipe out of a solid mass of lead. This guarded limitation of the use excludes the idea of a claim to the combination for any other, and ties it down to the instance when the use incorporates within it the new idea or element which gives to it its value, and by means of which the new manufacture is produced. How, then, can it be consistently held, that here is a simple claim to the machinery and nothing more, when a reasonable interpretation of the words not only necessarily excludes any such claim, but in express terms sets forth a different one, — one not only different in the conception of the invention, but different in the practical working of the apparatus, to accomplish the purpose intended?

"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 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 sinted 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 dis-

were frequently not penetrated by the wells made for this purpose, which circumstance materially affected the supply of oil. Modes

covered 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.' Pages 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.

"It is there observed, that the word 'manufacturers,' in the Patent Act, may be extended to a mere process to be carried on by known implements or elements, acting upon known substances, and ultimately producing some other known substance, but producing it in a cheaper or more expeditious manner, or of a better or more useful kind.

"Now, if this process to be carried on by known implements acting upon known substances, and ultimately producing some other known substance of a better kind, is patentable, *à fortiori*, will it be patentable, if it ultimately produces not some other known substance, but an entirely new and useful substance?

"In Forsyth's patent, which consists of the application and use of detonat-

of overcoming this difficulty had been used, but with only partial success. The improvement of the patentee was to fracture the

ing 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. Webs. 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, material only so far as they effect 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.' Webs. 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. Webs. Pat. Cas. 342, 371; Curtis, §§ 74, 148, 232; Webs. 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 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

oil-bearing rock in proximity to the bore of the well, and for some distance around it, thus making artificial passages into seams or

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.'

"This case was carried up to the House of Lords on exceptions to the charge, and, among others, to this part of it, which was the sixth exception, and is as follows: 'In so far as he (the judge) did not direct the jury, that, on the construction of the patent and specification, the patentee cannot claim or maintain that his patent is one which applies to all the varieties in the apparatus which may be employed in heating air while under blast; but was limited to the particular described in the specification.' And, although the judgment of the court was reversed in the House of Lords on the eleventh exception, it was expressly affirmed as respects this one. Lord Campbell at first doubted, but, after the decision of the courts in England on this patent, he admitted that the instruction was right. Webs. Pat. Cas. 683, 684, 698, 717.

"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, *à 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

crevices containing oil, which, without such passages, would not communicate with the well, and also enlarging existing apertures

answer the objection. It was answered by Chief Justice Eyre, in the case of Watt's patent, in 1795, fifty-seven years ago; and more recently in still more explicit and authoritative terms. 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 will 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

into oil deposits, or clearing such apertures when they had become clogged. The method devised for accomplishing these objects was to sink into the well to the desired position a water-tight flask containing gunpowder or other powerful explosive material, then to fill the well with water and cause an explosion of the powder in the flask, which would open communication between the well and the oil-bearing crevices. "It has been further urged," said Mr. Justice Strong, "that all Roberts discovered was that the seams or rifts in oil-bearing rock would, if opened by a blast, yield oil, and that this was merely a discovery of a law of nature, a geological truth, and not the invention of a new art or manufacture. If this were all, doubtless it would not have been patentable. But it was not all. He devised a mode of turning to practical account this geological truth; and if the means thus devised were novel, if the process was the product of invention and was useful, it was a proper subject for a patent."

This combination, therefore, of instrumentalities before known to produce a new and useful result, was held to be patentable as an art.[1]

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, happened to be old and well known, his patent would be void; or, if some follower in the track of genius, with 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.

"For these reasons, I am constrained to differ with the judgment they have arrived at, and am in favor of affirming that of the court below."

[1] Roberts *v.* Dickey (1871), 4 Fisher's Pat. Cas. 532. "It was insisted in the argument," said Mr. Justice Strong, "that the claim of the patentee

§ 153 *b*. In the case of Piper *v*. Brown, decided in the Circuit Court for the District of Massachusetts in 1870, the invention consisted in a *method* of preserving fish and other articles by placing them within a chamber and cooling the latter by means of a freezing mixture so applied that no communication should exist between the interior of the preserving chamber and that of the vessels in which the freezing mixture was placed. The inventor did not claim to have invented the means of producing artificial congelation, or to have discovered the fact that no decay takes place in animal substances, so long as they are kept a few degrees below the freezing point of water. But his claim was for the practical application of these to the art of preserving fish and meats, and he described the apparatus for effecting successfully the objects of his invention. The court held this to be a new and valuable improvement, and patentable as an "art."[1]

is for that which is known and denominated as a double use, and it was urged that if Roberts was the first to use torpedoes in oil wells with success, it was only obtaining a different fluid from what had been obtained before by the same means. This argument proceeds under a misapprehension of the subject of the patent. It would be of weight, were the invention claimed only the application of an old and known process to a new use. But that is not what was patented. It has already been seen that the invention claimed is not the employment of explosive materials as a mechanical force, nor is it enclosing such materials in flasks of specified forms, or any particular mode of merely producing an explosion. Nor is it simply causing an explosion in a well or under water. Nor is it a result, — obtaining oil. It is doing these things under peculiar and novel arrangements. It is a process of which some or all these things are a part, instruments or agencies in the process. Until then, it is shown that the process, as described in the specification, was known as a process before this patent was issued, and that it had been applied in the same way to some use cognate to that to which this patent applied it, the argument of the defendant that the claim is only for a new use of an old thing, or, in other words, for a double use, must fail. It is an incorrect view of the patent to consider it as an attempt to secure the exclusive use of a well-known mechanical force operating in the usual manner, and applied by familiar mechanical devices, for a purpose existing in the mind of the operator, in the same way in which it had been applied for other purposes by other operators."

[1] 4 Fisher's Pat. Cas. 175. In delivering the judgment of the court, Judge Shepley said: "It is not that the patentee claims to have discovered the fact that no decay takes place in animal tissues, as long as they are kept a few degrees below the freezing point of water, nor does he claim to have invented any means of producing artificial congelation. The active agent for producing congelation, and the effect of congelation on animal substances, was

§ 154. To the case of O'Reilly *v.* Morse, therefore, we may now return; and there can be no doubt that it presented most of the important features involved in this much-controverted doctrine. *First*, it appeared on the evidence that Morse was the first person to make use of a current of the electro-magnetic fluid, as a moving force, to cause the vibration of an instrument suspended at the extremity of a long wire, for the purpose of recording or making intelligible signs or sounds. *Secondly*, that he had constructed, and described in his specification, an elaborate combination of machinery, by which the electro-magnetic fluid could be so used. *Thirdly*, that he not only claimed this machinery as a new invention, but that he also sought to claim the principle of using the motive power of the electro-magnetic fluid for this particular purpose generally. It was ascertained by the facts of the case that he had made a new application of the power which he employed; but a majority of the judges held that his general claim was void, because it was too sweeping and comprehensive.[1]

§ 155. The principal ground on which this decision was reached appears to have been that the eighth claim of the patent was virtually a claim for an abstraction; that to hold it valid it would be

well known. But he claims that he was the first to discover and reduce to practice an art of producing and continuing this artificial congelation upon animal substances, enclosed in a chamber with non-conducting walls, which chamber was a close chamber, that is, having no communication with the outer or surrounding atmosphere, and so constructed also that no communication shall exist between the interior of the preserving chamber and that of the vessels in which the freezing mixture is placed. This claim is not limited to a method of supplying and renewing the frigorific mixture without exposing the animal substances in the preserving chamber, and the atmosphere itself in the preserving chamber to change of temperature from contact with the outer atmosphere, while the active agent of congelation — the frigorific mixture — is being supplied. It proceeds upon the further and broader ground that an injurious effect upon the animal substances to be preserved results from the presence in the preserving chamber itself, of the salt and ice, or other freezing mixture, affecting the atmosphere of the preserving chamber. The patentee proposes to preserve animal substances in an atmosphere not materially affected by the temperature of the external atmosphere surrounding the chamber, because the atmosphere in which the animal substances are placed is confined by non-conducting walls in a *close* chamber, and what is more important in an atmosphere 'freezing,' because reduced to a low temperature by contact with the exteriors of the pipes containing the frigorific mixtures, and 'dry' because free from contact with the freezing mixture itself."

[1] O'Reilly *v.* Morse, 15 Howard, 62.

necessary to say that no specification of the means by which the patentee effected the use of the motive power was necessary, and that he had only to announce that by using that motive power he could print or mark intelligible characters or sounds at a distance. We have already seen that when the summary of a patent appears to have separated the principle of employing a natural agent for a new purpose from all means of giving it that employment, it becomes an abstraction, and is not within the scope of the patent law either in England or in this country. But we have also seen that, when to a claim of a discovery of this kind there is added a practical mode of effecting what is proposed, the question wears a different aspect. If the general claim of Morse's patent, fairly construed, separated the use of the galvanic fluid from all mechanical means of using it, it was clearly void. A minority of the judges strongly questioned the propriety of this construction, and pointed out, from other parts of his specification, that Morse had described a recording or printing telegraphic machinery, and that the use which he claimed of the motive power of the galvanic fluid was a use in a printing or recording telegraph. This characteristic of his invention, they said, should be taken into view in construing the claim in controversy; and, if taken into view, and if the fact is added that he described an appropriate apparatus to be used for this purpose, they held that the claim does not result in an abstraction.

§ 156. Another ground relied upon by the majority of the court consisted in a denial that Neilson's case, as decided in the Court of Exchequer, covered the case of Morse's claim. It is somewhat difficult to see that Neilson's claim, as allowed by the Court of Exchequer, was valid if Morse's claim was void; and if we take Mr. Chief Justice Taney's statement of the decision in Neilson's case, it leads to the same result in Morse's. In Neilson's case (to use the words of the Chief Justice in delivering the opinion of the Supreme Court upon Morse's claim), "it was finally decided that this principle [that hot air would promote the ignition of fuel better than cold] must be regarded as well known, and that the plaintiff had invented a mechanical mode of applying it to furnaces; and that his invention consisted in interposing a heated receptacle between the blower and the furnace, and by this means heating the air after it left the blower and before it was thrown into the fire. Whoever, therefore, used this method of throwing

hot air into the furnace, used the process he had invented, and thereby infringed his patent, although the form of the receptacle or the mechanical arrangements for heating it might be different from those described by the patentee. For, whatever form was adopted for the receptacle, or whatever mechanical arrangements were made for heating it, the effect would be produced in a greater or less degree if the heated receptacle was placed between the blower and the furnace, and the current of air passed through it."[1] In like manner, *mutatis mutandis*, similar conditions are predicable of Morse's invention. The principle or truth, that the electro-magnetic fluid is a moving force, may, for the purposes of adjudicating a question of its appropriation under a patent, be assumed as known. The machinery then consists in connecting a galvanic battery, from which the fluid is to be generated, by means of a wire of indefinite length, with a recording instrument that is to be moved by that force. By this means the force is to be made to act upon the recording instrument. To this is added a contrivance for closing and breaking the circuit, in order that the force may not act continuously. Within the limits of these conditions, whatever form was adopted for the mechanical arrangements used, the effect of moving the recording instrument at the required intervals for marking intelligible characters or sounds would be produced. Although it is true that Morse had not discovered that the electric or galvanic current will always print at a distance under all conditions, he had discovered that under certain conditions it will do so; and the real inquiry was, whether he could not by a patent appropriate those conditions and all the variations of mechanical arrangements which are within those conditions. Just as in Neilson's case the discovery was that, under certain conditions, namely, of the interposition of a heating vessel of any form or size that would raise the temperature of the blast on its passage through that vessel, the effect of using a hot blast could be produced, and consequently his method could be used.

§ 157. Finally, the objection was much relied upon by the majority of the Supreme Court, that to allow this claim of Morse's as valid would be to stop the progress of invention. This objection deserves to be quoted in the words of the Chief Justice. "For aught that we now know, some future inventor, in the

[1] 15 Howard, 116.

onward march of science, may discover a mode of writing or printing at a distance by means of the electric or galvanic current, without using any part of the process or combination set forth in the plaintiff's specification. His invention may be less complicated, less liable to get out of order, less expensive in construction and in its operation. But yet, if it is covered by this patent, the inventor could not use it, nor the public have the benefit of it, without the permission of this patentee. Nor is this all: while he shuts the door against the inventions of other persons, the patentee would be able to avail himself of new discoveries in the properties and powers of electro-magnetism which scientific men might bring to light. For he says he does not confine himself to the machinery or parts of machinery which he specifies, but claims for himself a monopoly in its use, however developed, for the purpose of printing at a distance. New discoveries in physical science may enable him to combine it with new agents and new elements, and by that means attain the object in a manner superior to the present process, and altogether different from it. And if he can secure the exclusive use by his present patent, he may vary it with every new discovery and development of the science, and need place no description of the new manner, process, or machinery upon the records of the Patent Office. And when his patent expires, the public must apply to him to learn what it is. In fine, he claims an exclusive right to use a manner and process which he has not described, and, indeed, had not invented, and therefore could not describe when he obtained his patent. The court is of opinion that the claim is too broad, and not warranted by law."[1]

§ 158. Upon this it may be observed, *First*, that if the claim was rightfully to be construed as grasping at every improvement where the use of electro-magnetism is the moving force and the result is the marking of intelligible characters or signs, it would certainly be too broad and general. But if the claim, when compared with the scope of what the patentee established as his invention, should be construed as embracing the new application of the power which he had developed and described, and that application involved certain conditions, his pretensions did not go beyond, although they embraced all that might be within, those

[1] 15 Howard, 113.

conditions. *Secondly*, when the real subject and scope of any patented invention is ascertained, the author of any subsequent improvement may use it, if it is outside of that subject and scope of the patented invention, without the consent of the patentee, otherwise he may not. It has not yet appeared that this rule is to be varied when the patented invention is the new application of some principle which may be applied by various mechanical contrivances, any more than when the patented invention is restricted to narrower limits by being a particular device. No patent closes the progress of invention. It merely appropriates for a time what the patentee has invented to the extent to which the invention can be made the subject of a patent. Within those limits, he who makes an improvement is still subject to the claims of the prior inventor, although as an improvement his invention may be itself patentable. A mechanism may be an improvement upon the particular mechanism used by the prior patentee; but if that prior patentee has rights which extend to the application of a principle independently of the particular means by which the application is effected, the fact that the means are improved may not change at all that which is the real subject of the prior patent. *Thirdly*, the fact that the patentee has not described or invented all the means by which the same application of his newly discovered principle may be made, is, as we have seen from the English authorities, no answer to his claim for the application of the principle, if he can show that he has effected it by some means. When he has shown this, he has established the conditions which mark the patentable extent of his invention; and the inquiry must then be whether the future improvements which he has not described or invented are within or without those conditions.

§ 159. These are some of the chief considerations which will require attention when this subject again comes fully under judicial consideration. At present, however, it remains for me to state what I understand to be the judicial effect of the decision in O'Reilly *v.* Morse. It is commonly supposed to have been a decision establishing that a patent cannot extend to the application of a newly discovered truth in physics, or the operation of a newly discovered element or property of matter by mechanical or other means that are so different from those used by the patentee as not to be equivalent and obvious substitutions or fraudulent evasions in relation to the particular means used by the patentee. But

in truth the decision turned entirely upon a view taken of the general claim, which gave it an extent that divested it of all conditions and made it an abstraction. "It is impossible," said the learned Chief Justice, "to misunderstand the extent of this claim. He claims the exclusive right to every improvement where the *motive-power* is the electric or galvanic current, and the *result* is the marking or printing intelligible characters, signs, or letters at a distance. If this claim can be maintained, it matters not by what process or machinery the result is accomplished." Having laid down this construction of the claim, the judgment proceeds with many illustrations to show that such a claim is void.

§ 159 *a*. In the case of Morton *v*. The New York Eye Infirmary,[1] one of the grandest and most useful discoveries of modern times was held not to be patentable, on the ground that it did not fall within the principles of law relating to the application of discoveries to practical uses. The invention claimed consisted in the discovery, by Drs. Jackson and Morton, of ether as an anæsthetic and its application in surgical operations to alleviate pain. The distinction between the legal purport of the words "discovery" and "invention" was thus stated by the court:[2] "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 laws. 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.

Every invention may, in a certain sense, embrace more or less of discovery, for it must always include something that is new;

[1] (1862), 5 Blatchf. 116; s. c. 2 Fisher's Pat. Cas. 320.

[2] Judge Shipman.

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 the patent law, until it inhabits a *body*, no more than can a disembodied spirit be subjected to the control of human laws.

It is important here to ascertain precisely what the discovery was as viewed by the court. It was described in the specification as "a new and useful improvement in surgical operations on animals." The discovery of the origin and existence of ethers was not claimed, as it was admitted in the specification to be "well known to chemists that, when alcohol is submitted to distillation with certain acids, peculiar compounds, termed *ethers*, are formed, each of which is usually distinguished by the name of the acid employed in its preparation." It was further conceded that "it has also been known that the vapors of some, if not all, of these chemical distillations, particularly those of sulphuric ether, when breathed or introduced into the lungs of an animal, have produced a *peculiar effect* on the nervous system, one of which has been supposed to be analogous to what is usually terned intoxication"; also that narcotics had been administered to patients undergoing surgical operations by introducing them into the *stomach*, but not into the *lungs* or *air passages*. It had not, however, until this discovery, been known that the inhalation of such vapors, particularly those of sulphuric ether, would produce insensibility to pain, or such a state of quiet of nervous action as to render a person or animal incapable to a great extent, if not entirely, of experiencing pain while under the action of the knife or other surgical instrument. This was the real discovery; and the invention, as claimed on behalf of the complainant, consisted in the application of the discovery to surgical operations by the means described, viz., "the process of rendering the system insensible to pain by the inhalation of ether. Directions for administering the ether were given, and an apparatus adapted to that purpose was described.

The court construed the claim in this case to be one for a new *effect* "produced by old agents, operating by old means upon old subjects," and therefore not patentable. "This new or additional effect," says Mr. Justice Shipman, "is not produced by any new instrument by which the agent is administered, nor 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." The same judge, in criticising the claim as one for a *process*, continues: "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."

§ 160. It has been attempted more than once, in this discussion, to show that wherever a claim does in truth sever the use of a motive-power or other elemental agency from all conditions of its application in the arts, and presents *it only* as a *causa causans* of a result, it is void; because some practical means of producing the result is the necessary link between cause and effect. It follows, however, from this established doctrine, that when the conditions of the application are given, and means of making it are furnished, the claim is not necessarily void; for the reason ceasing which has made it void, the rule which rests upon that reason ceases also. It then becomes a case in which it is necessary to define the conditions which form the limits of the asserted invention; and when those conditions are ascertained, it may be found that they embrace many devices or forms differing from those used by the patentee. Such was Neilson's case, which appears to have been decided strictly in accordance with the principles of the patent law.

§ 161. I do not understand the Supreme Court of the United States to have denied that there may be such a case. On the contrary, it appears to have been admitted that Neilson not only discovered a new principle or method of blasting a furnace, but

that he gave the conditions which admitted of its application, and that within these conditions there were many forms of apparatus capable of being used. But it was held that Morse's general claim did not correspond to the scope of Neilson's patent, because it was considered to be unlimited in respect to the conditions under which the application of the newly discovered power could be effected.

§ 162. It is somewhat unfortunate that it became necessary to consider the validity of this claim upon a mere question of costs. The mechanical apparatus used by the defendant was substantially like that described by Morse, so that the court held it to be an infringement of that part of Morse's patent which covered the apparatus invented by him. But the questions being made, whether, in consequence of the asserted invalidity of the general claim, the whole patent was not void, no disclaimer having been filed, and, if the general claim only was void, whether the plaintiff could have costs, the character and operation of that claim were necessarily considered without applying to the determination any particular form of apparatus supposed to be within its scope, and yet differing from the particular apparatus described in the patent. It is apparent that, when a claim of this general character is adjudicated under circumstances like these, the subject of the extent to which a principle may be appropriated is presented under a great disadvantage; for it becomes necessary, perhaps, to go into the field of conjecture respecting those possible future improvements which have not yet been developed, and respecting which it must be uncertain whether they would be within or without the conditions under which the patentee seeks to appropriate the application of a broad and comprehensive principle. Reasoning upon such conjectural elements, the tendency of the judicial mind would probably be to generalize the claim of the inventor more than he himself had done, and to disregard the conditions by which he had in truth limited the extent of his supposed right. This disadvantage did not attend the adjudication of Neilson's case; for that adjudication having ascertained that his application of the principle of using the hot blast was limited by certain conditions, the very apparatus used by the defendant was found to be within those conditions, and to be at the same time quite different from his own in shape and dimensions.

§ 163. For these and other reasons it is probable that, when a

case shall arise in which a claim to the application of a principle by various means appears to be attended by novelty in the application, and by the description of some appropriate means, and the supposed infringement involves the operation of such a claim, by the presentation of improved or different devices, or mechanical or other means, the whole subject ought to be re-examined. Such cases are, of course, rare. But they have risen heretofore, and will arise again. No one acquainted with the difficulties attending the investigation of questions of infringement can doubt that they sometimes open a great field of controversy. It is only necessary to cite the well-known *dictum* in which Mr. Chief Justice Taney has summed up the operation of the patent laws, to be sensible that, however tersely and with whatever general accuracy he has expressed himself, there remains, as to the class of cases treated of in this chapter, the very serious inquiry, what the patented invention is in relation to which a substantial difference or a substantial identity of means is to be predicated. "Whoever," said the learned Chief Justice, "discovers that a certain useful result will be produced in any art, machine, manufacture, or composition of matter by the use of certain means, is entitled to a patent for it; provided he specifies the means he uses in a manner so full and exact, that any one skilled in the science to which it appertains can, by using the means he specifies, without any addition to or subtraction from them, produce precisely the result he describes. And if this cannot be done by the means he describes, the patent is void; and if it can be done, then the patent confers on him the exclusive right to use the means he specifies to produce the result or effect he describes, and nothing more. And it makes no difference, in this respect, whether the effect is produced by chemical agency or combination, or by the application of discoveries or principles in natural philosophy known or unknown before his invention, or by machinery acting altogether upon mechanical principles. In either case he must describe the manner and process as above mentioned, and the end it accomplishes. And any one may lawfully accomplish the same end without infringing the patent, if he uses means substantially different from those described."[1]

§ 164. It is plain that it could not have been the intention of

[1] O'Reilly *v.* Morse, 15 Howard, 119.

the Chief Justice to embrace within the limits of such a paragraph a statement of the whole doctrines of the patent law in respect to patentability and infringement. What was thus said was of necessity general, intended to illustrate the most familiar principles of the subject, but leaving much, as every such *dictum* must, for qualification and discrimination. Thus we are led at once to the inquiry, *for what* is the discoverer of a useful result entitled to a patent? Is it for the result? Certainly not; the patentable subject is the result or effect as produced by applying a method or rule of action, whether the invention is of an art, machine, manufacture, or composition of matter. Then, again, what is meant by using *the means* specified by the patentee? In some cases the means specified will be a single device, or a special combination of mechanical or chemical agents, because the method or rule of action resides in, or can be effected by, them alone or their equivalents. In other cases the method or rule of action may be followed out by using a great variety of agents. Inasmuch, therefore, as, in the first class of cases, the question of substantial difference of means must be tested by first ascertaining what is the method or rule of action embodied by the invention, and thence determining what means are equivalents of each other in relation thereto; so, in the other class, when the method or rule of action is ascertained, the question of substantial difference or identity of means relates to the function discharged by those means in the performance of that method or rule of action. In neither class of cases, according to the principles of the patent law, does substantial difference of means depend upon differences of form, structure, composition, or other external variations, so long as the method or rule of action embraced by the patent remains unchanged.

§ 165. Thus, to illustrate these principles by two of the cases already cited, we may refer first to that of Seed *v.* Higgins. As limited by the disclaimer, this patent was confined to a particular mechanism for using the action of centrifugal force in a cotton-roving machine for the purpose of producing pressure upon the bobbin as it was wound; the patentee renouncing all claim to the application of centrifugal force by other means than the one described, he not being the first in the order of invention to apply centrifugal force to this purpose. Under his patent so limited, therefore, the method or rule of action which he claimed resided

solely in the mode of operation of the device or devices he had described; and the device or devices of the defendant, although still using centrifugal force, being found to be clearly without the limits of this mode of operation, the court said that there was not even evidence of the infringement to be submitted to the jury. But if we suppose that this patent could have been rightfully so drawn as to present a broader claim, namely, for the first employment of centrifugal force, by certain means described, and by such other means as would still effect that employment of centrifugal force, then the method or rule of action would have had wider limits, because it would have resided in the use of centrifugal force by various means, each of which would effect what was proposed. So, too, in Neilson's case, the method or rule of action did not consist in using air heated in an apparatus of any particular shape or dimensions, but in one of any shape or dimensions that would admit of heating the air; and Neilson stood in such a position in the order of invention that he was entitled to make this claim: and it comprehended the defendant's coil of pipes, although such a heating apparatus was not described in Neilson's specification, or used by him, but it fell within the conditions he had given in respect to the use of heated air.

§ 166. But this subject should not be left in its present state without again laying down a certain caution to be observed by those who undertake the duty of preparing specifications. We have seen that it is possible to destroy a claim to a very important and easily understood invention, by separating the principle from its application by the necessary means; and the more striking and comprehensive the discovery of the principle, the greater will be the tendency, perhaps, to fall into this error. Although there are grounds for contending that Morse's specification furnished the materials for saving his eighth claim from this fatal defect, it cannot be denied that it was so drawn as to expose it to the force of this objection. What, then, is the proper mode, or one of the proper modes, of avoiding this peril? The danger of claiming an abstract principle will be avoided by the use of appropriate terms, signifying that the application of the principle is claimed as effected by the means used and described by the patentee, and by all other means which, when applied within the just scope of his conditions, will perform, for the purpose of the application, the like office. No particular form of words can be suggested

capable of general use as a formula. Indeed, formularies are of very little use in this branch of the law; for, to use an expression of Lord Kenyon's, "there is no magic in words," as mere words. Words which mean things, and which relate to things, are the important matters of judicial cognizance in determining the meaning and operation of these instruments.

CHAPTER V.

OF WHAT RELATES TO THE TITLE IN OR UNDER LETTERS-PATENT.

§ 167. The grant of letters-patent for an invention creates a legal estate of a peculiar nature, consisting of the exclusive right to make, vend, or use the subject of the grant for a specified period. It has many of the incidents of other legal estates, and among these are the equitable interests which may spring out of it either by contract or by operation of law. These various interests, legal and equitable, will now be considered.

§ 168. The person to whom the grant is made, by name called the patentee, is, of course, the holder of the legal title, which, like other legal estates, descends to representatives. But the patentee is not necessarily the inventor; for, whether an invention is or is not assignable at common law before any patent for it has been obtained, it has been deemed expedient to make it so assignable by statute. Accordingly provision has been made for the issuing of a patent to an assignee of the inventor, provided the application is made and the specification duly sworn to by the inventor himself, and the assignment is duly recorded.[1] When so granted, the exclusive interest is vested as a legal estate in the assignee, who thus becomes the patentee of the invention, and the inventor himself is divested of the legal title.

§ 169. But although the assignee of an inventor, who has become such before the patent has issued, does not become the holder of the legal title to the patent until it has issued, he becomes the holder of a right to obtain the patent and to pursue certain remedies, both against his assignor and against third persons. Thus, where an inventor had made an application for a patent in his own name, which had been rejected, and a patent had been granted to a competing inventor, and after his rejection

[1] Act of March 3, 1837, § 6; Act of March 3, 1839, § 7; Act of July 8, 1870, § 33; Herbert *v.* Adams, 4 Mason, 15; Dixon *v.* Moyer, 4 Wash. 71, 72.

he had assigned his invention to the plaintiff, as set forth in his specification on file in the Patent Office, and the plaintiff was authorized by the assignment to obtain the patent for himself, it was held that the plaintiff was entitled, even before recording his assignment, to pursue the remedy provided by statute for annulling the competing patent, given by the acts of July 4, 1836, § 16, and March 3, 1839, § 10.[1]

§ 170. The statutes, however, which authorize the assignment of an invention before the patent has been obtained, appear to embrace only the cases of perfected or completed inventions. There can, properly speaking, be no assignment of an inchoate or incomplete invention, although a contract to convey a future invention may be valid, and may be enforced by a bill for a specific performance.[2] But the legal title to an invention can pass to another only by a conveyance which operates upon the thing invented after it has become capable of being made the subject of an application for a patent. This is apparent from the provisions of the statute which require the specification and the application to be made in the name of the inventor. A contract to convey a future invention, or an improvement to be made upon a past invention, cannot alone authorize a patent to be taken by the party in whose favor such contract was intended to operate.

§ 171. With respect to the legal formalities to be observed in conveying inventions before an application for a patent, it is apparent that, as the statute authorizing this to be done prescribes no particular form of instrument, any instrument in writing which evinces an intention to vest the whole interest in the assignee, and to authorize him to take the patent in his own name, is a sufficient conveyance. Two requisites are however fixed by the act of March 3, 1837, § 6.[3] These are, that the assignment shall be "first entered of record," and that the "application" shall be "duly made and the specification duly sworn to by the inventor." The first of these requisites, the registration, is of course to be regarded as speaking of the Patent Office as the place of registration, that being the place contemplated by all the statutes *in pari materia*. The time relates to any time before the patent issues, although, for obvious reasons, the recording should be

[1] Gay *v.* Cornell, 1 Blatchf. 506.
[2] Nesmith *v.* Calvert, 1 Wood. & M. 34.
[3] The same requirements are contained in the act of 1870, § 33.

before or at the time of the application. But, as we have seen, such an assignment, before a patent has been issued, may, it has been held, be made after the inventor has applied for a patent and been refused; that is to say, it may be made while proceedings to obtain the patent are pending in the name of the inventor; and if recorded at any time before the patent issues, the patent will rightfully issue to the assignee.[1]

§ 172. Very nice questions may arise upon particular instruments, executed by inventors before an application for a patent, as to whether they do or do not amount to assignments of the legal title to the invention, or whether they are mere contracts or covenants to convey after the patent has been issued to the inventor. Thus, where an inventor, who had perfected a machine and was contemplating to make improvements thereon, and to take out letters-patent for the machine and the improvements, covenanted that he would assign the patents when obtained to the covenantees, and afterwards, in 1841, he obtained a patent for the machine, and in 1843 obtained a further patent for the improvements, a bill in equity was sustained to compel him to make the conveyances.[2] In this case the instrument was manifestly a mere covenant for future conveyances, the parties not contemplating that the patents were not to issue to the inventor; and, although the defence was set up that the patent for the improvements obtained in 1843 was for a subject-matter not contemplated by the covenant, the instrument and the surrounding facts were not held to warrant that construction. But where any doubt arises on the true meaning and operation of such instruments, such doubts may be solved, in respect to the question whether they are to operate as assignments before the patent, or only as covenants to assign after the patent, by attending to the following considerations.[3] That an inchoate right to obtain a

[1] Gay *v.* Cornell, *ut supra*.

[2] Nesmith *v.* Calvert, 1 Wood. & M. 34.

[3] I have endeavored to invent a phrase which, without circumlocution, shall sufficiently describe these assignments before a patent. But although in another branch of the law it is easy to speak of *ante* and *post* nuptial contracts, — and other similar phrases will occur to the reader, — yet our language is not flexible enough, even with the aid of a Latin preposition, to describe these *ante*-patent assignments. I forbear, therefore, from attempting to introduce such an expression into my text, and leave my readers to use it, or to avoid it, as they best can, informing them at the same time that I do not

patent on a perfected invention may be the subject of bargain and sale; but as the method of making such a sale available to vest the legal title in the invention as the subject of a patent in the purchaser has been regulated by statute, it is necessary to look into the instrument to see whether it contemplates that the patent shall issue to the supposed assignee or to the inventor. However absolute may be the words of bargain and sale of the invention, if the instrument contemplates that the patent shall issue to the inventor, it would seem that it must operate, as respects the legal title to the patent when obtained, as a contract to convey, and the party holding such an instrument will hold an equitable and not a legal title, until he has converted the former into the latter.[1] If the instrument is executed and recorded before the patent issues, but it appears to have been intended that the patent shall issue to the inventor, and it does so issue, then I conceive that the holder of the instrument is the holder of an equitable and not a legal title. But if the instrument intends that the patent shall issue to the holder of the instrument, and it does so issue, the instrument is an assignment of the legal title under the act of 1837, as it is, if executed and recorded after the patent has issued to the inventor, under the act of 1836.

§ 173. There is, however, one class of instruments which, even if executed before the patent issues, will pass the legal title to

make myself responsible for the correlative term of a *post*-patent assignment. Both are awkward enough.

[1] Clum *v.* Brewer, 2 Curtis Circ. C. R. 506. This was a case which arose upon an instrument executed by an inventor before a patent had been obtained, whereby he conveyed an undivided fourth part of his "invention," as described in his *caveat* then filed. But the instrument clearly contemplated the issuing of the patent to the inventor, and it was so issued. There was a covenant in the instrument for future conveyances. Now, although it was intimated in this case that the covenantee might possibly be regarded, after the patent had issued, as having a legal title to one undivided fourth part of the patent, yet as the case only called for the decision of the point that he had an equitable title, which clearly appeared, I think it proper to leave the position stated in the text as it stands. For, inasmuch as the statute regulating conveyances before a patent has issued contemplates an application by the patentee, and justifies an issue of the patent to another person only when such person records an instrument authorizing this to be done, I do not understand how a previous instrument can operate as a legal assignment of a patent which issues to the inventor, unless it appears to have been intended, by the terms of the conveyance, that the monopoly when obtained shall vest in the assignee. (See the note, *infra*.)

the monopoly, although the patent itself happens to issue to the inventor; and these instruments, according to a decision of the Supreme Court of the United States, operate as assignments of the patent under the act of 1836. This will be the case where the invention is perfected and a specification prepared, and the assignment, being made and recorded in the Patent Office before the patent issues, requests that the patent may issue to the assignee, and otherwise evinces the intention of the assignor to make the assignee the owner of the legal estate or monopoly, when it has become perfect and absolute, even if the patent should issue in the name of the inventor. The effect of this decision is, that when parties undertake to act under the sixth section of the act of 1837, which directs the mode of procuring a patent in the name and for the benefit of an assignee, and the requisite steps have been taken for that purpose, but the patent, contrary to the intent of the conveyance, has issued to the inventor, the conveyance, being recorded before the patent issues, will operate as an assignment of the patent interest under the act of 1836, and a subsequent conveyance is not necessary to enable the assignee to sue in his own name. This decision was made apparently with a view to quiet titles, which had been taken and acted upon under the supposition that such was the law. It gives a somewhat broader operation to the act of 1836, § 11, than its terms appear to embrace; for whereas that act would seem to have contemplated only assignments after a patent has issued, the act of 1837 was passed to enable assignments to be made before the patent issues. But the construction is beneficial; and if the conditions stated by the court are observed, no injury can result from it.[1]

[1] Gaylor *v.* Wilder, 10 Howard, 477. The following is the reasoning of the court, as contained in the opinion pronounced by Taney, C. J.:—

"The first question arises upon the assignment of Fitzgerald to Enos Wilder. The assignment was made and recorded in the Patent Office before the patent issued. It afterwards issued to Fitzgerald. And the plaintiffs in error insist that this assignment did not convey to Wilder the legal right to the monopoly subsequently conferred by the patent, and that the plaintiff who claims under him cannot therefore maintain this action.

"The inventor of a new and useful improvement certainly has no exclusive right to it until he obtains a patent. This right is created by the patent, and no suit can be maintained by the inventor against any one for using before the patent is issued. But the discoverer of a new and useful invention is vested

§ 174. Assignment by act or operation of law is where the title passes without any conveyance by the patentee or other person holding the legal title; as where a bankruptcy divests a person of all his property of every kind, a patent interest passes with the rest of his estate. This is certainly true of a patent already issued before the assignment in bankruptcy; and in England it has been held that a patent issued after an act of bankruptcy and an assignment by the commissioners, but before the bankrupt had obtained his certificate, passes to the assignees.[1] It is necessary,

by law with an inchoate right to its exclusive use, which he may perfect and make absolute by proceeding in the manner which the law requires. Fitzgerald possessed this inchoate right at the time of the assignment. The discovery had been made, and the specification prepared to obtain a patent. And it appears by the language of the assignment that it was intended to operate upon the perfect legal title which Fitzgerald then had a lawful right to obtain, as well as upon the imperfect and inchoate interest which he actually possessed. The assignment requests that the patent may issue to the assignee. And there would seem to be no sound reason for defeating the intention of the parties by restraining the assignment to the latter interest, and compelling them to execute another transfer, unless the act of Congress makes it necessary. The court think it does not. The act of 1836 declares that every patent shall be assignable in law, and that the assignment must be in writing, and recorded within the time specified. But the thing to be assigned is not the mere parchment on which the grant is written: it is the monopoly which the grant confers, the right of property which it creates. And when the party has acquired an inchoate right to it, and the power to make that right perfect and absolute at his pleasure, the assignment of his whole interest, whether executed before or after the patent issued, is equally within the provisions of the act of Congress.

"And we are the less disposed to give it a different construction, because no purpose of justice would be answered by it, and the one we now give was the received construction of the act of 1793 in several of the circuits, and there is no material difference in this respect between the two acts. As long ago as 1825, it was held by Mr. Justice Story, that, in a case of this kind, an action could not be maintained in the name of the patentee, but must be brought by the assignee. 4 Mason, 15. We understand the same rule has prevailed in other circuits; and if it were now changed, it would produce much injustice to assignees who have relied on such assignments, and defeat pending suits brought upon the faith of long-established judicial practice and judicial decision. Fitzgerald sets up no claim against the assignment, and to require another to complete the transfer would be mere form. We do not think the act of Congress requires it; but that, when the patent issued to him, the legal right to the monopoly and property it created was, by operation of the assignment then on record, vested in Enos Wilder."

[1] Hesse *v.* Stevenson, 3 Bos. & Pul. 565.

however, that the invention should have been perfected, and, at least, that the bankrupt inventor should have applied for a patent. It was said in this case (Hesse *v.* Stevenson), that the schemes which a man has in his head, or the fruits which he may make of them, do not pass; but if he has carried his schemes into effect, and thereby acquired a beneficial interest, that interest is of a nature to be affected by an assignment in bankruptcy. The party has then done all that the law requires for the creation of the interest, and the issue of the patent furnishes him with the evidence of his exclusive right.

§ 175. I am not aware that the effect of an assignment in bankruptcy upon a patentable invention, on which no application has been made for a patent, has been adjudicated in this country. The statute which provides for assignments before a patent issues contemplates only voluntary assignments; or, at least, it is capable of being executed only when the inventor applies for the patent and makes oath to the specification. According to the provisions of most bankrupt or insolvent laws, the bankrupt may be compelled to do various acts necessary to preserve, collect, or render effectual his various claims to property of all kinds. But an invention, although perfected and reduced to practice, on which no application has been made for a patent, is such a peculiar kind of property that it may well be doubted whether the bankrupt inventor could be compelled to take the steps which our law makes necessary to the vesting of the patent in another person. If indeed the invention has taken a concrete form, as if a newly invented machine is built before the assignment in bankruptcy, the machine itself, or the materials of which it was composed, would perhaps pass to the assignees. But if this is so, it would not determine the question of the right to use the machine, as against the inventor who might have taken a patent for it thereafter. The mere property in a patented machine, as distinguished from the right to use it, has been recognized as an interest on which a sheriff can levy an execution, and sell, by virtue of such a levy, without subjecting himself to an action of infringement for selling.[1] In the case in which this distinction was drawn, it was not held that the right to use the machine had passed by the levy and sale. In the case of a machine passing by assignment

[1] Sawin *v.* Guild, 1 Gallis. 485.

in bankruptcy before the patent has been applied for, and a subsequent grant of the patent to the bankrupt inventor, the same distinction would seem to be applicable. With respect to the interest in the patent itself, when so obtained, the question whether the patentee could be compelled to convey it to his assignee in bankruptcy, must depend in no inconsiderable degree upon the provisions of the bankrupt law and the methods provided for making it effectual. If the bankrupt law, *proprio vigore*, vests a granted patent in the assignee in bankruptcy, no special conveyance by the bankrupt patentee can be necessary.

§ 176. As to the interest which the creditors in bankruptcy take under an assignment by operation of the law of bankruptcy, it has been suggested by an English writer, that they do not acquire any right to use or exercise the patent privilege, but are only entitled to the proceeds to arise from a sale of the patent.[1] Whether this suggestion was founded on any thing peculiar to the English bankrupt laws, which might render it improper or impracticable for assignees in bankruptcy to engage in the working of a patent, there can be no reason, in principle, if the title to a patent is cast upon any person by operation of law for the benefit of third persons, why the holder should not exercise the patent privilege. Prudential reasons may make it proper for the assignee in bankruptcy to sell the patent; but if it is for the interest of the creditors that he should exercise the rights granted by the patent, there seems to be nothing in his situation or the nature of his title to prevent it, unless the law under which he acts requires the immediate sale and conversion into money of all the bankrupt's effects.

§ 177. One other instance only of assignment by act or operation of law, before a patent has been applied for, needs to be mentioned in this connection. This relates to the vesting of the right to take a patent in the legal representatives of a deceased inventor. A special provision of the statute regulates this right. It is the tenth section of the act of 1836. It contemplates a perfected invention or discovery, for which the inventor, if living, could have taken a patent under the other provisions of the act. The right to apply for and obtain the patent is made to devolve on the executor or administrator of the deceased inventor in trust

[1] Hindmarch on Patents, p. 67.

for his heirs or devisees, and the oath or affirmation of invention is to be varied accordingly. The right to take and hold the patent is vested in the executor or administrator, "in as full and ample manner, and under the same conditions, limitations, and restrictions, as the same was held, or might have been claimed or enjoyed, by such person [the inventor] in his or her lifetime." [1]

§ 178. We now come to the consideration of assignments, after a patent has been obtained, and their various incidents and effects. Although the kind of legal estate created by a patent would perhaps be assignable at common law, yet, as its transfer has been regulated by statute, it is necessary to examine the several interests therein, as if the statute alone were the source of the authority for such transfers of the legal title. In truth, as the statute has regulated the whole subject of transferring or subdividing the exclusive right vested by the patent in the patentee, we can only look to the statute for the conditions and modes in which the legal estate may be transferred. The provision is as follows: "That every patent shall be assignable in law, either as to the whole interest or any undivided part thereof, by any instrument in writing; which assignment, and also every grant and conveyance of the exclusive right, under any patent, to make and use, and to grant to others to make and use, the thing patented, within and throughout any specified part or portion of the United States, shall be recorded in the Patent Office within three months from the execution thereof, for which the assignee or grantee shall pay to the commissioner the sum of three dollars." [2]

§ 179. It is obvious that this statute undertakes to deal with the legal estate vested (or to be vested) in the patentee by the grant of the patent, and with that alone. It makes the interest so vested "assignable in law"; or, in other words, it recognizes the exclusive right vested in the patentee, as a legal estate, capable of being conveyed to another by a written instrument, which shall vest in that other a complete title, either to the whole of that exclusive right, or to some part of it in some specified portion of the United States. Mere licenses, therefore,

[1] The Act of 1870, § 34, contains a similar provision.

[2] Act of July 4, 1836, § 11.

or contracts conferring the limited and not the exclusive right to exercise some of the privileges secured by the patent, are not the subjects of regulation in this statute. It relates solely to grants or conveyances of the exclusive right, or legal estate, vested in the patentee, which leave no interest in the patentee for the particular territory and the particular right to which they relate.

§ 180. As to the formalities for such a grant or conveyance, it is to be observed, in the first place, that such an assignment may be by "any instrument in writing." It need not therefore be an instrument under seal. But in order to operate as an assignment, it must, to the full extent of the territory to which it relates, convey absolutely to the grantee the exclusive interest vested in the patentee with which it undertakes to deal. And here it will be noticed that the statute makes that interest divisible in two aspects: first, because it makes the patent assignable either as to "the whole interest," which it secures, or as to "any undivided part" of that interest;[1] and, secondly, because it enables the patentee to grant the exclusive right under his patent "within and throughout any specified part or portion of the United States." These various subdivisions, and the rights and interests which spring from them, will be considered hereafter.

§ 180 *a*. In this connection the language of the recent patent law (1870, ch. 230, § 36) requires to be carefully noted. It is as follows: "That every patent, or any interest therein, shall be assignable in law, by an instrument in writing; and the patentee, or his assigns or legal representatives, may, in like manner, grant and convey an exclusive right under his patent to the whole or any specified part of the United States; and said assignment, grant, or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent Office within three months from the date thereof."

§ 181. The provisions of the statute in respect to recording the conveyances by which an interest in a patent is transferred bring into view some of the distinctions between an assignment and a license. The conveyances required to be recorded are of

[1] It further separates the right "to make and use" from the right "to grant to others to make and use the thing patented."

three classes: *first*, an assignment of the whole patent; *second*, an assignment of an undivided part of the patent; and *third*, a grant or conveyance of the exclusive right to make and use, and the exclusive right to grant to others to make and use, the thing patented, within and throughout any specified part of the United States. This description of the kind of conveyances required to be recorded shows very clearly that the instrument must be one which divests the patentee of all interest in that part of the patent, or in that particular territory, which the instrument affects. If it vests in the grantee an exclusive interest, so that thereafter the patentee can exercise no control over that interest, it is such an instrument as is required by the statute to be recorded. If it be not a grant of an exclusive interest, but at most the grant of a right or privilege to make or vend or use the subject of the patent concurrently with the patentee, or with other grantees under him, it is in the nature of a license, and is not required to be recorded by the statute above cited.[1] Further illustrations of the distinctive character of licenses, as distinguished from assignments, will be presented hereafter. But, having laid down the rule which determines the character of an instrument which is within this provision of the statute, the next inquiry is as to the force and effect of the clause which declares that it "shall be recorded in the Patent Office within three months from the execution thereof." Is such recording requisite to vest the title in the assignee, as against the grantor himself, or as against third persons, or is the provision merely directory, and intended to protect subsequent *bonâ fide* purchasers without notice? And if not recorded within three months, what are the rights of the assignee in respect to suits for infringement?

§ 182. These questions, which were originally not without difficulty, have been settled by decisions in which there has been a general acquiescence. In 1843, Mr. Justice Story held that "the recording within three months is merely directory, and that, excepting as to intermediate *bonâ fide* purchasers, without notice, any subsequent recording of an assignment will be sufficient to pass the title to the assignee."[2] What he intended to say, it is presumed, was that an assignment, if not recorded within

[1] Brooks *v.* Byam, 2 Story, 526; Pitts *v.* Whitman, ibid. 609.
[2] Brooks *v.* Byam, 2 Story, 542.

three months from the date of its execution, vests in the assignee a good title as against his grantor, and a title as against third persons, which he can make effectual by recording at any time. This meaning he made more distinct in a subsequent case, adjudicated in the same year, in which he made a more elaborate examination of the subject, and gave to the statute the construction which has since been generally acted upon.[1] Mr. Justice

[1] Pitts *v.* Whitman, 2 Story, 609, 614. The following is the reasoning on which this construction was based:—

"The first objection, taken upon the motion for a new trial, is, that the deed of assignment from John A. Pitts to the plaintiff, dated on the 17th of April, 1838, was not recorded in the Patent Office until the 19th of April, 1841, after the present suit was commenced; whereas it ought to have been recorded within three months after the execution thereof. By the Patent Act of 1793, ch. 55, § 4, every assignment, when recorded in the office of the Secretary of State, was good to the title of the inventor, both as to right and responsibility; but no time whatever was prescribed within which the assignment was required to be made. By the eleventh section of the act of 1836, ch. 357, it is provided, 'That every patent shall be assignable in law, either as to the whole interest or any undivided part thereof.' Now, it is observable, that there are no words in this enactment which declare that the assignment, if not recorded, shall be utterly void; and the question, therefore, is, whether it is to be construed as indispensable to the validity of an assignment, that it should be recorded within the three months, as a *sine qua non*, or whether the statute is merely directory for the protection of purchasers. Upon the best reflection which I have been able to bestow upon the subject, my opinion is, that the latter is the true interpretation and object of the provision. My reasons for this opinion are the inconvenience and difficulty and mischiefs which would arise upon any other construction. In the first place, it is difficult to say why, as between the patentee and the assignee, the assignment ought not to be held good as a subsisting contract and conveyance, although it is never recorded, by accident, or mistake, or design. Suppose the patentee has assigned his whole right to the assignee for a full and adequate consideration, and the assignment is not recorded within the three months, and the assignee should make and use the patented machine afterwards, could the patentee maintain a suit against the assignee for such making or use as a breach of the patent, as if he had never parted with his right? This would seem to be most inequitable and unjust; and yet if the assignment became a nullity and utterly void by the non-recording within the three months, it would seem to follow as a legitimate consequence that such suit would be maintainable. So strong is the objection to such a conclusion, that the learned counsel for the defendant admitted at the argument, that, as between the patentee and the assignee, the assignment would be good, notwithstanding the omission to record it. If so, then it would seem difficult to see why the assignment ought not to be held equally valid against a mere wrong-doer, piratically invading the patent right.

"Let us take another case. Could the patentee maintain a suit against a

McLean, at about the same period, adopted the same view of the statute.[1]

mere wrong-doer, after the assignment was made, and he had thereby parted with all his interest, if the assignment was not duly recorded? Certainly it must be conceded that he could not, if the assignment did not thereby become a mere nullity, but was valid as between himself and the assignee; for then there could accrue no damage to the patentee, and no infringement of his rights under the patent. Then could the assignee, in such a case, maintain a suit for the infringement of his rights under the assignment? If he could not, then he would have rights without any remedy. Nay, as upon this supposition, neither the patentee nor the assignee could maintain any suit for an infringement of the patent; the patent right itself would be utterly extinguished, in point of law, for all transferable purposes. Again, could the assignee, in such a case, maintain a suit for a subsequent infringement against the patentee? If he could, then the patentee would be in a worse predicament than a mere wrong-doer. If he could not, then the assignment would become, in his hands, in a practical sense, worthless, as it would be open to depredations on all sides.

"On the contrary, if we construe the tenth section of the act to be merely directory, full effect is given to the apparent object of the provision, the protection of purchasers. Why should an assignment be required to be recorded at all? Certainly not for the benefit of the parties, or their privies; but solely for the protection of purchasers, who should become such, *bonâ fide*, for a valuable consideration, without notice of any prior assignment. By requiring the recording to be within three months, the act, in effect, allows that full period for the benefit of the assignee, without any imputation or impeachment of his title for *laches* in the intermediate time. If he fails to record the assignment within the three months, then every subsequent *bonâ fide* purchaser has a right to presume that no assignment has been made within that period. If the assignment has not been recorded until after the three months, a prior purchaser ought, upon the ground of *laches*, to be preferred to the assignee. If he purchases after the assignment has been recorded, although not within the three months, the purchaser may justly be postponed, upon the ground of *mala fides*, or constructive notice of the assignment. In this way, as it seems to me, the true object of the provision is obtained, and no injustice is done to any party. In respect to mere wrong-doers, who have no pretence of right or title, it is difficult to see what ground of policy or principle there can be in giving them the benefit of the objection of the non-recording of the assignment. They violate the patent-right with their eyes open; and as they choose to act *in fraudem legis*, it ought to be no defence that they meant to defraud or injure the patentee, and not the assignee. Indeed, if the defence were maintainable, it would seem to be wholly immaterial whether they knew of the assignment or not.

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[1] Boyd *v.* McAlpin, 3 McLean, 427. See also Case *v.* Redfield, 4 McLean, 526.

§ 183. The law on this subject of recording, therefore, may be thus stated. As against the patentee himself, an assignment vests a good title in the assignee from the time of its execution, and recording within the three months is not necessary to its validity. As against third persons, a suit may be maintained in law or equity, by an assignee, provided he records his title at any time before the trial or hearing.[1] But as respects subsequent purchasers without notice and for a valuable consideration, the prior assignment must be recorded within the three months. In order to guard against an outstanding title of over three months' duration, a purchaser need only look to the records of the Patent Office. Within that period he must protect himself in the best way he can, as an unrecorded prior assignment would prevail; but it must be an assignment in writing that might have been recorded within three months.

"In furtherance, then, of right and justice, and the apparent policy of the act, *ut res magis valeat, quam pereat*, and in the absence of all language importing that the assignment, if unrecorded, shall be deemed void, I construe the provision as to recording to be merely directory, for the protection of *bonâ fide* purchasers without notice. And assuming that the recording within the three months is not a prerequisite to the validity of the assignment, it seems to me immaterial (even admitting that a recording at some time is necessary) that it is not made until after the suit is brought. It is like the common case of a deed required by law to be registered, on which the plaintiff founds his title, where it is sufficient, if it be registered before the trial, although after the suit is brought, for it is still admissible in evidence as a deed duly registered."

[1] In the case of Wyeth *v.* Stone, 1 Story, 273.

[2] Gibson *v.* Cook, 2 Blatchf. 144; Perry *v.* Corning, 7 Blatchf. 195. Probably it has occurred within the professional experience of many of my readers to be called upon to consider the operation of contracts, sometimes made by inventors, by which they have obligated themselves to convey inventions not *in esse*; and the question may arise whether the recording of such contracts in the Patent Office, within three months from the time of their execution, will operate as notice of title, so as to prevent the acquisition of a title by another purchaser after a patent has been obtained. We have seen that a contract of sale of a future invention, although in terms an absolute sale, can operate only as a contract to convey; and there is no statute which contemplates or requires the recording of any conveyances excepting assignments of existing patents after patents have been obtained, or assignments of inventions made and perfected, when it is intended to have the patent issue to the assignee. It has always been assumed that the object for which the act of 1836, § 11, requiring the recording of assignments of existing patents within three months, is the protection of subsequent *bonâ fide* purchasers; although this object is not specially declared. Assuming, then, that the recording of such

§ 184. We may now pass to the consideration of the relations which an assignment establishes between the assignor and the assignee, assuming it to have all the requisites of an assignment, as well as the nature and extent of the interest which it passes. And, in the first place, it has been held, in England, that a mere naked assignment of an interest in a patent does not import a warranty by the assignor of the validity of the patent.[1] A

an assignment operates as notice to everybody of the title of the assignee, can such an effect be attributed to the recording of a contract to convey an invention that is not only not patented, but has not yet been made? With respect to patents already issued, an assignment necessarily points to the patent conveyed, and the public records afford to every one the means of ascertaining what has passed by the assignment. But a contract to convey an invention not *in esse*, although recorded, affords a subsequent purchaser of an interest in a patent no means of ascertaining what the inventor had bound himself to convey to another person, It is true th re might be cases where it could be made certain by inquiry whether the invention contemplated by the contract was the same as that subsequently patented. But is the subsequent purchaser bound to institute such an inquiry? We are considering a question of notice of title; and if the instrument supposed to operate as a notice could not, in the nature of things, give the information, can the subsequent purchaser be bound to look elsewhere? This difficulty, as well as the further consideration that the statute does not contemplate the recording of such contracts, should, perhaps, lead parties to understand that contracts for the conveyance of future inventions are really of no greater force than as the personal covenants of the inventor, to be specifically enforced against him; and that to record them will not necessarily operate as notice of title, so as to defeat a title made by the inventor to another person after he has perfected the invention and applied for or obtained a patent. At the same time, there may, in some cases, be a practical benefit to be derived from recording such contracts.

[1] Hall *v.* Condor, 38 Law & Eq. R. 253; Smith *v.* Neale, 40 Law & Eq. R. 244. In the first of these cases, Mr. Justice Williams, delivering the judgment of the court, said: "With regard to the sale of ascertained chattels, it has been held that there is not any implied warranty of either title or quality, unless there are some circumstances, beyond the mere fact of a sale, from which it may be implied. The law on this subject was fully explained by Parke, B., in giving the judgment of the Court of Exchequer in Morely *v.* Attenborough, 3 Exch. 500, which, as far as title is concerned, he thus sums up: 'From the authorities in our law, to which may be added the opinion of the late Sir N. Tindal, C. J., in Ormrod *v.* Huth, it would seem that there is no implied warranty of title on sale of goods; and that if there be no fraud, a vendor is not liable for a bad title, unless there is an express warranty, or an equivalent to it, by declarations or conduct; and the question in each case, where there is no warranty in express terms, will be, whether there are such circumstances as to be equivalent to such a warranty.' And the law is quite

mere assignment, without words which imply an undertaking that the patent is valid, is to be regarded as a sale of an ascer-

as firmly established, that on the sale of a known ascertained article, there is no implied warranty of its quality. Chanter *v.* Hopkins, 4 M. & W. 399. But there is another class of cases in which it has been held that a party is not bound to accept and pay for chattels unless they are really such as the vendor professed to sell and the vendee intended to buy; of which Young *v.* Cole, 3 N. C. 724; 4 Scott, 489; and Gompertz *v.* Bartlett, 2 El. & Bl. 849; s. c. 24 Eng. Rep. 156, are strong instances. In the latter case Lord Campbell says, it is precisely as if an article was sold as gold, which was, in fact, brass, the vendor being innocent. In this case the thing sold was ascertained, viz., a moiety of a patent granted by her Majesty. There was no express warranty, and whether it be said that the question raised on this plea impeaches the plaintiff's title to the thing sold or its quality, no warranty can be implied. But did the plaintiff profess to sell, and the defendants to buy a good and indefeasible patent right, or was the contract merely to place the defendants in the same situation as the plaintiff was in with reference to the alleged patent? In which case his position would be similar to that of the plaintiff in Kintrea *v.* Preston, 25 Law J. Rep. (N. S.) Exch. 287; s. c. 37 Eng. Rep. 556. The plaintiff professed to have invented a method for the prevention of boiler explosions. It is not alleged that he was guilty of any fraud; he must, therefore, have been an inventor, for if he was not, he must have known it, and would have been guilty of fraud in pretending to have invented. Whether he was the first and true inventor within the meaning of the statute of James I. is another question. The first material allegation in the plea is, that the alleged invention was wholly worthless, and of no utility to the public. Now that was a matter as much within the knowledge of the defendants as of the plaintiff. The next allegation, viz. that it was not new as to the public use thereof in England, and that the plaintiff was not the first and true inventor, was also a matter as much within the knowledge of the defendants as of the plaintiff. They had the same means of inquiry into the fact, and of learning whether it had been in use, or the invention had been previously made known in England. Why, therefore, should we assume that the plaintiff meant to assert that the patent was indefeasible, rather than that the defendants purchased on that understanding, rather than that each, knowing what the invention was, and having equal means of ascertaining its value, they contracted for the patent, such as it was, each acting on his own judgment?

"We think that the latter was the true nature of the contract, and that there was no warranty, expressed or implied; and that the case does not fall within Young *v.* Cole, or Gompertz *v.* Bartlett, which proceeded on the somewhat nice distinction before pointed out; nor is it within the principle upon which the case of Chanter *v.* Leese, 4 M. & W. 295; 5 M. & W. 698, was decided, for there the plaintiff contracted that the defendants should have the exclusive right to sell certain things for which patents had been obtained. There was no doubt as to what the parties contracted for; and as the plaintiff,

tained chattel, viz., the patent issued, in respect to the validity of which the parties have an equal opportunity to inform themselves; and, therefore, in an action for a breach of such a contract, brought by the assignor against the assignee, a plea of *non-concessit* puts in issue the granting only of the patent, and not its novelty or utility. But the necessary limitations of this doctrine imply that words may be used which do import a warranty extending to the validity of the patent. The consideration of the effect of recitals or other clauses which may be held to import a warranty of title has most frequently arisen under licenses. But no reason is perceived why the principles which have governed the operation of licenses in this respect should not be applied to assignments or to contracts to assign.

§ 185. In the next place, the nature of the relations between the assignor and the assignee of a part of a patent, in respect to their rights as against each other, is a subject involved in no inconsiderable obscurity. We have seen that the true characteristic of an assignment under our law is, that it is an instrument which vests in the grantee an indefeasible title to the whole or some part of the entire interest of the patentee. It is clear, then, that an assignment of part of a patent constitutes the assignee a joint owner with the assignor, in whom the residue of the interest remains. But are the joint owners of a patent to be regarded in the light of copartners? And if they are not copartners by the mere fact of joint ownership, may they under any and what circumstances become so? And if, in any given case, they are not found to be copartners, what are their relative rights and interests in the working of the patent, and what is their accountability to each other?

§ 186. With respect to the mere relation of joint ownership, it appears to be considered, both in England and in this country,

if one of the patents contracted for was invalid, could not confer the privilege which he agreed to confer, and for which the defendants contracted to pay, the consideration for the defendants' promise failed; and (to use the language of Lord Abinger) the whole resting in contract, and nothing having been done under it, the contract was at an end. Here the plaintiff was capable of fulfilling all that he contracted to do; he had already done it in equity. The defendants might have had all that they contracted to receive, and were therefore bound to pay."

that the joint proprietors are not partners.[1] The reason is chiefly that no mere proprietor of a share in a patent can be compelled to become jointly concerned in the profit or loss of working the patent, or to concur with his co-proprietors in granting licenses to others to use it, nor be prevented from working the invention himself.[2] But it is equally true that the relation of partners may subsist between the joint proprietors of a patent, in respect to the working of the invention, if they agree to work it together. In such a case the relations of the parties will be governed by the law of partnership. If the contract ascertains the proportions in which they are to share the profits of working the patent, a court of equity can enforce it like any other contract of partnership.[3] If the contract merely shows that the joint proprietors agreed to work the patent on joint account, it would seem that the accounting is to be regulated by their proportionate interests in the patent.[4]

§ 187. Thus far the general principles of the law of partnership, when there is a partnership, will regulate the rights of joint proprietors of a patent without difficulty. But a far more embarrassing question arises when there is no partnership, and when one of several proprietors of a patent, holding an interest which makes him a tenant in common with another owner or owners, undertakes to work the patent on his own account. Is he accountable to his co-proprietors, and if accountable, in what proportion, and in respect to what profits, and how can he be reached?

§ 188. It has been held on one occasion — and upon one only, so far as I am informed — that a part owner of a patent can maintain an action of infringement against his co-proprietor, and recover therein as damages "a proportionate share of the value of the property appropriated," which share will be measured by

[1] Hindmarch on Patents, p. 67; Parkhurst *v.* Kinsman, 2 Blatchf. 72; Kinsman *v.* Parkhurst, 18 Howard, 289.

[2] Ibid.

[3] Parkhurst *v.* Kinsman, and Kinsman *v.* Parkhurst, *ut supra*. See further what agreements may or may not constitute partnership in a patent. Elgie *v.* Webster, 5 Mees. & Welsb. 518. See also a question of fact, as to the existence of a partnership. Ridgeway *v.* Phillips, 1 Cromp., Mees. & Rosc. 415.

[4] Ibid.

the interest of the plaintiff in the patent.[1] The ground on which this conclusion was rested by the learned judge who so ruled,

[1] Pitts *v.* Hall, 3 Blatchf. 201, 206. The following is the very ingenious and able reasoning of the learned Judge Hall, on which I have undertaken in the text to offer some comments: "But I am inclined to think that the plea is bad upon another ground, and that the plaintiffs would be entitled to judgment, even if the undivided one-fourth interest in the extended patent had actually vested in the defendant. The rights of joint patentees, or of assignees of undivided interests in a patent, as against each other, in respect to the making, using, and vending the patented invention, have not, so far as I have been able to discover, been discussed by any elementary writer or in any reported case. The counsel, on the argument of the demurrer in this case, declared the question to be an embarrassing one, which had never been decided; and, without intending now to express an opinion by which I shall feel bound, if, upon a further discussion of the question, a different conclusion shall be reached, I propose to put upon paper for further use the result of my reflections upon it, in the hope that the attention of parties interested may be attracted to the subject, and that the question may be brought before the Supreme Court of the United States for adjudication.

"In the case of joint patentees, where no agreement of copartnership exists, the relation of copartners certainly does not result from their connection as joint patentees; and when one joint owner of a patent transfers his undivided interest to a stranger, the assignee does not become the partner of his co-proprietor. In both cases the parties interested in the patent are simply joint owners, or tenants in common, of the rights and property secured by the patent; and their rights, powers, and duties, as respects each other, must be substantially those of the joint owners of a chattel.

"Part owners of goods and chattels are either joint owners or tenants in common, each having a distinct, or at least an independent, although an undivided interest in the property. Neither can transfer or dispose of the whole property; nor can one act for the other in relation thereto, but merely for his own share, and to the extent of his own several right and interest; and, at common law, the one had no action of account against the other for his share of the profits derived from the common property. Story on Partnership, § 89.

"A personal chattel vested in several different proprietors cannot possibly be enjoyed advantageously by all without a common consent and agreement among them. To regulate their enjoyment, in case of disagreement, is one of the hardest tasks of legislation; and it is not without wisdom that the law of England and of this country in general declines to interfere in their disputes, leaving it to themselves either to enjoy their common property by agreement, or to suffer it to remain unenjoyed, or to perish by their dissension, as the best method of forcing them to a common consent for their common benefit. Abbott on Shipping, 98.

"It is well settled that a destruction or sale of the joint property by one of the part owners authorizes his co-proprietor to maintain trover for the conver-

was, that, in the case of personal chattels vested in different proprietors, a destruction or sale of the joint property by one of

sion. 2 Kent's Comm. 8th ed. 351, note. But, on such a sale, only the right of the party who makes the sale passes to the purchaser; and the purchaser becomes a tenant in common with the owner of the remaining interest, unless and until the latter confirms the sale, or recovers the value of his share from the wrong-doer.

"The principles of these doctrines are, it strikes me, applicable to the case of the joint ownership of patent rights. The grant of the exclusive right to make, use, and vend to others to be used, is to the patentees jointly, and not to either severally. The right, the property secured by the patent, may be granted to others by license or assignment, or by the sale of machines by the patentees jointly; and a license or assignment or sale of a machine by them is a transfer, *pro tanto*, of the property secured by the patent. One joint owner can legally grant, assign, license, or sell only in respect to his own share or right. He cannot sell and give a good title to his co-owner's right, for the same reason that one joint owner of a chattel cannot transfer the share of his co-proprietor. And if he appropriates any portion of the exclusive right or common property to his separate use or benefit, by either the use or the sale of the patented machine, he does what is in principle the same as the conversion, by destruction or sale of the joint property by a tenant in common, which authorizes his co-tenant to maintain trover.

"I can see no objection in principle to the doctrine, that the joint owner of a patent can sustain his action for an infringement against his co-owner, in which he can recover his actual damages, according to his interest in the patent. His rights are invaded by the act of his co-proprietor, and he is entitled to his legal remedy. This invasion is tortious, and no action founded upon a contract can be sustained, unless this tort is waived, and the tortious act confirmed; for no contract exists upon which such an action can be founded, without such waiver and confirmation. The injury is a violation of the exclusive right secured by the patent; and for this injury the action for an infringement is the appropriate remedy, and one which enables the court, without the violation of legal principles, and in the most direct and convenient mode, to do justice between the parties. In such an action the plaintiff may recover, as he should, his actual and proper damages, proportioned to the value and extent of his undivided interest in the exclusive right, without regard to the amount which his co-proprietor has received by means of the infringement. And there is certainly nothing in the language of the statute which authorizes this form of action, — or rather recognizes it, for this form of action was given by the Common Law, — (Curtis on Patents, §§ 257, 258), to prevent the action from being sustained in such a case; for the action on the case, under the fourteenth section of the act of 1836, may be brought in the name or names of the person or persons interested, whether as patentees, assigns, or grantees of the exclusive right within and throughout a specified part of the United States. Indeed, no satisfactory reason is perceived for holding that the part owner of a patent right cannot, like the part owner of a chat-

them authorizes the other to maintain trover for the conversion; that a similar wrongful appropriation takes place when one of the proprietors of a patent undertakes to appropriate to himself the entire property; and that the action of infringement may in such a case be regarded as analogous to the action of trover, and be regulated by the same principles. The action in which this doctrine was propounded was the ordinary action of infringement, in which the defendant was charged by the declaration with making, using, and vending to others to be used, without the consent of the plaintiff, numbers of a machine patented to the plaintiff. The defendant set up a title in himself to one undivided half of the patent for certain States: so that, if the action of infringement could be maintained at all, it must be maintained by one part owner against another part owner, in respect to the rights granted by the patent, and vested by the assignments (pleaded) in the defendant and the plaintiff, in equal, undivided moieties. There was a question raised by a demurrer to the plea, whether the interest set up had actually vested in the defendant, but after finding that it had not, the learned judge held that, even if it had vested, the action could be maintained.

§ 189. It would seem that there is no inconsiderable difficulty in maintaining this view. The analogy drawn from the action of trover, in the case of a wrongful conversion of a chattel by one part owner, would extend, in the case of a patent, only to a similar chattel, have his remedy, by an action on the case, against his co-proprietor, for the exclusive appropriation of the joint property, in the same form as though the plaintiff were the sole owner, and the defendant a stranger; the reduction of the amount of damages to be recovered to a proportionate share of the value of the property appropriated being, in both cases, the natural and necessary consequence of the partial ownership by the wrong-doer.

"In the case of the joint owners of a patent right, the ordinary action for an infringement is, it appears to me, the most appropriate and simple remedy, even if an action of account could be sustained. In an action of account, the amount of profits received by the joint owner would ordinarily determine the aggregate sum of which the plaintiff would recover his just proportion. And it might well happen, indeed it would most usually be the case, that the sums received by the joint owner would be either much more or much less than the actual damages sustained by the injured party. The party selling territorial rights, or granting licenses, or selling machines, might wilfully or systematically sell the right at an insignificant price; and certainly this conduct on the part of the wrong-doer should not, and, in the appropriate form of action, would not, reduce the recovery of the party injured."

ilar conversion, namely, a tortious sale of the whole patent itself by one part owner, to the injury of another, if such a case can be supposed. But in the case of an exercise of the right of making, using, or vending to others the machine, or other thing that is the subject of a patent, — a right vested, for example, in undivided moieties in two parties, — how can there be any wrongful conversion? As tenants in common of that right, the one is as much entitled to exercise it as the other. The very nature of the right, and the manner in which it may be held and exercised, presuppose that both parties have an equal title to the exercise of the peculiar privileges which the patent secures. When either undertakes to sell the right itself, that is, to convey to another the undivided share of the patent privilege vested in him, he deals with a subject which is analogous to a similar share in other chattel interests, and he can of course make a title to no more than his share of the joint property. But in respect to the *user* of the exclusive privileges granted by the patent, each tenant in common holds an equal right with the others to exercise those privileges. If A., by exercising those privileges, gains more than B., or if B. chooses to remain inactive and not to exercise his rights under the patent, how can A. be made accountable to B. in respect to the gains which have resulted from the exercise of a right which is vested in him as much as it is in B.? The action of infringement necessarily implies that the defendant has, without right and against the plaintiff's consent, made, used, or sold to others, a thing, in respect to which the right of making, using, or selling was vested solely in the plaintiff. This averment cannot be made in an action of infringement by one part owner of a patent against another, and if made, it would seem to be successfully met by a plea which shows title to an undivided part of the patent in the defendant; for the law would annex the consent of the plaintiff to the title of the defendant.

§ 190. These considerations seem to me to dispose of the subtle distinctions suggested in the case referred to respecting the measure of the plaintiff's damages, namely, that their reduction to "a proportionate share of the value of the property appropriated" is "the natural consequence of the partial ownership of the wrong-doer." If the partial owner is not a wrong-doer in exercising the rights secured by the patent, no property has been appropriated which belonged to the other proprietor of the patent,

and the ground of damages fails. That this is the real relation of the parties would seem to follow from their situation as tenants in common of a right to exercise the patent privileges. In respect to the disposal of the title to those privileges, they stand upon the same footing as tenants in common or joint owners of other chattels, namely, each can dispose of his own share only. But in respect to the right of exercising the patent privileges, they stand upon a different footing. It has been held that a court of equity will not enjoin one part owner of a patent, at the suit of another part owner, from using the thing patented, even though the plaintiff may hold the legal, and the defendant only an equitable, title. In such a case, the equitable is treated by a court of equity as if it were a legal title, if the holder has a right to convert it into a legal title. This decision was put expressly upon the ground that "one tenant in common has as good right to use and to license third persons to use the thing patented as the other tenant in common has. Neither can come into a court of equity and assert a superior equity, unless it has been created by some contract modifying the rights which belong to them as tenants in common."[1]

§ 191. It may then, it seems, be assumed, that, in the case of a naked assignment, vesting in the assignee an undivided interest in a patent, and in the absence of any contract creating a relation in the nature of partnership, or otherwise establishing an express accountability, one part owner cannot be enjoined by another, or sued in an action of infringement, for exercising the rights secured by the patent.

§ 192. With respect to the suggestion that a right of action might exist in favor of one part owner against another, who wilfully and systematically exercises the patent privileges to the injury of the plaintiff by taking an insignificant price for the thing patented, it would seem that the appropriate remedy is not an action of infringement, but a special action on the case. In such an action, the plaintiff must aver and show that he exercised, or endeavored to exercise, the patent privileges himself, and that he sustained special damage by the course of the defendant, who wilfully prevented him from reaping profits that would otherwise have accrued to him.

[1] Clum *v.* Brewer, 2 Curtis, Cir. C. R. 506, 524.

§ 193. Instruments which undertake to deal with an interest under a patent may be either assignments, or contracts to assign, or licenses. The distinction between an assignment and a contract to assign presents the question, whether the holder of the instrument has, by force of it, a legal or an equitable title. As we have seen, in order to constitute an assignment, there must be a grant which vests in the grantee the exclusive right to the whole patent, or some undivided part of it, or to the whole or an undivided part of some territorial interest. It is a question of construction on the instrument, whether it is to operate as such a present grant, or as a contract for a future conveyance of the interest; and one of the elements which enter into this question is, whether the interest on which the instrument operates has a present existence, or is merely contemplated to exist *in futuro*.

§ 194. And first, as to patents which are already granted. There is an early English case in which an absolute grant of certain patents, excepting some then in litigation, the legal title to which was reserved by the grantor until the determination of the suit, operated to vest the legal interest in the grantee after the determination of the suit, without any further conveyance.[1] Under our law it has been held that a contract by a patentee, who is about to apply for a renewal, that he will assign the renewed patent to A., vests in A. an equitable title, which he can convert into a legal title by paying, or offering to pay, the stipulated consideration. And where, after such a contract, and after the renewal, the patentee executed an instrument from which the court inferred the intent to make B. a trustee for the benefit of A., it was held that the entire interest, legal and equitable, was vested in B.[2]

§ 195. But in respect to interests not *in esse* at the time of the contract, it has been held that a contract to convey a future interest in a term not yet obtained is not an assignment.[3] The future interests, in reference to which this distinction was taken, were interests under renewals or extensions not obtained at the time of the contracts; and in one of the cases it was considered that the offer to perform a condition precedent, which was to be performed before the vesting of the interest, did not give effect

[1] Cartwright *v.* Amalt, 2 Bos. & Pul. 43.
[2] Hartshorn *v.* Day, 19 Howard, 211.
[3] Gibson *v.* Cook, 2 Blatchf. 144; Pitts *v.* Hall, 3 Blatchf. 201.

to the instrument as a grant.[1] But in this connection the case of Gaylor *v.* Wilder, which involved a contract of assignment of a patent then applied for but not issued, must not be overlooked, since it appears to establish a peculiar exception to the general rule which governs contracts respecting future interests. What that exception is has already been pointed out.

§ 196. The question may arise, however, whether there are some incidental interests in future terms of an existing patent, to which assignees under the original patent may become entitled, by force of their assignments; and these, in their various aspects, are now to be examined.

§ 197. There is a well-defined distinction between the operation of assignments (made during and concerning the original term of the patent) upon the reissue of the original patent, and their operation upon the extension or renewal of the patent.[2] An assignment vests in the assignee an interest in the existing patent, indefeasible by the act of the patentee. The statute which authorizes a surrender and reissue of a patent, in order to correct a defective specification (act of 1836, § 13),[3] has always been construed, not as creating a new interest, but as amending the original patent from its commencement, although suits can be maintained for such infringements only as have taken place after the reissue. When, therefore, a patentee has by an assignment vested in an assignee a portion of the monopoly which he holds, he cannot affect the rights of such assignee by a surrender and reissue without his consent. In fact, the statute itself saves the rights of assignees who held a legal title at the time of the surrender and reissue by the following clause: "And in case of his (the patentee's) death, or any assignment by him made of the original patent, a similar right [surrender and issue] shall vest in his executors, administrators, or assignees." The proper effect to be given to this clause requires that, where the whole patent has been vested in an assignee, he should make the surrender,

[1] Pitts *v.* Hall, *ubi supra*.

[2] The term "renewal" is often erroneously used to describe the "reissue" of a patent. Its true signification is, the further or enlarged term which is added by an extension of the monopoly beyond the term originally granted. A "reissue" signifies the residue of the term which was running at the time when the patent was surrendered for correction, whether that existing term was the original or an extended one.

[3] The act now in force is that of 1870.

and where a part only has been assigned, the assignee should unite with the patentee in the surrender. But if the surrender is made by the patentee alone, and the patent is reissued to him, previous assignments are not vacated, but the reissued term enures to the benefit of the assignee without any new assignment.[1] And if the assignee has consented to the surrender, although he is not a party on the record of the application for a reissue, it enures to his benefit and becomes his act, and he is properly a party in any suits brought for infringement within the territory covered by the assignment.[2] In respect, therefore, to reissues, it is not necessary to insert any special clause in an assignment to protect the interest of the assignee, as his interest by operation of law remains the same.

§ 198. But in respect to what are called "renewals" or "extensions," assignees who became such during the term preceding the new grant stand upon a different footing. It was held in 1844 by Mr. Justice Story, upon a full consideration of the eighteenth section of the act of 1836, which authorized the extension of patents by the Patent Office, that an assignee under the original term acquires no right at all under the extended term, *unless such right be expressly conveyed to him by the patentee*.[3] Mr. Justice McLean at about the same time held the same view of the statute.[4] But soon afterwards this question came before the Supreme Court, involving the inquiry into the true construction of the clause in which, after providing for an extension or renewal, it is declared that "the benefit of such renewal shall extend to assignees and grantees of the right to use the thing patented to the extent of their respective interests therein." A majority of the court held that this clause was not to be construed as saving the rights of previous assignees to make and vend the thing patented, but that it is to be regarded as saving the rights of those who were in the use of the patented article at the time of the renewal.[5] Subse-

[1] Wyeth *v.* Stone, 1 Story, 273; Brooks *v.* Bicknell, 4 McLean, 64, 353, 526; Woodworth *v.* Stone, 3 Story, 749; Woodworth *v.* Hall, 1 Woodb. & M. 248.

[2] Woodworth *v.* Stone, 3 Story, 749.

[3] Woodworth *v.* Sherman, 3 Story, 171.

[4] Brooks *v.* Bicknell, 4 McLean, 64.

[5] Wilson *v.* Rousseau, 4 Howard, 646. The following is the reasoning of the majority of the court, as embraced in the opinion pronounced by Mr. Justice Nelson:—

quently, the same doctrine was held in relation to a second extension granted by special act of Congress after the first exten-

"The second question is, whether, by force and operation of the eighteenth section, already referred to, the extension granted to W. W. Woodworth, as administrator, on the 16th day of November, 1842, enured to the benefit of assignees under the original patent granted to William Woodworth on the 27th day of December, 1828, or whether said extension enured to the benefit of the administrator only in his said capacity.

"The most of this section has already been recited in the consideration of the first question, and it will be unnecessary to repeat it. It provides for the application of the patentee to the commissioner for an extension of the patent for seven years; constitutes a board to hear and decide upon the application; and if his receipts and expenditures, showing the loss and profits accruing to him from and on account of his invention, shall establish to the satisfaction of the board that the patent should be extended, by reason of the patentee, without any fault on his part, having failed to obtain from the use and sale of his invention a reasonable remuneration for his time, ingenuity, and expense bestowed upon the same, and the introduction of it into use, it shall be the duty of the commissioners to extend the same by making a certificate thereon of such extension for the term of seven years from and after the first term; 'and thereupon the said patent shall have the same effect in law as though it had been originally granted for the term of twenty-one years.' And then comes the clause in question: 'And the benefit of such renewal shall extend to assignees and grantees of the right to use the thing patented to the extent of their respective rights therein.'

"The answer to the second question certified depends upon the true construction of the above clause respecting the rights of assignees and grantees.

"Various and conflicting interpretations have been given to it by the learned counsel, on the argument, leading to different and opposite results, which it will be necessary to examine.

"On one side it has been strongly argued, that the legal operation and effect of the clause save and protect all the rights and interests of assignees and grantees in the patent existing at the time of the extension; and thus secure and continue the exclusive use and enjoyment of these rights and interests for the seven years, to the same extent, and in as ample a manner, as held and enjoyed under the first term. That if A. holds an assignment of a moiety of the patent, he will hold the same for the new term of seven years; if of the whole patent, then the whole interest for that period. And that as soon as the new grant is made to the patentee, the interest therein passes, by operation of this clause, to the assignees of the old term, in proportion to their respective shares.

"On the other side it has been argued, with equal earnestness, that, according to the true construction and legal effect of the clause, protection is given, and intended to be given, only to the rights and interests of assignees and grantees acquired and held by assignments and grants from the patentee in and under the second or new term; and that it does not refer to, or em-

sion granted by the Patent Office; for it was held that a special act in favor of a patentee, extending the time beyond that orig-

brace, or in any way affect the rights and interests of assignees or grantees holding under the old.

"In connection with this view, it is said that the rights thus protected in the new term may be acquired by means of the legal operation of the clause, either from a direct assignment or grant after the extension of the patent, or by an appropriate provision for that purpose, looking to an extension, contained in the assignment or grant under the old.

"It is not to be denied but that, upon any view that has been taken or that may be taken of the clause, its true meaning and legal effect cannot be asserted with entire confidence; and, after all, must depend upon such construction as the court can best give to doubtful phraseology and obscure legislation, having a due regard to the great object and intent of Congress, as collected from the context and general provisions and policy of the patent law.

"The rule is familiar and well settled, that, in case of obscure and doubtful words or phraseology, the intention of the law-makers is to be resorted to, if discoverable from the context, in order to fix and control their meaning, so as to reconcile it, if possible, with the general policy of the law.

"Now, the serious difficulty in the way, and which renders the first interpretation inadmissible, except upon the most explicit and positive words, is, that it subverts at once the whole object and purpose of the enactment, as is plainly written in every line of the previous part of the section. It gives to the assignees and grantees of the patent, as far as assigned under the old term, the exclusive right and enjoyment of the invention, — the monopoly, — in the extended term for the seven years; when, by the same provision, it clearly appears that it was intended to be secured to the patentee as an additional remuneration for his time, ingenuity, and expense in bringing out the discovery, and in introducing it into public use. It gives this remuneration to parties that have no peculiar claims upon the government or the public, and takes it from those who confessedly have.

"The whole structure of the eighteenth section turns upon the idea of affording this additional protection and compensation to the patentee, and to the patentee alone, and hence the reason for instituting the inquiry before the grant of the extension, to ascertain whether or not he has failed to realize a reasonable remuneration from the sale and use of the discovery, — the production of an account of profit and loss to enable the board to determine the question; and as it comes to the one or the other conclusion, to grant the extended term or not.

"It is obvious, therefore, that Congress had not at all in view protection to assignees. That their condition on account of dealing in the subject of the invention, whether successful or otherwise, was not in the mind of that body, nor can any good reason be given why it should have been.

"They had purchased portions of the interest in the invention, and dealt with the patent rights as a matter of business and speculation, and stood in no different relation to the government or the public than other citizens engaged in the common affairs of life.

inally limited, must be considered as ingrafted on the general patent law; that the general patent law, in force at the time of

"Nothing short of the most fixed and positive terms of a statute could justify an interpretation so repugnant to the whole scope and policy of it, and to wise and judicious legislation.

"We think this construction not necessarily required by the language of the clause, and is altogether inadmissible.

"Then as to the second interpretation, namely, that the clause refers to and includes assignees and grantees of interests acquired in the new term, either by an assignment or grant from the patentee after the extension, or by virtue of a proper clause for that purpose in the assignment under the old term.

"The difficulty attending this construction lies in the uselessness of the clause upon the hypothesis, — the failure to discover any subject-matter upon which to give reasonable operation and effect to it, — and hence to adopt the construction is to make the clause virtually a dead letter, the grounds for which conclusion we will proceed to state.

"The eleventh section of the Patent Act provides that every patent shall be assignable in law, either as to the whole interest or any undivided part thereof, by an instrument in writing; which assignment, and also every grant and conveyance of the exclusive right under any patent, &c., shall be recorded in the Patent Office. And the fourteenth section authorizes suits to be brought in the name of the assignee or grantee, for an infringement of his rights, in a court of law.

"One object of these provisions found in the general patent system is to separate the interest of the assignee and grantee from that which may be held by the patentee, and to make each fractional interest held under the patent distinct and separate; in other words, to change a mere equitable into a legal title and interest, so that it may be dealt with in a court of law.

"Now, in view of these provisions, it is difficult to perceive the materiality of the clause in question, as it respects the rights of assignees and grantees, held by an assignment or grant in and under the new term, any more than in respect to like rights and interests in and under the old.

"The eleventh and fourteenth sections embrace every assignment or grant of a part or the whole of the interest in the invention, and enable these parties to deal with it, in all respects, the same as the patentee. They stand upon the same footing under the new term as in the case of former assignments under the old. Nothing can be clearer. It is impossible to satisfy the clause by referring it to these assignments and grants; or to see how Congress could, for a moment, have imagined that there would be any necessity for the clause, in this aspect of it. It would have been as clear a work of supererogation as can be stated.

"The only color for the argument in favor of the necessity of this clause, in the aspect in which we are viewing it, is, as respects the contingent interest in the new term, derived from a provision in an assignment under the old one, looking to the extension. As the right necessarily rested on contract, at least

the special act, permitted a party who had purchased a patented machine during the period to which the patent was first limited

till the contingency occurred, there may be some doubt whether, even after its occurrence, the eleventh and fourteenth sections had the effect to change it into a vested legal interest, so that it could be dealt with at law; and that a new assignment or grant from the patentee would be required, which could be enforced only in a court of equity. To this extent there may be some color for the argument, some supposed matter to give operation and effect to the clause.

"But what is the amount of it? Not that the clause creates or secures this contingent interest in the new term, for that depends upon the contract between the parties, and the contract alone, and which, even if the general provisions of the law respecting the rights of assignees and grantees could not have the effect to change into a legal right, might be enforced in a court of equity.

"The only effect, therefore, of the provision in respect to assignees and grantees of this description would be to change the nature of the contingent interest, after the event happened, from a right resting in contract to a vested legal interest; or, to speak with more precision, to remove a doubt about the nature of the interest in the new term, after the happening of a certain contingency, which event, in itself, was quite remote. This seems to be the whole amount of the effect that even ingenious and able counsel have succeeded in finding to satisfy the clause. It presupposes that Congress looked to this scintilla of interest in the new term, which might or might not occur, and cast about to provide for it, for fear of doubts as to its true nature and legal character, and the effect of the general system upon it.

"We cannot but think a court should hesitate before giving a construction to the clause so deeply harsh and unjust in its consequences, both as it respects the public and individual rights and interests, upon so narrow a foundation.

"But there are other difficulties in the way of this construction.

'The eleventh section, regulating the rights of assignees and grantees, provides: 'That every patent shall be assignable at law,' &c., 'which assignment, and also every grant and conveyance of the exclusive right under any patent to make and use, and to grant to others to make and use, the thing patented within and throughout any specified part or portion of the United States,' &c., 'shall be recorded.'

"Now it will be appa[illegible], we think, from a very slight examination of the clause in question, that it does not embrace assignees or grantees, in the sense of the eleventh section, at all; nor in the sense in which they are referred to when speaking of these interests generally under the patent law, without interpolating words or giving a very forced construction to those composing it.

"The clause is as follows: 'And the benefit of such renewal shall extend to assignees and grantees of the right to use the thing patented, to the extent of their respective interests therein.'

"It will be seen that the word 'exclusive,' used to qualify the right of a grantee in the eleventh section, and, indeed, always when referred to in the

to continue to use it during the further extension; and that there was nothing in the special act to take the case out of the operation of this rule.[1]

patent law (§ 14), and also the words 'to make,' 'and to grant to others to make and use,' are dropped, so that there is not only no exclusive right in the grantee, in terms, granted or secured by the clause, but no right at all, no right whatever, to make or to grant to others to make and use the thing patented; in other words, no exclusive right to make or vend. And it is, we think, quite obvious, from the connection and phraseology, that assignees and grantees are placed, and were intended to be placed, in this respect, upon the same footing. We should scarcely be justified in giving to this term a more enlarged meaning as to the right to make and sell, as it respects the one class, than is given to the others, as they are always used as correlative, in the patent laws, to the extent of the interests held by them. The clause, therefore, in terms, seems to limit studiously the benefit or reservation, or whatever it may be called, under or from the new grant, to the naked right to use the thing patented; not an exclusive right even for that, which might denote monopoly, nor any right at all, much less exclusive, to make and vend. That seems to have been guardedly omitted. We do not forget the remaining part of the sentence, 'to the extent of their respective interests therein,' which is relied on to help out the difficulty. But we see nothing in the phrase giving full effect to it, necessarily inconsistent with the plain meaning of the previous words. The exact idea intended to be expressed may be open to observation; but we think it far from justifying the court in holding that the grant or reservation of a right to use a thing patented, well known and in general use at the time, means an exclusive right to make and use it; and not only this, but an exclusive right to grant to others the right to make and use it, meaning an exclusive right to vend it.

"The court is asked to build up a complete monopoly in the hands of assignees and grantees in the thing patented, by judicial construction, founded upon the grant of a simple right to use it to the extent of the interest possessed; for the argument comes to this complexion. A simple right to use is given, and we are asked to read it an exclusive right, and not only to read it an exclusive right to use, but an exclusive right to make and vend the patented article.

"Recurring to the patent law, it will be seen that Congress, in granting monopolies of this description, have deemed it necessary to use very different language. The grant in the patent must be in express terms, for 'the full and exclusive right and liberty of making, using, and vending,' in order to confer exclusive privileges. The same language is also used in the act when speaking of portions of the monopoly in the hands of assignees and grantees (§§ 11, 14).

"We cannot but think, therefore, if Congress had intended to confer a monopoly in the patented article upon the assignees and grantees by the clause

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[1] Bloomer *v.* McQuewan, 14 Howard, 539.

§ 199. Two other cases in the Supreme Court have involved a further application of the same doctrine. In one it was held, that

in question, the usual formula in all such grants would have been observed, and that we should be defeating their understanding and intent, as well as doing violence to the language, to sanction or uphold rights and privileges of such magnitude by the mere force of judicial construction.

"We conclude, therefore, that the clause has no reference to the rights or interests of assignees and grantees under the new and extended term, upon the ground, —

"1. Because, in that view, giving to the words the widest construction, there is nothing to satisfy the clause, or upon which any substantial effect and operation can be given to it ; it becomes virtually a dead letter, and work of legislative superfluity ; and,

"2. Because the clause in question, upon a true and reasonable interpretation, does not operate to vest the assignees and grantees named therein with any exclusive privileges whatever, in the extended term, and therefore cannot be construed as relating to or embracing such interests in the sense of the law.

"The extension of the patent, under the eighteenth section, is a new grant of the exclusive right or monopoly in the subject of the invention for the seven years. All the rights of assignees or grantees, whether in a share of the patent, or to a specified portion of the territory held under it, terminate at the end of the fourteen years, and become reinvested in the patentee by the new grant.

"From that date he is again possessed of 'the full and exclusive right and liberty of making, using, and vending to others the invention,' whatever it may be. Not only portions of the monopoly held by assignees and grantees as subjects of trade and commerce, but the patented articles or machines throughout the country, purchased for practical use in the business affairs of life, are embraced within the operation of the extension. This latter class of assignees and grantees are reached by the new grant of the exclusive right to use the thing patented. Purchasers of the machines, and who were in the use of them at the time, are disabled from further use immediately, as that right became vested exclusively in the patentee. Making and vending the invention are prohibited by the corresponding terms of his grant.

"Now, if we read the clause in question with reference to this state of things, we think that much of the difficulty attending it will disappear. By the previous part of the section, the patentee would become reinvested with the exclusive right to make, use, and vend the thing patented; and the clause in question follows, and was so intended as a qualification. To what extent, is the question. The language is: 'And the benefit of such renewal shall extend to assignees and grantees of the right to use the thing patented to the extent of their respective interest therein'; naturally, we think, pointing to those who were in the use of the patented article at the time of the renewal, and intended to restore or save to them that right which, without the clause, would have been vested again exclusively in the patentee. The previous part of the section operating in terms to vest him with the exclusive right to use, as

a party, who claims a right so to continue in the use of a patented machine after an extension, must show a continuous chain of title

well as to make and vend, there is nothing very remarkable in the words, the legislature intending thereby to qualify the right in respect to a certain class only, leaving the right as to all others in the patentee, in speaking of the benefit of the renewal extending to this class. The renewal vested him with the whole right to use, and therefore there is no great impropriety of language, if intended to protect this class, by giving them in terms the benefit of the renewal. Against this view it may be said that 'the thing patented' means the invention or discovery, as held in M'Clurg *v.* Kingsland, 1 How. 202; and that the right to use 'the thing patented' is what, in terms, is provided for in the clause. That is admitted, but the words, as used in the connection here found, with the right simply to use the thing patented, — not the exclusive right, which would be a monopoly, — necessarily refer to the patented machine, and not to the invention; and, indeed, it is in that sense that the expression is to be understood generally throughout the patent law, when taken in connection with the right to use, in contradistinction to the right to make and sell.

"The 'thing patented' is the invention; so the machine is the thing patented; and to use the machine is to use the invention, because it is the thing invented, and in respect to which the exclusive right is secured, as is also held in M'Clurg *v.* Kingsland. The patented machine is frequently used as equivalent for the 'thing patented,' as well as for the invention or discovery, and, no doubt, when found in connection with the exclusive right to make and vend, always means the right of property in the invention, the monopoly. But when in connection with the simple right to use, — the exclusive right to make and vend being in another, — the right to use the thing patented necessarily results in a right to use the machine, and nothing more. Then as to the phrase 'to the extent of their respective interests therein,' that obviously enough refers to their interests in the thing patented, and, in connection with the right simply to use, means their interests in the patented machines, be that interest in one or more at the time of the extension.

"This view of the clause, which brings it down in practical effect and operation to the persons in the use of the patented machine or machines at the time of the new grant, is strengthened by the clause immediately following, which is, 'that no extension of the patent shall be granted after the expiration of the term for which it was originally issued. What is the object of this provision? Obviously, to guard against the injustice which might otherwise occur to a person who had gone to the expense of procuring the patented article, or changed his business upon the faith of using or dealing with it, after the monopoly had expired, which would be arrested by the operation of the new grant. To avoid this consequence, it is provided that the extension must take place before the expiration of the patent, if at all. Now it would be somewhat remarkable if Congress should have been thus careful of a class of persons who had merely gone to the expense of providing themselves with the patented article for use or a matter of trade, after the monop-