
 Syllabus.

rately tried, and one of them, when upon trial, had proposed to call the other as a witness, and the court had rejected the testimony. The question certified was, whether this ruling was correct. It arose upon motion for new trial, but it was plainly a point which must be determined, as of right, before sentence could be pronounced; and the certificate therefore was within the principle of *The United States v. Wilson*.

The motion to quash, upon which the question now before us arose, was clearly determinable as a matter of discretion. It was preliminary in its character, and the denial of the motion could not finally decide any right of the defendant. The rule laid down by the elementary writers* is, that "a motion to quash is addressed to the sound discretion of the court, and if refused, is not a proper subject of exception."

When made in behalf of defendants, it is usually refused, unless in the clearest cases, and the grounds of it are left to be availed of, if available, upon demurrer or motion in arrest of judgment.

It is quite clear therefore that we cannot take cognizance of the questions certified to us in the present condition of the case. They may hereafter arise upon demurrer, or on motion in arrest, and if the opposition of opinion shall still exist, can be again presented for consideration here.

At present the case must be

DISMISSED FOR WANT OF JURISDICTION.

 AGAWAM COMPANY v. JORDAN.

1. In a suit in chancery under a patent, evidence of prior knowledge or use of the thing patented is not admissible, unless the answer contains the names and places of residence of those alleged to have possessed a prior knowledge of the thing, and where the same had been used.
2. The defence, "that the patentee fraudulently and surreptitiously obtained the patent for that which he knew was invented by another," is not a

* 1 Colby's Crim. Stat. 268 and 269; 1 American Crim. Law, 518 and 519.

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- sufficient defence to a charge of infringement, unless accompanied by the further allegation, that the alleged first inventor was at the time using reasonable diligence in adapting and perfecting the invention.
3. The inventor who first perfects a machine, and makes it capable of useful operation, is entitled to the patent.
 4. Where a master workman, employing other people in his service, has conceived the plan of an invention and is engaged in experiments to perfect it, no suggestions from a person employed by him, 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.
 5. Letters patent of long standing will not be declared invalid upon testimony largely impeached; as *ex. gr.*, where forty persons swear that the character of the witness for truth and veracity is bad; although very numerous witnesses on the other hand swear that they never heard his reputation in that way questioned.
 6. On a bill in chancery, for an infringement of a patent, the allegation in an answer, of sale and public use "prior to the filing of an application for a patent," with the consent and allowance of the inventor, is insufficient, unless it is also alleged in the answer that such sale or use was more than two years before he applied for a patent.
 7. Forbearance to apply for a patent during the progress of experiments, and until the party has perfected his invention and tested its value by practical experiment, affords no ground for presumption of abandonment.
 8. Where a patent is extended by virtue of a special act of Congress, it is not necessary to recite in the certificate of extension all the provisos contained in the act.
 9. A patentee claiming under a reissued patent cannot recover damages for infringements committed antecedently to the date of his reissue.

ERROR to the Circuit Court for Massachusetts, the suit having been one to restrain the use, by the Agawam Woolen Company, of a certain machine for manufacturing wool and other fibrous materials, patented to John Goulding.

The process formerly in use in the production of yarn from wool, was by a set of carding engines, a billy and a jenny; a series usually consisting of three carding machines, commonly called a first breaker, a second breaker, and a finisher, one billy and two jennies, sometimes two double carding machines being used instead of three single carding machines.

The wool was fed to the first carding machine, called the first breaker, on a feed table, and was doffed off the doffer

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of that machine by a comb. The material thus doffed off was taken to the second carding machine, called the second breaker, and was fed into it in the same manner as in the first, and upon leaving the doffer, was either wound round a large cylinder, making what was called a lap or bat, or dropped on the floor. The material was then taken to the third carding machine, and was fed to it in the same way, and, by a roller and shell at the delivery-end of this machine, was made into short rolls, which were about as long as this machine was wide. These short rolls were then taken to the billy, and were spliced together on the apron roll of the billy by children, by rubbing the rolls together with their hands, and were carried forward on the billy, after being so spliced together, by the apron roll, which fed them through the jaws of the billy to the spindles. The product of the billy was called roving. This roving was then taken from the billy and set up on cops to the jenny, upon which it was spun into yarn.

As early as 1812, Goulding, born in 1793, the son of a machinist, and from early years familiar in his father's factory with machines and machinery, sought to improve this long train of engines, called in their whole series "the carding machine." He thought that he could so improve it as to produce yarn from wool in a cheaper manner, of better quality, and in greater quantity than was produced by the old process. Engaged at different times in Massachusetts, at Worcester, Halifax, and, lastly, at Dedham, where, in 1823, he fixed himself as both a machinist and a manufacturer of textile fabrics, he only sought, for some years, to improve the billy; but, as experiments were made by him, he aimed, finally, at dispensing with the billy entirely, and accomplishing with four machines that which had previously required the use of five. His purpose was also to dispense with short rolls entirely, and get the perpetual or endless roll, and carry it through its different stages, from the crude wool until it became finally converted into yarn.

The result of his experiments and trials, extending over a long term of time, and after the use by him of very many

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devices, was, as he alleged, successful. He dispensed with the billy entirely; and by processes testified to by many witnesses as invented by him, and by himself so sworn to be, obtained a continuous or perpetual roll as the product of each carding engine; accomplished a successful mixing of the wool—as well where the same color was used, as where different colors were used; dispensed with a large amount of manual labor, and secured a larger product at half the expense as compared with the old process, a better and more uniform roving, and a better and more uniform quality of yarn.

Such was his view and his case, as set forth in the bill.

But Goulding's claim to these high merits of invention were not conceded. There were witnesses also, chiefly one Cooper, of Concord, New Hampshire, who swore that he derived great aid from others. Specific conversations and admissions of Goulding, about the time of the alleged invention, were sworn to by Cooper. But his testimony was strongly impeached; and relationship, bad feeling, or interest were shown in others of the witnesses. As to Cooper himself, forty different persons swore that his general reputation for truth and veracity was bad. Very numerous ones, however, swore that they had not heard it called in question. This sort of testimony covered some hundred pages of the record.

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 as to altering it. In 1824, Winslow having been to a neighbor's factory, where

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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 anything," 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.

It appeared, however, and was so assumed by this court, after a very minute statement* in the terms of art, of many details of the matter, that it was only as an *auxiliary* part of Goulding's invention that they were of value, and that they did not make either the entire invention or any one of its separate combinations.

Goulding went on continuously engaged in perfecting his improvement, till November, 1826, before the middle of which month he filed his application for letters patent, and on the 5th December he received them for the whole combined invention. None of the devices described in his specifications were new, and the claims were for combinations arranged in a manner set forth.

* See it, *infra*, pp. 598, 603.

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The patented improvement soon came into universal use, and worked a revolution, both here and in Europe, in the art of manufacturing fibrous yarns. It has not been improved, but remains now what it was when the patent was granted.

The patent granted, as above mentioned, expired December 5, 1849. Goulding desired to make application for its renewal, but through erroneous information given him by the Commissioner of Patents, he failed to apply for the extension until too late for the commissioner legally to entertain his application, and the patent expired accordingly as already stated. Congress finally, and after persistent efforts by Goulding, passed May 30, 1862, a special act, authorizing the commissioner to entertain his application for extension as though it had been made within the time prescribed by law. This special act contained a proviso,

“That the renewal and extension shall not have the effect, or be construed, to restrain persons who may be using the machinery invented by said Goulding at the time of *the renewal and extension*, thereby authorized for continuing the use of the same, nor subject them to any claim or damage for having so used the same.”

The patent was extended by the commissioner August 30, 1862. The patent having been reissued July 29, 1836, was again reissued in June, 1864, having before this last date become vested in Jordan, the complainant, to whom the reissue was made.

The proviso of the act authorizing a renewal and extension, was not recited in the reissued letters patent. But the certificate of renewal and extension was made subject, in express terms, to the proviso contained in the act. In this condition of things, the Agawam Woollen Company, using certain machinery alleged to be the same with that now patented to Jordan, he filed his bill against them, praying for injunction, account, and other relief. The bill put specific and categorical interrogatories in reference to the fact of infringement. The defendants did not answer the interrogatories as put. They only denied the use of any machinery

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“in violation and infringement of any rights of the plaintiff, or that they are using, or have made, or sold, or used any machines not protected or covered by the proviso in the act of Congress;” and putting it to the court to say whether they should make further answer. The machinery which they did use, they began to use after the date of the extension (the company not being incorporated at that date), but before the surrender and reissue of June, 1864.

With this implied admission of infringement, the answer put the defence chiefly on four grounds:

First. “This defendant denies that the said Goulding ever bestowed any ingenuity upon the invention or improvement mentioned in either of the letters patent aforesaid, and alleges that the improvements therein described, were invented and applied by one Edward Winslow, then of Dedham, from whom said Goulding first obtained knowledge of the same, and fraudulently and surreptitiously obtained a patent on the 15th day of December as aforesaid, for that which he well knew was the invention of said Winslow, at and before the application by him for a patent, as set forth in said bill.”

Second. That at the time of Goulding’s application for a patent, the invention had been on sale, and in public use, with his consent and allowance, for a *long time*; and that he abandoned the same to the public. Sale and public use *for more than two years*, prior to the application for a patent, were not, however, alleged in the answer.

Third. That the certificate on the reissued letters patent of 1864, was not in conformity with the act of Congress, and did not contain the limitations or conditions as annexed to the patent, as extended; and, therefore, that the reissued patent was void.

Fourth. That the defendant’s machinery, although built subsequently to the date of the extension, yet, having been in use before and at the time of the reissuing of that patent in 1864, was within the saving proviso of the act of Congress.

Argument against the patent.

The court below decreed for the complainant, and the case was now here on appeal by the other side.

Mr. Robb, for the appellant—after remarking that nearly half a century had passed since the events which were the subject of investigation, occurred; that nearly all of those who had personal knowledge of them, had been dead many years; and that, in every patent case, the loss of testimony affected the *defendant* more seriously than it did the plaintiff, since the defendant has upon him the burden of overcoming the presumption which the plaintiff derives from his patent alone—commented on the facts, arguing that Winslow was the undoubted inventor of the spool and drum—most important features of the mechanism patented—and that in regard to these, Goulding had no merit.

The efforts at impeachment of Cooper were to be received (the learned counsel argued) with great distrust. It was easy to bring men, in almost any case, who would swear before a commissioner, and from the bias of revenge or interest, that *they* would not believe a particular witness, and so to make a record the vehicle of scandal, which would never have been spoken if the witnesses had been in the presence of the court, under the restraints of law, when they told their stories. In this case, of course, the testimony had been taken in this private manner. The learned counsel then contended:

1. That the invention had been in use for more than two years, and had been abandoned, as appeared, by the delays of Goulding in getting a patent; moreover, he had not an extension until twenty-two years after the expiration of the first patent.

2. That the proviso in the act of Congress was a limitation of the authority vested in the commissioner. The grant was to be limited “so that it shall not be construed” to vest, &c. Now by law, as is well known, no extension of a patent shall be granted by the commissioner after the expiration of the term for which it was originally issued. *Primâ facie*, therefore, this patent is void, and it is only by invoking the

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statute that it can be saved. Now, this being a private statute, it should be incorporated with, and accompany the exercise of the authority claimed under and by virtue of it.

3. That by a true interpretation of the act, the defendant's machinery came within the proviso of the act of Congress.

Messrs. B. R. Curtis and Stoughton, contra.

The patent is *prima facie* evidence that Goulding was the original and first inventor of the thing patented.

The answer charges a *fraudulent* and *surreptitious* appropriation, by Goulding, of Winslow's invention, and fraud is to be proved by the party alleging it.

To sustain this burden, it is not sufficient for the appellants to prove that Winslow, while a hired workman of Goulding, suggested mechanical means of carrying some part or parts of Goulding's plan into effect; *he must prove that the entire plan of the invention, as described by Goulding in the original letters patent of December 15, 1826, was the sole invention of Winslow, for the answer does not set up a joint invention by Goulding and Winslow, but a several invention by Winslow, and a fraudulent and surreptitious appropriation of the entire invention by Goulding.**

But these principles of law need not be invoked. There is no sufficient evidence that Winslow invented anything. The attempt is to overturn a title of forty years' standing on evidence that would not be trustworthy, even if it related to recent occurrences. To recollect specific language after the lapse of forty years, is impossible. Conversations are the least trustworthy of all kinds of evidence, even when alleged to be recent; but here, where they are confessed to have occurred upwards of forty years ago, no reliance can be placed on them.† The facility with which conversations can be

* *Pitts v. Hall*, 2 Blatchford, 234; *Alden v. Dewey*, 1 Story, 338, 339; *Dixon v. Moyer*, 4 Washington, 71, 72; *Teese v. Phelps*, McAllister, 48; Story, J., in *Washburn v. Gould*, 3 Id. 133; *Webster's Patent Cases*, 132, note *e*; *Allen v. Rawson*, 1 Manning, Granger & Scott, 574-577; *Eyre v. Potter*, 15 Howard, 56.

† *Badger v. Badger*, 2 Wallace, 87; *Pennock v. Dialogue*, 4 Washington, 668; *Alden v. Dewey*, 1 Story, 339.

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either invented or distorted, the necessity of knowing all that was said, the occurrences which gave rise to the conversations, and the circumstances under which the conversations occurred, the inability of human memory to retain the precise language that was used, the proverbial fact of the different versions which different witnesses give even of recent conversations, the radical change in meaning which even the slightest transposition of language will sometimes make, all concur in showing that evidence of them is the most unsatisfactory testimony upon which a court of justice can act.

Moreover, forty witnesses have sworn that Cooper's general reputation for truth is bad. Their testimony is affirmative, while all the counter testimony is negative. When we consider the facility with which bad men, with some good qualities, can rally friends in support of their character, it is not surprising that many should have appeared to assist Cooper. In a place as large as Concord, there are undoubtedly men whose characters for veracity are bad, and yet many witnesses could be produced who never heard their characters spoken of in respect to veracity. The testimony here is simply negative, not showing—because some of the witnesses have not heard Cooper's character pronounced bad—that it is not bad, but only showing that they have not heard it stated to be so. It is impossible, we submit, for any man's character for truth and veracity to be otherwise than bad, when forty witnesses swear that it is bad, even if ten times that number should be produced to swear that they had never heard it questioned.

The remaining grounds of defence have no foundation in the facts of the case, nor in the law of patents by any possible view of it.

Mr. Justice CLIFFORD delivered the opinion of the court.

Patentees acquire, by virtue of their letters patent, if properly granted and in due form, the full and exclusive right and liberty of making, using, and vending to others to be used, their respective inventions for the term of years

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allowed by law at the time when the letters patent were issued. Such exclusive right and liberty may be held and enjoyed by the patentee throughout the entire term for which it is granted; or he may assign the letters patent, by an instrument in writing, either as to the whole interest or any undivided part thereof; or he may grant and convey to another the exclusive right under the patent to make and use, and grant to others to make and use, the thing patented, within and throughout any specified district.*

Damages may be recovered by an action on the case for any infringement of that exclusive right and liberty; or the party aggrieved may, in any case, at his election, bring his suit in equity and pray for an injunction to prevent the violation of the same; but the express provision is, that all such actions, suits, and controversies shall be originally cognizable, as well in equity as at-law, by the Circuit Courts of the United States, or any District Court having the powers and jurisdiction of a Circuit Court.†

Jurisdiction of such cases is exclusive in the Circuit Courts, subject to writ of error and appeal to this court, as provided by law; but the requirement is, that the suit must be brought in the name of the person or persons interested, whether patentees, assignees, or as grantees, as aforesaid, of the exclusive right within a specified locality.‡

Present suit was in equity, and was founded on certain reissued letters patent granted to the complainant on the twenty-eighth of June, 1864, as the assignee, by certain mesne assignments, of John Goulding, who was the original patentee, and who, as alleged, was the original and first inventor of the improvement. Original patent was granted December 15th, 1826, for the term of fourteen years, and was, as alleged, for a new and useful improvement in the mode of manufacturing wool and other fibrous materials; but the claims of the specification were defective, and it was surrendered on that account, and reissued July 29th, 1836, for the residue of the original term.

* 5 Stat. at Large, 119, 121.

† Id. 123, 124.

‡ Id. 124.

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Representations of the complainant were, that the original patentee, without any neglect or fault on his part, failed to obtain by the use and sale of the invention a reasonable remuneration for his time, ingenuity, and expenses employed and incurred in perfecting the invention, and introducing the same into use within the time for which the patent was originally issued, and that he failed also, by accident and mistake, to obtain an extension of the patent before the expiration of the original term.

Power of the commissioner to renew and extend the patent having expired, the allegation was that the original patentee applied to Congress, and that Congress, on the thirtieth of May, 1862, passed an act for his relief. Pursuant to that authority, the bill of complaint alleged that the commissioner, thereafter, on the thirtieth of August, in the same year, renewed and extended the patent, in due form of law, for the further term of seven years from and after that date, subject to the provisions contained in the act-conferring the authority.

Derivation of the title of the complainant is fully set forth in the bill of complaint, but it is unnecessary to reproduce it, as it is not the subject of controversy in this case. Possessed of a full title to the invention by assignments, the complainant, as such assignee, surrendered the letters patent, and the commissioner, on the twenty-eighth of June, 1864, reissued to him the original patent, as extended under the act of Congress, for the residue of the extended term.

Founded upon those letters patent, the bill of complaint alleged that the assignor of the complainant was the original and first inventor of the improvement therein described, and the charge is that the corporation respondents, having full knowledge of the premises, and in violation of the complainant's exclusive rights and privileges, so acquired and secured, have, since the date of the reissued letters patent, and without his license or consent, made, used, and sold, and continue to make, use, and sell, in large numbers, cards, jacks, and machinery, embracing and containing mechanism substantially the same in principle, construction, and mode

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of operation as the improvement so acquired and owned by the complainant.

Prayer of the bill of complaint was for an account, and for an injunction, and for such other and further relief as the nature and circumstances of the case shall require.

Respondents appeared and filed an answer, and proofs were taken by both parties, and they were heard in the Circuit Court upon bill, answer, replication, and proofs, and a final decree upon the merits was rendered for the complainant, and thereupon the respondents appealed to this court.

Numerous defences were set up in the answer, but none of them will be much considered except such as are now urged upon the consideration of the court.

The grounds of defence specially enumerated in the brief of the appellants, and urged in argument, are as follows:

1. That the combinations set forth in the several claims of the patent were first invented by one Edward Winslow, and that neither of them was original with the assignor of the complainant.

2. That the invention, at the time the application for the original patent was made, had been on sale and in public use, with the consent and allowance of the applicant, for more than two years, and that he had abandoned the same to the public.

3. That the reissued letters patent described in the bill of complaint are void, because they do not contain the limitations and conditions expressed in the extended patent, and were not issued in conformity with the act of Congress passed for the relief of the original patentee.

4. That the respondents' machinery, having been in use before and at the time the patent in this case was granted, is within the saving clause of the proviso in the said act of Congress.

- I. Exception might well be taken to the first proposition upon the ground that it is a departure from the special defence set up in the answer, unless it can be admitted as included in the more general allegation, denying that the

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assignor of the complainant was the original and first inventor of the improvement described in the patent.

Persons, sued as infringers, may plead the general issue in suits at law, and may prove, as a defence to the charge, if they have given the plaintiff thirty days' notice of that defence before the trial, that the patentee was not the original and first inventor of the thing patented; but the same section which authorizes such a defence provides that whenever the defendant relies in his defence on the fact of a previous invention, knowledge, or use of the thing patented, "he shall state in his notice of special matter the names and places of residence of those whom he intends to prove to have possessed a prior knowledge of the thing, and where the same had been used."*

Evidence to prove such a defence, in a suit at law, is not admissible without an antecedent compliance with those conditions, and the settled practice in equity is to require the respondent, as a condition precedent to such a defence, to give the complainant substantially the same information in his answer. Unless the practice were so, the complainant would often be surprised, as the rule of law is that the letters patent afford a *prima facie* presumption that the patentee is the original and first inventor of what is therein described as his improvement, and if the respondent should not be required to give notice in the answer that proofs would be offered to overcome that presumption and establish the opposite conclusion, very great injustice might be done, as the complainant might rely upon that presumption and fail to take any countervailing proofs.†

Better opinion is, that the defence embraced in the first proposition of the respondents, is not admissible under that allegation in the answer which denies that the assignor of the complainant was the original and first inventor of the improvement. Such a defence, if recognized at all in this case, must be admitted under that part of the answer which was evidently framed for that special purpose.

* *Wilton v. Railroad*, 1 Wallace, Jr., 195.

† *Teese v. Huntingdon*, 23 Howard, 10.

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Substance and effect of those allegations are, that the respondents deny that the original patentee ever bestowed any ingenuity upon the improvements, and they allege that the same were invented and applied by one Edward Winslow, that the patentee first derived knowledge of the invention from that individual, and that the original patentee fraudulently and surreptitiously obtained the patent for that which he well knew was the invention of his informant.

No exception was taken to the answer in the court below, and in that state of the case the allegations of the answer, that the invention was made by a third person and not by the assignor of the complainant, may be regarded as a good defence, but it is quite clear that the charge that the original patentee in this case fraudulently and surreptitiously obtained the patent for that which he well knew was invented by another, unaccompanied by the further allegation that the alleged first inventor was at the time using reasonable diligence in adapting and perfecting the invention, is not sufficient to defeat the patent, and constitutes no defence to the charge of infringement.*

Viewed in any light the proposition amounts to the charge that the invention was made by the person therein mentioned, and not by the assignor of the complainant, and the burden to prove it is on the respondents, not only because they make the charge, but because the presumption arising from the letters patent is the other way.

Application for a patent is required to be made to the commissioner appointed under authority of law, and inasmuch as that officer is empowered to decide upon the merits of the application, his decision in granting the patent is presumed to be correct.†

Before proceeding to inquire whether or not that defence is sustained by the proofs, it becomes necessary to examine specifications and claims of the patent, and to ascertain, by a comparison of the mechanism therein described, with the

* 5 Stat. at Large, 128; Reed v. Cutter, 1 Story, 599.

† Pitts v. Hall, 2 Blatchford, 229; Union Sugar Refinery v. Matthiessen, 2 Fisher, 300.

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antecedent state of the art, the true nature, character, and extent of the improvement.

Sets of carding machines, for the production of yarn from wool, were well known, and in use before the invention of the original patentee. They usually consisted, besides the spinning-jenny, of three carding machines, called the first and second breaker, and the finisher, but they could not be used to much practical advantage, in connection with the jenny, without a separate machine, called the billy, for splicing the rolls. Two jennies were often used, instead of one, in that combination, and in some instances, two double carding machines were preferred, instead of three single machines.

Like the still older carding machine, the breaker had what was called a feed-table, and the wool, previously prepared by other means, was placed on that table, and was, by that means, fed to the carding mechanism, and having passed through the carding apparatus to the delivery-end of the machine, was stripped from the device called a doffer, and fell to the floor. The device for stripping the filament from the doffer was a comb, which constituted a part of the machine. Second breaker was similar in construction to the first, and the process of feeding and carding was the same, but the filament from the first breaker constituted the material to be used in the second, instead of using wool prepared by hand, or from the picker, and the filament when carded and stripped from the doffer, was wound round a drum. The method of feeding the material into the carding apparatus of the finisher was also the same, but it was provided with an additional apparatus, at the delivery-end of the machine, called the roller and shell, which formed the material into short rolls. Those rolls were about the length of the card surface of the doffer. They were taken to the billy, and were there spliced by hand, on the apron of that machine, and, as the apron moved forward, they were fed to the spindles, and converted into roving, suitable to be spun into yarn.

Goulding aimed to dispense with the billy altogether, and

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sought to accomplish, with four machines, what had previously required the use of five; and the evidence shows, beyond controversy, that his invention enabled manufacturers to produce yarn from wool, at much less cost, of better quality, and in greater quantity, than was produced by the old process. His purpose, also, was to dispense with short rolls, and to introduce the long or endless roll in its place. Years were spent by him in experiments to accomplish these purposes, but the result was that he was successful. He dispensed altogether with the billy, and, by a new combination of old devices, he obtained the endless roll, and so perfected his machinery that he could use it successfully, from the moment the roving left the delivery-end of the first breaker, till it was converted into yarn, fit to be manufactured into cloth.

Attempt will not be made to describe the various plans which he formed, nor the experiments which he tried, as it would extend the opinion to an unreasonable length. Under his method, as described, the wool, as it comes from the picker, is placed on the table of the first breaker, and is fed to the carding apparatus as before, but the sheet of carded material, when stripped from the doffer, is taken away on one side of the delivery-end of the machine, by means of two rollers, through a turning-tube, or pipe, to which a slow rotary movement is given by a band passing from a drum, actuated by the machine, and operating upon a pulley affixed to the tube. Description is also given of the means by which the roving or sliver is condensed and wound round the bobbin, and also of the means by which it is retained in the proper position, and made to partake of the rotary movement communicated to the drum. Particular description is also given of the means by which the roving may be evenly wound upon the bobbins, either by carrying it and the drum backward and forward, or by passing it between guides, affixed to a bar, to which a similar movement is communicated.

Next step is, that the bobbins, with the roving thereon, twenty in number at least, are placed in a frame or creel, in

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order that the roving may be fed to the second carding machine, and guided into it, between certain dividing pins, but it is taken away at the delivery-end, in a single roving, and by the same means as from the first machine.

Principal object in passing the material through the second breaker is, that it may be more completely mixed, so that every part of the roving will be of the same fineness. Third operation is, that the bobbins of roving, as delivered and wound in the second breaker, are placed in a frame or creel, similar to that before described, but each roving is now to be kept separate, and certain blocks are provided for that purpose, made broader in front than behind, so that each roving shall preserve its proper situation, without mingling with those adjacent to it, during the operation of carding, and also that it may finally reach its proper place upon the delivering cards.

The feeding of the material into the carding apparatus of the finisher is accomplished in the same way as before described, but the mechanism for carding, and for delivering the roving, is more complex, and widely different. Two delivering cylinders are constructed, placed one above the other, surrounded with wire card, in strips, with uncovered spaces of equal width, and so arranged that the uncovered spaces on one cylinder shall correspond with the strips of wire card on the other, for carding the separate rovings as they are fed into the carding apparatus. Different mechanism is also provided for removing the carded material from the delivering cylinders, which is accomplished by the rotary action of the tubes upon such material, by which the several filaments, as they are delivered, are formed into a loose continuous roving, which is guided between certain pins, and passed through certain rollers, in order to give the roving a sufficient coherence before it is wound on to the bobbins, to be used in the jenny.

Means for slightly twisting the roving as it leaves the finisher are also described, and the directions are that the guides of the finisher must have a lateral motion backward and forward, so that each roving may be regularly laid side by

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side, within its own proper limits, and the devices to accomplish that function are fully described. Modifications were also made by the inventor in the devices of the carding apparatus of the finisher, and also in the apparatus for delivering the roving in the third operation, and for winding it on to the bobbins preparatory to their transfer to the jenny where the roving is spun into yarn. Those modifications of old machinery are minutely described in the specification, and it is obvious that they are of great value in accomplishing the final result, and that they constitute some of the main features of the invention.

Changes were also made in some of the devices of the jenny, and also in their arrangement and mode of operation as compared with prior machines, and those alterations also are so clearly described as to constitute a full compliance with the sixth section of the patent act. Substitutes are suggested for many of the described devices, but it is not practicable to enter into those details. Separate parts of the machinery, as used in the several combinations, are not claimed by the patentee. Omitting redundant words the claims of the reissued patent are to the effect following:

First. I claim in combination the following sets of apparatus making up a machine, namely: 1. A bobbin-stand or creel. 2. Bobbins on which roving may be wound. 3. Guides or pins. 4. A carding machine. 5. Condensing and drawing-off apparatus. 6. Winding apparatus, whereby rovings may be fed to a carding machine, carded, condensed, drawn off and wound again in a condensed state, substantially in the manner herein set forth.

Second. I claim the feed rollers of a carding machine, in combination with bobbins and proper stands therefor, and guides or pins whereby slivers or rovings may be fed to be carded by mechanism substantially such as herein described.

Third. I claim a delivering cylinder of a carding machine in combination with apparatus for drawing off, condensing, or twisting and winding carded filaments, by apparatus substantially such as herein described.

Lastly. I claim a mule or spinning-frame, provided with

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spindles mounted on a carriage, and with jaws or their equivalents for retaining roving in combination with bobbins, whose axes are parallel, or nearly so, with the line of spindles, and rest upon drums revolving to unwind the bobbins substantially as herein set forth.

Careful attention to the description of the invention and the claims of the patent, will enable the parties interested to comprehend the exact nature of the issue involved in the first defence presented by the respondents. Purport of that defence is, that the invention was made by Edward Winslow, and not by the assignor of the complainant. The settled rule of law is, that whoever first perfects a machine is entitled to the patent, and is the real inventor, although others may have previously had the idea and made some experiments towards putting it in practice. He is the inventor and is entitled to the patent who first brought the machine to perfection and made it capable of useful operation.*

No one is entitled to a patent for that which he did not invent unless he can show a legal title to the same from the inventor or by operation of law; but where a person has discovered an improved principle in a machine, manufacture, or composition of matter, and employs other persons to assist him in carrying out that principle, and they, in the course of experiments arising from that employment, make valuable discoveries ancillary to the plan and preconceived design of the employer, such suggested improvements are in general to be regarded as the property of the party who discovered the original improved principle, and may be embodied in his patent as a part of his invention.

Suggestions from another, made during the progress of such experiments, in order that they may be sufficient to defeat a patent subsequently issued, must have embraced the plan of the improvement, and must have furnished such information to the person to whom the communication was made that it would have enabled an ordinary mechanic,

* Washburn et al. v. Gould, 3 Story, 133.

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without the exercise of any ingenuity and special skill on his part, to construct and put the improvement in successful operation.

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

Guided by these well-established principles, the first inquiry is, what was actually done by the person who, as alleged by the respondents, was the real inventor of what is described in the reissued letters patent? They do not pretend that he invented or even suggested the entire invention, nor all of the several elements embraced in any one of the separate combinations, as expressed in the claims of the patent; and if they did, it could not for a moment be sustained, as it finds no support whatever in the evidence. None of the devices described in the specifications are new, but the claims of the patent are for the several combinations of the described elements arranged in the manner set forth, and for the purpose of working out the described results.

Regarded in that light, it is clear that the concession that the person named did not invent nor suggest the entire invention, nor any one of the separate combinations, is equivalent to an abandonment of the proposition under consideration, as it is clear to a demonstration that nothing short of that averment can be a valid defence. Respondents do not

* *Pitts v. Hall*, 2 Blatchford, 234; *Allen v. Rawson*, 1 Manning, Granger & Scott, 574; *Alden v. Dewey*, 1 Story, 338; 1 Webster's Patent Cases, 132, note c; *Curtis on Patents*, 3d ed. 99; *Reed v. Cutter*, 1 Story, 599.

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allege in the answer that the person named was a joint inventor with the original patentee, but the allegation is that he made the invention, and they deny that the assignor of the complainant ever bestowed any ingenuity upon what is described in the letters patent as his improvement. Such a defence cannot be successful unless it is proved, as common justice would forbid that any partial aid rendered under such circumstances, during the progress of experiments in perfecting the improvement, should enable the person rendering the aid to appropriate to himself the entire result of the ingenuity and toil of the originator, or put it in the power of any subsequent infringer to defeat the patent under the plea that the invention was made by the assistant and not by the originator of the plan.

The evidence shows that the original patentee was born in 1793, and that he commenced working on machinery in his youth, while he was with his father, and that, as early as the year 1812, he went into the employment of certain machinists, residing at Worcester, Massachusetts, who were engaged in constructing machinery for the manufacture of wool and cotton. While in their employment, he began experiments in woollen machinery. Those experiments were directed to the object of improving the billy, for the purpose of drawing out the carriage more accurately, and thereby making better work. Several years were spent in that business, but, in 1820, he went to Halifax, in that State, and, while there, he made numerous experiments to get rid of the billy entirely, and to dispense with short rolls, and substitute long rolls in their place. He remained there three years, and, during that time, he was constantly engaged in experiments to accomplish those objects. In the spring of 1823 he moved to Dedham, in the same State, and there hired a mill, and engaged in the manufacture of broadcloth, and also carried on the machine business, and the witness also states that he then prosecuted his experiments on a large scale.

Cans were used as a receptacle for the rovings, delivered from the doffers, before the drawing-off and winding apparatus, described in the patent, was invented. Rovings, be-

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fore that invention, were spun from cans, instead of being wound upon, and spun from, spools or bobbins. Considerable importance is attached to the new method, as it was largely by that means that the use of the endless roving was made practical, and that the difficulty produced by the kinking of the roving, incident to the use of the cans, was overcome.

Theory of the respondents is, that the new method of accomplishing that function was invented by Edward Winslow, but their witness, John D. Cooper, only testifies that he made or suggested the spool and drum, which are not the only elements of that apparatus. Unaccompanied by the traverser, they would, perhaps, be better than the cans, but it is clear that the apparatus would be incomplete without that device, as it is by that means that the bobbins are evenly wound with the roving.

Testimony of that witness is, that he first suggested to Winslow that the roving must be wound on a spool, else they never could make good yarn, and he proceeds to state that they procured some pasteboard, and that Winslow made a pattern for a spool and drum from that material. Explanations, in detail, are given by the witness, of the several steps taken by them in accomplishing the change in the apparatus, and the witness states that the original patentee never saw the spool and drum until he came into the mill and saw those devices in the machine. Argument for the respondents is, that the spool and drum were invented by that party while he was in the employment of the original patentee, but the complainant denies the theory of fact involved in the proposition, and insists that the statement of the witness are untrue, and that he is not entitled to credit. Further statement of the witness is, that the improvement, as soon as it was perfected, was applied to all the carding and spinning machines in the mill; and that the mills, so adjusted as to embrace that improvement, were put in successful operation during the summer and autumn of that year.

Two answers are made by the complainant to the defence founded on that testimony, both of which are sustained by

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the court. 1. Suppose the testimony of the witness to be all true, the complainant contends that it is not sufficiently comprehensive to support the allegations of the answer, nor even to support the proposition presented in the brief of the respondents. Taken in the strongest view for the respondents, the testimony merely shows that Winslow, or the witness Cooper, or both together, after the originator of the plan had nearly completed his great and valuable improvement, and while he was still prosecuting his experiments with the utmost diligence, suggested the spool and drum as substitutes for the cans, and that Winslow actually made those devices, and, with the aid of witness, put them into one of the machines as an experiment. When their employer first examined the arrangement, rude as it was, he expressed great satisfaction with it, but upon seeing it tried he pronounced it of no value. Neither of those opinions, however, turned out to be quite correct, as, upon further trial, when better adjusted, and by adding the traverser, so that the contrivance would wind the roving evenly on the spool, it proved to be a useful auxiliary part of the invention.

Valuable though it was and is, as aiding in the accomplishment of the desired result, it is nevertheless a great error to regard it as the invention described in the subsequent patent, or as such a material part of the same that it confers any right upon the party who made the suggestion to claim to be the inventor, or a joint inventor, of the improvement, or to suppose that the proof of what was done by that party can constitute any defence, as against the owner of the patent, to the charge of infringement.

Second answer to the defence founded on that testimony is, that the testimony is unreliable, because the witness is not entitled to credit. Hundreds of pages of the transcript are filled with proof, introduced either to assail or support the credit of that witness; but the court is of the opinion that it is not necessary to enter into those details, as the decision must be in favor of the appellee, even if every word stated by that witness is taken to be true. Entirely satisfied with our conclusion upon the merits, we are the less inclined

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to enter into those details, as a full analysis of the proofs within reasonable limits would be impracticable; but it is proper to say that the proofs have been carefully examined, and it is the opinion of the court that the letters patent in this case cannot be held to be invalid upon such testimony.

II. Second defence, as stated in argument, is, that the invention, at the time the application for the original patent was made, had been on sale and in public use, with the consent and allowance of the applicant, for more than two years, and that the applicant abandoned the same to the public. Abandonment, as set up in the concluding paragraph of the proposition, is a distinct defence from that set up in the preceding part of the same proposition, and must be separately considered.

Sale and public use, for more than two years prior to the application for the patent, are not alleged in the answer. What the respondents do allege is, that the invention, at the time the application for a patent was filed, and for a long time before, had been on sale and in public use, which, without more, is not a good defence against the charge of infringement. On the contrary, the correct rule is that no patent shall be held to be invalid on account of such sale and public use, except on proof that the invention was on sale and in public use more than two years before the application therefor was filed in the Patent Office.*

Evidence to show that the invention of the original patentee, as finally perfected, was on sale and in public use more than two years before he applied for a patent is entirely wanting, and if such evidence was offered, it could not be admitted under the pleadings, as no such defence is set up in the answer.†

Undoubtedly an inventor may abandon his invention, and surrender or dedicate it to the public; but mere forbearance to apply for a patent during the progress of experiments, and until the party has perfected his invention and tested

* 5 Stat at Large, 354; McClurg v. Kingsland, 1 Howard, 209; Stimpson v. Railroad, 4 Id. 380.

† Foster v. Goddard, 1 Black, 518

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its value by actual practice, affords no just grounds for any such presumption.*

Application for a patent in this case was probably filed in the Patent Office before the middle of November, 1826, and the proofs are full and satisfactory to the court that the inventor, up to that time, was constantly engaged in perfecting his improvements, and in making the necessary preparations to apply for a patent.

III. Third defence is, that the reissued letters patent are void, because they were not issued in conformity with the act of Congress relating to that subject. Omission of the original patentee seasonably to apply for an extension of his patent was occasioned through erroneous information given to him by the commissioner, and not from any negligence or fault of his own. Acting upon information from that source, the inventor did not file his application until it was too late to give the notices as required by law, and the time for presenting such an application having expired, the commissioner had no power to grant his request. Deprived of any legal remedy under the general laws for the protection of inventors, he applied to Congress, and on the thirtieth of May, 1862, Congress passed an act for his relief.†

By the terms of that act he was authorized to apply to the commissioner for a renewal and extension of the letters patent, previously granted to him for the term of seven years from the time of such renewal and extension, and the commissioner was empowered to grant such renewal and extension, or to withhold the same under the then existing laws, in the same manner as if the application therefor had been seasonably made. Annexed to the body of the act is a proviso, that such renewal and extension shall not have the effect or be construed to restrain persons using the invention, at the time of such renewal and extension, from continuing the use of the same, nor to subject them to any claim or damage for having used such machinery.

* *Kendall et al. v. Winsor*, 21 Howard, 322; *Pennock et al. v. Dialogue*, 2 Peters, 1.

† 12 Stat. at Large, 904

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Objection now taken is, that the said proviso in the act of Congress is not recited in the reissued letters patent; but the objection is entirely without merit, as it appears in the record that the certificate of renewal and extension, as granted by the commissioner, was made subject in express terms to the proviso contained in that act.

Doubts are entertained whether even that was absolutely necessary; but it is clear that there is nothing in the proviso to warrant the conclusion that the form of the extended patent might not be the same as that in general use, and it is not even suggested that the form of the extended or reissued patent was in any respect different from the corresponding established forms of the Patent Office.

IV. Fourth defence is, that the respondent's machinery was in use before the patent in this case was granted; but it is not alleged that their machinery was in use before the extended patent was issued, and, therefore, the allegation affords no defence to the charge of infringement.*

Other defences are mentioned in the brief of the respondents; but none of them were urged in argument, and they must be considered as abandoned.

V. Infringement is an affirmative allegation made by the complainant, and the burden of proving it is upon him, unless it is admitted in the answer. Specific inquiries were made of the respondents in this case, and they did not satisfactorily answer those interrogatories. Evasive answers, under such circumstances, if not positively equivalent to admissions, afford strong presumptive evidence against the respondents. Apart from that, however, the answer of the respondents is unsatisfactory in other respects. They do not in terms deny that they have used, and are using, the invention as alleged; but what they do deny is, that they use any machinery in violation and infringement of any rights of the complainant, or that they are using, or have made, used, or sold any machinery not protected by the

* *Stimpson v. Railroad*, 4 Howard, 380.

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proviso contained in the act of Congress passed for the relief of the original patentee.

Clear implication from the answer is, that they had made machinery such as that described in the letters patent, and if so, then they are clearly liable as infringers, as they were not incorporated at the date of the extended patent. Machines made since the patent was extended are not protected by that proviso, as is plain from its language; but the complainant cannot recover damages for any infringement antecedent to the date of the reissued patent, as the extended patent was surrendered.

Proofs of the complainant to show infringement consist in a comparison of the machines made by the respondents with the mechanism described in the patent, and in the testimony of scientific experts, and they are so entirely satisfactory, that it is not deemed necessary to pursue the investigation.

DECREE AFFIRMED

MORGAN v. TOWN CLERK.

By the law, as settled in Wisconsin, a provision in a statute under which a town issued its bonds to a railroad, that a tax requisite to pay the interest on these bonds should be levied by *the supervisors* of the town, is not exclusive of a right in *the town clerk* to levy the tax under a general statute making it his duty to lay a tax to pay all debts of the town; a mandamus having issued under the first act, but after efforts to make it productive, having produced nothing.

ERROR to the Circuit Court for Wisconsin.

In 1853, the legislature of Wisconsin authorized the town of Beloit to issue its coupon bonds for the benefit of a certain railroad. The town did issue them accordingly; and a number of them, with coupons unpaid, having got in the hands of one Morgan, he brought suit and obtained judgment against the town.

The statute which authorized the town to issue the bonds thus enacted: