Case No. 6,778.

HOWE v. WILLIAMS.

[2 Fish. Pat. Cas. 395; 2 Cliff. 245.][1]

Circuit Court, D. Massachusetts. Oct., 1863.

PATENTS—IMPROVEMENT IN SEWING MACHINES—JURY ISSUES—MATTER NOT SET UP IN ANSWER—ADMISSIBILITY ON FINAL HEARING—INFRINGEMENT OF RENEWED PATENT—SIMILAR DEVICES.

1. Original bill filed during the term of the original patent. Patent having been extended pending the suit a supplemental bill was filed; extended patent having been surrendered, and reissued, the suit still pending, a second supplemental bill was filed, upon which the cause came on for final hearing. Letters patent to Elias Howe, Jr., for "improvement in sewing machines," granted September 10, 1846, extended for seven years, from September 10, 1860, and reissued March 19, 1861, examined and sustained.

2. A motion for jury issues is sometimes granted where the patent is recent and where the case shows that the originality of the invention is doubtful, or where the merits of the controversy chiefly depend upon contradictory evidence, involving the credibility of witnesses. But where the patent is of long standing, and the inventor has had an exclusive possession under it the motion for a trial, at law, is seldom received with any favor.

3. The motion for jury issues ought not in general, to be granted where it appears that a trial at law and a hearing in equity have already been had, and that both have resulted in favor of the complainant.

4. Machines not set up in the answer as matters of defense, cannot be introduced in proof, or be considered upon final hearing.

5. It is no justification of the infringement of a renewed patent, that the infringer had used the invention with impunity before the patent was amended.

[Cited in Jones v. Sewall, Case No. 7,495; McWilliams Manuf'g Co. v. Blundell, 11 Fed. 421.]

6. Devices used by a defendant, differing in form and having different names from those employed by the patentee, but arranged and combined in the same way, performing the same functions, having substantially the same mode of operation, and producing the same result, are infringements of the patent.

Bill in equity [by Elias Howe, Jr., against Charles W. Williams] for the infringement of certain letters patent on a sewing-machine, and praying for an account and an injunction. The bill of complaint, filed on the 9th of August, 1859, was founded on original letters patent dated the 10th of September, 1846. As originally granted the patent would have expired on the 10th of September, 1860, but an extension was obtained on the same for seven years, and on the 7th of September, 1860, a supplemental bill was filed setting forth the extension. Subsequently the patent was surrendered, and a reissue obtained, dated the 19th of March, 1861 This was also set forth by supplemental bill filed the 12th of April, 1861. In his answer to the supplemental bill, the respondent alleged that after filing his answer to the original bill he had obtained letters patent of the United States for an

improvement in sewing-machines, invented by him, and which was used in the machines sold by him.

The principal defences were, first, that the complainant was not the original and first inventor of his supposed improvement; and second, that if he was, the respondent had not infringed the same. The respondent first submitted a motion to the court that an order be passed, directing all the proceedings in the court to be stayed, and that the complainant be required to bring an action at law to determine the several matters involved in the suit, or that it be ordered that issues for a jury to settle the same be framed under the direction of the court. Upon the motion, the court said: "Such a motion is sometimes

granted where the patent is recent, and where the case shows that the originality of the invention is doubtful, or where the merits of the controversy chiefly depend upon contradictory evidence, involving the credibility of witnesses; but where the patent is of long standing, and the inventor has had an exclusive possession under it, the motion is seldom received with any favor. Washburn v. Gould [Case No. 17,214]; Hill v. Thompson, 3 Mer. 622; Collard v. Allison, 4 Mylne & C. 487. Other examples, where such a motion was granted, are also shown in some of the numerous cases cited by the respondent, but it is a sufficient answer to all such decisions, as applied to this case, to say that the motion ought not in general to be granted where it appears, that a trial at law and a hearing in equity have already been had, and that both have resulted in favor of the complainant; and the motion is accordingly overruled. Goodyear v. Day [Case No. 5,569]."

Several patented machines were introduced by the respondent as showing that the complainant was not the original and first inventor of what he claimed in his specification, namely, the machine of J. J. Greenough, patented the 21st of February, 1842, that of G. H. Corliss, patented the 27th of December, 1843, and that of B. W. Bean, patented the 4th of March, 1843. The above-named were American patents. Two English patents, one to Martin and Archbold, the 4th of May, 1844, another to Poster and Gibbon, the 7th of December, 1844, and one French patent to Thimonier, dated the 17th of July, 1830, were also introduced. A particular description of these is to be found in the opinion of the court.

The following were the claims of the complainant's reissued patent:—First. A sewing-machine, constructed and operating to form a seam, substantially as described. Second. The combination of a needle and a shuttle or equivalent, and holding surfaces, constructed and operating substantially as described. Third. The combination of holding surfaces, with a baster-plate or equivalent, constructed and operating substantially as described. Fourth. A lifting-rod, a clipping-lever, and a receiving-pin, respectively, each constructed and operating to control the threads, substantially as described. Fifth. A baster-plate, constructed and operated substantially as described. Sixth. Holding surfaces constructed and operating substantially as described. Seventh. A grooved and eye-pointed needle, constructed and adapted for rapid machine sewing, substantially as described. Eighth. A side-pointed shuttle, constructed and operating substantially as described.

B. R. Curtis and Causten Browne, for complainant.

It is not enough that the patenting abroad should take place before the application of the American patentee. It must be before his invention. Sprague, J., in Howe v. Morton [Case No. 6,769], March, 1860; Bartholomew v. Sawyer [Id. 1,070], Ingersoll, J. Nor is it enough that the English patent should have been sealed, but it must appear that the specification was enrolled, before the American patentee makes his invention, in order to defeat his patent.

Caleb Cushing and A. C. Washburn, for respondent.

CLIFFORD, Circuit Justice. This is a bill in equity, wherein the complainant alleges that he is the original and first inventor of a certain new and useful improvement in sewing machines, which was duly secured to him by letters patent, and that the respondent, well knowing the premises, has, without his consent and in violation of his exclusive right, made, used, and vended to others to be used, a large number of sewing machines, embracing substantially his patented improvement. Wherefore the complainant prays for an account, and for an injunction. His bill of complaint, founded on his original letters patent, dated September 10, 1846, was filed on August 9, 1859, and on October 3 following, the respondent filed his answer to the same. As originally granted the complainant's patent would have expired on September 10, 1860, but he obtained an extension of the same for the term of seven years from and after that date, and on November 7, 1860, he filed a supplemental bill of complaint, setting forth the fact of such extension. Having secured such an extension of his patent the complainant afterward surrendered the same, on account of a defective description, and it was canceled, and on March 19, 1861, a new patent was duly issued to him on an amended specification, and as he alleges, for the same invention, to continue for the term of twenty-one years from the date of the original patent. Accordingly the complainant, on April 12, 1861, filed a second supplemental bill of complaint, setting forth such surrender and reissue. Respondent filed his answer to the supplemental bills of complaint on June 29, 1861, and, among other things, alleges that since the filing of his answer to the original bill of complaint he has obtained letters patent of the United States for an improvement in sewing machines made and invented by him, which is of great value, and which is used by him in the machines that he sold. His principal defenses to this suit are, first, that the complainant is not the original and first inventor of his supposed improvement; and secondly, that if he is, that he, the respondent, has not infringed the same. Before proceeding, however, to examine the merits of the case, it becomes necessary to consider a preliminary motion submitted by the respondent. He moves the court that an order be passed directing that all proceedings in the cause be stayed, and that the complainant

be required to bring an action at law to determine the several matters involved in this suit, or that it be ordered that issues for a jury to settle the same be framed under the direction of the court, as more fully set forth in the record. Such a motion is sometimes granted, where the patent is recent, and where the case shows that the originality of the invention is doubtful, or where the merits of the controversy chiefly depend upon contradictory evidence, involving the credibility of witnesses; but where the patent is of long standing, and the inventor has had an exclusive possession under it, the motion is seldom received with any favor. Wash-burn v. Gould [Case No. 17,214]; Hill v. Thompson, 3 Mer. 622; Collard v. Allison, 4 Mylne & C. 487. Other examples, where such a motion was granted, are also shown in some of the numerous cases cited by the respondent, but it is a sufficient answer to all such decisions, as applied to this case, to say that the motion ought not in general to be granted where it appears that a trial at law and a hearing in equity have already been had, and that both have resulted in favor of the complainant; and the motion is accordingly overruled. Goodyear v. Day [Case No. 5,569]. Returning to the merits of the controversy the most important inquiry is, whether the complainant is the original and first inventor of the improvement described in the specification and claims of his reissued letters patent. Referring to the concluding part of the specification, it will be seen that the claims are eight in number, and it is proper to remark that they are so plainly and explicitly expressed that they can not be regarded as of doubtful construction. They are all, in fact, substantially included in the first of the series, which reads as follows: First. A sewing machine, constructed and operating to form a seam substantially as described. Particular description is also given in the specification, not only of the mode in which the machine operates, but also of the several devices or elements of which it is composed, and those several devices or elements when taken as an organized whole, constitute the invention specified in the first claim of the reissued patent. Those devices as set forth in the specification, are divided into three classes, and when so classified they constitute a mechanism for manipulating the threads, or an apparatus for stitching, and an apparatus for holding the cloth during that process, and an apparatus for feeding the cloth operating in the same connection, and all acting in combination to form the seam. Separately considered the mechanism for manipulating the threads consists of an eye-pointed reciprocating needle constructed with a groove so as to protect the threads in the rapid movement through the cloth, and a shuttle or its equivalent for detaining and interlocking the loops of thread passed through the cloth by the needle, to which must also be added the lifting rod and clipping lever, and the receiving pin, which may be regarded as appliances for controlling the threads, and for making tension on the same, so that each stitch may be drawn tight by the operation of the machine. Certain opposing local surfaces, as described in the specification, constitute the holding apparatus, consisting of the shuttle box, or one side of it, and of a certain metallic plate, whose upper end, as therein described,

is attached to the frame of the machine. Means are also described for adjusting those two local surfaces to the thickness of the material to be sewed, showing conclusively that they are designed to press upon the cloth or other material, in the operation of the machine, and perform the functions of holding devices. Those opposing surfaces sustain the cloth during the operation of stitching, holding it in position against the thrust and retraction of the needle, but they are so adjusted, or may be, that the pressure and retention are not sufficient to prevent the feeding of the cloth for the purpose of spacing the succeeding stitch, preparatory to another corresponding perforation of the needle. They so operate as to make the pressure upon the cloth near the point of sewing, leaving the other parts of the same comparatively free, and they also serve to guide the cloth so that it may be fed in a determined plane, and confining the same in the proper locality, so that the stitch may be drawn tight. Briefly described, the feeding apparatus consists of a metallic plate, supplied with projecting teeth, which take hold of the cloth, and are designed to answer somewhat the ordinary purposes of basting, and the plate is also furnished with a row of small holes, drilled, at regular distance from each other, answering the purpose of rack teeth, so that the plate, as the stitch is taken, may be moved forward between the two stationary holding surfaces, by means of a pinion, which enables the operator to regulate the length of the stitches at pleasure. Explanations, to show that the feed is automatic and intermittent, are unnecessary, and held, as the cloth is, between those two local surfaces, during the forward movement of the metallic plate, it is evident that those devices aid in keeping the cloth in place while the feeding is accomplished, and consequently they must also be regarded as a component part of the feeding apparatus, to the extent that they modify the action of the feeding instrument. Two threads are employed in forming the seam, as described in the specification. One is carried through the cloth by the eye-pointed needle, and forms the loop through which the shuttle passes that carries the other thread. When the shuttle is returned, which is accomplished by means of a device called the shuttle driver, the thread that was carried by the needle is surrounded by that received from the shuttle, and as the needle is drawn out it forces the shuttle thread into

the body of the cloth, forming a seam, which has the same appearance on each side of the cloth, with this peculiarity, that the thread shown on the one side is exclusively that which was given out by the needle, while the thread seen on the other side is exclusively that given out by the shuttle. Such is the general description of the principal devices of the machine described in the specification, and their arrangement and mode of operation. Reference is specially made in the first claim of the patent to the description given in the specification, and of course the several parts of the instrument must be construed together. Like other sewing machines, in use at the present time, the one described in the patent of the complainant is composed of various devices, but the claim is for the organized machine, as an existing whole, and not merely for some or all of the separate devices of which it is composed, or for some or all of those devices as a mere technical combination. Undoubtedly the several devices operate in combination, and consequently the invention itself consists, in a certain sense, of a combination of those various elements, so constructed and molded into harmonious action as to accomplish the described result, but still the invention is not a technical combination of old devices where, in order to maintain an infringement, it is necessary to show that the respondent has pirated the whole. On the contrary, the claim under consideration obviously is, that the complainant is the original and first inventor of the organized sewing machine, whose several devices are described in the specification, when viewed as an existing whole, and operating to accomplish the desired result. Seven other claims, numbered from two to eight inclusive, are also made by the complainant, but having come to the conclusion that the first claim, when properly construed, is for the organized machine as an existing whole, it will not be necessary to enter into any very minute explanations of the other claims. They are substantially as follows: Second. For the combination of the needle and the shuttle, or equivalent, and the holding surfaces. Third. For the combination of the holding surfaces with the baster plate, which is the metallic plate already described. Fourth. For the lifting rod, clipping lever, and receiving pin, constructed and operating to control the threads substantially as described. Fifth. For the baster plate, as constructed and operating. Before proceeding with the enumeration however, it should be remarked, that the complainant does not claim damages in this suit for the infringement of the several devices mentioned in the fourth and fifth claims of his patent, except so far as they constitute parts of the general plan, and enter into the general organization of the machine, and co-operate with other parts to produce the result. Sixth. The claim is for the holding surfaces. Seventh. For the grooved and eye-pointed needle. And, eighth, for the shuttle, called a side-pointed shuttle, constructed and operating substantially as described in the specification. Attention, for the present, however, will be confined to the first claim, not only because it presents the great question in the case, but also for the reason that if the question there presented is decided in favor of the complainant, a particular examination of the other claims is unnecessary.

It is insisted by the complainant that the essential parts, combination and mode of operation of his machine as organized are new, and that, in fact, he is the original and first inventor of the same when viewed as an organized whole. But the respondent denies that proposition, and insists that several organized machines for sewing, both foreign and American, had been invented and patented, before the invention under consideration was made by the complainant. Full proof is exhibited that the complainant invented the sewing machine described in his specification, or "was employed in inventing and making it about December 1, 1844," and it is undeniably proved that the machine was "finished, and in working order, so as to sew firm seams, as early as the middle of May," in the following year. Two suits of clothes were sewed by the machine, so made, about the middle of July, in the same year, and the testimony is, that they wore as well as any hand sewing. Witnesses were examined, who identify the machine, and it was exhibited at the hearing, and operated by the complainant, in the presence of the court. Whatever differences of opinion there may be as to the merits of the controversy, all must agree, I think, that the machine in question, although it was made nearly twenty years ago, compares favorably with the best constructed models of the present time, and that it reflects great credit upon the maker, as a specimen of mechanical ingenuity and skill. Respondent does not deny that the complainant constructed the machine exhibited, and the clear inference from all the evidence is, that he did so without the slightest knowledge of any one of the machines set up in the answer, as superseding his invention. Assuming the fact to be so, then clearly the complainant is the inventor of the improvement described in his specification, and the only question on this branch of the case is, whether he is the first inventor of the same. Most of the machines set up in the answer, have been under consideration in the courts, and on one occasion, at least, where the subject-matter in contest was substantially the same as that involved in this suit. And whenever the subject has been considered the decision has uniformly been, that no one of those machines is of a character to supersede the invention of the complainant. Considering them in the order mentioned in the answer of the respondent, they are as follows:

1. The machine of J. J. Greenough, patented February 21, 1842. 2. That of George H. Corliss, patented December 27, 1843. And, 3, the machine of Benjamin W. Bean, patented March 4, 1843, and all which are American patents. Two English patents, and one granted in France, are also set up in the answer. Those granted in England are the patent to Newton & Archbold, dated May 4, 1844, and the patent to Fisher & Gibbon, dated December 7, 1844, but which was not enrolled until the seventh day of June in the following year. And the one granted in France is the Thimonier patent, dated July 17, 1830—which is much relied on by the respondent as superseding the patent of the complainant. Both parties concede that the machines of Greenough and Corliss, so far as they apply to the issue involved in this case are substantially alike, and, consequently, they may be considered together. Particular examination of the separate devices of those machines will not be necessary, as it is evident that their construction, design, and mode of operation, are substantially different from the machine of the complainant, which will sufficiently appear from a general view of the machines. Obviously they were invented and designed to form the stitch of the harnessmaker, composed of two threads which pass through the material to be sewed at each stitch, and in opposite directions, and they have no shuttle or equivalent device. Holes are first made in the cloth, or other material, by pincers, and the threads are then carried through those holes by a double-pointed needle, grooved each way on both sides near the eye. Eye-pointed needles, such as are exhibited in the complainant's machine, pass only so much of the thread through the cloth as is necessary to form the loop; but the double-pointed needles, shown in the other machines, pass the entire needleful of thread through the cloth, and must do so in order to form and tighten the stitch, and in opposite directions, so that there can be no interlocking of the threads, as in the machine of the complainant. They employ two threads, it is true, but each thread acts independently, and has the precise same effect as it would have if used without the other. And they have no stationary holding surfaces operating, as in the machine of the complainant, to press upon and hold the cloth in the immediate vicinity of the stitching, leaving the residue of the same comparatively free to be governed and controlled by the hand of the operator. Clamps, instead of stationary holding surfaces, are employed in these machines to hold the material to be sewed, and it is fed forward for a succeeding stitch by a ratchet movement of the clamps in which it is so held. Other particulars might be pointed out in which the machines under consideration are different from that of the complainant, but those already suggested are sufficient, I think, to show that they can not be regarded as superseding the complainant's patent.

2. Reliance is also placed by the respondent upon the machine of B. W. Bean, as supporting this ground of defense; but even a cursory examination of the description of it, as contained in the specification, will clearly show that the machine can not avail the respondent for any such purpose. Devices, called cog wheels, combined with other devices,

called gear wheels, are employed to crimp the cloth preparatory to the making of what the inventor calls the running stitch, and they also serve to hold the cloth; and after the same is crimped to force it upon a stationary needle, causing it to pass through the folds or corrugations of the cloth, so that, when it is afterward drawn out, it exhibits on both sides of it a basting or gathering seam. Such is a general description of the operation of the machine and some of its principal devices. Taken as a whole, it bears little or no resemblance to the machine of the complainant, except that it has a mechanism for holding and feeding the cloth, and one for making a stitch, but all of the principal devices, as well as the stitch and seam, are very materially different, and so much so that the machine can hardly be regarded as a sewing machine, within the meaning of that term as employed in the patent of the complainant. Regarded as a basting machine, it may have been of some commercial value; but it is quite obvious that it can not in any point of view have the effect to maintain the defense set up by the respondent.

3. Examination must also be made of the foreign machines set up in the answer, of which the machine of Newton & Archbold is the one first mentioned. They describe the subject-matter of their patent as an "invention of improvements in producing ornamental or tambour work in the manufacture of gloves," and evidence is wholly wanting to show that the machine was ever used for any other purpose. Ornament, such as the machine is designed to accomplish, consists of rows of loops or chain stitches on the back of the glove, or of the cut-out material fitted to make that part of the glove. Patentees express a decided preference that the gloves should be made before the ornamenting is attempted, but suggest that it may also be accomplished on the cut-out material before the glove is manufactured, leaving it clearly to be inferred that the sewing of the gloves is not to be performed with the machine, according to the description. Clamps are used by the inventors, to hold the material, and the feeding of the same is accomplished by moving the frame of the clamps in which the material is held. Certain modifications are suggested in the specification, and in one of them a bent wire is mentioned as a device pressing upon the material of the glove to prevent it from being forced up by the needles, but the suggestion does not embrace

any holding surface opposite the wire, and consequently the machine, if so modified, would still be without the stationary holding surfaces found in the machine of the complainant. Machines constructed according to the specification have seventy-two needles, arranged in gangs of six upon twelve vibrating levers, and they are so constructed, or intended to be so constructed, as simultaneously to lay a number of rows of the ornamental loops or stitches. Slots are constructed in the clamps in which the glove, or the material for the back of the glove is placed, and the needles are worked through those slots so that seams, such as are usually made in garments, apparently could not be made without essential modification of the clamps, or other devices of the machine. Single threads are used, that is one thread to each needle, and there is no shuttle or equivalent, nor any apparatus described or suggested for tightening the stitches of the seam. Superadded to all these differences, it should also be remarked, that there is no interlocking of the stitches, as in the machine of the complainant, and can not be, under the present construction of the machine—because single threads are used, and there is no shuttle or equivalent device. Such a machine is doubtless of some value when it is employed to accomplish the special purpose for which the invention was made, but it is plainly not of a character to supersede the sewing machine invented by the complainant when viewed as an existing whole.

4. Pursuing the order already indicated, the next machine to be considered is that of Fisher & Gibbon, which, as described by the patentees, is an invention of certain improvements in the manufacture of figured or ornamental lace, or net, or other fabrics. Two forms of the invention are described in the specification, but it is the second which more especially comes under revision in this case. Confining attention to the latter, it is clear that the design of the machine was to embroider or ornament lace, muslin, or other fabric of similar texture, with gimp or cord. Inventors use two threads to accomplish the work, but the gimp or cord constitutes one of the threads, and the principal ingredient of the ornament or embroidery. They also describe the complicated apparatus employed to effect the result, which, among other devices, consists of a series of needles and shuttles, arranged in sets, each set having a needle and a shuttle, and the series being sufficiently multiplied to extend the work over the entire width of the material to be ornamented or embroidered. None but thin fabrics are used as the material for the foundation of the work, and the material is placed on two rollers, so arranged that the material may be wound off from one on to the other, in order, at proper intervals, to bring forward fresh surfaces to be ornamented; and being drawn over bars, between the rollers, which are at considerable distance apart, it is kept stretched, as it passes from one roller to the other, in the operation of the machine. All the needles have a curve or crook in the length, and are attached to a bar, and that same bar operates the whole series. Drawings also are annexed to the specification, which show what the construction of the shuttle is, but it is only nec-

essary, upon that subject, to say that it is the common ribbon shuttle, as contended by the complainant. Gimp, or cord, it will be remembered, is used in the shuttle instead of thread, and the description of the operation is that the shuttle passes through at the bend of the needle, and between the thread of the needle and the needle itself, every time the needle passes up through the material to be ornamented.

Broad loops of the thread carried by the needle are necessary, in order to secure the passage of the shuttle between the thread of the needle and the needle itself, as described in the specification, and on that account the needle is required to be formed with a curve or crook in its length, and it is obvious that a compliance with the requirement is essential to the operation of the machine, because without the additional space between the needle and its thread, which is obtained at the bend by the curve or crook in the same, the shuttle would not at all times pass between the needle and its thread, and consequently would fail to perform its functions in a manner to accomplish the result described in the specification.

Minute description is also given of the several devices employed for driving the shuttle, but it is not necessary to enter into the particulars of the narration, as the apparatus described bears little or no analogy to the devices employed for that purpose in the machine of the complainant. Suffice it to say, that the shuttles are moved to and from the back and front of the machine, for the purpose of carrying the gimp or cord, and of performing certain other functions in connection with the operation of the needle in sewing down the gimp or cord. Explanations have already been given to show that the needle, in its first movement, comes up through the material to be ornamented, and that the shuttle passes between the needle and its thread as often as the needle ascends. Notice should also be taken of the fact that the needle with its thread is employed to sew down the gimp or cord, carried by the shuttle on to the foundation material, and of the further description of the operation by which it is accomplished. Having described the operation of the devices which cause the first ascent of the needle, the inventors state that just after the shuttle has been moved from the front to the back of the machine, the needle descends, "sewing down" the gimp or cord "laid by the shuttle;" and, continuing the description, they also state that the needle then ascends again, when the shuttle

is moved toward the front of the machine, until it is taken by the front catches and carried back, and then the needle again descends, which completes the operation. Laying the gimp or cord, therefore, is the principal result accomplished by the shuttle, but the sewing down of the same is accomplished by the needle. Compare the analysis given of the specification of the machine under consideration, with that given of the specification of the complainant's machine, and it is clear that the two are different in every material respect. One employs needles with a curve or crook in the length, and a common ribbon shuttle, while the other employs straight needles and a shuttle of peculiar construction; and those differences are characteristic and essential to the respective combinations in which they exist, and can not be obliterated, in the one or the other, without affecting injuriously the operation of the particular machine. Stationary holding surfaces are employed by the complainant, but there are no such devices in the other machine, and the apparatus for feeding the material and tightening the stitches, found in the machine of the complainant, are totally different from any corresponding mechanism described in the specification of the other machine. Marked, however, as the differences are, in respect to the devices employed, they are even more palpable and striking in respect to the mode of operation, as sufficiently appears from the explanations already given, which need not be repeated. Complainant's machine is suited to rapid sewing, and may be used to sew firm seams in garments; but the other machine can not accomplish any such result, and can not be made to do so without essential modifications, because, in point of fact, it is an embroidering machine, and not a sewing machine. Such a machine can not supersede the machine of the complainant, and having come to that conclusion it is not necessary to determine the question whether, in a case like the present, the foreign patent must be considered as taking date from the sealing of the letters patent, or from the time of the enrollment of the specification.

5. Great reliance also is placed by the respondent upon the Thimonier machine, which was patented in the kingdom of France. Reference to the general elements of the combination, however, will be sufficient to show that the machine bears no substantial resemblance whatever to the machine of the complainant. First. It has no feeding apparatus of any kind, and consequently will not make a single stitch unless aided by the operator of the machine. Secondly. It has no shuttle or equivalent device, and employs but one thread in the stitching. Thirdly. It uses a crochet or hooked needle, instead of the needle employed in the complainant's machine, and a device termed in the patent an "accroucheur," which operates to lay the thread on to the hook of the needle after it has passed through the cloth. Fourthly. The material to be worked is laid upon a horizontal table, and so fed forward and guided by the hand of the operator. Fifthly. It has no mechanism by which the length of the stitch is regulated, automatically, and the evenness of the stitching depends chiefly upon the skill and experience of the person who guides the material. Sixth-

ly. There is no apparatus for the interlocking of two threads, and if there was, it would be useless, because one thread only is used in forming the seam. Seventhly. The stitch itself is widely different from that produced by the machine of the complainant. Experts describe it as the chain stitch, and the machine is denominated as one "suitable for the production of seams called chain stitching upon all sorts of stuffs and cloths." Considering that the dissimilarity in this respect is admitted, it will be sufficient to add, without entering into particulars, that the stitch consists of a succession of loops, one through another, by a single thread, forming a continuous seam on the surface of the material employed as the foundation of the work. Eighthly. The holding apparatus is also substantially different in its mode of operation, and in its combination with the other devices, especially with those constituting the mechanism for feeding. They are the horizontal table on which the cloth is laid, and a device, called in the patent an "onglette," which is a small, thin tube or rim surrounding the crochet hook, and which at times presses upon the cloth and holds it down upon the table, operating to prevent the cloth from following the hook in its retraction. Such pressure, however, only occurs when the crochet hook descends for a loop, and of course the effect is upon the previously-made loop, as well as upon the cloth, keeping it open so that the hook may pass through it without catching as it is retracted to bring up the new loop. While the pressure continues, the "onglette" obviously performs the function of a holding surface, and it is also an efficient adjunct of the stitching mechanism; but when the new loop has been brought up and the cloth is to be moved forward, the device in question, instead of co-operating to feed the cloth, as is the case in the machine of the complainant is withdrawn altogether from the cloth and becomes entirely inoperative. For these reasons, I am of the opinion that the machine has no tendency to show that the complainant is not the original and first inventor of his improvement.

6. Nothing need be remarked respecting the W. Hunt machine, described in Brewster's Encyclopedia, except to say that the former was a failure and the latter was a tambour-machine, for ornamenting goods in the web, and was designed to work with a series of crochet needles extending across the entire width. Suggestions, however, are therein made that a needle with an eye near the point may be used, in combination with

the hook, instead of the crochet needle, as described. Proper devices to work with it in combination, in order to enable it to accomplish the result, are not described; and there is no suggestion that it should be grooved for the protection of the thread. Giving the suggestion the utmost force to which it can be entitled, in any point of view, it merely shows that an eye-pointed needle was known before the complainant invented his organized sewing machine. Suppose that be granted, still the concession would not maintain the present defense, because the suggestion is of an untried invention, and is wholly unaccompanied by any explanation to show that it could be constructed and adapted for ordinary rapid machine sewing, or for sewing firm seams, as in garments.

7. Special reference was also made at the argument to the machine of Henry Bock, and also to the machine of William Sneath, but upon examination, it appears that neither of those machines is set up in the answer, and consequently they are not in the case. Copies of the patents, however, were furnished to the court at the hearing, and in order to prevent any misapprehension upon the subject, it may perhaps be well to say that they have been examined, and I am of the opinion that if they had been duly set up in defense, they could not have benefited the respondent. But the objection to their introduction as evidence was seasonably taken, and clearly they can not be admitted, as it would operate as a surprise upon the complainant.

8. Abandonment is also set up by the respondent, which is the next ground of defense to be considered. Among other things, he alleges that machines producing the chain stitch, and two needle machines have been, with the knowledge of the complainant, extensively manufactured, used, and sold in public, and that he has deliberately acquiesced in such manufacture, use, and sale, whereby he has surrendered and abandoned any right or title he may have had to any exclusive property under his patent. He also alleges, that in consequence of such manufacture, sale, and use, and of the acquiescence of the complainant, he, the respondent, was led to believe, and did believe, that the manufacture of his machines would not be deemed to be an infringement of the complainant's patent, and was thereby induced to make large expenditures for carrying on his business as a maker of sewing machines, which will be wholly lost if he is enjoined in this suit. Argument is unnecessary to show that the matters pleaded in the answer are in avoidance of the claim of the complainant, as set forth in the bill of complaint. Such an allegation in the answer is not evidence, but the facts therein stated must be proved, and the burden of proof is upon the respondent. Hart v. Ten Eyck, 2 Johns. Ch. 88; 2 Story, Eq. Jur. § 1529; 3 Greenl. Ev. § 287. Testimony was introduced by the respondent, which shows that needles for machine sewing, with grooves, had been known for about five years, and one of the witnesses stated that he had known them to be used in a very large number of chain stitch and shuttle machines. Inquiry was also made of a third witness, who stated that he had frequently seen such machines, but he was not able to state what number he had

seen, nor could he state how extensively they had been in use or on sale. They do not state where they saw such machines, nor any of the attending circumstances, nor when or where they were manufactured, used, or sold. Knowledge on the part of the complainant, of such use and sale, is alleged in the answer, but there is not one of the witnesses that undertakes to testify to any such fact, or to state any circumstances from which any such presumption can properly arise. Acquiescence, therefore, on the part of the complainant in such manufacture, use, and sale, is not proved, nor is it shown that the respondent had any reasonable ground to believe that the manufacture, use, and sale of machines like those of the complainant, would not be deemed to be an infringement of the complainant's patent. Claim was not made for the grooved needle, in the original patent, and, of course, the complainant, under that patent, could not maintain a suit against any person for using such a device, although it was a part of his invention, and was fully described in his specification. Suits for an infringement, whether at law or in equity, must be founded upon letters patent, and the plaintiff or complainant, as the case may be, can only recover for the invasion of what he has claimed in his patent, however much less the claim may be than his actual invention. Where the claim is narrower than the invention, and the description is given in the specification, the patent may be surrendered, and a reissue taken out, correcting the error, and that is what the complainant did in this case, and then, and not before, he was in a condition to enforce his right to that part of the invention. Judge Grier held, in Goodyear v. Day [Case No. 5,566], that it is no justification of the infringement of a renewed patent that the infringer had used the invention with impunity, before the patent was amended, and the supreme court also held in Stimpson v. Railroad Co., 4 How. [45 U. S.] 202, that no prior use of a defective patent can authorize the use of the invention after the defect is corrected, and the patent has been duly reissued. Complainant's patent, therefore, must be considered as valid, and I am of the opinion that he is the original and first inventor of the organized sewing machine described in his specification, when viewed as an existing whole. He also alleges that the respondent has infringed his patent, and

the testimony shows that the respondent did make and sell a machine introduced in the case as the machine of the respondent, and the answer admits that he has made and sold one hundred and seventy-five of similar construction and mode of operation, so that the only remaining question is, whether the machine produced embraces the improvement of the complainant, or any substantial and material part thereof, as alleged in the bill of complaint. Whether it does so or not can only be determined by a comparison of the two machines. Examination of the machine of the complainant has already been made, and it now becomes necessary to examine that of the respondent. His machine also carries two threads, and the stitch is formed by interlocking the same, substantially, in principle, as in the machine of the complainant, differing only in the fact that the under thread, carried by the shuttle or equivalent devices, is interlocked in a loop or bight, instead of a single thread, as in the machine of the complainant, making the difference between the stitches of the respective machines, as explained by one of the experts, about the same as that between a bow knot and a hard knot. Each machine has a grooved eye-pointed needle, which is employed to carry the thread for one side of the cloth, and which perforates the cloth as a step in the making of the stitch, and for the purpose of forming a loop of the thread which it carries. Loops are formed of the thread carried by the perforating needle, in the same manner, and the functions performed by the needle, and the needle itself, are the same in both machines. Substantial similarity therefore is certainly shown in all the particulars mentioned, but the respective machines employ two threads, and it becomes necessary to attend pretty carefully to the description given of the manipulation of the second thread, and of the several devices employed to accomplish the work. As already explained, the complainant's machine carries the thread for the other side of the cloth, by means of a side-pointed shuttle, so constructed and arranged that it will catch the loop formed of the thread carried by the perforating needle, and open and spread it as it passes through the loop. On the other hand, the machine of the respondent carries the second thread, or the thread for the other side of the cloth, by the means of a thread carrier, in form resembling a needle, and called by one of the experts a thread controller, which is also employed for looping its own thread through the loop previously formed of the thread carried by the perforating needle, instead of carrying the end of the shuttle thread through the loop formed of the needle thread, as is done in the machine of the complainant. Attention to these explanations will show very clearly what is meant by the experts, when they describe the difference between the stitches of the respective machines as about the same as that between the bow knot and the hard knot.

Every loop made of the thread carried by the perforating needle must be opened after it is formed, in order that the second thread, in the complainant's machine, or a loop of the second thread in the respondent's machine, may be passed through it so that the two threads may be interlocked, as required, to form the seam. Such opening of the loop,

formed of the thread carried by the perforating needle, is accomplished in the machine of the complainant entirely by the shuttle, which also carries the second thread. Shuttles are not used in the machine of the respondent, either to carry the second thread or to open the loop formed of the thread carried by the perforating needle. Other devices, however, are found in his machine which perform the same functions, and which stand in the same combination as that in which the shuttle is arranged in the complainant's machine; and the question is whether or not those devices are to be regarded as equivalents of the shuttle. Instead of the shuttle, the respondent employs the second needle or thread carrier, already described, which evidently performs the same functions in carrying the second thread, and also in looping it through the loop previously formed of the thread carried by the perforating needle, because, the interlocking of the thread is the characteristic principle of the manipulation in the formation of the stitch; and clearly it can not benefit the respondent to show that he first loops the second or shuttle thread, and then uses it double, or in loop, instead of single, as in the machine of complainant.

His second needle, or thread carrier, also commences to open the loop formed of the threads carried by the perforating needle, and continues to perform the function until an auxiliary device, called a hook, catches the partly-opened loop and completes the operation, opening and spreading it precisely in the same manner, and quite as effectually, as the function is performed by the shuttle in the machine of the complainant. Different devices, or devices differing in form, and having different names, are certainly employed by the respondent for that purpose; but the plan or idea, the arrangement, combination, and result are the same; and it is clear to a demonstration that every one of the functions performed by the shuttle in the machine of the complainant, is accomplished in the machine of the respondent, by the lower needle, called the thread carrier, or controller, with the aid of its auxiliary device, the hook; and I am of the opinion that the two combined are the equivalent of the shuttle; though it may be that they perform the work better. Holding surfaces, stationary in their character, are also found in the machine

of the respondent. They are the table, or platform, on which the cloth is laid, and the divided presser foot, and they hold the cloth as well for resisting the thrust and retraction of the needle as for the operation of tightening the stitch, and also to keep the cloth in place while it is moved forward, so that it may be fed in a determined plane. Speaking of the holding surfaces, it will be convenient to distinguish them as upper and lower, as was done at the argument. Upper holding surface, in the machine of the respondent, is the presser foot. Undoubtedly it differs in form from the metallic plate, which is the corresponding device in the complainant's machine, because it is in two parts; but those parts operate alternately, so that one of them is always upon the cloth, pressing it down upon the table, or, in other words, when one part is raised to assist in feeding the cloth forward, the other is kept down to retain the cloth in the proper plane; thus securing constant action, as in the machine of the complainant. Explanations are hardly necessary to show that the table, and the side of the shuttle box, when employed as holding surfaces, are equivalent devices, as it is quite obvious that the difference is a mere formal one, resulting from the substitution of a horizontal for a vertical position of the material to be sewed. Both the machines have the means of adjusting the upper holding surface to the thickness of the material. Springs are employed in the machine of the respondent, and hence it is said to be self-adjusting; but the adjustment is accomplished in the complainant's machine by a screw, and, consequently, the hand of the operator is required to accomplish the result. Looking at the respective devices under consideration as holding surfaces, and testing the question by the function or duty performed by each apparatus, and the mode of the operation, I am of the opinion that the apparatus employed by the respondent is substantially the same as that used in the machine of the complainant. Sufficient description has already been given of the feeding apparatus employed in the complainant's machine. Respondent, in his machine, uses a reciprocating notched bar, and a presser foot, and the feeding is accomplished by advancing the notched bar while the cloth is pressed down upon it, and then when the presser foot is raised by withdrawing it in the same plane. Palpable differences are observable in the form of the devices employed in one of the machines as compared with the other, but they perform the same functions, have substantially the same mode of operation, and accomplish the same result; and I am of the opinion that the devices, when considered together, and viewed as a feeding apparatus, are substantially the same as the feeding apparatus in the machine of the complainant. Complainant is entitled to a decree for an account, and when the amount to be recovered is ascertained, a perpetual injunction will be granted.

[For other cases involving this patent, see note to Howe v. Underwood, Case No. 6,775.]

[1] {Reported by Samuel S. Fisher, Esq., and by William Henry Clifford, Esq., and here compiled and reprinted by permission. The statement is from 2 Criff. 245, and the syllabus and opinion are from 2 Fish. Pat. Cas. 395.}

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