

Case No. 2,143.

4FED.CAS.—45

BURDEN v. CORNING et al.

[2 Fish. Pat Cas. 477.]¹

Circuit Court, N. D. New York.

Oct. Term, 1864.

PATENTS—HOUSE-SHOE MACHINE—INFRINGEMENT—SAME RESULT BY DIFFERENT MEANS—CONSTRUCTION OF CLAIM—EXTENSION TO EQUIVALENTS—WHAT ARE EQUIVALENTS—PLEADING AND PROOF.

1. Although several inventors might obtain substantially the same result, yet, if it was obtained by means substantially different in character, construction, arrangement, and mode of operation, from any prior patented invention adapted to the same general purpose, the use of such means for a similar, or even for the same purpose, would not infringe the rights of the prior patentee.

2. The patentee of the first of such inventions could not treat another as an infringer, because he had improved the machine of any prior inventor by the use of a substantially different device, or a substantially different combination of parts, though such device or combination were capable of performing the same functions.

[Cited in National Harrow Co. v. Hanby, 54 Fed. 494.]

3. The claim must be construed as favorably to the patentee as the language of the claim, the state of the art, and the extent and character of his actual invention will allow.

[Cited in Hamilton v. Ives, Case No. 5,982; Adams v. Joliet Manuf'g Co., Id. 56.]

4. A claim for the particular means and mode of operation described in the specification extends, by operation of law, to the equivalent of such means—not equivalent simply because the same result is thereby produced—but equivalent as being substantially the same device in structure, arrangement, and mode of operation.

[Cited in Gottfried v. Philip Best Brewing Co., Case No. 5,633.]

5. The true construction of the second claim of Burden's patent for an improved horse-shoe machine will only extend it to the particular device, devices, or mechanism

described and claimed, and operating in the mode or manner particularly set forth; and to such other devices or mechanism as shall have substantially the same mode of operation.

6. An equivalent device is such as a mechanic of ordinary skill, in the construction of similar machinery, having the plaintiff's specification and machine before him, could substitute in the place of the mechanism described, without the exercise of the inventive faculties.

7. The absence of the word "combination," or of a statement of the elements of a specified combination in a particular claim, while combinations are claimed in apt and appropriate language in other claims, is strong evidence that, in the former, the patentee did not intend to claim a combination.

[Cited in *Brown Manuf'g Co. v. David Bradley Manuf'g Co.*, 51 Fed. 227.]

8. While an omission to state that a certain function of one of the parts was a leading feature of the invention would not render the patent void, unless made for the purpose of deceiving the public, yet, it is very material in considering whether the patentee has sufficiently claimed anything more than a described mode of operation of the particular mechanism described.

9. The defense of unreasonable neglect or delay to file a disclaimer, involves a question of fact, and cannot be made unless set up in the answer.

[Cited in *Worden v. Searls*, 21 Fed. 408.]

This was a bill in equity, filed [by Henry Burden against Erastus Corning, John F. Winslow, and Erastus Corning, Jr.] to restrain the defendants from infringing letters patent [No. 17,665] for an "improved machine for making horse shoes," granted to complainant June 30, 1857. The portions of the specification material to the present controversy were as follows: "Be it known, that I, Henry Burden, of the city of Troy,

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county of Rensselaer, and state of New York, have invented a new and useful improvement in machinery for making shoes for horses and mules; and I hereby declare that the following is a full and exact description thereof; reference being had to the annexed drawings, plates I, II, III, IV, and V. They have all been made to a scale of two inches to the foot, and correctly represent the form and sizes of the several parts in the different drawings. My machine is designed to make shoes from rods as they are discharged from the train of the rolling mill, and without reheating. They are usually rolled square, of a size adapted to the size of the shoe, and are placed, on leaving the train, into a trough made of cast iron or other suitable material. It is represented in the drawings at A², plates I and II, and is most conveniently made in sections of about twelve feet each. The end nearest the machine is supported by a standard E', attached to the side

of the machine by two bolts. The other end may be supported by legs or other appropriate means. The successive operations of my machine upon the rod are as follows: First, a portion of it, of suitable length to form the shoe, is drawn into the machine and cut off. It is then bent around a form into the shape of the letter U. The heels of the shoe are bent still further inward, while it next passes between two revolving swaging dies that compress and roll it into proper shape. Then it is creased and punched, and finally it is taken from the dies and flattened, and dropped, in a finished state, upon a revolving chain that deposits it in the storehouse. While one shoe is being creased and punched, another portion of the rod is drawn into the machine, and thus it proceeds continuously. The means of bending the portion of the rod that forms the shoe, which are next to be described, are most fully represented in plates I and IV, and fig. 8, plate V. The rod, when it is fed into the machine, passes into the movable guides or holders I^2 , I^2 , against the stop O^2 , and in front of the bending tongue E, and, when it is cut off, they hold it in its place. These guides are fully represented in plate I, supporting the rod on three sides. There is one on each side of the large roll H^2 , and these are placed on movable standards H^2 , H^2 , for purposes hereinafter mentioned. Immediately after the rod is cut off, the bending tongue E, having a small projecting edge in front, as shown by the dotted lines in plate I, to prevent the rod from slipping, moves up against the center of the rod, and carries it forward between the holders, until it is bent round the tongue into the desired shape. The frame H, to which the tongue is attached by screw bolts, has two legs, one on each side of the great roll H^2 , terminating in rings fitted to move on the shaft F. Its motion forward is given by two cams M and M, in the shaft k, which bears against the small cams I and I, in the frame. To insure its backward motion, an arm K, proceeding from the rocking shaft J, and resting on the frame H, is raised by it until the bending tongue has attained its proper height, when the cam L, on the shaft k, strikes against the other arm I, projecting from the shaft J, and forces down the frame and bending tongue. On the periphery of the large roll H^2 , are two swaging dies J^2 and M^4 , placed opposite to each other. Their surfaces are fitted to impress upon the upper side of the horse shoe the precise form which it is desired to give it. It is shown in figs. 9 and 10, on plate V. The central portion e, the sides of which give shape to the inner edge of the shoe, is elevated above the rest as much as the thickness of the shoe. The surface of the upper swaging die B B, is fitted to make the plane even surface of the under side of the shoe, and, as the inner edge is properly made thinner than the outside, the natural tendency of the swaging process is to force the rod out from under the swages. This has heretofore constituted one of the greatest obstacles to the forming of shoes by means of revolving dies, and, so far as I know, it has never before my invention been overcome. I have entirely removed the difficulty, by making upon the upper die a flange b b, projecting downward to nearly the thickness of the shoe, and, except at the toe, embraces it entirely on the outside. The tendency to straighten is thus entirely prevented, and a smooth and perfect surface given to the outer edge of the shoe. It is best represented in figs. 5 and 6, plate V. The cams M M are so formed that the forward motion of the bending tongue commences when the portion of the lower die, which forms the toe of the shoe, comes in contact with, or is opposed to, its point. It then moves forward with the die, as if it formed part of it, and the

rod, when bent around it, is directly over the position, at the toe, it would occupy on the die. The toe of the shoe is properly made wider than the sides, and the front of it much thicker than the interior beveled edge, and to allow the iron at the toe to be spread inward for that purpose, immediately after the toe of the shoe has been caught between the swaging dies, the bending tongue is drawn back out of the way. At the same time, the two cams S S, on the shaft N', are brought in contact with the guides I and I', upon the movable standards H² and H², and then cause the guides or holders I² and I² to approach each other and press the ends of the shoe against the elevated central portion of the lower die, and within the flange on the upper die. The standards are attached at the bottom by a joint to the arms J' and J' cast upon the inside of the frame. At the top they slide on the cross piece M'. Another cam e' e', plate IV, moves back the holders to their first position. Instead of making the swaging dies upon the surfaces of the rolls H¹ and H⁵, I make them in separate pieces,

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as in my former horse-shoe machines, and described in my patents of 1835 and 1843, and attach them to those rolls by bolts and screws. They can thus be readily repaired or 'shifted,' to make different forms and sizes of shoes. A recess is cast in the periphery of the rolls, as shown by plate IV. Into this the dies are accurately fitted. Slots or mortises are also made in the rolls, into which the tenons at the ends of the dies, shown in figs. 5 and 9, plate V, accurately fit, and prevent their lateral displacement. A bolt with a countersunk head passes through the middle of each die and into the roll, and fastens it by a screw and nut on the other side. After passing between the dies, the shoe is liable to adhere to the upper die, by which great injury may result to the machinery. It is, therefore, indispensable to the practicability of the machine that means should be provided to make the shoe adhere with certainty to the lower die and pass on to be subjected to the next operation. Two projections v⁴ and v³, plate IV, are cast upon the frame of the machine. To these is attached, by screws and bolts, an arm M², plates I and IV, and to this is screwed what I term the scraper m³. This is made of steel, and its front edge scrapes along the surface of the upper die and separates from it the shoe. A portion of the flange at the toe is cut away to admit its passage. The elevated portion of the under die passes nearly in contact with its under surface. A similar device takes the shoe from the creasing and punching die. I am aware that several attempts have been heretofore made to perform that portion of the above described operations which consist in swaging the shoe by passing it between two revolving dies. The most prominent of these is the device patented to Barzillai Young and Samuel Titus in the year 1837. But all these attempts have, I believe, been patented with no practical benefits, for the want of those particular means I have above set forth for performing that process. I do not, however, claim the process of passing the shoe between revolving dies generally, but limit myself to the particular devices by which I have rendered it practical. What I do claim as new, and desire to secure by letters patent, is as follows: First. I claim the above described feeding apparatus, and, in connection therewith, the mode set forth of cutting of the rod; also, the

self-acting device for stopping the feeders, and the mode of renewing their action at the proper time. Secondly. I claim the mode of bending the rod, and placing it in its proper position between the swaging dies as above set forth. Thirdly. I claim the flange on the upper swaging die, for the uses and purposes specified. Fourthly. I claim the combination of the revolving creasing and punching die with the revolving swaging dies, by which both operations are successively and automatically performed. Fifth. I claim the devices set forth for taking the shoe from the upper and confining it to the lower dies, and finally taking it from the lower dies and conducting it to the flattener. Sixth. I claim also the means described for flattening the shoe. Seventh. I claim the combination and arrangement of machinery by which the several processes above described are performed successively by one machine and without aid from attendants. I do not mean to limit myself to the precise means of performing the operations above set forth, as they evidently admit of several variations, but I claim those devices, or their equivalents, which snail substantially effect the same purpose.”

The defendants, in their answer, averred that the rod was bent, in their machine, not by an independent bending tongue, as in plaintiff's machine, but by one of the revolving swaging dies, and that the mode of bending the rod used by them was described in letters patent of the United States granted to Barzillai Young and Samuel Titus July 29, 1837, for an “improvement in the machine for making horse shoes.” They also insisted that the mode used by them, of placing the bent rod in its proper position between the swaging dies, was not the mode patented by the plaintiff, but was substantially, with some modifications, the mode patented to Harry A. Wills, by letters patent of the United States, for an “improved horse-shoe machine,” granted to him March 2, 1858, and assigned to defendants. [Decree for complainant for an injunction, and an account in respect to the infringement of the sixth claim of his patent only.]

W. A. Beach, G. Gifford, B. W. Stoughton, and B. R. Curtis, for complainant.

D. L. Seymour, S. Blatchford, C. M. Keller, and W. M. Evarts, for defendants.

Before NELSON, Circuit Justice, and HALL, District Judge.

HALL, District Judge. This is a bill for an injunction and an account, founded upon the alleged infringement of letters patent granted to the plaintiff, and dated June 30, 1857. The patent is for “a new and useful improved machine for making horse shoes;” and the specification states that the “machine is designed to make shoes from rods as they are discharged from the train of the rolling mill, and without reheating.”

On May 11, 1863, the plaintiff filed a disclaimer of the third claim of his patent; and, on the hearing, it was not claimed that the defendant had infringed, except in respect to the inventions or devices claimed in the second and sixth claims of the patent. The validity of the sixth claim, and its infringement by the defendants, were conceded upon the argument, and the questions in controversy therefore relate to the second claim of the patent and its alleged infringement.

The defendants, in their answer, deny the

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infringement charged; and they allege “that in and by the specification annexed to and making part of the said letters patent, the said alleged improved machine is not fully described, nor are the alleged improvements therein mentioned set forth therein in such full, clear, and exact terms as to distinguish them from other improvements before known and used; nor in such full, clear, and exact terms as to enable a person skilled in the art of constructing machinery for making horse shoes, to construct, from such description in such specification, a practically operative machine containing said alleged improvements.”

The defendants produced evidence showing the prior invention of several machines intended for use in making horse shoes, not for the purpose of avoiding the patent on the ground of a want of novelty, but for the purpose of showing the state of the art at the time of the plaintiff's invention.

For this purpose, the defendants gave in evidence: 1. Letters patent, granted in England, to William Moorcroft, dated April 16, 1796, for machinery to be used in making horse shoes, including machinery for striking up the bent bar, or blank, into exact shape, by means of dies, and forming the grooves or creases, and also the impressions for the nails, if desired.

2. Letters patent, granted in England, to William Moorcroft, dated May 3, 1800, for improvement in machinery for making horse shoes. This patent describes the cutting of the rods or bars from which the shoes are to be made into proper lengths by shears; the bending of the same into shape by means of friction rollers, properly guided, and a frog, or internal former, filling the inside of the shoe, the action of the two to bend the shoe being due to their reciprocating motion; the pressing or swaging of the bent blank into shape between two dies, one acting as a ram or hammer; and the punching of the holes partly through the shoe by a machine punch.

3. Letters patent, granted by the United States, to Barzillai Young and Samuel Titus July 29, 1837. This patent describes two revolving rollers, one of them carrying a die for shaping the side of the horse shoe which is applied to the horse's foot, with a projection, called a frog, of the shape of the inner curve of the shoe, and slightly exceeding, at its forward end, the full thickness of the blank or bar from which the shoe is to be made; the other carrying a box die, whose interior is of the shape of the outer curve of the shoe, and which die is provided with creasers for the nail heads, and also with punches to countersink the nail holes. It also describes two benders, whose motions are governed by cam grooves in one of the rollers, and which, with the frog, bend to their proper places the different parts of the shoe. When the machine described is fed with a bar of iron of the proper length for a shoe, the frog, revolving with one of the rollers, carries the bar between the two converging benders, and thus bends the blank or bar into the shoe form,

and then, by the continuous rotation of the rollers, the upper and lower revolving dies approach each other, and, by compression, form the shoe, and crease and countersink it for the nails, at a single operation. The iron to be used in the machine, after being cut into proper lengths, is to be heated before being subjected to the action of the machine.

4. Letters patent, granted in France, to Jean Claude Noiraud, dated May 26, 1838. This patent describes a machine for making horse shoes out of shaped blanks, or short bars of iron rolled or shaped into the proper irregular form for bending into a horse shoe. The machine has a reciprocating die, a revolving die, and two friction rollers governed by a cam, and having substantially the same functions as the rollers in the Young and Titus machine. The lower die is the reciprocating die, and it has a frog and creasers. The frog is so arranged that it rises and falls during the bending and creasing of the shoe, and the blank is bent by the frog, acting first in connection with two small stationary rollers, and then with friction rollers governed by a cam. The bent blank passes between the reciprocating and rotating dies, and, when the shoe is finished, the frog lifts, elevating the shoe with it, when the shoe is taken off, and the reciprocating bending frog returns to its position, ready to bend another blank.

5. Letters patent granted by the United States, to Robert G. Babcock, and dated April 29, 1851, for an improved machine for making horse shoes. This patent describes a reciprocating bender acting upon both ends of the blank, for bending the blank into the U shape around a stationary frog, and other devices by which the blank is then swaged into shape by a revolving traveling roller governed by a stationary cam, under which it travels.

6. Letters patent granted by the United States to Solomon Shetter, dated November 9, 1852, in which is described a machine with rotating dies, similar in many respects to the machine of Young and Titus. In this machine, the rotating dies (one of them having a frog) bend the blank and swage it, after which the shoe is transferred by hand to a die, upon which another die descends, and creases the shoe and punches the nail holes.

7. An application for letters patent, filed in the patent office at Washington, by Robert Griffiths, October 4, 1853. In the machine described in the specification of the applicant are self-acting shears, for cutting off the blank for the shoe, and a former (like the frog in other machines), having a reciprocating motion, and acting in combination with jaws which crowd up and thicken the heels of the shoe. This former moves against and bends the blank, and then deposits it on

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the lower die, after which the former or frog retreats out of the way, descending in order to be able to do so. The upper die, provided with, creasers and punches, then descends and finishes the shoe. This application was withdrawn December 13, 1853.

8. Letters patent, granted in England, to Augustus Edouard Loradoux Bellford, dated February 20, 1854, and describing a machine having two dies, each mounted upon a

roller, with two friction rollers (governed by cams on one of the rollers which carries the dies), much like the Young and Titus machine. In this machine, the shoe is to be bent by the combined action of a rotatory frog and the friction rollers governed by a cam, which friction rollers thicken up the heels of the shoe, after which the shoe is swaged between revolving dies.

The Young and Titus machine, as described in their patent, was, to some extent, a practical and useful machine; and the proof shows that about a ton and a half of horse shoes were made by it as early as 1842—some of them of a very good quality. Its defects, the principal of which will be presently noticed, and other causes of a different character, led to the suspension of its use; and, without further improvements, it was probably of no very great practical value, except as embodying, in a machine of simple rather than of complex construction, useful improvements constituting a considerable advance toward a very superior, if not perfect, machine for making horse shoes.

This machine of Young and Titus kept the inner side of the bent blank or bar in contact with the forward part of the frog, against which it was bent; and it therefore provided no space for the lateral expansion, inwardly, of the iron, when compressed by the dies which, in the swaging process, gave proper form to the shoe.

It is obvious that the bending of the blank to the proper curve necessarily increases the thickness of the inner portion of the bar, and lessens the thickness of the outer portion, while the proper form of the shoe requires that the outer portion of the toe shall be considerably thicker than the inner portion, as well as that the toe of the shoe shall be wider and thinner than the heel. As this form is to be given by the swaging process, this machine of Young and Titus was defective, for the reason that the bent blank, being, at the commencement of the swaging process, much thicker on the inner than on the outer portion of the toe, and being, by the compression during that process, made thinner on the inner than on the outer side, had necessarily a greater tendency to expand inwardly than outwardly; and that, when no space for such inward expansion was provided for, a fin or bur, or other imperfection, was likely to be produced on the inner side of the toe.

It was insisted, by the counsel for the plaintiff, that the invention covered by the second claim of the plaintiff's patent was intended to remedy this defect in the Young and Titus and other prior machines, by so arranging and adjusting the machinery used for bending and placing the blank, that the bent blank would be placed or left in such position between the dies as to make provision for the desired space for the inward movement or expansion of the metal when compressed in the process of swaging; and that this claim ought to be so construed as to cover the device used by the defendants for placing the bent blank in that position, and thus render them liable as infringers.

The defendants, on the other hand, insisted that the plaintiff had not sufficiently described and claimed the adaptation and application of the bending tongue and its connecting mechanism to the purpose of placing the bent blank in advance of the frog, in his machine; that the second claim could not properly be so construed as to embrace the

device used in their machines for placing the bent blank; and that the devices so used by them were not substantially like those claimed in the second claim of the plaintiff's patent. In this connection, it was also insisted that the plaintiff's specification does not show that the inner edge of the bent blank must be placed in advance of the front edge of the frog, in order to insure the most beneficial operation of his machine; that, on the contrary, the specification and drawings show that the point of the bending tongue, during the process of bending and placing, is to be in contact with or opposite to the forward point of the frog; and that, if the specification had shown that the bent blank should be left in the position now claimed, and if the plaintiff had specifically claimed that as one of the leading features of his invention, the claim would have been a claim to a result, and therefore of no legal validity.

The defendants gave in evidence, as justifying the use of their machines, letters patent granted by the United States to Harry A. Wills, and dated March 2, 1858; and also other letters patent granted in like manner to said Wills, and dated July 3, 1860; and they insisted that the machines used by them were substantially like the Young and Titus machine, with some of the modifications and improvements patented to Wills; and that the improvements and modifications of the Young and Titus machine adopted by them were distinct inventions, and substantially different from the improvements patented to the plaintiff.

It appears from the evidence, that about August 1, 1857, Wills and his partners became possessed of the original Young and Titus machine, on which horse shoes had been made in Connecticut as early as 1840; and that Wills, in the fall of 1857, made an improvement upon that machine by adding a rod, or pusher (or poker, as it was termed by some of the witnesses), which, after the bending was completed and before the swaging

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process commenced, crowded or pushed the bent blank forward from the frog, so as to allow the expansion of the inner edge of the bent blank into the open space between the blank and the frog, which was thus obtained by the use of the pusher or poker.

Wills, in a single experiment with the original Young and Titus machine, with a square bar of lead (instead of a flat bar as intended by the inventors), had observed that a bur or fin was formed on the upper inner edge of the toe of the shoe, and had then tried the machine again, with a similar bar. In this latter trial he stopped the machine when the bending was complete, and then took a rod in his hand and pushed the bent blank forward on the die before again starting the machine and subjecting the bent blank to the swaging process. Finding this to be an effectual remedy for the defect observed, he contrived the device for pushing the bent blank forward, afterward described in his patent of 1858. In his specification to this patent, he said: "Just previous to the entering of the mold E, and blank F, into the die G, the bar j is moved forward by the bar Q, which is operated by the pin or tappit n on the roller C, and the bar j shoves the front edge of the blank a little off from the mold E, as shown in red, fig. 3, so as to allow the blank to be expanded laterally

while being compressed by the die G. This is an important feature of the invention, for it prevents a bur being formed on the front part of the blank or shoe, adjoining the mold; a contingency which would surely occur were the blank not freed in a measure from the mold at the time specified." And, in his claim, he said: "I also claim loosening or shoving back the blank F, on the mold L, just previous to its entering the female die G by means of the vibrating or loosening bar j, for the purpose set forth."

The specification annexed to the patent granted to Wills in 1860, states: "This invention consists in arranging the shaping die or mold of a cylinder machine with a movable front, which, when thrown forward, bends the iron to the required shape and holds it in the proper position until the swaging die grips it, and then, being thrown back, allows the iron to spread; and it consists also in the employment of a crank shaft, which is subjected to the action of a spring, and the bent end of which sweeps over a stationary die which is rigidly attached to the side of the frame which forms the bearings for the cylinder, so that, at the proper intervals, said front is drawn in and the iron set free." The construction and operation of the machine are then described, and those devices properly claimed as his invention.

It would be very difficult, if not impossible, to give a just idea of the state of the art at the time of the plaintiff's invention, without giving in full the specifications (including the drawings) annexed to the several patents theretofore issued, and given in evidence in this case. Enough has, however, been already stated to show that the making of horse shoes by machinery was not then a new manufacture, and that many machines intended for use in such manufacture had been before invented and patented; and the plaintiff knew, and admitted by his specification, that only a portion of the devices embraced in his machine could be treated as his own invention. In his specification he referred to other machines, particularly to those described in two previous patents to himself, and in a patent to Young and Titus. The machine he described is, in many of its essential features, much like that of Young and Titus, although in the increased number and greater complexity of its parts, and in its general form and organization, it is very different from their very simple and compact organization; and it was in view of this prior invention of Young and Titus, and of other prior inventions, that the plaintiff prefaced his claims by declaring that he did not claim the process of passing the shoe between revolving dies generally, but limited himself to the particular devices by which he had rendered it practical.

The Young and Titus machine was, doubtless, the most valuable of those then in existence; and the others were, perhaps, only useful as furnishing hints for the improvement of that machine, or for the arrangement and organization of an improved machine, embracing the best parts of those already patented, and embodying new device; to remedy the defects of the then existing organizations. Of the machines above referred to, the Young and Titus machine is the most important in respect to the present controversy, as it is the one which has since been modified and improved, and which, in its improved state, is now used by the defendants.

Specifications fully describing these prior machines, as well as the specifications of the plaintiff describing the machines containing the devices and improvements patented to him in 1835 and 1843, were all open to the public. The inventive powers of the plaintiff, in respect to the particular improvements patented, were only exercised in devising improvements upon existing machines, and his second claim can only extend to the bending tongue and such parts of the connected mechanism as are essential to its operation and use substantially in the mode described in his specification.

Before and after the plaintiff's invention, any person was at liberty to invent, patent, and use new and distinct improvements upon any or either of the then existing machines; and, even if the result intended to be attained was a proper remedy for the defect so clearly pointed out by Wills in the specifications annexed to his patents of 1838 and 1860, any inventor might properly patent and use the device invented and patented by him

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for that purpose, provided it was an independent, distinct, and substantially-different device from any of those previously invented. Although several inventors might obtain substantially the same result, if it was obtained by means substantially different in character, construction, arrangement, and mode of operation from any prior invention adapted to the same general purpose, the use of such means for a similar or even for the same purpose, would not infringe the rights of a prior patentee. The patentee of the first of such inventions could not treat another as an infringer, because he had improved the machine of Young and Titus, or that of any other prior inventor, by the use of a substantially-different device, or a substantially-different combination of parts, though such device or combination were capable of performing the same functions. In such cases, the inventor of the first improvement can not invoke the doctrine of equivalents to suppress other improvements which are not mere colorable invasions of the first; *McCormick v. Talcott*, 20 How. [61 U. S.] 402, 405.

Assuming, then, that the plaintiff is the original and first inventor of the devices covered by his second claim, it must be conceded that his patent therefor must be limited to the mechanism described in his specification and referred to in such claim, or the equivalent thereof; and that he can not patent the result produced by the operation of such mechanism, but only the means invented and described by him for producing such result; *Le Roy v. Tatham*, 14 How. [55 U. S.] 156; *O'Reilly v. Morse*, 15 How. [56 U. S.] 62, 112, etc.; *Corning v. Burden*, *Id.* 252, 269.

The principles established by the case of *McCormick v. Talcott*, and the other cases above cited, must be borne in mind in considering the question so much discussed at the hearing: What is the true construction of the second claim of the plaintiff's patent?

The construction of this claim is not free from difficulty, for its language is ambiguous. It claims "the mode of bending the rod and placing it in its proper position between the swaging dies." But to construe this as a broad claim to the result of the operations of the

machinery by which this is effected, and so as to embrace every device and all forms and combinations of machinery by which this result can be obtained, would render the patent void. The claim must be construed as favorably to the plaintiff as the language of the claim, the state of the art, and the extent and character of his actual invention will allow; and it must, I think, be considered as a claim to the particular means and mode of operation described in his specification; and then it will extend, by operation of law, to the equivalent of such means—not equivalent simply because the same result is thereby produced, but equivalent as substantially the same mechanical device in structure, arrangement, and mode of operation.

The learned counsel for the plaintiff who first addressed the court, Mr. Gifford, considered the second claim as a claim to the combination of the several parts by which the bending and placing operations are carried on; and he states, in his printed brief, that “the essential parts of the combination covered by this claim may be enumerated and defined thus:

“1. The two ‘guides or holders’ which perform the double office of first, supporting the two ends of the bar on one side, in opposition to the action of the bending tongue against the center of the bar; and second, of bending the ends of the bar inward toward each other at the proper time, to shape the shoe.

“2. An elevation of the middle part of the die, nearly of the form of the inside of the horse shoe, and which is called the frog. This elevation projects further from the die which swages at and toward the heel than at the toe, and its function is to aid the two guides and the bending tongue in shaping the shoe.

“3. A reciprocating piece, extending above the elevated part of the center of the die (called the frog), constructed and adapted to be moved forward with the rotation of the die, and also to change its position relatively to the die, by a forward and backward motion in the line of the rotation of the die. These three motions are for the three-fold purpose—first, of bending the blank; second, for locating it in the proper place on the die; and third, for leaving it there to be swaged by a pair of rotating swaging dies, the function of which is to swage the shoe, that it shall be as thin or thinner at the inside of the toe than at the outside of the toe. Of course, in addition, there must be cams, gearing, etc., to carry these essential parts and give them the mode of operation above indicated, etc.”

The learned counsel for the plaintiff who last addressed the court, Judge Curtis, stated his view of the proper construction of the second claim of the plaintiff, as follows:

“It is not a claim for a manufacture, but for a device in mechanism, or a piece of mechanism, and when he says: ‘I claim the mode’ (or means) ‘of bending the rod and placing it in its proper position, as above set forth,’ the references he has here made to the functions to be performed by this mechanism, viz.: the function of bending and the function of placing are made simply to identify the mechanism itself, which is to be the subject of the claim: not for the purpose of claiming the functions jointly or severally, but

simply for the purpose of identifying the mechanism which he intends to make the subject-matter of this claim by reference to those functions. Therefore, as I interpret the claim, it might read, and mean exactly in legal effect what it now

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means: 'I claim the bending tongue and the accompanying mechanism operating in the manner described.'"

It is not entirely certain whether the learned counsel, in thus stating his views, intended to convey the impression that the claim is for the bending tongue, and the whole of the accompanying mechanism, as new; or whether he intended to be understood that the claim is limited to the combination of such bending tongue and accompanying mechanism. Perhaps it is not important to determine this, or to decide whether the claim is for a combination only, or a claim to the bending tongue and the several parts of the connected mechanism, as new in their peculiar structure, mechanical organization, and mode of operation, when considered as a whole, or as one device for producing the results stated. To consider it as a claim to each of the separate parts which at one time or another aid in bending the shoe (in which the frog and guides must be included), would probably destroy its validity, on the ground that some of the separate parts of the connected mechanism were not the plaintiff's invention; and, if it be a claim for the mere combination of the parts, or for the general arrangement, peculiar structure, and particular organization of the different parts covered by the claim, the whole considered as a single mechanical device, the question of identity or infringement must be decided upon substantially the same principles. In either case the bending tongue forms the most prominent and essential element or feature of the combination or peculiar structure and organization; and, therefore, in either view of the case, the bending tongue or its equivalent must be found in the defendants' machine to constitute an infringement.

Much testimony was taken, and considerable time spent on the argument, upon the questions, whether the plaintiff's patent shows that the inner edge of the bent blank was directed or intended to be placed and left at some little distance forward of the front end of the frog of the swaging die—and whether the plaintiff's specification and second claim were of such a character as to enable him to recover, because the defendants had used in their machines mechanical devices, not indicated in the plaintiff's specification, but producing, in the mode described by the witnesses, substantially the same results as those produced by the peculiar devices of the plaintiff.

It is certain that the necessity or expediency of this advanced position of the bent blank upon the die, is not at all explained or even stated by the plaintiff in his specification. There is nothing in the specification apparently intended to indicate that the construction of the plaintiff's machine, or the adjustment or relative position of its parts, should be such as to produce such a result. A close and shrewd observer who had witnessed the operation of the Young and Titus machine, and had observed that a fin or bur was left on the inner edge of the shoe, might, perhaps, spell out, from the obscure language of the

specification, that space for the inward expansion of the metal at the toe of the shoe was desirable, and also that such space might be obtained by advancing the point of the bending tongue beyond the front part of the frog; but he would be more likely to reach such conclusions by the unaided operations of his own mind than by reading the plaintiff's specification.

No such advanced position of the bending tongue is hinted at in the specification, and it is proved that the drawings, intended to represent the machine or its model, represent the point of the bending tongue as being no farther advanced than the forward point of the frog, or as being "in contact with or opposite to" the forward point of the frog, as would be inferred from the specification. It is clear that it can not properly be placed "in contact with" any other part of the die, under the directions contained in the specification, and that the drawings do not indicate any such advanced position; and there is no satisfactory evidence that the model deposited in the patent office did not, in this respect, correspond with the specification and drawings. The statement of the specification, that the bending tongue is withdrawn "to allow the iron of the toe to spread inward," is not calculated to indicate this advanced position of the bending tongue, but rather to create the false impression that the iron spreads inward into the space from which the bending tongue is withdrawn. As it is stated that "the central portion of the swaging die" (or frog) is elevated above the rest as much as the thickness of the shoe, the iron does not spread into the space from which the bending tongue is withdrawn, and the language which indicates it does not tend to enlighten but to mislead.

It is quite evident that neither the person who drew the specification, nor the person who prepared the drawings, was at all impressed with the importance of this advanced position of the point of the bending tongue. The person who made the model deposited in the patent office was unable to testify that the point of the bending tongue was advanced beyond the forward part of the frog; and there is an entire absence of proof to show that the plaintiff then considered that this was an essential, or important, or even material feature of his invention. If he did, it is quite remarkable that he did not take care that it was sufficiently explained, and its advantages clearly pointed out by his specification. As an inventor who had obtained several valuable patents, he was doubtless aware of the provisions of law, then and now in force, which declare that "before any inventor shall receive a patent for any such new invention or discovery, he

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shall deliver a written description of his invention or discovery, and of the manner and process of making, constructing, using, and compounding the same, in such full, clear, and exact terms, avoiding unnecessary prolixity, as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and, in case of any machine, he shall fully explain the principle, and the several modes in which he has contemplated the application of that principle or character by which it may be distinguished from other inventions; and shall particularly specify and point out the part, improvement, or combination, which he

claims as his own invention or discovery;” and it is, therefore, very surprising that he did not explain the proper length, adjustment, and operation of the bending tongue, with its point in advance of the frog, if he had discovered the advantages of such adjustment and position, and intended to cover them by the claims of his patent.

In connection with this part of the case, it may also be observed, that the advantages expected to result from the use of the device covered by the third claim of the patent are very clearly set forth, while there is nothing in the specification likely to convey to the mind of the public the idea that the use of other forms of mechanism to give the bent blank an advanced position upon the swaging dies, would be an infringement of the plaintiff's patent; or to lead other inventors to suppose that the plaintiff had secured the exclusive right to use every form and character of mechanism capable of giving the bent blank that advanced position.

The omission to state that the advanced position of the point of the bending tongue was one of the distinguishing features of his invention, and the omission to state the advantages of such position, do not wholly avoid the plaintiff's patent, unless such omissions were intentional and for the purpose of deceiving the public; which has neither been alleged in the pleadings nor proved by the evidence. The patent must cover what is properly described and claimed; but such omissions, and the character of the drawings in reference to this part of the machine, may properly be considered upon the question whether the plaintiff, by his specification and claim, has sufficiently claimed anything more than the described mode of operation of the particular mechanism described in his specification, and referred to in general terms in his claim. Can he claim, as the character and principle of his invention—as its spirit and substance—as the very thing he has invented and patented—a capacity and feature which he has not hinted at, much less explained, in his specification? And can he, under such a claim, and in the absence of all notice to subsequent inventors or the public, that any such claim was made, recover against an independent inventor as an infringer, because he has devised, without his aid, and has used, devices unlike those the plaintiff has described, to produce a result not hinted at in the plaintiff's specification? It would seem to be grossly inequitable and unjust to allow such a claim, under such circumstances, and it is believed that it would be in clear violation of the spirit and principles of our patent law.

In view of all the circumstances of the case, it is considered that the true construction of the plaintiff's second claim will only extend it to the particular device, devices, or mechanism described and claimed, and operating in the mode or manner particularly set forth; and to such other devices or mechanism as shall have substantially the same mode of operation, and may be justly considered as the mechanical equivalent of that described and claimed—such an equivalent as a mechanic of ordinary skill, in the construction of similar machinery, and having the plaintiff's specification and machine before him, could substitute in the place of the mechanism described, without expensive experiments, and without the exercise of his inventive faculties.

The claim cannot be considered as a claim for a combination merely, for there is nothing in its language indicating an intention to claim a combination only. The word “combination” is not found in the claim, and it contains no statement of the elements of any specified combination. There is no intimation that any portion of the means used to effect the bending and placing are not claimed as new, and as the plaintiff's invention. And, in the fourth and seventh claims, combinations are expressly claimed in apt and appropriate language, from which must be inferred, that if it had been intended to claim in the second claim a combination merely, appropriate language to indicate such intention would have been used.

The precise extent of the claim, as covering the bending tongue and the connected mechanism by which the bending and placing referred to are performed, is, perhaps, not necessary to be determined, as it was not urged, upon the hearing, that the claim was too broad, as including devices not of the plaintiff's invention. It was probably, and, perhaps, properly considered, that the claim is in effect limited to the bending tongue and the connected mechanism which gives it its peculiar reciprocating motion; and that this connected mechanism in the plaintiff's machine does not include the frog or the movable guides or rollers upon movable standards, by which, in their conjoint operation, the heels of the shoe are bent to their proper curve after the bending tongue is withdrawn, because it appears, by the plaintiff's specification, that the inward movement of these guides does not begin until the bending and placing mentioned in the claim have been fully accomplished.

The question of infringement of the plaintiff's

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second claim will be considered with reference to the construction above indicated. It is supposed, however, that under any construction of this claim—whether it should be considered as a claim to a combination, as urged by one of the plaintiff's counsel; or a claim for the peculiar structure, arrangement, and organization of the mechanism by which the operations of bending and placing are performed, considered as a single device; or a claim to the bending tongue and the connected mechanism which gives it its peculiar reciprocating motion—the question of infringement would be substantially the same, if the idea of providing space for the inward expansion of the iron during the process of swaging is not to be considered as the substance or principle of the invention. In either case, the bending tongue is the most material, and, indeed, the essential element or feature of the combination or peculiar organization patented, and without it the bending and placing could not be performed. No machine, therefore, can be an infringement of the plaintiff's patent, unless it contains the bending tongue, or its equivalent, with such connecting mechanism, that the bending and placing, or one of them, shall be performed substantially in the mode described in the plaintiff's specification.

It is conceded, that the position of the point of the bending tongue in advance of the forward part of the frog is only a question of the length or adjustment of the bending tongue, or of the form of the cams which regulate its motion, and determine the mode of its application and use; and that its form, and the structure and arrangement of the connected mechanism, enables any person using the plaintiff's machine, and conscious of the importance of the advanced position of the bent blank in front of the frog, to give it that position. It must also be conceded, that the use of the bending tongue and its connected mechanism, if properly claimed as a separate device in the plaintiff's specification, would be an infringement, although it were used for the simple and single purpose of placing the bent blank in its advanced position between the swaging dies.

The plaintiff's bending tongue is not substantially identical with the device used by the defendants for advancing the bent blank upon the swaging die after the bending process is completed, and the modes of operation of the two devices are not substantially the same. The form, and structure, and mode of operation of the two devices are substantially different. These propositions are sustained by the preponderance of testimony by experts, by the examination of the models of the two machines, and by the action of the patent office in granting the patents to Wills in 1858 and 1860.

It would seem to be entirely certain, that the officers who authorized the issuing of these patents did not understand the second claim of the plaintiff to cover the devices patented to Wills. Those experienced officers, with the specifications of the plaintiff and Wills before them, must have granted the two patents to Wills without suspecting that the devices of Wills were covered by the plaintiff's second claim, and the granting of these patents is prima facie evidence that the use of the devices thus patented does not infringe the plaintiff's prior patent. *Corning v. Burden*, 15 How. [56 U. S.] 252; *The American Pin Co. v. Oakville Co.* [Case No. 313]. And this prima facie evidence is corroborated and confirmed by the other proofs in the case. And certainly, if the use of the devices patented to Wills would not be an infringement, the use of the devices used by the defendants is not an infringement of the plaintiff's second claim.

The machine used by the defendants is substantially the machine of Young and Titus, in its general organization, construction, and mode of operation, with the addition of a device for moving the bent blank forward upon the swaging die after the process of bending has been completed. This device consists of a short lever, mounted in a mortice cut through the male die and frog, the mortice being of sufficient size to allow a vibrating motion of the lever, back and forth, in the line of the rotation of the die. This vibrating motion is produced by the action of a wedge-shaped or cam bar placed within the roller that carries the die, and parallel to its axis; and which bar is fitted to slide in the direction of its length. The ends of the bar extend beyond the roller, and the bar is so arranged as to be acted upon by a cam attached to the frame of the machine, which presses the bar in one direction to advance the bent blank upon the die, and is pushed in the other direction by a spring when it has passed the cam. This lever or pusher moves with, and is substantially a part of, the frog during the whole of the bending operation, but when that is completed, the upper portion of the short lever is pushed forward by the sliding cam

bar, and the inner side or edge of the forward part of the bent blank is forced forward on the swaging die.

The device used by the defendants, and above described, is not a copy of that patented to the plaintiff, nor would it occur to any ordinary mechanic, conversant with the plaintiff's device, as an equivalent mode of producing the result attained by the plaintiff's bending tongue and its connected mechanism, when adjusted and arranged so as to leave the bent blank in advance of the frog of the swaging die. It has, in fact, no considerable resemblance to the plaintiff's device, either in construction, organization, or mode of operation, as they are explained in the plaintiff's patent, and can not, therefore, be an infringement of that patent. This proposition seems to us to be too clear to need illustration or argument.

The defendant's answer does not set up the

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defense of unreasonable neglect or delay to file a disclaimer of the third claim of the plaintiff's patent, and, as this defense involves a question of fact, it can not be made under the present pleadings.

The proof shows that the description given by the plaintiff's specification is sufficient to enable an ordinarily skillful mechanic to construct the machine described. That it does not instruct such a mechanic so to arrange and adjust the bending tongue as to leave the bent blank in advance of the frog of the swaging die, is no objection to the validity of the patent, to the extent of the plaintiff's claim, as that particular feature is not claimed in the specification as a part of the plaintiff's invention.

The plaintiff is, therefore, entitled to a decree for an injunction and an account, in respect to the infringement of the sixth claim of his patent, but no further. The question of costs, and all other questions are reserved until the coming in of the master's report.

¹ [Reported by Samuel S. Fisher, Esq., and here reprinted by permission.]

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