

**Case No. 17,254.** WATERBURY BRASS CO. v. MILLER ET AL.

[9 Blatchf. 77; 5 Fish. Pat. Cas. 48; Merw. Pat. Inv. 106.]<sup>1</sup>

Circuit Court, D. Connecticut.

Sept 19, 1871.

INFRINGEMENT OF PATENT—KETTLE MAKING MACHINE—SPECIFICATIONS AND CLAIM.

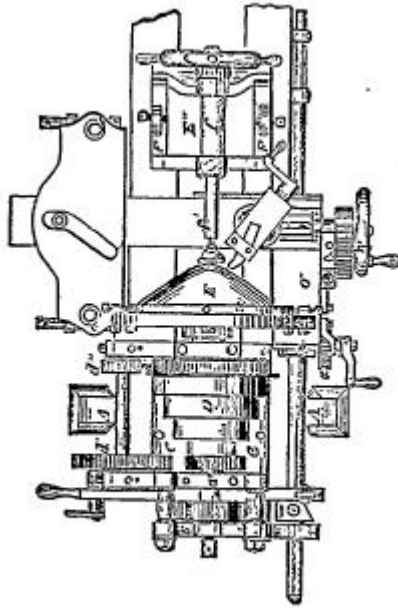
1. The two re-issued letters patent granted to the Waterbury Brass Company, May 24th, 1870, as assignees of Hiram W. Hayden, the inventor, one for an “improvement in machine for making kettles,” and the other for an “improvement in brass kettles,” are valid.
2. The first named patent is for a machine, and the other patent is for the product of the process wrought by such machine, the machine and the process being described in the same terms in each.
3. The plaintiffs machine consisted of an engine lathe, a form, a clamp and other devices, and an adjustable tool-carriage, sustaining and guiding a burnishing or spinning tool in a definite, prescribed path, pressing the tool against the disk of metal operated upon, the tool carriage being moved by a screw connected by a gear wheel with the power moving the lathe. The defendant’s machine was, in substance, in all respects, like the plaintiff’s, except that the tool-carriage was moved by a rod connected with a cam acted on by a gear wheel actuated through a crank by the hand of a workman: *Held*, that this was not an essential difference.

[Cited in Kirby v. Dodge & Stevenson Manuf’g Co., Case No. 7,838; Westinghouse v. New York Air-Brake Co., 59 Fed. 598.]

4. The words, “substantially as described and shown,” in the claim of the patent, *held* to relate only to material features of the combination specified, to be ascertained by considering the purpose of the machine, and what are the elements of the combination which constitute its distinctive character, and are effective in producing the peculiar result for which the contrivance is made.
5. Where the specification of a patent for a product fully describes the machine, and the process by which the product is produced, such patent may be good, even though the same specification, annexed to a patent for the machine, may not fully secure the patentee against the use of his actual invention, because of a defect in the claim of the latter patent.

<sup>2</sup>[Final hearing on pleadings and proofs. Suit brought [against Edward Miller & Co. and Edward Miller] upon letters patent for “improvement in machine for making brass kettles,” granted to Hiram W. Hayden, December 16, 1851; extended for seven years, from December 16, 1865; reissued February 13, 1866; and reissued again, in two divisions, May 24, 1870—one for an “improvement in machine for making brass kettles,” and the other for an “improvement in brass kettles.” A former trial under the original patent will be found in the report of Waterbury Brass Co. v. New York & B. Brass Co.]

[Case No. 17,256]. A description of the invention, together with the claims in controversy, will be found in the opinion of the court.



[The above engraving represents a plan or top view of the Hayden machine. E is a kettle blank, partially formed, arranged upon a form, supported by a mandrel, and held in position by a spindle, f'. Form is given to the blank by a burnishing tool, so arranged as to follow a prescribed path, corresponding to the side of the former. This tool is connected by a system of shafting and gearing to the mandrel, which carries the former so that the movement of the tool is automatic.

[This engraving represents a portion of the Japy machine, showing a former, A, revolving upon a mandrel; a burnishing tool, f, provided with gearing, whereby it is compelled to move in a prescribed path. Motion is given to this tool by the hand of the operator, by means of a crank, and it is not automatically coupled to the mandrel. In this respect, the defendants' machine also differed from that of Hayden.]<sup>2</sup>

E. W. Stoughton and C. M. Keller, for complainants.

J. S. Beach, B. F. Thurston, and S. S. Fisher, for defendants.

WOODRUFF, Circuit Judge. The bill of complaint herein is filed to restrain the defendants from infringing two re-issued patents granted to the complainant as assignee of Hiram W. Hayden—one for an “improvement in machine for making kettles,” the other for an “improvement in brass kettles”—and for an account of the gains and profits hitherto made by the defendants by their alleged infringements. The defence contained in the answer of the defendants, and relied upon on the trial, consists in a denial that Hayden was the first inventor of the patented machine, or the kettle produced thereby, and, second, a denial that the defendants have infringed the patents.

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It is not necessary to state the history of the complainant's patents, further than to say, that, on the 16th of December, 1851, letters patent were issued to Hayden for what he claims to have invented, which were afterwards extended for seven years, and subsequent surrenders and re-issues were made, upon the last of which the re-issued patents were granted to his assignee, on the 24th of May, 1870, which are relied upon in this suit.

The re-issued patent for an "improvement in brass kettles," in its specification, sets out a process of making kettles upon a machine described in the very terms and details employed to describe the machine which is the subject of the other patent; that is to say, one patent describes a machine and mode of making a kettle, and other similar articles, and the other patent claims, as the invention of Hayden: "(1.) A kettle, or other similar metallic article, or vessel, made from a single sheet, or flat disk, or blank, of metal, stretched and compressed, so as to extend the sheet into its ultimate form, by the process substantially as herein set forth; (2.) A kettle, or other similar metallic article, or vessel, having its greatest thickness at the bottom, and thinned, or gradually reduced in thickness, towards the top, by the process substantially as set forth." Hence, one patent is for a machine, described and operated as set forth in its specification. The other is for a product of the process, substantially as set forth in both.

Whether the product patent has been infringed, or can be infringed, by the defendants, without, at the same time, infringing the patent for the machine, may, perhaps, be a question of interest to the parties. It was asserted, and substantially assumed, by the counsel for the defendants, on the trial, that it could not. It may not be necessary to consider that question. If deemed material, some observations will be hereafter made on that subject. Assuming, for the present, that the questions between the parties

are identical under each of the complainant's patents, as the machine and process of making kettles, and other articles, are described in precisely the same terms in each, and that neither is infringed unless both are infringed, it will be sufficient to describe the machine and its operation in very general terms.

For the purpose of bringing into view the questions to be decided in this case, the machine may be generally described as of two parts, each having, in the process of making a kettle, distinct offices or functions. 1st An engine lathe, with its mandrel made to revolve by ordinary pulleys and gearing, and its mandrel foot or spindle pointed, to sustain the subject of the operation when clamped to the mandrel, or a chuck attached thereto, and made to revolve therewith. This differs in no material respect from an ordinary cutting lathe, although supplementary devices are added, to adapt it to the particular service intended, such as, a form or pattern, (in the shape of the interior of the article to be produced,) made fast to the mandrel and to revolve with it—a clamp, adapted to the office of pressing the material upon the form, which also revolves with the form and on the point or end of the spindle—and an arrangement at the lower end of the lathe, by which the spindle is readily drawn back when it is desired to remove the kettle, &c. 2d. A burnishing or spinning tool and tool carriage, secured to the frame of the lathe, consisting of a burnishing or spinning tool, (either rigid, like an ordinary tool, or a roller, with a beveled rounded edge, held at the end of an adjustable arm,) and a carriage therefor, set upon slides, so adjustable, and so guided when adjusted, that the tool is sustained and guided in a precise path, prescribed for it before motion is given to the machine, the path being such, that the tool will, when moved, travel along and in near proximity to the form set upon the mandrel, as above described. It will be readily seen, that, by these two parts of the machine, provision is made—First, for inserting in a lathe a circular disk or blank of metal, clamping it firmly against a form, and causing it, together with such form, to revolve with rapidity; and, second, a burnishing or spinning tool, adjustable, so that it may set firmly against the disk, at or near its centre, and, if moved, it is mechanically guided along and in near proximity to the bottom and side of the form.

So far, nothing is described which produces the desired result. The lathe may be set in motion, and the disk or blank will revolve. The tool impinges on the disk near its centre, and the friction may produce some impression on the small circle, at the point of contact. But that is all. The material is in proper position, a form is in contact therewith, to communicate the desired shape, the tool is impinging on the disk near its centre, and a path is prescribed in which it must, if moved, inevitably travel, and, so travelling, it will spin or stretch the disk upon the form to the precise shape thereof, and, at the same time, reduce its circumference at its upper or outer edge; or, in other words, it will spin the metal to the size and form desired. Motion of the tool is, therefore, alone wanting to the operation; and this motion is, in the machine described by the specification in the

complainant's patent, taken, by gear wheels and pinions, from the wheels or pulleys of the revolving lathe. These wheels and pinions act upon a screw connected with the tool carriage, which will move it forward or backward, but with such arrangement of devices, that, as already stated, the tool must move in its prescribed path. By these means, the machine, being set in motion, spins the disk to the form inserted in the machine, and, by a succession of forms, to any shape desired, the slides of the tool carriage and path of the tool being readjusted with every change of form. This statement does not give the details of the machine, and it may not be sufficient to give a full comprehension of its operation. But I think it sufficient to bring into view the questions in contest, and, with some other details which may be suggested in the further discussion, to make the device intelligible.

The machine, in all its details, being described, and its complete operation stated, the specification annexed to what is called the machine patent, proceeds to state the claims:—"What is claimed as new, and the invention of the said Hiram W. Hayden, is as follows: (1) The application of a rotary metallic form or mold, or successive forms or molds, in combination with a proper tool or tools, roller or rollers, sustained, moved and directed in a proper path, by competent mechanical means, for the purpose of operating on a disk, blank, or plate of metal, so as to reduce it gradually from the centre to the edge, at the same time forming it with straight sides, by successive stages, into a complete kettle, or into any similar articles to the forming of which this apparatus can be applied, substantially as described and shown." The second claim relates to the peculiar arrangement for withdrawing or moving the spindle, to facilitate the removal of the kettle, which is not claimed to be infringed, and need not be further noticed.

1st. It was not questioned, on the trial, that the complainant's machine is useful. Prior to Hayden's invention, kettles and like articles had never been produced by machinery. With especial reference to brass kettles, the manner of producing by machinery, introduced by Hayden, wrought an entire revolution in the manufacture. Small articles of thin metal had long been spun on a lathe, the spinning tool being held, guided and forced against the metal by the hand of the workman, sometimes aided by making the handle of the tool a lever, by a pin on the tool rest of the lathe, but the power of the workman was inadequate to apply the tool to thick disks or portions of metal, with force sufficient to spin kettles of suitable size

and strength for most ordinary uses. Such kettles were produced by hammering, or by forcing plates or disks of metal into dies, and, to some extent, by stamping successively into various dies, gradually approximating the form desired, and, intermediate the stampings, burnishing the partially formed kettle upon a form. The defendants, however, on the trial herein relied, as above stated, upon their allegations that Hayden was not the first inventor, and that they have not infringed his patent. They have proved, that the art of spinning metals is ancient. They produced one or more witnesses, who made small articles of brass, such as "binnacle bowls," parts of lamps and lanterns, &c., before the invention of Hayden, by spinning the sheets or disks of metal, or burnishing to a form on a lathe, the spinning or burnishing tool being held in the hand, guided thereby, and applied by the power of the workman to the revolving metal, to reduce it to the required form. Holtzapffel's work, on "Turning and Mechanical Manipulation," was also produced, in which the "spinning" of metals on a lathe, or "burnishing to form," is described, the tool, however, being directed, guided and applied by the power of the workman, aided by a pin in the lathe rest, as a fulcrum, to increase the pressure of the tool upon the metal.

These proofs fall far short of establishing that Hayden's machine was not new. In neither case was the tool sustained, guided, directed or applied by mechanism; it was not forced against the metal by the power of the machine; and it travelled, not in a path definitely and accurately prescribed, in which it was held by the mechanical devices employed, but it moved on or along the metal in such direction, and in such relation thereto, as the strength and skill of the workman might avail to give to it. Whether it produced, even in the small articles which were thus made, a uniform thickness, or a gradually diminished thickness, or an irregularity in this respect, depended on the skill and ability of the workman, and not on any mechanism contrived to secure the result desired in this respect. Hayden, on the other hand, by his adjustable slides and guides, made the path of the tool even and certain, producing if he desired, a thickness of the sides of the kettles, &c., manufactured, diminishing upwards from the angle at the bottom, effecting as the complainant alleges, an important and obviously useful result, especially in the kettles produced, much more perfectly, at least, than had ever before been attained in their manufacture, namely, that they were thick at the bottom, and at the angle, where thickness and strength were important, and diminished in thickness up the sides and at the top, where lightness was desirable.

The defendants also produced a patent, granted in England, dated February 3d, 1846, to T. F. Griffith, for "stamping and shaping metal." It must suffice to say of this, that the invention, so far as it has any possible relevancy, consisted, as described by the patentee, of an improvement in the form of dies used when shaping sheet metal by stamping, by which improvement the metal, in all parts, will more nearly retain the thickness of the original sheet metal from which the vessel or article is raised by stamping; and, also, in



improving the process of manufacture, by changing the shape, intermediate the successive stampings, by burnishing it upon, and to the shape of, a form, by the ordinary burnisher. It is entirely manifest, from this statement, and, more distinctly, from other parts of his specification, that spinning the metal, to extend it, was no part of his design. He repudiates that, as a disadvantage, which his process avoids, and, in order to do this, he uses a disk of a diameter about equal to the diameter of the upright vessel added to its depth. His process is a combination of stamping and burnishing. He invented no machine for the burnishing, and claims none; and, although, in the burnishing which he describes, he changes the form of the article to fit the form inserted therein, and that may involve, in some slight degree, the spinning of the metal, he neither claimed, nor did, in fact, extend the metal by spinning it, so as to extend and make thin the sides, employing a disk of much smaller radius than the length of the completed vessel measured from the top to the centre of the bottom, nor does he describe or claim to have invented any machine whatever, by which any spinning or burnishing can be done.

On the question of the novelty of the invention of Hayden, the defendants put in evidence another patent, which assumed the appearance of much importance. It was granted in France, under date of December 4th, 1835, to Messieurs Japy, brothers, for “une machine a rétreindre et a planer,” which was translated by one of the witnesses, “a machine to spin and smooth;” and, also, an addition, or supplement, to such patent, which was granted under date of June 26th, 1838—both long prior to the invention of Hayden. Under the direction of one of the expert witnesses, the defendants had caused to be constructed a machine which, in most of its features, was strikingly like Hayden’s machine, but, in the particular which, on the question of infringement hereafter to be considered, constitutes the difference between the Hayden machine and those the defendants make and use, conforming to the latter. Whereupon, the defendants claim, that the Hayden machine was not new in any of the features in which their machines are like it, Japy, brothers, having anticipated it by their machine, in 1835; and that, in any particulars in which the Hayden machine differs substantially from the Japy machine, the defendants have not copied it—in short, that the machines which the defendants use are, in substance, the Japy machine, invented long before Hayden made any invention. The machine constructed under the direction of the expert, and claimed to conform to the Japy patent, was produced on the trial, and was there set in operation. A disk of sheet brass

was inserted, and it was reduced, by the tool, to substantially the same form as is produced by the Hayden machine. The question, therefore, whether the machine described in the Japy patent was, in fact, so far like the Hayden machine, as to anticipate his invention, is of great importance, should it appear, in the further consideration of the case, that the machines used by the defendants are infringements of the Hayden patent.

On that question, I observe, first: It is entirely plain, upon a careful examination of the Japy patent, specification and drawings, that no idea of spinning the metal, to reduce it to the desired form, ever occurred to the Messieurs Japy, either in the making or use of their machine, or when they described it and the manner of constructing articles therewith. They formed the article sought to be produced by successive stamping in dies or collars, until, according to their express declaration, "the desired height of the sides is produced," and "it is finished in regard to shape, when it leaves the last collar." This process of stamping to a completed form is described in detail, and illustrated in the drawings, and the difference between the mode patented in the addition or supplement to the patent, and that at first employed by them, with the superiority of their new mode of stamping, are distinctly pointed out. This advantage consisted in raising the sides of the vessel, by using, first, a stamp and die or collar much larger than the diameter of the vessel to be produced, and raising a rim or very short portion of the side; then, by a stamp and die a little smaller, raising the side a little higher, and so on, through six or seven successive stampings, with stamps diminishing in size, but larger than the bottom of the vessel, until the last stamping, when a die and stamp of the size and form of the finished vessel was used. By this means, the metal at the angle of the bottom was bent but once, and was, therefore, less weakened, and less liable to be torn, broken, or made thin, than in former modes, where each successive blow, in the gradual raising of the sides by stamping, brought each bending and each concussion upon the metal at that precise angle. The vessel, thus completed in form, was inserted in a lathe, and upon a form which corresponded with the interior of the vessel, (called, in the original, "un emprunt,") attached to the mandrel, and, by the application of a tool or tools, while revolving, the bottom and sides were made smooth, the angle at the bottom was slightly rounded, and wrinkles and other inequalities were pressed to an even or polished surface. No suggestion of spinning or of burnishing is found in the description, and it is palpable that neither of them was effected in the operation. Neither the tool used, nor the process detailed, nor the power of the machine, was adapted to the making of kettles as described by Hayden, the lathe process being in truth a smoothing process, and nothing more.

The vessel having already received its form, it is obvious, that, if the process of spinning were applied to its bottom, its diameter would at once be enlarged, so that it would no longer fit its counterpart ("emprunt") on which it was supported; and, consequently, when the pressure of the finishing tool was applied at the angle, there would be no interi-



or support between which and the tool the rounding process would be smoothly effected. So, also, if spinning was applied to the sides, they would be extended, and the form or shape of the vessel would be correspondingly changed, contrary to the distinctly declared purpose and intent of the patentees.

Besides this, the tool was not adapted to spinning. For the bottom, a roller was used, of a thickness greater than its radius, and, on its outer circumference or face, rounded to a half circle, the bottom only requiring to be passed over lightly, to polish it, since the stamping produced no wrinkles or irregularities therein. For the angle, another roller was used, of like size, having its outer circumference or face hollowed out, so as to round off, by pressure, the angle at the bottom. For the side, a third roller, of like size, was used, having its outer circumference or face flat and straight, like the surface of a short cylinder, one of the edges being slightly rounded, so as, in its movement along the side, to slide readily over or upon the wrinkles or other inequalities to be smoothed. Neither of these rollers was like an ordinary burnisher, or like the spinning tool used by Hayden. Pressed firmly against the revolving vessel, they smoothed its surface, and their effect is aptly described by the patentees by the word “planer”—to smooth or planish.

The tool used to round the angle, being adjusted and pressed against the vessel, required no other motion; but the tools for the bottom and sides, sustained in carriages adapted to slide in a path parallel with the surface to be smoothed, were moved by means of a screw passing through the tool carriage in the like parallel, (or a cog wheel acting thereon with a similar result,) and terminating, at the outer end, by a crank turned by the hand of the workman, who thereby moved the tool faster or slower, backward or forward, at his pleasure. Though each tool was fixed to a separate carriage, the mechanical principle of each was the same, and they could be applied successively to the same lathe or each to a separate lathe, as convenience and economy of the time of the workman might make most advantageous. It is this application of the tool to the article produced, while such article is placed upon its counterpart, and made to revolve, and the use, for that purpose, of the adjustable sliding tool carriage, with a set screw to press the tool or roller against the metal, which constitutes the likeness of the machine to the machine of Hayden. But I am decided in my conclusion, already stated, that spinning the metal was not the intent or purpose of the machine, and that no such conception was in the mind of the patentees, nor was the machine adapted to produce that effect. Possibly, the pressure upon the metal might very slightly enlarge

it, the operation being, in a degree, like passing metal between two pressure rollers; but this effect, if produced, was not desired or sought, but constituted an imperfection, rather than an advantage, to the perfect operation. It cannot be denied that this device for smoothing the kettle, already complete in form, would be very suggestive to an ingenious mind already conversant with the art of hand spinning on a lathe. It was a near approach to a device for spinning by a machine; but I think it clear that it stopped short of it.

It is earnestly insisted, that, although Japy, brothers, did not conceive the idea of spinning the metal by the machine, it is enough for the defendants to show, that the machine which they invented had capacity to spin in the very manner of Hayden's; and that Hayden acquired no right as an inventor, by making substantially the same machine and putting it to a new and more beneficial use, namely, to spinning the metal into the desired form, although Japy, brothers, were wholly ignorant that any such capacity could be attributed to it. What I have already said expresses quite distinctly my conviction, that their machine had, in truth, no such capacity, or, certainly, not in any such degree as made it useful, as Hayden's machine is useful, for spinning metals.

On the trial, some importance was attached to the title given by Japy, brothers, to their invention, "une machine a rétreindre et it planer," as in conflict with the conclusion above expressed. A translation of their patent was produced, made by one of the witnesses, no doubt in entire good faith, in which the above words were translated, in one place, "a machine to spin and smooth," and, in another, "a machine for spinning and smoothing." The translator, however, with entire frankness, explained, that the word "râtreindre" did not, by its own mere force, mean, "to spin," but that, when used in connection with words indicating the employment of the lathe in stretching or extending metals, the whole, as, for example, "rêtreindre a la tour," (to raise on or by a lathe,) meant the process of spinning. When, therefore, on a perusal of the Japy patent, he observed that a lathe was used in a portion of the operation, he assumed that this title of the patent imported "rêtreindre a la tour," although those words were not used. An examination of the whole patent shows, that this conception of the translator was a mistake. The word "rêtreindre" refers simply to the process of raising the sides, and that was done in dies or collars, and not on the lathe. In the supplement to the patent the word is used, and it is solely applied to the "raising" by punches and collars. In short, the word "rêtreindre," in the title, is used to designate the process of raising by punches and collars or dies, and "planer" to the lathe process, namely, to smooth or planish. The terms employed by the patentees, therefore, are in no conflict with the conclusion stated, but tend rather to confirm it.

The defendants rely, further, on their alleged practical demonstration, made on the trial, that the Japy machine had capacity to spin metals, including kettles, whether Japy, brothers, knew it or not, and that, when so used, it was substantially the same, in principle, structure and operation, as the machine of Hayden, except in the particular hereafter

to be noticed, in which, also, the machines of the defendants differ from Hayden's. The machine which they had caused to be constructed, and which they produced as an example of the Japy machine, did, undoubtedly, reduce, on a small scale, a disk of metal to the form of a kettle, by compressing it upon a series of forms like those used by Hayden; but I was not then satisfied, and further examination and reflection have strengthened my doubt, that such machine, constructed and operated as it was, did, in fact, in a just sense, spin the metal to the desired form. It did unquestionably extend the metal, and conform it to the shape of the form on which it was compressed, it may, in a slight degree, have spun the metal, but the extension of the metal was mainly by pressure, as if the metal were between two rollers, pressed with great force thereon while in revolution. This would be the effect of pressing a short revolving cylinder strongly against the revolving metal, sustained by the revolving form on which it was placed. It may not be easy to define with precision how, in that process called spinning, the atoms or particles of metal are made to move upon each other, so as to assume a new aggregate form; but, in the product of the machine exhibited on the trial, the surface of the metal was not moved, it was compressed, the inner and outer surfaces being brought nearer together, as in the process of rolling metals. Witnesses testified that it did spin, some of them that it spun imperfectly, imputing the effect, so far as it was entitled to be called spinning, to a change in the form or position of the tool, used by Japy, made to bear on the surface of the metal.

I do not find it necessary to suggest any bad faith in the defendants, or in the expert under whose direction this machine was constructed, by imputing to them an intentional exhibition of a machine, as the Japy machine, which differed substantially therefrom, or of conducting an operation therewith differing materially from the operation of which the Japy machine was capable. They have failed to satisfy me that the machine which they did produce and set in operation is, as a practicable thing, useful for spinning metals, or even that it is capable, without modification, of spinning metals of the thickness required for the large vessels produced by Hayden's machine.

In confirmation of the suggestion that it was not by spinning, but by pressure, as between the two rollers of a rolling mill, that the extension of the metal was effected, it was a fact worthy of notice, as distinguishing the machine produced from the Japy machine, that the defendants added to the tool carriage of Japy, brothers, a powerful standard or post, containing a set screw, to hold the revolving tool or

short cylinder more strongly upon the metal to be extended. For the purposes for which the Japy machine was used, to wit, to smooth the surface, comparatively slight force was requisite. When the machine was sought to be applied to a new use, this supplemental device, or some other equivalent thereto, was necessary.

It might be added, that the product of the operation of the machine produced was less perfect than the similar product of the Hayden machine. The wrinkles caused by forcing the larger circumference of the disk upon the form were imperfectly removed, and, I think, there should be no hesitation in saying that an inspection of the two products shows that the machine of Hayden produces a different as well as a more complete result.

It was a pertinent and quite plausible suggestion of the counsel for the complainant, that the inventor of a machine should be presumed to know not merely its purpose, but its capacity; that, when the product sought was in great demand, the art of spinning upon a lathe well known, the best mode of producing kettles and like articles the subject of attention and Study, the objections to the process of stamping known and appreciated, the fact that an inventor of a machine, contrived expressly for the making of such articles, should have made a machine, and had no suspicion that it could raise the disk which he used to the required form by spinning, is no slight evidence that it had no such capacity; that the wisdom which comes to an alleged infringer after another inventor has perfected a similar machine by which the operation can be usefully performed, is not to destroy the claim to an original invention; and that an alleged example of a machine claimed to produce an effect which the original never did produce, and which its inventor never claimed for it, is to be looked upon with some distrust of its actual likeness to such original.

A doubt was created by the proofs, whether so much of the extension of the metal as could be imputed to spinning, in the operation of the machine produced, was not due to a slight change in the form of the tool or cylindrical roller used by Japy, brothers, and to a setting thereof in contact with the metal obliquely in a small degree, so that the corner pressed against the same. These changes would conform the action of the tool more nearly to that of the Hayden machine. It is not essential that I should go further than to say, that such doubt reasonably exists, upon the whole evidence. It is sufficient, that, upon all the proofs, and, especially, for the reasons I have stated, I am convinced that the invention of Japy, brothers, had neither design, purpose, nor capacity to effect the results produced by Hayden's machine; and it is, therefore, upon all the grounds which are above suggested, not established that Hayden was not the first inventor of the machine described in the complainant's patent. It is hardly necessary to add, that the burden rested on the defendants to establish this, if they rely on want of novelty as a defence, as the patent itself is prima facie evidence that Hayden was such first inventor.

2d. The second ground of defence does not depend so much upon any disputed question of fact, as upon the proper construction and legal effect of the patents granted to the

complainant for the inventions of Hayden. The defendants deny that they have infringed the patents. To make the foundation of this denial intelligible, the two principal parts of the Hayden machine have been already described, namely, an ordinary engine lathe, with a form attached to the mandrel, a clamp attached to the spindle, and other devices to facilitate the operation, which have been sufficiently referred to; and, second, an adjustable tool carriage, sustaining and guiding a burnishing or spinning tool in a definite prescribed path, pressing the tool against the disk of metal operated upon. To the actual working of the machine, it is essential that, when the form and disk of metal are revolved in the lathe, the tool should also be moved in its prescribed path, as already, with some particularity, stated. The patentee, in the specification, describes the Hayden machine as self-acting. The tool carriage is moved by a screw acting upon the tool carriage. As the screw is turned one way or the other, the carriage, and, of course, the tool sustained and guided thereby, is drawn in the desired direction along the face of the metal to be operated upon, in proper proximity to the form on the mandrel, and, for this purpose, this screw is connected, by a gear wheel, with the power which moves the lathe, so that both move together and by the same power.

The difference between this arrangement and that employed by the defendants in the machines claimed to be infringements of the complainant's patent, which is chiefly relied upon, is this—the rod which moves the tool carriage in the defendants' machine, is connected with a cam turned by a gear wheel, and a crank moved by the hand of the workman, instead of a screw and gear wheel acted on by the power which, turns the lathe. The lathe, the form, the clamp, and their adaptations to this particular service, are substantially the same. The tool carriage, tool post, and tool are substantially the same. The tool is sustained, guided and directed by slides and guides, differing in some details, but, for the purposes of this question, substantially the same. The tool is pressed against the revolving disk by a set screw, in the same manner. And the path in which the tool must travel is definitely prescribed by an adjustment of the slides and guides in the same manner, in substance, as in the Hayden machine. The tool is made to move, in the Hayden machine, by a screw acting on the tool carriage for that purpose; in the other, it is made to move by a cam. In Hayden's machine, the screw is turned by the power of the machine, acting through a gear wheel; in the machine constructed



and used by the defendants, the earn is turned by a crank, or crank wheel, moved by the hand of the workman, acting through a gear wheel on the cam. Hereupon, two questions may be propounded—first, Does this difference relieve the defendants from the charge of appropriating the invention of Hayden? and, second, Is their machine an infringement of the letters patent? The latter is the important question here; for it was correctly insisted by the counsel for the defendants, that it might be true that Hayden was the first inventor of the patented machine, and the defendants might have appropriated the product of his inventive skill, and might be in the actual use of his invention, and yet the letters patent granted for his invention may be, and the defendants insist, that the letters patent, or the specification and claim, are, in fact, expressed in such terms, and are thereby so restricted in their legal effect, that the patent itself is not infringed.

Where no patent is granted, the invention, however novel, ingenious or useful, may be used by any one; and, when a patent is granted, the patentee must stand by his patent. He gains no exclusive right except for such a machine as his patent describes and secures, though it may be far less broad or comprehensive than his actual invention. That the defendants' machines are within the actual invention of Hayden, seems to me to admit of no doubt. Its scope and its substance were the application of mechanism to the process of spinning metals to form, so as to produce a result theretofore never attained by mechanical means. The mechanical instruments, their arrangement, and their adaptation to the result were devised—brought into their proper relations. The requisite motion of the parts of the machinery was fully conceived. It was thenceforth in no wise essential to any principle involved in the invention, by what means motion was communicated to the machine, or either of the parts. It was only necessary to the successful operation of the machine, and to the certain production of the desired result, that the parts of the machine should move at the same time; that the lathe should revolve, with the form and the disk clamped thereon; and that the tool should also move in the path mechanically prescribed thereto. In the principle of the machine, or of its operation, it made not the slightest difference whether the lathe and the tool carriage were acted upon by the same power, whether the movement of the tool carriage was taken from the pulleys of the lathe, or from other belts and pulleys driven by the same engine, whether the movement of the lathe was by the power of one engine and the movement of the tool carriage by the power of another. It sufficed if there was power applied adequate to move both, from whatever source derived. The source of power was no part of the invention. The means of producing motion in the lathe were the ordinary means, by belt, pulleys or equivalent instrumentalities. The specific means of moving the tool carriage was the screw. Any mechanical means of moving the tool, under the sustaining, guiding and directing influence of the devices for those purposes, would have been within the just scope of Hayden's invention. Movement, under pressure against the disk, and in the definite path prescribed



to it, was the only essential, the substitution of one motor for another being a change only, without a substantial difference in the substance of the invention. One mode of producing the motion might be better than another; a party might improve upon any mode suggested by Hayden, and might patent his improvement; but, the substance of Hayden's invention would still consist in his machine, however set in motion by power adequate to its operation.

It, however, remains to consider, next, whether the defendants infringe the patents actually granted to the complainant. What is claimed in the specification as the invention of Hayden, has already above been recited, and it is equally descriptive of the defendants' machines, unless the application of power derived from man, instead of the revolving lathe pulleys, constitutes a substantial difference, as that term is used in the law of patents.

Their machine or device consists of the application of a rotary metallic form or mold, or successive forms or molds, in combination with a proper tool or tools, roller or rollers, sustained, moved and directed in a proper path by competent mechanical means, for the purpose of operating on a disk, blank, or plate of metal, so as to reduce it gradually from the centre to the edge, at the same time forming it with straight sides, by successive stages, into a complete kettle, or into any similar articles to the forming of which such an apparatus can be applied; and, so far, this is precisely what is claimed, and I think, shown, to be Hayden's invention. The claim in the patent is, the application of these instrumentalities, "substantially as described and shown" in the preceding specification; and the defendants insist that the terms of the claim so limit the operation of the patent, that the manner in which the defendants employ these instrumentalities is without the patent, and that they do not use them "substantially as described and shown," because they do not draw the power which moves the tool carriage from the engine which moves the lathe, but supply it by the hand of the workman, through a crank. The argument of the defendants' counsel did not present the point in the bald terms just stated, but I think that, when applied to the case in hand, that is its true expression.

In one of these machines, the turning and reversing of the screw moves the tool carriage

and tool forward and backward in its prescribed path; in the other, the turning and reversing the cam does the same. In both, the motion is communicated through a gear wheel, the power that turns the lathe acting thereon in one case, and the power of the workman, through, a crank, in the other. It was not claimed, on the trial, that the mechanical means for producing the actual movement of the carriage and tool were not substantially the same. It could not, with propriety, be so claimed. The proof was that they were the same, or precisely equivalent, excepting only that the power applied was drawn from a different source.

It is true, that the specification describes the Hayden machine as automatic; and such is the effect of connecting the tool carriage with the power that turns the lathe. But this is merely incidental. It is in no sense essential to the machine, as an operative instrument to spin the metal and produce the article desired. It was necessary that the patentee should describe the means he employed to effect the process, and he has done so. But it was not of the essence of the invention, or of the means employed to apply it to use, that it should be automatic. Connecting the tool carriage with another power producing like motion, would be precisely equivalent, producing the same precise operation of the effective parts of the machine, and the same precise effect upon the disk of metal to be converted into the kettle, or other article. Many of the observations already made concerning the scope and essential features of the actual invention are pertinent to this point.

The positions assumed in behalf of the defendants, and most ably and ingeniously urged upon my attention, lead to this—Where a patentee describes a completed machine, however complicated, novel and useful in its combinations, and effective in those parts which alone have any peculiar influence in producing the article to be manufactured, but describes his machine as receiving motion through a gear wheel, from a shaft common to the entire machine, any other party may construct and use a machine in precise likeness thereto, if he omits the connection of such gear wheel with the shaft, and substitutes a crank, to be turned by extraneous means. I cannot regard this as the effect of the words of the claim, “substantially as described and shown.” They relate only to material features of the combination specified, and these are to be ascertained by considering the object or purpose of the machine, and what are the elements of the combination which create its distinctive character, and are effective in producing the peculiar result for which the contrivance is made. When these are ascertained, whatever embraces those elements, in the same combination, is an infringement. Those elements so combined constitute the machine patented, and “substantially as described and shown” is satisfied when another machine embodies those elements, thus combined. In this, the machine is complete, within the just and proper construction of the patent, before it is set in motion, and the source from which power to move it is derived is wholly immaterial; and, therefore, the instrument, out of the many ordinarily used to communicate the motion, that is, connect

the power to the machine, is, also, immaterial. It is no distinctive feature of the machine. Any instrument adapted to receive the power, whether crank, pulley, cog wheel, or screw, is equivalent, in such a case. The particular instrument which the patentee uses is not an essential feature, in the subject of the patent.

The defendants insist that no part of the complainant's machine was new, that that machine, and all of Hayden's invention, consisted of a combination of old elements, and they, therefore, invoke the principle, perfectly well settled and familiar, that, where a patent is granted for a mere combination of old devices to produce a new result, such a patent is not infringed by one who produces the same result without using all the devices which are included in the combination patented. *Prouty v. Ruggles*, 16 Pet. [41 U. S.] 336, 341; *Vance v. Campbell*, 1 Black [66 U. S.] 427; *Eames v. Godfrey*, 1 Wall. [68 U. S.] 78, 79; *Byam v. Farr* [Case No. 2,264]; *Foster v. Moore* [Id. 4,978]; *Doubleday v. Bracheo* [Id. 4,018]; *Bliss v. Haight* [Id. 1,548].

In any proposed application of this principle, it should be borne in mind, that, in a certain sense, nearly all new machines are but combinations of old devices, that is to say, they do, or may, combine frames, bolts, screws and nuts, rods and pulleys, cranks and wheels, levers and pins, nails and boards, and, as the case may be, various other and more complicated devices, none of which, regarded singly or separately, are new; and yet the machine formed by the combination is new, as a structure, new in its operation, and new in the effect produced. The patent, in such case, is not for a mere combination, under the rule above referred to; and another machine, having the like construction, operation and effect, in all that constitutes the principle of the machine, and the efficient means of its operation, is an infringement of the patent, notwithstanding it may be moved by a less number of wheels, or be held together by a less number of clamps, screws or nails, bolts or keys, and notwithstanding drum and pulley may be substituted for cog wheels or other gear, or bolts for screws and nuts, or like changes be made in other devices employed to construct the machine. Such machine, notwithstanding such changes, is substantially the same, in its patentable characteristics, and would be within the terms of the specification, "substantially as described."

This is true, in my opinion, of the machines used by the defendants, in their relation to the complainant's patents. They appropriate its essential features, and employ the same process to which the metal is subjected in the manufacture. The complainant's patent is

not strictly for a combination, but, rather, for a machine, or a process wrought by a machine. Like all machines, it is constructed by combining elements or details. In its distinctive features, as a machine for the purposes described in the claim, and as a process of making kettles, it has been copied by the defendants. In the very particular which was claimed to distinguish their machine, namely, an arrangement for the movement by and under the control of the workman, its structure is within the description of the complainant's patent. The tool is moved, as well as guided and directed, by mechanical means. The power alone is different. It may be true that there is an advantage in having the motion of the tool under the control of the workman. Witnesses so testified. Whether such advantage countervails the convenience and labor saving of the power of the engine, is not very material; but if, in this respect, the device used by the defendants is an improvement, it cannot justify the use, in substance, of the complainant's machine.

Another observation, not essential to my views, is, if I have not misunderstood the structure and operation of the Hayden machine, quite significant, in showing a more complete likeness between the two than has hitherto been assumed. Although the Hayden machine may be operated automatically, it is not true that the motion of the tool is not under the control of the workman and by his hand. It was claimed that this feature in the defendants' machine was not only an advantage in enabling the workman to linger upon parts of the metal which might be found to require longer spinning, but that this was a distinctive peculiarity. Unless I have misunderstood the construction of the Hayden machine, that, also, is furnished with a lever under the hand of the workman, by means of which he can, at any moment, by disconnecting the gear, arrest the forward motion of the spinning tool, and so spin longer in any place where it is found necessary. In practice, my observation constrains me to doubt the practical importance of this feature, but, as matter of mechanical arrangement and capacity, it may not be unworthy of notice.

In the course of the trial, a fact was stated, in respect to which the expert witnesses differed, which, it was suggested, might affect the determination of the case. It was this—that the sliding-tool carriage, in the defendants' machine, does not move the tool in a perfectly straight line, but in a line very slightly curved, by reason of which the sides of the defendants' kettles are, in a barely perceptible degree, thinner at about half the distance from the bottom, than at the top. The degree will depend upon the length of the longitudinal arm of the slide, and the height of the side of the article to be made. Such a thinning of the side is not a result of the process desired or desirable. It is, at most, an imperfection in the particular kind of sliding carriage which the defendants employ. Without entering in to a detailed explanation, or occupying further time in the discussion of the point, it must suffice to say, that this circumstance does not render the defendants' machine no infringement. It embodies the principle, process, and substantial means which the Hayden

machine embodies, and operates substantially in the same way, though, it may be, less perfectly.

I am aware, that I have been led to a discussion, in this case, of most unreasonable length; and, yet, there are some other considerations, on both sides, which might be suggested. I trust that, in my deliberations, I have not overlooked any which are material to the result, whether here stated, or not. The importance of the case to the parties, the learning, skill, and ardor exhibited by the respective counsel, the interesting nature of the questions, some desire, on my part, that parties should be assured that the case is not decided without careful examination and deliberation, and that the precise grounds of decision may be fully exhibited, and especially, the want of time, (when other cases, already argued, demand my attention,) to rewrite and abbreviate the opinion, must explain, if it do not excuse, so great prolixity.

I purposed adding some observations on the proposition of the defendants, that, if they have not infringed the patent for the machine, they cannot be held to have infringed the patent for the product, or the kettle, &c. The conclusion reached upon the other branch of the case renders this, now, unnecessary. I desire, however, for the present, not to be taken to assent to the proposition, in this case, even though I should express no dissent. A patent may be good for a product, although no patent has been obtained for the machine or process by which it is produced. So, a patent may be good for a product, even though the inventor has received a patent for the machine or process, which, by reason of imperfection in the specification and claim, fails to cover the whole invention. Where the patent for a product is accompanied by a specification which does, in fact, describe the machine and process, so as fully to satisfy the requirements of the law, and enable any one of proper skill in the arts, to produce the article patented, by the means described, the patent for the product may be good, even though the same specification, annexed to a patent for the machine, might not fully secure the patentee against the use of his actual invention, because the claim was narrower than the invention, or because the claim was too broad, or was otherwise imperfect and ineffectual. In such case, the patent for the product might, possibly, be infringed, although no action could be maintained, based on the patent for the machine.

The complainant is entitled to a decree for an injunction and account, as prayed in the bill of complaint.

{For another case involving this patent, see *Waterbury Brass Co. v. New York & B. Brass Co.*, Case No. 17,256.}

<sup>1</sup> [Reported by Hon. Samuel Blatchford, District Judge, and by Samuel S. Fisher, Esq., and here compiled and reprinted by permission. The syllabus and opinion are from 9 Blatchf. 77, and the statement is from 5 Fish. Pat. Cas., 48. Merw. Pat. Inv. 106, contains only a partial report.]

WATERBURY BRASS CO. v. MILLER et al.

<sup>2</sup> [From 5 Fish. Pat. Cas. 48.]

<sup>2</sup> [From 5 Fish. Pat. Cas. 48.]