

suit by the court in Illinois, and of all the expert testimony in this case, it appears to me to be plain that the defendant's file embodies all the elements of the plaintiff's contrivance, and that the former accomplishes precisely the same objects as the latter, and in substantially the same manner. A decree for the plaintiff upon all the claims involved will be entered.

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WELLS GLASS CO. et al. v. HENDERSON.

(Circuit Court of Appeals, Seventh Circuit. May 11, 1895.)

No. 162.

1. PROCESS PATENTS—WHAT IS PATENTABLE.

A purely mechanical process, involving no chemical or other elemental action which is separable or distinguishable from the function of the mechanical devices used to produce the result, is not patentable. *Locomotive Works v. Medart*, 15 Sup. Ct. 745, followed.

2. SAME—WINDOW SASH.

The Henderson patent, No. 412,751, for a process of manufacturing metallic crossbars and rails for window sashes and analogous structures, held invalid, as covering a purely mechanical process.

3. PRODUCT PATENT—WINDOW SASH.

The Henderson patent, No. 420,510, for improvement in window-sash bars, designed to be made by the process described in patent No. 412,751, must be restricted, in view of the prior state of the art and of the amendments made in the patent office, to the particular forms of construction described, and is not infringed by window-sash bars made in accordance with the Schuhmann patent, No. 415,068.

Appeal from the Circuit Court of the United States for the Northern District of Illinois.

This was a bill by William Henderson against the Wells Glass Company and Herman Schuhmann for alleged infringement of certain patents relating to window sashes and analogous structures. The circuit court sustained the patents, found that they were infringed, and entered a decree for an injunction and an accounting. Defendants appealed.

The appellee, William Henderson, is the grantee of letters patent No. 412,751 and No. 420,510, issued October 15, 1889, and February 4, 1890, respectively,—the first for a "process of manufacturing metallic crossbars and rails for window sashes and analogous structures," and the second for "improvements in window-sash bars," designed to be made by the process described in the first patent. The bill charged the appellants, the Wells Glass Company and Herman Schuhmann, with infringement of both patents, and prayed an injunction and an accounting. The defendants answered, setting up a license, and denying both invention and infringement. General replication. The court below considered that both patents were valid and had been infringed, and decreed an injunction and accounting as prayed.

The specification, drawings and claims of the second patent, which, it may be noted, was first applied for, are as follows:

"Be it known that I, William Henderson, a subject of the queen of Great Britain, residing at Chicago, in the county of Cook and state of Illinois, have invented certain new and useful improvements in window-sash bars, of which the following is a specification. My invention relates to rails or crossbars and fastening for window sashes, and is more especially adapted to that class of sashes which contain many small pieces of glass cut in numerous configurations and designs, such as is seen in stained-glass windows and other

ornamental windows; and the objects of my improvements are to furnish a strong and durable crossbar and fastening, which shall be of little weight, which will not rust or corrode, which can be easily bent into any desired form, and is readily placed in any sash, and removed therefrom conveniently, and also to facilitate the operation of repairing or replacing broken parts without interfering with the other portions. I attain these objects by the peculiar construction of the bar and the removable fastening or cap; and, in order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which Fig. 1 is a front view of my bar and fastening as it appears in a window sash. Fig. 2 is a transverse section of the bar and cap. Fig. 3 is a side elevation of the bar and cap, with the latter removed, showing the notched ends. Fig. 4 is a sectional view taken at the line, x, y, Fig. 1, and shows the manner of securing or locking one bar to another. Figs. 5 and 6 are views of modified forms of the cap. In the drawings, A represents my bar, formed of one piece of material, and preferably made of metal. a is the rib thereof, having its upper part made with a flange, a', as seen in Fig. 2 of the drawings, for securing more firmly the cap or fastening, as will be presently explained. The lower part of this stem or rib is formed with shoulders, b, b, at right angles with the rib, for supporting the glass, and beneath said shoulders I preferably form a hollow, f, of any desired form. It will be readily understood that the hollow portion of the bar can be dispensed with, thus leaving it with a flat surface, or that portion may be solid; but I prefer to form it hollow, as shown, thereby gaining strength without materially increasing the weight of the bar. It is also evident that this form affords a better surface for finishing. At each end of the bar, A, I provide notches, c, c, preferably of an acute-angle form, as shown in Fig. 3. The lower notches are adapted to connect with and fit over the shoulder of the transverse bar, as seen, and will be more readily understood by reference to Fig. 4 of the drawings. By clipping off a portion of the upper notch on the rib, a, the bar is formed as seen at E, which form permits the cap to rest upon the surface of the glass, and hold it securely in place. B is a cap made of one piece of material, and preferably of metal, shaped to form a hollow, b', which may be of any form, but preferably of triangular form, as shown in Fig. 5. It will be observed that at the bottom of the cap, and opposite the apex of the hollow, b', I provide a longitudinal slot, d<sup>2</sup>, which extends the entire length of the securing cap. Into this slot the rib, a, is inserted, and the cap is pressed down over the same until the lips, d, rest upon the surface of the glass. Of course, the cap may be made of any size, and the exterior of any form which may be found to be best adapted to receive a polish or finish. While I prefer to form the cap with a triangular hollow, and have found, from experience, that such a form is more desirable, yet I may use a hollow of the form shown in Fig. 2, or any other shape, without departing from the spirit of my invention. In Fig. 6 I have shown a modified form of a cap which I may sometimes use, and in this modification I form the cap of one piece of material, as before, with the longitudinal slot, d<sup>2</sup>, and lips, d, at right angles with the slot, as shown. The edges of the lips, d, are bent upward within the hollow of the cap, at substantially right angles with the lips, and form the parallel sides, h, h, of the groove or slot. These parallel sides will clasp the rib, a, firmly, and prevent a rocking or lateral movement of the cap on the rib, as will be understood by reference to the drawings. In bending the cap, B, to conform to the curve of the bar, and so that the adjustment of the cap on the rib of the bar can be easily effected, I place the rib, a, within the groove, d<sup>2</sup>, of the cap, and bend both cap and bar at the same time; and, in order to prevent the cap slipping from the rib while thus working the material, I sometimes form the rib with a slight enlargement, a', at the top thereof. This enlargement also assists in retaining the cap in place after the glass is in position, and gives additional strength to the whole bar; but it is not absolutely necessary to hold the cap in place, as this is done by soldering the ends of the cap to its transverse cap, which it overlaps and interlocks, as is seen in Fig. 4 of the drawings. It will be further noticed that each end, g, of the cap is cut at a suitable angle to conform to the side of the cap with which the end meets; thus allowing it to fit snugly against the transverse cap, and to press against

the surface of the glass. In forming the notches on the ends of the bar the cap is placed over the rib, a, and, with a suitable machine, the notches are made. The cap is then removed, and the portion of the upper notch is clipped off to form the ends, as at E. By this operation I am enabled to cut the cap and bar of corresponding length, thus making the adjustment of the cap an easy matter. My object in clipping the upper end of the rib, a, as seen at E, in Fig. 3, is, in joining the parts together the lower portion of the transverse bar will fit in the angular notch, c, and the transverse cap will rest on the glass when it (the glass) is thick; but when thin glass is used the cap will rest on the clipped end, E, of the rib, a. In manufacturing my bar and cap, I may use a die of proper form, and 'draw' the metal through the same, or I may take strips of metal, of suitable dimensions, and form the same as desired, by folding or otherwise. It is also evident that I can make them of various kinds of sheet metal and other material, and that the contour of the cap and of the lower portion of the bar may be made in numerous designs. In use, my bars and caps are easily applied to any window sash, and are especially adapted to be used in doors or windows where sudden shocks or jars occur, as my construction secures the glass very firmly. The application is evident. The bars and caps are cut in suitable lengths, and bent into any desired form. The cap is then removed, and the edge of the glass rests upon the shoulders of the bar. The cap is then placed on the rib, a, and pressed down until the lower portion rests upon the surface of the glass. The ends of the caps may then be soldered to the connecting one, thus making the fastening more secure. It is readily understood that I can form the cap, B, with a groove or channel having parallel sides, or may form it with a core, but I prefer the formations above named. It is also obvious that I may form the rib, a, with a flange on each side of the same at the top, or I may use only one flange, as shown.

"Having thus fully described my invention, what I claim as new, and desire to secure by letters patent, is: (1) The crossbar, A, having the shoulders, b, b, and rib, a, at right angles therewith; the hollow projection, f, beneath the shoulders; the ends formed as at c, c, and E; and the vertically adjustable cap, B,—substantially as shown and described, and for the purpose set forth. (2) The combination of the crossbar, A, having the rib, a, and shoulders, b, b, at right angles with the rib; the hollow projection, f; the ends formed at c, c, and E, with the vertically adjustable cap, B, having slot, d<sup>2</sup>, and lips, d, d, at right angles with the rib, when in the slot,—substantially as shown and described. (3) The combination of the crossbar, A, having the rib, a, and shoulders, b, b, at right angles with the rib; the hollow projection, f; the ends formed as at c, c, and E, with the vertically adjustable cap, B, having slot, d<sup>2</sup>, lips, d, at right angles with the slot, and parallel sides, b, b,—substantially as shown and described. (4) In window sash and analogous structures, the crossbar, A, having the notches, c, c, shoulders, b, b, and rib, a, having its ends formed as at E, in combination with the cap, B, having the hollow, b', lips, d, d, slot, d<sup>2</sup>, and both ends cut at an angle, as at g,—substantially as and for the purpose set forth. (5) In window sash and analogous structures, the crossbar, A, having the notches, c, c, shoulders, b, b, and rib, a, having the flange, a', and ends formed as at e, in combination with the cap, B, provided with a triangular hollow, b', and having lips; d, d, slot, d<sup>2</sup>, and angles, g,—substantially as shown and described, and for the purpose set forth."

The claims of patent No. 412,751 are as follows: "(1) The herein-described process of manufacturing crossbars, rails, and fastenings for window sashes, etc., consisting first in passing the strips of metal through a die or dies, giving the bars the desired conformation or shape; then cutting or sawing the formed strips into proper lengths; then notching the ends of the strips; and then passing the notched strips through a device for bending the same into suitable shape or curve ready for use,—substantially as and for the purpose set forth. (2) The herein-described process of manufacturing metallic crossbars, rails, and fastenings for window sashes, consisting first in drawing the strips of metal through a die or dies, making the proper conformation or shape; then placing the strips horizontally against a revolving circular saw, and cutting them to proper lengths; then notching the ends of the formed strips by placing them longitudinally against a series of revolving disks;

then passing the notched strips through a series of rollers, thus bending them to a proper curve ready for use,—substantially as shown and described, and for the purpose set forth. (3) The herein-described process of manufacturing

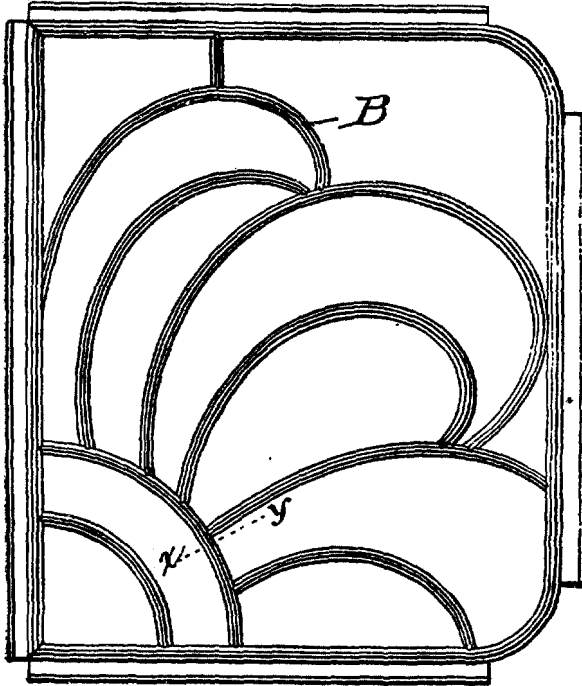


Fig. 1.

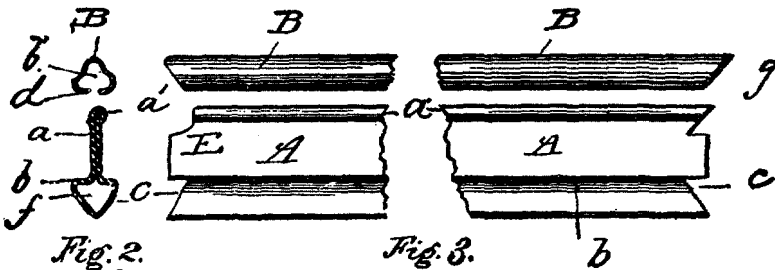


Fig. 2.

Fig. 3.

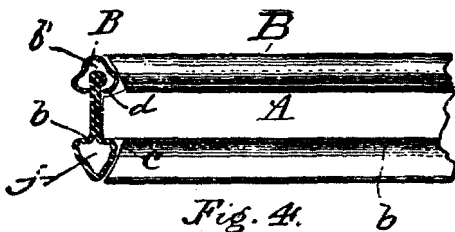


Fig. 4.

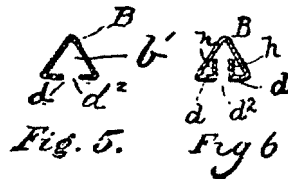
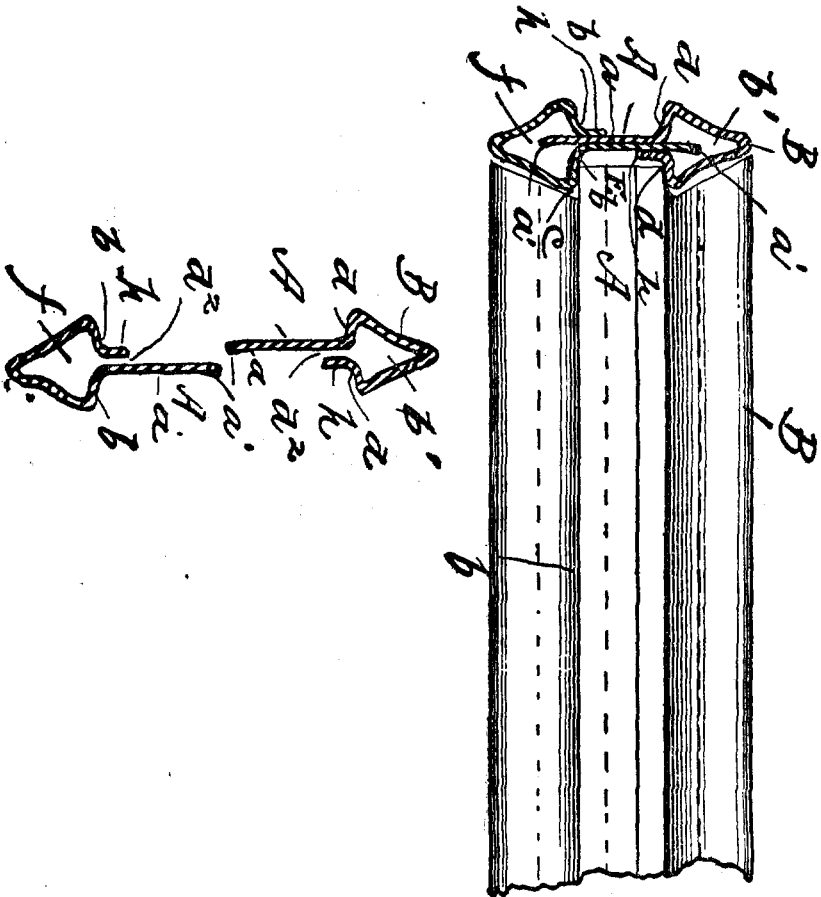


Fig. 5.

Fig. 6.

metallic crossbars, rails, and fastenings for window sashes, consisting first in passing strips of metal through a die or dies, forming a bar and cap of desired conformation; then placing the cap on the rib of the bar, and cutting them into proper lengths; then notching the ends of the strip; and then passing the notched strips through a device for bending the same to a desired curve; then removing the adjustable cap, and clipping the ends of the rib of the bar at a desired angle,—substantially as shown and described, and for the purpose set forth. (4) The herein-described method of manufacturing hollow metallic crossbars, rails, and fastenings for window sashes, consisting first of forming a metallic bar and cap in separate pieces; then adjusting the cap on the rib or web of the bar; then bending, cutting, and notching the same as a whole; then removing the adjustable cap, and cutting the ends of the web or rib of the bar,—substantially as and for the purpose specified."

The appellant Schuhmann applied July 1, 1889, for letters patent on "improvements in metallic window-sash bars," and on the ensuing 12th of November was granted letters No. 415,068, in accordance with which, it is conceded, the alleged infringing devices were made. They are sufficiently illustrated by the following drawings, which are in evidence and are substantially identical with Figs. 2 and 4 of Schuhmann's patent:



Banning & Banning, for appellants.

Charles Shackelford and Offield, Towle & Linthicum, for appellee.

Before WOODS, Circuit Judge, and BUNN and SEAMAN, District Judges.

WOODS, Circuit Judge, after making the foregoing statement, delivered the opinion of the court.

The process of patent No. 412,751 is purely mechanical. The devices and machinery necessary for its accomplishment, consisting of dies, a "bending or conforming device," a "machine for forming or notching the ends of the bars," and other familiar appliances, are illustrated by drawings, and minutely described in the specification. The application for the patent was rejected, in the first instance, on the ground that "the alleged method is, as presented, the necessary function or operation of the mechanism described"; and, notwithstanding the amendments made to the second, third and fourth claims, we are of opinion that the objection was not obviated, and the patent should not have been granted. In the case of *Appleton Manuf'g Co. v. Star Manuf'g Co.*, 9 C. C. A. 42, 60 Fed. 411, 18 U. S. App. 492, where it was necessary to consider the question of the patentability of mechanical processes, we were unable to deduce from the decided cases a definite rule; but whatever uncertainty there had been, or lack of harmony, in the decisions and dicta of the Supreme Court on the subject, was removed by the recent opinion of that court in *Locomotive Works v. Medart*, 15 Sup. Ct. 745, from which we quote the following:

"The four claims of the patent make no reference to the mechanism exhibited in the drawings, and described in the specification. All claim an improvement in the art of manufacturing, and set forth, in more or less detail, the various steps in that process. That certain processes of manufacture are patentable is as clear as that certain others are not, but nowhere is the distinction between them accurately defined. There is somewhat of the same obscurity in the line of demarkation as in that between mechanical skill and invention, or in that between a new article of manufacture, which is universally held to be patentable, and the function of a machine, which, it is equally clear, is not. It may be said, in general, that processes of manufacture which involve chemical or other similar elemental action are patentable, though mechanism may be necessary in the application or carrying out of such process, while those which consist solely in the operation of a machine are not. Most processes which have been held to be patentable require the aid of mechanism in their practical application, but, where such mechanism is subsidiary to the chemical action, the fact that the patentee may be entitled to a patent upon his mechanism does not impair his right to a patent for the process, since he would lose the benefit of his real discovery, which might be applied in a dozen different ways, if he were not entitled to such patent. But, if the operation of his device be purely mechanical, no such considerations apply, since the function of the machine is entirely independent of any chemical or other similar action."

This is followed by "a review of some of the principal cases upon the subject of patents for processes," and after quoting from *Corning v. Burden*, 15 How. 252, the statement is added, that, "although the cases are not numerous, this distinction between a process and a function has never been departed from by this court."

It is evident that, in the process for making metallic sash bars

described in Henderson's patent, there is involved no chemical or other elemental action which is separable or distinguishable from the function of the several mechanical devices which are employed to effect the result. The patent is therefore invalid.

It is not necessary to pass upon the question of novelty in the second patent. In view of the prior art, it is clear that, if valid, the patent must be restricted to the particular forms of construction described. Similar forms in bars for uniting glass and other plates in skylights, show cases and windows are shown in earlier patents which are in evidence, and especially in No. 315,958, issued April 14, 1885, to Overman and O'Connor, and No. 370,075, issued September 20, 1887, to Macleod. If the various forms illustrated in those patents were not, like Henderson's device, "especially adapted to that class of sashes which contain many small pieces of glass cut in numerous configurations and designs," it was mainly because of the size of the parts; and once it was perceived to be desirable to use a stronger material than lead in the construction of windows of stained glass, or of clear glass in small pieces, it required no invention to adapt to that purpose the designs of Macleod and others by reducing or otherwise changing their proportions. Henderson himself, before seeking a patent for a bar with rib and shoulders and adjustable cap, had introduced into public use, and was under contract to furnish the Wells Glass Company, a metallic T-shaped bar; and the idea of putting on the rib of that bar a cap, to make the finish the same and to afford support for the glass on both sides, whether it was Henderson's own conception, or was, as Schuhmann testified, his suggestion, was an expedient which was too obvious to be called invention, even if such a cap or counterpart had never before been employed. And in the notching, fitting, and bending of the parts, by means of devices which were in common and familiar use, it is difficult to see anything essentially new, or beyond the powers of ordinary mechanical experience and skill.

In addition to the prior art, the file wrapper shows that, pending the application for this patent, Henderson presented an amendment to his specification, whereby he described, and sought to include, a sash bar substantially identical in form and in details of construction with the bars made by the appellants, and that the amendment was not allowed because it proposed "matter not embraced in the statement of invention or specification or drawing, as originally filed." In response to this, counsel says: "What of it? Certainly no question in this case is affected thereby. That the device of the defendant appellants contains a new and additional invention, supplemental to and built upon the invention of Henderson, does not for a moment take it out from under the Henderson device patent, as an infringement thereof." This argument proceeds upon an erroneous assumption of fact. The proposed amendment did not describe an invention made up of the device first described, and of additional and supplemental matter severable therefrom. It was regarded by the patent office as presenting, and was rejected because it presented, and the claim based

upon it was for, "an entirely distinct and independent invention from that embraced in the application as originally filed." Having acquiesced in that ruling, the patentee cannot be heard to insist that the matter so excluded is nevertheless covered by the patent. It follows that the decree of the circuit court, in so far as it declared patent No. 412,751 to be valid and infringed, and No. 420,510 to have been infringed, is erroneous, and should be reversed, and it is so ordered.

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DE LA VERGNE REFRIGERATING MACH. CO. v. FEATHERSTONE,  
et al.

(Circuit Court, N. D. Illinois. January 21, 1895.)

**1. PATENTS—ANTICIPATION—PRIOR STATE OF THE ART.**

The Boyle patent, No. 175,020, for an improvement in gas-liquefying pumps used in refrigerating machines, held void for anticipation as to the combination claimed in its first claim, but not as to the removable cages for the valves claimed in its second.

**2. SAME—INVENTION.**

The introduction of removable cages for the valves of a gas pump of a refrigerating machine, whereby the valves may be replaced with but a few minutes' interruption, and thus the work of refrigeration enabled to go on almost continuously, is a patentable invention, as the presence of such cages performs a proximate office in the function of the machine.

**3. SAME—INFRINGEMENT.**

Minor differences in the adjustment of parts and in the construction of the mechanism, such as would be naturally suggested to any skilled mechanic with the patented combination clearly in mind, will not save a device from being an infringement.

In Equity. Bill by the De la Vergne Refrigerating Machine Company against John Featherstone and others to enjoin infringement of a patent and for an accounting.

Hubert A. Banning, Banning & Banning, Charles H. Aldrich, and Edmund Wetmore, for complainant.

Bond, Adams, Pickard & Jackson, for defendants.

GROSSCUP, District Judge. The bill in this case is to restrain the infringement of letters patent No. 175,020, issued March 21, 1876, to James Boyle, his heirs or assigns, for "an improvement in gas liquefying pumps." The improvement relates to that class of machinery which is employed for the abstraction of heat for refrigerating and ice-making purposes. The principal defenses are the invalidity of the patent and noninfringement.

Mechanical refrigeration has become an art. Ammonia, destitute of water, by reason of its susceptibility to rapid vaporization from a liquid to a gaseous state, during which heat from surrounding objects is rapidly taken up, is the agent most usually employed. This agent is distributed through the environment to be operated upon by means of pipes and coils, which are connected with a compressor, and the gas, after expanding from a high to a low pressure, during which the heat is taken up, returns for recompression.