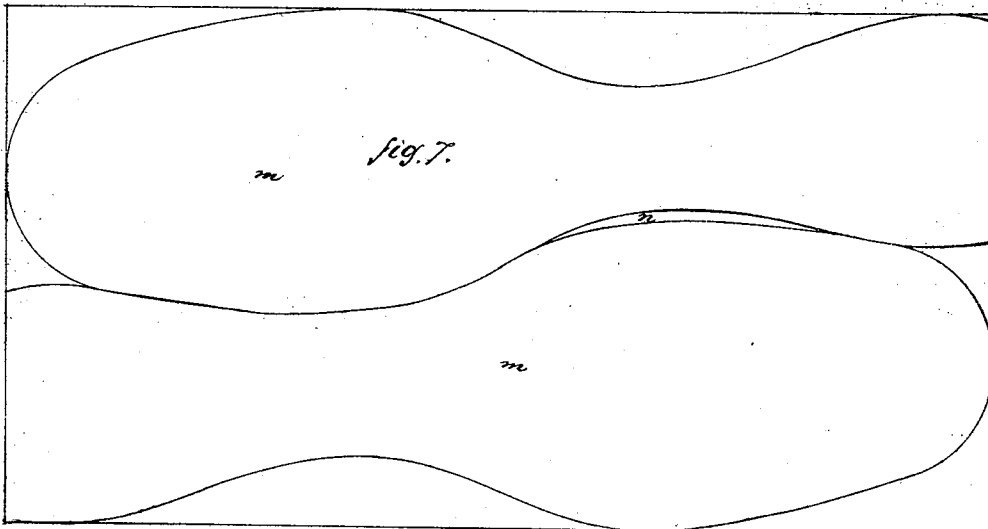
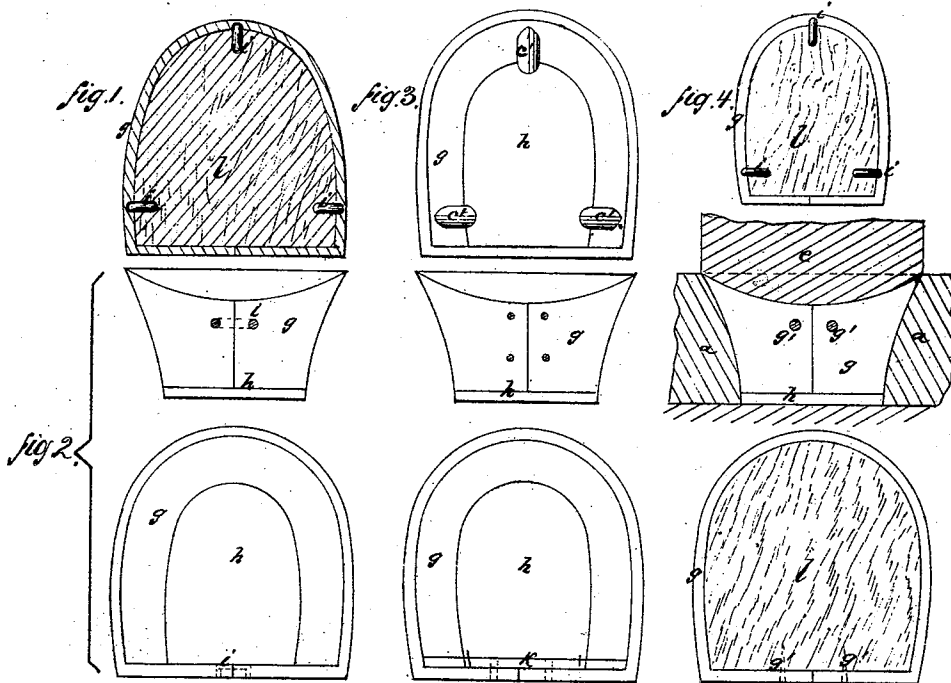


J. Woodley,

Boot & Shoe Heel.

No. 101,399.

Patented Mar. 29, 1870.



Witnesses:

Victor Hagmann
Chas. W. Pettit

Inventor:

J. Woodley
per Messrs. Co
Attorneys.

J. Woodley,

2. Sheets, Sheet 2.

Boot & Shoe Heel.

No. 101399.

Patented Mar. 29. 1870.

Fig. 5.

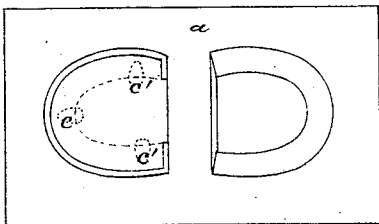


Fig. 6.

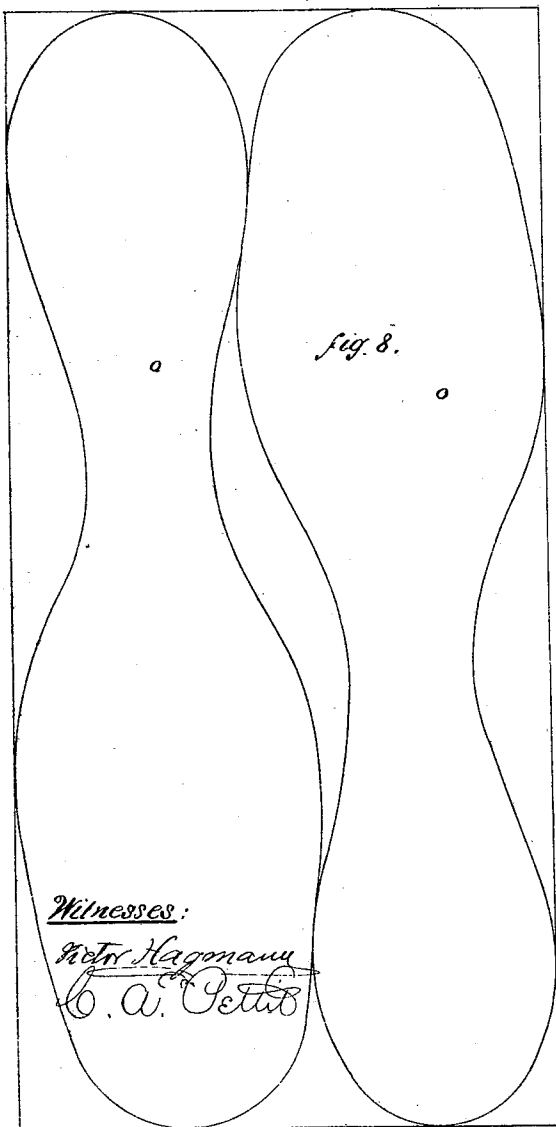
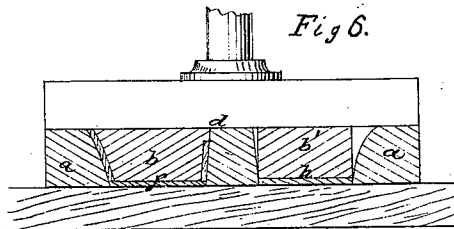


Fig. 8.

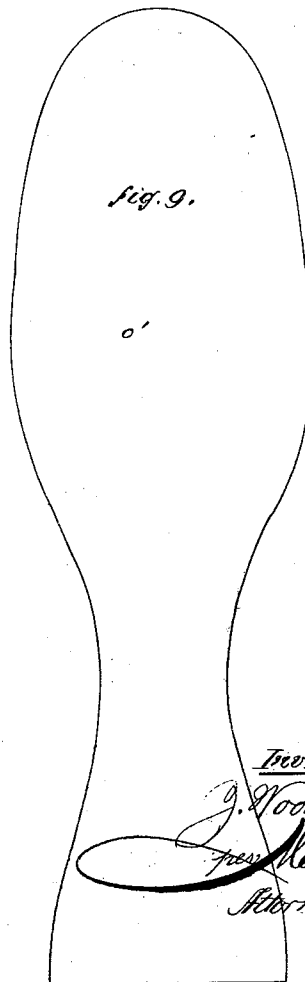


Fig. 9.

UNITED STATES PATENT OFFICE.

JOSEPH WOODLEY, OF QUEBEC, QUEBEC, CANADA.

IMPROVEMENT IN BOOT AND SHOE HEELS.

Specification forming part of Letters Patent No. 101,399, dated March 29, 1870.

To all whom it may concern:

Be it known that I, JOSEPH WOODLEY, of Quebec, Province of Quebec, in the Dominion of Canada, boot and shoe manufacturer, have invented certain new and useful Improvements in Boot and Shoe Heels, with molds, &c., for forming the same; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, in which—

Figure 1 represents a horizontal section through heel on line A B. Fig. 2 represents a front view of the heel, with a modification of fastening. Fig. 3 represents a plan of heel without filling, showing projections for fastening-nails. Fig. 4 represents a plan of bottom of heel with cap removed, showing clamp for attaching band to filling. Fig. 5 represents a plan of mold and die. Fig. 6 represents a longitudinal section through same. Fig. 7 represents new plan for cutting soles. Fig. 8 represents old plan of cutting soles. Fig. 9 represents new plan of die for cutting new soles.

The ordinary manner of making and attaching heels to boots and shoes consists in placing horizontal layers of sole-leather on top of each other until the required height of the heel is obtained, and securing them together and to the body of the boot either by nailing or sewing. The heel is then brought to the required curvature or configuration and afterward finished with hot irons, all of which involve considerable time and expense. It has also been the practice, to some extent, to form the heels of ladies' boots and shoes of wood, with its grain arranged horizontally, sometimes surrounding the whole with a covering of thin upper-leather. The objections to this plan are the following: first, the difficulty or expense attending the shaping of the wooden heel to the required configuration, and to which the covering has conform—a process performed by hand-labor; second, the covering, being of thin leather, cannot be burnished, and therefore fails in acquiring the desired degree of finish; third, the thin leather covering is soon worn through, exposing the wood, and rendering the heel useless; fourth, an objection is the liability of the wooden heel to split when the nails are being driven into it for securing it to the body of the boot, and even should this be success-

fully accomplished, the splitting may occur at an after period, when the wood is becoming seasoned or by ordinary wear. Owing to these objections, it has been found that the use of wooden heels arranged as above described, although known for many years past, has failed in attaining the object in view—cheapness, utility, and finish—and consequently has been practically abandoned. These requirements are all obtained by the use of my improvements, which I will now proceed to describe.

In the drawing similar letters of reference indicate corresponding parts.

Letter *a* is a metal mold, either single or double, in which the heels to be manufactured are pressed to the required shape. The inner surface of these molds is curved to suit the configuration of the outside of the heel, and is also provided with minute corrugations or projections for ornamenting the upper edge of the heel. The mold is burnished, for the purpose of imparting a fine finish to the heel. A die, *b*, is used for the first operation, that of forming the cylindrical band to be presently described.

c c c are three checks or recesses on the lower side of the die, for the purpose of forming ribs or projections *c' c' c'* on the inner side of the cylindrical band for the reception of the nails. *d* is a projection on the upper side of the same die, for the purpose of bringing the cylindrical band to the bottom of the mold, and also for the purpose of giving the required shape. *b'* is a second die, for forming the bottom piece, *h*, when placed in the mold. *e* is a third die, for compressing the filling in the heel, which die is slightly convex on its lower end, leaving the filling, when compressed, concave. *f* is a metal piece of the same size and form as the bottom of the mold, and fitting tightly or accurately into it. *g* is a strip of sole or other suitable leather, cut to the required shape by a die; or this piece may be of india-rubber, gutta-percha, or other analogous material, either pressed or molded. *h* is the bottom piece, also cut by a die; or the entire heel may be cut of one piece. *i* is a metal clamp for securing the two ends together, and also used for preventing the cylindrical band from spreading, as shown in Fig. 4. *k*, Fig. 2, is a cover-piece, either riveted or cemented to the strip *g* for the same purpose. *g' g' g'* are nails for securing the leather band to the wood filling. *l* is the filling of

wood, placed endwise in the heel; or it may be of leather or wood fiber or other analogous material, compressed to the required shape either in or out of the heel.

With the foregoing brief description of my invention, to which I have given the name of "Woodley's Boot and Shoe Heel," I will now proceed to describe more particularly the manner in which the same is carried into operation.

The various parts having been arranged substantially as described, and as shown in the drawings, the metal plate *f* is placed in the bottom of the mold *a*. The strip of leather *g* is then placed in the mold, with its lower edge resting on the plate *f*. In this position the die *b* is introduced, which, with the aid of a press, forces the leather strip into a cylindrical form the shape of the mold. The die and band are then removed and the leather piece *h* introduced, which is slightly larger than the bottom of the mold. A second die, *b'*, is now used with a press to bring the leather piece *h* to the exact form of the metal piece *f*. The leather band *g*, after having been united together by the clamp *i* or cover-piece *k*, is again introduced into the heated mold, with its lower edge resting on the bottom piece, *h*. The filling is now introduced, and a third die, *e*, with its lower side convex, applied with a press, pressing the whole heel to a highly-finished, hard, and compact mass, leaving the upper side concave, for the purpose of giving the shape required by the sole. The die *e* is now removed and the mold reversed, and the piece *h*, having been secured to the heel by nails or cement, is then removed from the mold, for the purpose of being attached to the boot. To this end an alteration is made in the sole, by which a saving is effected in the quantity of leather employed. This is accomplished by shortening the sole, to adapt it for the reception of the improved heel, the use of which does not require the same amount of sole as the horizontal heel at present in use. This saving will be more clearly seen by reference to the annexed drawings, where Fig. 7 represents my improved plan and Fig. 8 the plan in ordinary use, in which *m m* represent soles cut without a portion of the heel, in accordance with my improved plan, and alternating with each other. It will be seen that while there is a saving in the leather in the direct length of the sole there is also a saving in the pieces *n* between the two soles, these pieces being considerably less in size than the corresponding pieces between the soles *o o*, cut in the ordinary manner, of full length. Soles represented by *m m* cannot

be used with the horizontal heel, (now in vogue.) The sole in this case, forming part of the heel, cannot be dispensed with. The curvature at the top of the Woodley boot and shoe heel fits closely against the bottom of the boot, and renders the back of the sole unnecessary. This system of cutting will also be found of advantage in preparing the soles as heretofore used, on account of the saving made in the pieces *n* between the two soles, the heels being made up of independent pieces. The die *o'*, I have invented for cutting the soles, as shown in Fig. 9. It resembles those already in use, but without the heel portion.

The advantage of this system of cutting will be clearly understood when it is stated that a piece of leather cut by the present plan yielding fifty-six (56) soles will when cut by my improved method give sixty-eight (68) soles.

In order to attach the heel to the boot, it is placed in the proper position, and nails driven through the bottom piece and projections *c' c'* into the filling, and from thence through the boot and clinched when coming into contact with the iron-bottom last, or by screwing, or by cementing. The pressed or molded cylindrical heel cannot open, as is the case with the present horizontal heel, the drying of which forms a space between each layer of leather. The molded heels also excel in symmetry, and consequently are not liable to turn to the side of the boot when worn, are cheaper, durable, and better finished than any heels now in use.

I am aware that composition heels have been patented in the United States by Joseph Read, whose patent is numbered 23,312.

I beg to state that I disclaim all other forms of heels now in use for boots and shoes.

What I claim as my invention, and wish secured by Letters Patent, is—

1. The combination of the molds *a*, dies *b*, *b'*, and *e*, the former, *b*, being provided with recesses *c c c* and projection *d* and the metal piece *f*, all working together substantially as and for the purpose described.

2. The heel herein described, formed of the leather strip *g*, provided with the ribs *c*, the bottom piece, *h*, metal clamps *i* or nails *g'*, and filling *l*, with or without the cover-piece *k*, substantially as and for the purpose described.

3. The heel herein described, in combination with the shortened sole *m*, substantially as and for the purpose described.

JOSEPH WOODLEY.

Witnesses:

JOHN S. SMALLEY,
JAMES WOODLEY.