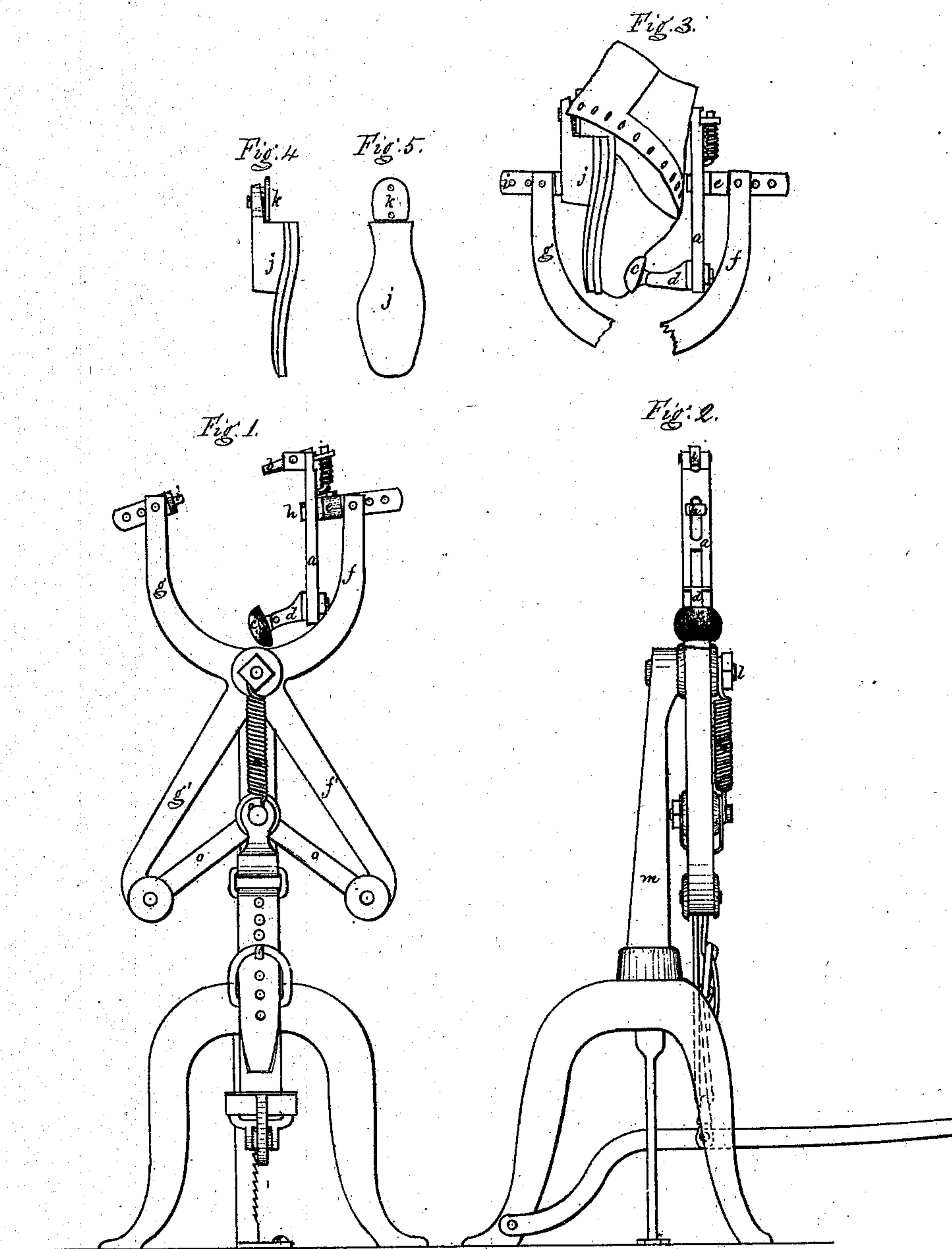


I. Cole,

Heel Machine.

No. 104,560.

Patented June 21, 1870.



Witnesses { *W. B. Grady*
C. Warren Brown.

Louis Cole

UNITED STATES PATENT OFFICE.

LOUIS COTÉ, OF ST. HYACINTH, QUEBEC, CANADA.

IMPROVED SOLE-EDGE-FINISHING MACHINE FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **104,560**, dated June 1, 1870.

To all whom it may concern:

Be it known that I, LOUIS COTÉ, of the city and county of St. Hyacinth, in the Province of Quebec, Canada, have invented an Improved Machine for Finishing the Soles and Heels of Boots and Shoes; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

By this machine I firmly clamp the sole of a boot or shoe solidly upon the last therein, so as to make the sole conform to all the longitudinal and cross curvatures of the last-bottom, and I so mount the boot or shoe thus lasted and clamped that it may be turned in a vertical plane to suit the convenience of the workman in operating upon the edges of the sole and heel, and may be held in any desired position, while the edges of the clamping-plates on the sole or heel, or on either, serve as patterns and as guides for the hand-knives or edge-planes of the operator in reducing the rough sole and heel edges to the desired shape. After the edges of the sole and heel, or either, have been brought to the desired form by the action of hand cutting-tools, the machine affords great facility to the operator, by reason of the horizontal axis or pivots on which the firmly-clamped boot or shoe turns, for the further finishing operations on the sole and heel edges of scraping, sandpapering, blacking, and rubbing and polishing.

Figure 1 of the drawings shows a front elevation of my improved machine as it appears without a boot or shoe therein. Fig. 2 shows the same in side elevation. Fig. 3 shows a side elevation of the upper part of my machine as it appears when holding a boot or shoe. Fig. 4 is a side view, and Fig. 5 a plan, of the clamping and pattern guide-plates for the sole and heel.

The last-holder is made of a plate, *a*, to one end of which is pivoted the pin *b*, which is to be inserted in a hole bored for the purpose in the last, the last-pin *b* being connected with a compressed spiral spring, which always exerts its elasticity to throw the outer end of the pin toward the toe-support of the last. This toe-support is represented by *c*, and is pivoted so as to assume any angle required by the shape of the shoe to the sliding piece *d*, made ad-

justable in the plate *a*, which is slotted for the purpose. The plate *a* is pivoted to a trunnion, *e*, which is secured to a holder, *f*, arranged so that it can be moved toward and from an opposite holder, *g*, by any suitable means; or one of said holders may be movable and the other stationary. The plate *a* is connected to the trunnion *e* by a connecting-pin, *h*, capable of turning in the trunnion, the plate *a* being slotted where said pin *h* passes through it. The opposite holder, *g*, is provided with a trunnion, *i*, which has a pin which enters as a center a hole in a plate, *j*, which corresponds to the outline of the finished contour of the sole, and also corresponds on the face coming in contact with the sole with the longitudinal and cross curvatures of the bottom of the last within the boot or shoe. This plate is designed to cover the sole from the breast of the heel to the toe, and on the back of said plate is a rib, near one end of which is the hole which receives the center-pin of trunnion *i*, the other end of the rib being cut back from the sole-face and adapted, by means of steady-pin holes, to receive plates of the size and form of the tread of the heel to be finished. The heel-plate thus used is marked *k* in the drawings, and may be changed for others of various forms and sizes made interchangeable with all of the various pattern-plates, of which any number of different forms and sizes may be used with the machine. In the part of the rib on the former-plate *j*, projecting over the heel and between the steady-pin holes, is a set-screw, by which the heel-plate *k* is adjusted relatively to the sole-face of plate *j*. Both of the trunnions *e* and *i* can be adjusted toward or from each other in the holes *f* and *g* by means of the holes seen in the trunnions and pins which pass through the holder ends and the holes in the trunnions.

A last with a boot or shoe upon it is placed upon the last-pin *b*, and the toe-rest is pushed well under the toe of the boot or shoe, and is then secured. The plate *j*, with a suitable heel-plate, is then put upon the sole-face of the boot or shoe, and the pin of trunnion *i* being introduced into its center hole in the rib on said plate, the operator adjusts the plate upon the sole with its edge equidistant from the sole-edge, and then, by any suitable means provided, firmly forces the plate *j* upon the sole with more or less pressure, as may be desired.

The boot or shoe can now be turned upon horizontal centers, and the operator can observe if the metal patterns are rightly adjusted with reference to the sole and heel, and by slackening the pressure with which the holders are forced toward each other he can correct the adjustment and then renew the pressure to such an extent, if necessary, as to hold the boot or shoe from turning on the centers. While the holders *g* and *f* may be of any form that will permit rotation of boots and shoes held by them, and may be made to exert a clamping action by many different means, I will now describe the specific means employed by me with good results. The holders *f* and *g* are pivoted at *l* to a standard, *m*, supported on a tripod resting on the floor, said holders being continued beyond the pivot *l* by arms *f'* *g'*, and to the lower ends of said arms are pivoted radius-bars *o*, which are connected to a spring, *n*, which by its contraction operates to keep the upper ends of arms *f* and *g* spread apart. The inner ends of the radius-bars *o* are jointed together, and are connected by a link or a strap or any suitable means to a treadle, by which the operator can cause the trunnions *e* and *i* to approach each other with more or less force, as may be desired.

A rack is provided by which the treadle may be caught and retained in any desired position, and from which the treadle may be at any moment released in a well-known manner. The boot or shoe being clamped with the former *j* and the heel-tread plate *k* properly adjusted, the sole is brought firmly against the last and is in the exact shape to receive a finished outline, which is made on the sole-edge by proper edge-planes worked by hand, said planes being guided by contact with the edges of the plate *j*, and prevented thereby from being cut away beyond the edges of the plate. The heel is roughly cut by proper knives nearly to the edges of plate *k*, the knives being guided by said plate, which also serves as a guide to the shave used to finish the form of the heel. Thus by the use of this machine it will be seen that unskilled labor may be employed to finish by hand cutting-tools the edges of soles and heels, in place of the high-priced skilled labor heretofore required for that purpose; and it will also be seen that all the subsequent manipulation in coloring or polishing said edges may be conveniently performed while the boot or shoe is held so that it can be turned at will on

a horizontal axis, which presents the part to be wrought upon most conveniently to the operator.

By sliding the plate *a* on the trunnion *e* and the toe-rest on the plate *a*, boots and shoes of any length within reasonable limits can be adjusted in the machine, while by the pivoting of both trunnions *e* and *i* in the holders *f* and *g* the plate *j* can be made to bear equally all over the sole.

Between the heel-tread plate *k* and the rib on the sole-plate *j*, and surrounding the set-screw bearing against plate *k*, I place a spiral spring, which will ordinarily force plate *k* against the tread of the heel with sufficient force; but when more range of movement is required than is afforded by the spring, then the set-screw is to be made use of.

I have described the use of this machine with hand-worked cutting-tools; but it will be evident that the cutting-tools may be operated by mechanism.

I claim—

1. The last-holding jack made up of the plate *a*, mounted so as to turn on or with a center-pin, *h*, and so as to slide thereon, and provided with the last-pin *b* and toe-rest *c*, arranged so as to be adjustable relatively to each other.

2. The combination, with a rotating jack, of a plate shaped to conform to the various curvatures of a sole; and arranged to rotate with the jack and to be forced toward and withdrawn from the jack, and adapted for use as a guide to tools for removing superfluous leather from the sole-edge, substantially as described.

3. The combination, with a sole-plate arranged as described, of a heel-tread plate, substantially as and for the purpose specified.

4. The means for causing the last-holding jack and the clamping-guide to approach toward and to recede from each other, consisting of the combination of pivoted arms *f f' g g'*, radius-bars *o o*, spring *n*, and treadle, arranged substantially as described.

5. The trunnions *e* and *i*, or either of them, pivoted to holders and adjustably attached thereunto, so that they can be arranged to fit lasts of varying height from the balls of the sole and heel to the neck of the last.

LOUIS COTÉ.

Witnesses:

J. B. CROSBY,
FRANCIS GOULD.