G. P. Merriam,

Boot-Heel Machine.

No. 36015. Patented July 29 1862.

Fig. 1.

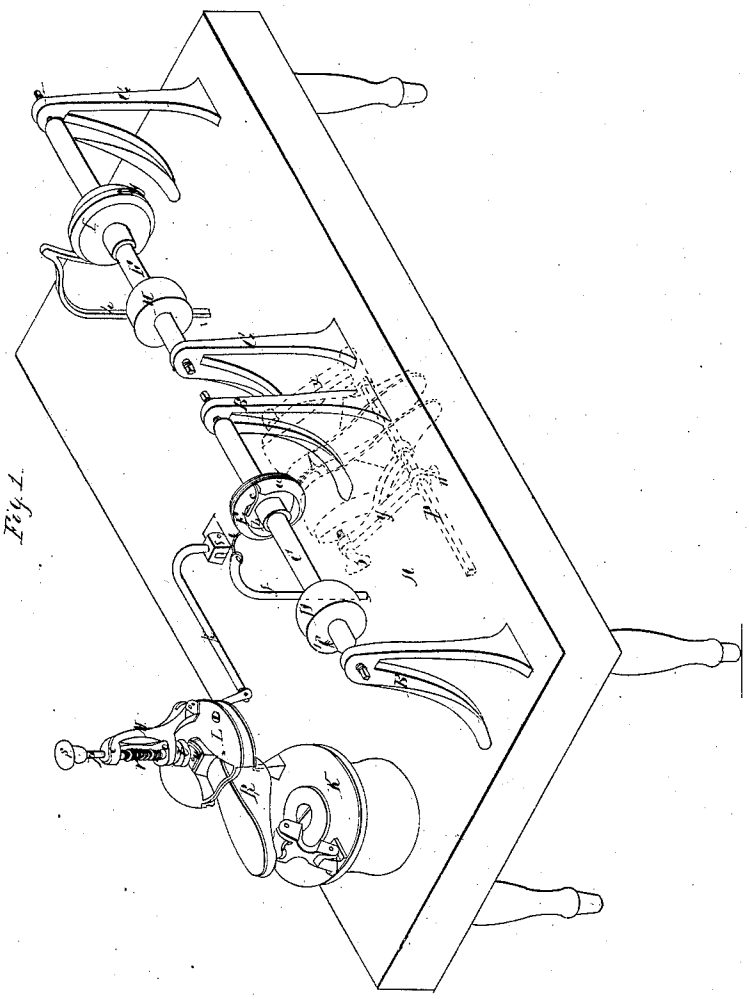


Fig. 2.

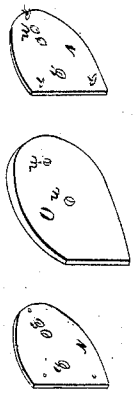


Fig. 3.

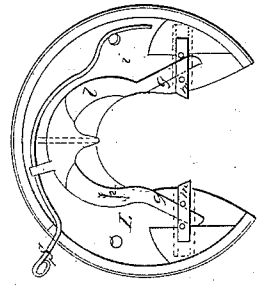
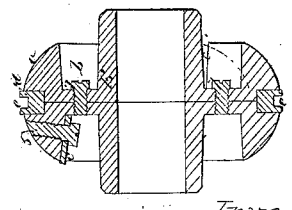


Fig. 4.



Witnesses.
Jno R Roach
D. Speckmaker

Inventor.
G P Merriam

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE P. MERRIAM, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR FORMING, SMOOTHING, AND POLISHING THE HEELS OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **36,015**, dated July 29, 1862.

To all whom it may concern:

Be it known that I, GEORGE P. MERRIAM, of Lynn, in the county of Essex and State of Massachusetts, have invented certain Improved Machinery for Forming, Smoothing, and Polishing Boot-Heels after they are Attached to the Boot, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a view of the machine; Fig. 2, views of the guide and pattern plates, which are attached to the heels to trim by; Fig. 3, a plan of the centering-clamp with its top plate removed; Fig. 4, a section through the forming-tool or cutter.

My present invention relates to certain improvements in the manufacture of boots and shoes; and it consists in shaping and dressing the heels of boots and shoes in pairs after they have been attached to the boot or shoe, by means of a rotating cutter or polisher, with which is connected a guide-ring which is intended to receive a guide-plate, which is clamped between the two heels of a pair of boots or shoes held sole to sole, there also being pattern-plates placed on the bottoms of the heels, up to which the cutter works, and which leave when removed the heel with a well defined and finished edge.

That others skilled in the art may understand and use my invention, I will proceed to describe the manner in which I have carried out the same.

In said drawings, A is the bed or frame of the machine, from which rise two standards, B, which carry a horizontal shaft, C. This shaft has on it a pulley, D, by which it is driven rapidly in the direction of the arrow 1 by a belt from any suitable driving-power. There is also attached to the shaft C, near the middle of its length, a cutter-head, E, or forming-tool, which is shown detached and enlarged in section, Fig. 4. It has its periphery rounded, as at *a*, to correspond with the required form to be given to the boot-heels. It is recessed on each side, at *b*, to allow a cutter or plane-iron, *c*, to be attached by a screw, 5. The cutting-edge of this plane-iron is ground to conform to the curve *a*, and projects slightly from the face *a*, in which a throat is cut for the chips to pass through to the recess *b*. The irons are not adjusted immediately opposite to each other on the opposite sides of the head E, and there may be one or more on each side.

A steel ring, *d*, with a groove, *e*, in the middle of it, is let into the head E around its middle. This ring is loose on the head, and is held stationary by a rod, 6, attached to it and to a post, *f*, rising from the frame A, the cutter-head turning freely within the ring as the shaft C is revolved.

For convenience of construction the head E is made in two parts, and these are joined together by screws 7. This cutter-head is used for turning down and shaping the heels in a manner to be presently described. Another shaft, F, supported on two standards, G, has on it a pulley, H, and a polishing-wheel, I, which is rounded off on its edge to correspond in form to the cutter-head E. It is used for smoothing and polishing the heels after they are formed.

A band, *g*, with a groove in it similar to that in the ring *d*, is let into the edge of this wheel. It does not quite surround the wheel, and is attached to a post, *h*, rising from the bed A, the wheel revolving freely in the band.

At the rear side of the frame A is placed a swiveling-jack, K, on which the workman places the shoe R, which is on its last. A centering-clamp, L, (shown detached and enlarged in Fig. 3, and with its top plate removed,) is supported on an arm, *k*, which is hinged at 8 to the frame A, so that it may be turned back out of the workman's way when required.

Between the top and bottom plates of the clamp L, and resting on the bottom plate, *i*, is a cam, *l*, Fig. 3, which is thrown forward in the direction of the arrow 2 by a lever, S, (the spring of which serves to retract the cam.) The inclined ends 9 of this cam serve to thrust out a bolt, *m*, on each side of the clamp, while a tongue, *n*, projecting from the middle of the cam, is thrust out when the cam is pressed forward an amount equal to the motion of both the side bolts, *m*. Thus by a simple movement of the lever S the clamp is adjusted true or at equal distance from all parts of the heel.

To the top plate of the clamp L is pivoted at 10 a hand-stamp consisting of a standard, M, in bearings *o*, in which slides a rod, *p*, embraced by a spiral spring, *r*, which holds it up.

This rod has on its top a knob or handle, *s*, and on its lower end a disk, *t*, from which project two pins, which enter holes *u* in the pattern-plates N, in order to hold the plate up to the disk until the hand-stamp M is swung over into the position shown in Fig. 1. These pattern-plates N, which are shown detached in Fig. 2, have three sharp points, *v*, projecting from one face, which are intended to enter the leather and hold the plate in position on the heel after it is properly placed, the plates remaining on the heel until the shaping and dressing is completed, when they are removed.

O, Fig. 2, is a guide plate of a little greater diameter than the pattern-plates N. It has two pins, *w*, projecting from each side, which enter the holes *u* in the plates when the shoes are brought sole to sole, as shown in red, Fig. 1. For the convenience of holding the pair of shoes in this position while they are being operated on, I fix them in a hand-clamp, P. (Shown in red, Fig. 1.) This clamp consists of a simple bar, P, with a fixed arm, *x*, at one end, and a sliding arm, *y*, which is secured to the bar P by a screw, 11. A screw, *z*, is then turned up against the lasts and binds the lasts and shoes firmly together.

The following is the operation: The workman, having lasted the shoe R and attached to it the heel in rough, brings over the clamp L into the position shown in Fig. 1, and presses on the lever S, which throws forward the cam *l* in the direction of its arrow 2. This forces out the tongue *n* and bolts *m* against the heel-seat, or the heel part of the sole, and brings the clamp true to the heel with the disk *t*, to which one of the pattern-plates N has been previously attached, immediately over the center of the heel. The stamp is then struck down by the hand or a hammer, striking on the knob *s*, when the points *v* on the plate N will enter the leather and secure the plate to the heel. The clamp L is now thrown back and the other shoe of the pair is put on the jack K, and a plate, N, is attached to its heel in the same manner. The shoes are now placed in the hand-clamp P, sole to sole, with the guide-plate O fixed between the two pattern-plates N, when the screw *z* of the clamp is turned up to bind the shoes together in this position. The heels are now held up to the cutter-head E, which is being rapidly revolved in the direction of the arrow 1, when the cutter reduces the heels to the required form. The guide-plate O, the edge of which projects a little beyond the plates N, is held in the groove *e* in the stationary ring *d*, (the cutter-head revolving within the ring.) This guide-ring and guide-plate serve to keep the heels central and square to the cutter, so that they are both reduced alike. The operator as the cutting proceeds turns the shoes over till the cutter has followed all round the pattern-plates N, when the forming will be completed. He then takes the shoes to the polishing-wheel I, and holds them to it in the same way until they are properly polished, when he repeats these operations on another pair.

It will be observed that an essential part of the operation consists in placing the pattern-plates N centrally on the heels before they are taken to the revolving cutter, as on this depends the cutting of the heels true and straight, while the guide plate and ring guide the workman in the operation.

The guide-plate O may be made smaller than the patterns N, thus forming a groove between the pattern-plates in which a projection or bead on the ring *d* will fit; but this I should consider but an equivalent of the groove *e* in the ring and the projecting guide-plate.

What I claim as my invention, and desire to secure by Letters Patent, is—

Shaping and dressing the heels of boots and shoes in pairs by means of a revolving cutter or polisher with its grooved ring, in combination with patterns N, secured to the heels, and the guide-plate O, operating substantially as described.

G. P. MERRIAM.

Witnesses:
THOS. R. ROACH,
P. E. TESCHEMACHER.