

**Patented July 15, 1879.**

Fig:1.

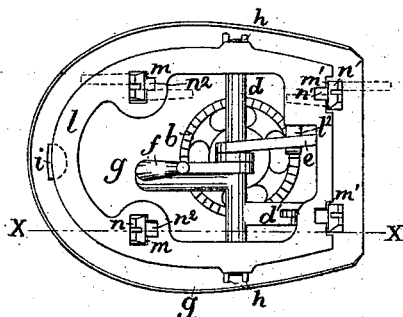


Fig:3.

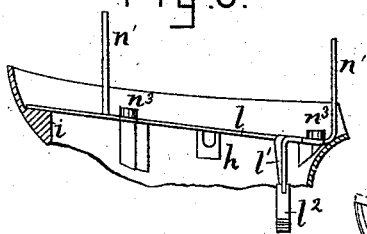


Fig:4.

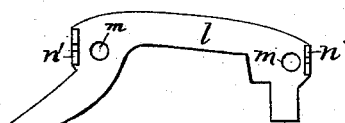
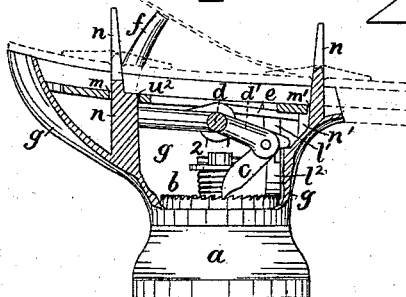


Fig:2.



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# UNITED STATES PATENT OFFICE.

SAMUEL M. RICHARDSON, OF WOBURN, ASSIGNOR OF ONE-HALF HIS RIGHT  
TO ALBERT T. STAHL, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN HEELS FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **217,486**, dated July 15, 1879; application filed  
June 16, 1879.

*To all whom it may concern:*

Be it known that I, SAMUEL M. RICHARDSON, of Woburn, county of Middlesex, State of Massachusetts, have invented an Improvement in Heels, of which the following description, in connection with the accompanying drawings, is a specification.

My invention relates to heels of boots and shoes, and is an improvement on the heel described in a former application made by me for Letters Patent of the United States, filed September 2, 1878, to which reference may be had.

The present invention relates to the devices for retaining in position the mechanism which automatically and intermittently rotates the heel-tip, as described in the former application, and also to means employed to attach the heel to the sole of the lasted boot or shoe.

The metallic shell or main body of the heel, of cast metal, is provided with suitable internal projections to sustain the rocking shaft which moves the pawl, and also the metallic plate which forms both a support for the sole and a cover to hold the rocking shaft in position.

Within the heel and extended upward above the plate are long slender vertical projections adapted to pass upward through holes in the sole, and then be bent over or clinched upon it, to thereby securely fasten the sole and heel together. These projections or prongs are shown as divided longitudinally to permit the different prongs to be bent or clinched in different directions.

Figure 1 shows, in top view, one of my improved heels ready to be attached to a sole; Fig. 2, a partial section thereof on the dotted line *x x*, Fig. 1, a part of the shell being broken away, and the attached sole being indicated in dotted lines. Figs. 3 and 4 are side views and plan of a modification of the plate and holding-prongs.

The rotating tip *a*, having the ratchet *b* attached to its shaft 2, is actuated by the pawl *c*, pivoted to the rocking shaft or lever *d*, the

said shaft being moved in one direction by a spring, *e*, and in the opposite direction by the weight of the foot on an arm or projection, *f*, of the rocking shaft or lever *d*, all substantially as in my other application.

The shell or main body *g* of the heel is provided with suitable bearings or supports *h* for the rocking shaft *d*, having the arms *d'* and *f*. The upper portions of said bearings, together with another projection, *i*, form a support for the plate *l*, which holds the said shaft *d* in its bearings. This plate *l* also forms a support for the sole of the boot or shoe, and is provided with suitable holes or notches *m m'* to receive the posts or studs *n*, (shown in Figs. 1 and 2,) as provided with prongs or projections *n'*, which are to extend upward above the plate and the shell *g*. These posts *n'* are provided with strengthening ribs or projections *n<sup>2</sup> n<sup>3</sup>*, adapted to be upset or headed to hold the plate *l* in place, as shown at *n<sup>2</sup>*, Fig. 2.

The prongs *n'* are forked for a sufficient depth to permit them to be bent in different directions after passing through holes in the sole, to thereby hold the sole firmly on the heel, as shown in dotted lines.

The shell *a*, with its different bearings and projections, hereinbefore described, may be formed as one casting.

The weight of the foot is applied to the arm *f* by means of a flexible or hinged flap (shown in dotted lines in Fig. 2) attached at the forward end to the insole by the prongs or otherwise.

The plate *l* is provided with a projection, *l'*, to support a pawl, *l<sup>2</sup>*, which prevents retrograde movement of the ratchet *b*.

In the modification shown in Figs. 3 and 4 the plate is formed in two parts, struck up from sheet metal, (one part only being shown,) the prongs *n'* in this modification forming a part of the said plate rather than a continuation of the posts, as in Figs. 1 and 2.

The plate shown in Fig. 3 has a projection, *l'*, to hold the pawl *l<sup>2</sup>*.

I claim—

1. In a heel provided with an automatical-

ly-rotated tip, a plate adapted to hold the internal mechanism of the heel in place, and at the same time form a support for the sole of the shoe, substantially as described.

2. A metallic heel-shell, combined with divided prongs adapted to pass through holes in the sole and be bent down and clinched thereon, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL M. RICHARDSON.

Witnesses:

L. F. CONNOR,

N. E. WHITNEY.