S. MOORE.

MACHINERY FOR FORMING TOE-PROTECTORS FOR BOOTS AND SHOES.

No. 173,231. Patented Feb. 8, 1876.

Fig. 1.

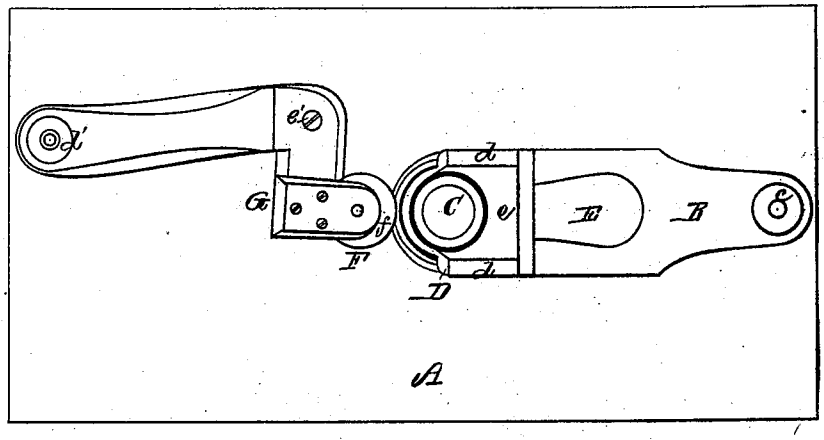


Fig. 2.

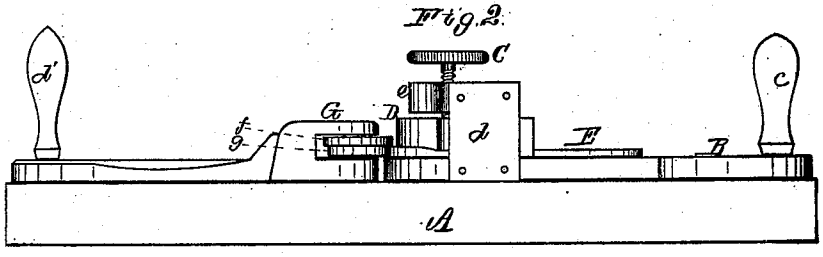


Fig. 3.

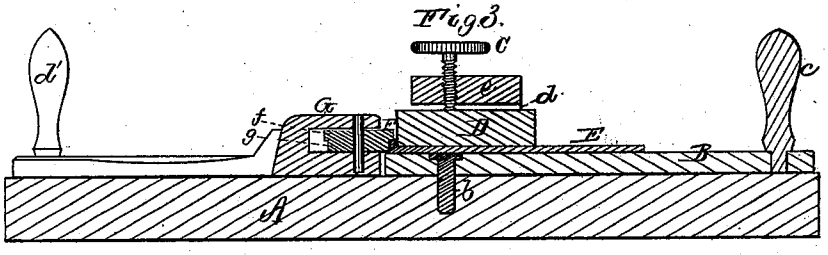
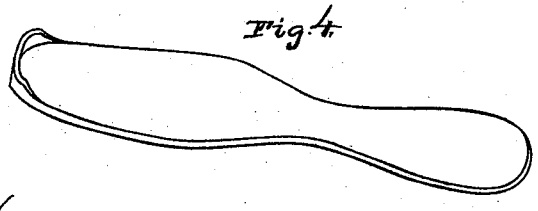


Fig. 4.



Witnesses.

S. W. Pipei.

L. W. Müller.

Stephen Moore.

by his attorney

R. H. Eddy.

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

UNITED STATES PATENT OFFICE.

STEPHEN MOORE, OF SUDBURY, MASSACHUSETTS.

IMPROVEMENT IN MACHINERY FOR FORMING TOE-PROTECTORS FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **173,231**, dated February 8, 1876; application filed December 9, 1875.

To all whom it may concern:

Be it known that I, STEPHEN MOORE, of Sudbury, of the county of Middlesex and State of Massachusetts, have invented a new and useful Machine for Forming Heel or Toe Protectors for Boots or Shoes; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a front elevation, and Fig. 3 a longitudinal section, of it.

By means of such machine a sole, at its toe or at its heel, may be flanged or turned up for the purpose of constituting the raised part a protector to an upper when connected with such sole; or a piece of leather may be flanged or turned up so as to answer as such a protector when inserted between the upper and the sole of a boot or a shoe.

Fig. 4 is a perspective view of a sole as flanged or turned up at its toe by my said machine, the part so turned up being shown at *a*.

In the drawings, A denotes a base-plate, having applied to it a flat arm or lever, B, which is pivoted to the plate, so as to be capable of being turned thereon in a circle, at whose center the pivot *b* is arranged. At its inner end the same arm or lever B is curved or semicircular, and at or near its outer end it is provided with a handle, *c*.

On the arm B there are erected two standards, *d d*, which are connected by a cap-plate, *e*, through which a screw, C, is screwed vertically against a movable former, D, arranged between the standards and notched upon them, so as to be guided vertically by them. This former, curved at its front end, not only answers with the screws as means of holding a sole, E, firmly down upon the arm B, but as an abutment against which the portion of the sole to be turned up is to be pressed by means of a pressure-roller, F, arranged within the shorter arm of a bent lever, G, in manner as shown. This lever G, pivoted to the base A, has its longer arm provided with a handle, *d'*, the pivot or fulcrum of the lever being represented at *e'*.

The raising-roller F may be a plain cylinder or conic frustum, or it may be flanged, as represented at *f*, and it may be also beveled or grooved, as shown at *g*, at and around its lower edge or part.

In using the machine, a workman first inserts a sole between the arm B and the former D, so that the sole may project the necessary distance beyond the latter. Having turned the screw C so as to clamp the sole upon the arm he next should turn the lever G so as to crowd the roller F hard against the contiguous end of the sole. Next, and while forcing the roller tightly against the sole, he should turn the arm or lever B so as to revolve the sole against the roller, he continuing to turn the arm B—first one way, and next the opposite—and to press the roller against the sole. In this way the part of the sole in advance of the former will be gradually forced upward in the form of a lip or flange or upper protection above the sole.

I am aware that soles have been flanged or turned up for the purpose mentioned by means of dies; but such differs from the mode of operation incident to my machine, in which the leather is rolled and pressed up into shape by a roller setting it against a curved former or abutment.

In bending the sole by means of dies it has been found necessary subsequently to cut away a considerable portion of the turned-up part, in order to have the edge of the sole properly squared to the tread, which is essential to a perfect-formed sole.

By my machine the leather is gradually worked into the proper form, and in order for the edge of the sole to be properly finished the lower part of the roller has the bevel, as hereinbefore mentioned, whereby a slight fin is formed at the lower edge of the part turned up, such fin to be subsequently cut off, in order to obtain a perfect square or properly-finished edge.

I claim as my invention—

The machine, substantially as described, consisting of the base-plate A, two levers, B G, the roller F, the clamp-former D, and the screw C, all combined and arranged essentially in manner and to operate as and for the purpose specified.

STEPHEN MOORE.

Witnesses:

JERVIS E. HORR,

HOMER ROGERS.