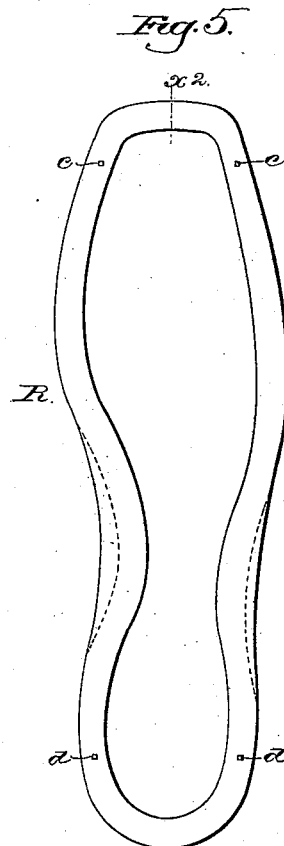
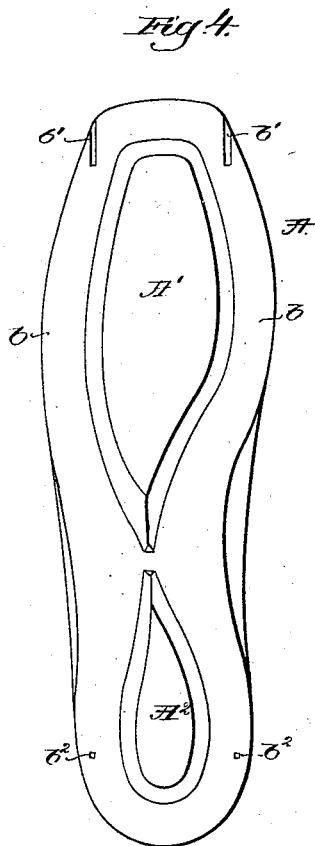
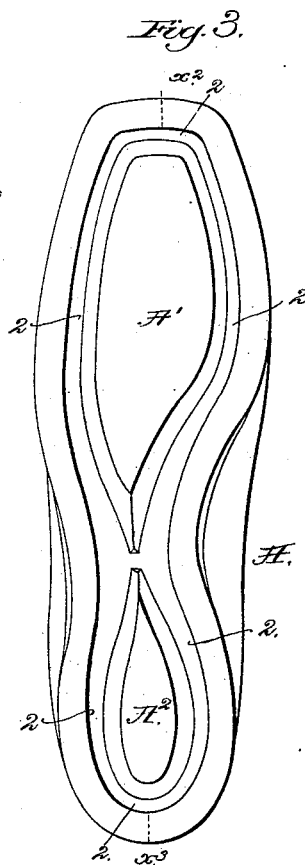
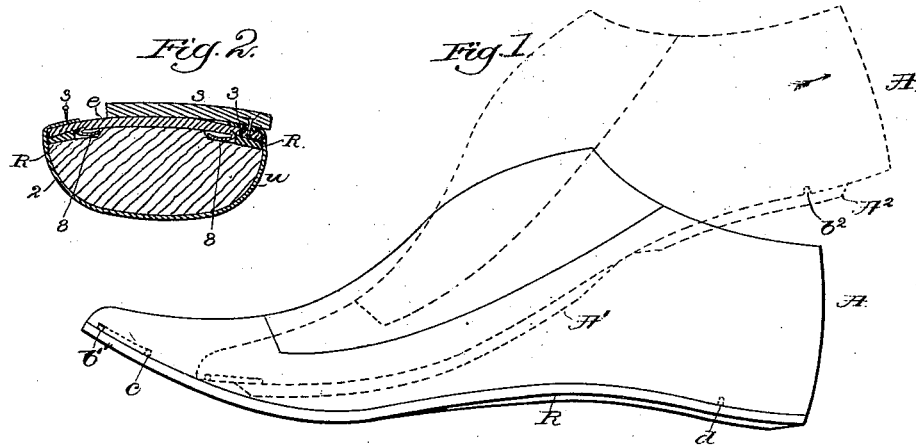


(No Model.)

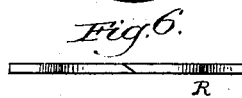
E. L. SPRAGUE.
LAST FOR BOOTS AND SHOES.

No. 306,654.

Patented Oct. 14, 1884.



Witnesses:
John F. C. Wright
Arthur Lippert



Inventor:
Edwin L. Sprague
by Crosby Gregory

UNITED STATES PATENT OFFICE.

EDWIN L. SPRAGUE, OF BOSTON, MASSACHUSETTS.

LAST FOR BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 306,654, dated October 14, 1884.

Application filed August 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWIN L. SPRAGUE, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Lasts for Use in Lasting and Soling Boots and Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a last upon which to last or to sole boots and shoes, whereby the protrusion of nails or metal fastenings through the inner sole is avoided.

In accordance with my invention the bottom of the last is cut away, commencing at its outer edge and extending inward for a considerable distance, leaving projecting ball and heel rests, the said grooves being thereafter partially filled by a loose detachable sole-shaped metallic rim or plate, the space between the said ball and heel rests and the said rim or plate serving to receive the channel-flap of the inner sole, the said rim or plate entering the channel of the inner sole, and receiving against it the ends of the nails driven into the outer sole or upper and inner sole in the manufacture of the boot or shoe, as will be described. The last-body and the sole-shaped rim or plate being loosely connected, the former may be readily withdrawn after the shoe has been lasted or its sole or soles have been united to the upper. Lasts are now made in which a metal rim is attached directly to the last-body, and the sole of the last-body is grooved for the reception of the channel flap or lip of the inner sole; but with a metal rim made as a permanent part of the last-body, and provided with a groove for the reception of the channel flap or lip, the last cannot be withdrawn if the shoe is lasted completely about the toe. In this my invention the body of the last is adapted to be withdrawn from the lasted shoe, leaving therein the metal rim against which the nails were driven which hold together the parts about the toe and along the sides to the shank.

Figure 1, in full lines, represents one of my improved lasts and independent sole-shaped clinching rim or plate placed together loosely, as they will be when a shoe is to be lasted or

bottomed in accordance with my invention, the dotted lines showing the body of the last lifted from the said plate or rim, as may be done when it is desired to remove the last from the shoe, for the said rim and last-body are not connected, as heretofore, by screws, but merely rest one on the other; Fig. 2, a cross-section thereof with the bottom of the body and sole-shaped rim uppermost, but with a channeled inner sole, upper, and outer sole applied; Fig. 3, an under side view of Fig. 1; Fig. 4, an under side view of the body of the last with the sole-shaped rim or plate omitted; Fig. 5, an inner side view of the said rim or plate detached; and Fig. 6, a view of the toe end of the sole-shaped rim.

The bottom of the last A is cut away at its under side from its sole edge inward, leaving a rest, A' A², with which to temporarily connect the inner sole, the said rests standing out beyond the bottom of the last, and serving to support the inner sole as the shoe is being lasted and made up. The bottom of the body of the last has two grooves, b' b', extended into it from the toe thereof, as in Fig. 4, and two holes, b² b², near the heel. The metallic sole-shaped rim or plate R, of greater or less thickness, and preferably in one piece, is provided, as shown in Fig. 5, with pins c c d d, to enter respectively the grooves b' and holes b², made in the body part of the last, and when the sole-shaped rim is applied to the groove at the edge of the last, as in Figs. 1, 2, and 3 in full lines, a space, 2, is left between the inner edge of the said rim and the rests A A², into which the flap or lip of the channel of the inner sole, e, enters, as in Fig. 2, when the inner sole is applied to the said rim and last-body preparatory to drawing the edges of the upper u over the said sole, as commonly done preparatory to driving the lasting tacks or nails 3 through the said upper and the inner sole, and clinching or stopping the same upon the said metal rim. The upper having been lasted, the outer sole, if to be nailed, pegged, or screwed fast to the upper and inner sole, will have the fastenings g for such purpose inserted and clinched or stopped by the said metallic rim, and thereafter the body A of the last will be lifted, as in dotted lines, Fig. 1, and in so doing its heel end will be elevated above the pins d d and lifted within

the heel of the shoe. The last-body will be drawn back in the direction of the arrow, Fig. 1, the grooves *b'* of the last-body permitting it to be moved along over the pins *c*, fixed in the rim *R*. The pins and grooves and holes in the last-body and rim permit the said parts to be kept together rigidly while the lasting operation is being performed; but if the pins joining the said parts near the toe of the shoe entered holes instead of slots, then the last-body could not be easily and quickly removed, which is essential for the practical manufacture of boots and shoes. The body of the last having been withdrawn, the sole-shaped rim may thereafter be easily withdrawn, and the channel flap or lip may be subsequently turned over and pasted down over the points of both the lasting-tacks and the sole-fastenings.

In case a sewed shoe is to be made on a sewing-machine the last-body and rim will be withdrawn after the shoe is lasted, and preferably after the usual outer sole or tap-sole (one or more) has been applied, and thereafter the said shoe will be applied to the horn of the machine, and will be stitched through the outer sole or soles, the upper, and inner sole into the channel, and the channel flap or lip may be turned over to cover the lasting-tacks and stitches after the shoe has been removed from the horn. If desired, the rim may be split through at its toe, as represented by the dotted line *x'*, so that the rim may spring apart when being pulled out, and, if desired, it may be made in two pieces by a cut at some part of it—as, for instance, near the heel, as designated by the dotted line *x''*. The rim shown enables the lasting-tacks to be driven entirely about the heel and toe, and the metal sole-fastenings to be clinched or stopped entirely about the heel or toe, or both. The rim, being in one piece, may extend into and about the toe, and be drawn out of the shoe by engaging the said rim at or near its heel end.

The sole-shaped rim may be entirely of metal, or of metal and some other substance, such as wood, suitably attached by screws or otherwise, and the slots to separate the said rim will preferably be made through the same diagonally, so as to form beveled or scarfed ends, which are overlapped to prevent the passage of tacks or nails between the said ends, in which case their points would not be clinched.

In Fig. 2 it will be noticed that the face of the sole-shaped rim is thicker or higher at its inner than at its outer edge. This is done to insure that the points of the tacks always turn outward toward the edge of the inner sole, as in such case they do not obstruct the laying down of the channel-flap as when the said nails clinch over toward the center line of the inner sole. The body *A* of the last will preferably be of wood; but the sole-shaped rim of iron, if made of considerable thickness and

weight, enables me to derive benefits in readily clinching the nails which are derived by the use of an iron last as compared with one of wood with a thin metallic bottom plate.

I claim—

1. The last having its bottom cut away from its edges inwardly, forming a groove at its edge broader than the clinching-rim to be inserted therein, combined with the independent clinching-rim *R*, placed loosely in the said cut-away portion or groove, leaving a space at its inner edge for the reception of the channel-flap raised from the inner face of the inner sole, the said rim being of a length to extend from the shank along the ball of the foot and about the channel in the toe of the inner sole, and being disconnected from the last-body, whereby, the sole having been attached, the last-body may first be removed and thereafter the independent clinching-rim, the part thereof which serves to clinch the nails in the channel at the toe of the inner sole being drawn out, together with that part of the rim which extends to the shank, substantially as described.

2. The body part of the last, provided with the extended ball-support *A'*, combined with the independently-disconnected sole-shaped metallic rim loosely applied to the said body part, as described, leaving a space, 2, between the inner edge of the rim and the said rest, the said rim extending along the shank and ball of the last and about or into the curved channel in the toe of the inner sole, substantially as and for the purpose described.

3. The metallic-faced sole-shaped rim, provided with holding-pins, combined with the loosely-connected body part *A* of the last, provided with grooves at its toe to engage the said pins, and adapted to permit the said body part to be drawn from the shoe, leaving the rim therein, substantially as described.

4. The outwardly-beveled metal-faced sole-shaped rim described, to insure the turning of the point of the tacks or nails outward, substantially as set forth.

5. The sole-shaped metal-faced clinching-rim, having its ends scarfed or beveled and overlapped to prevent the passage of nails between its ends, substantially as described.

6. The last-body, combined with the disconnected loosely-applied separable rim *R*, placed in contact with the bottom of the said last-body, but leaving a space at the inner edge of the said rim for the reception of the channel-flap of the inner sole, the said rim entering the channel in the inner sole and extending therein from the shank along the ball of the last to the toe of the inner sole, substantially as described.

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

EDWIN L. SPRAGUE.

Witnesses:

G. W. GREGORY,
B. J. NOYES.