L. R. BLAKE.

PROCESS OF MANUFACTURING NAILED BOOTS AND SHOES.

No. 189,834. Patented April 24, 1877.

Fig. 1.

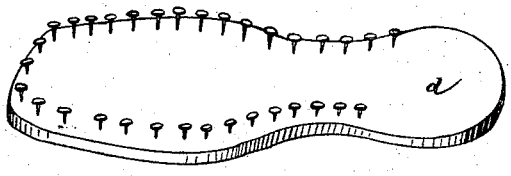


Fig. 2.

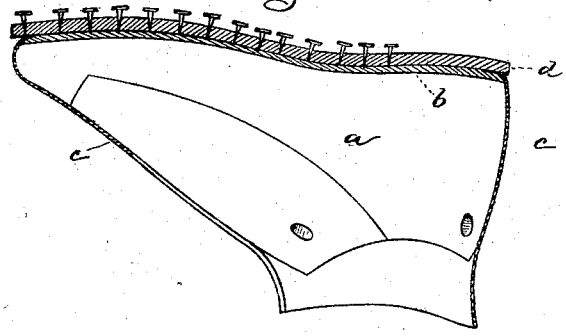
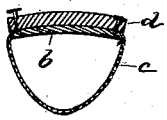


Fig. 3.



Witnesses.
L. H. Latimer,
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Inventor
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UNITED STATES PATENT OFFICE.

LYMAN R. BLAKE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PROCESSES OF MANUFACTURING NAILED BOOTS AND SHOES.

Specification forming part of Letters Patent No. **189,834**, dated April 24, 1877; application filed December 27, 1876.

To all whom it may concern:

Be it known that I, LYMAN R. BLAKE, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Process of Manufacturing Nailed Boots and Shoes, of which the following is a specification:

In the manufacture of boots and shoes by nailing, as now commonly practiced, the shoe-upper is placed upon a last with an inner sole, and the outer sole is applied and held to it by two or more lasting-tacks. If the shoe is to be nailed by hand, the outer sole is pounded, beaten out, or molded to the lasted shoe, holes are made in the sole by an awl, and the nails are then driven singly into such holes, and the upper and inner sole. Each nail is completely driven separately. If nailed by machine, the shoe, with its outer sole applied and held by lasting-tacks, is taken to a nailing-machine, where each nail is separately completely driven through the outer sole, upper and inner sole, at a single blow of the nail-driver, the head or upper end of the nail being driven flush with the face of the outer sole or below it. The first process is slow and expensive, and the second requires a skilled workman to manipulate the machine, and other than hand or foot power to run it.

The process herein described may be practiced more economically and to better advantage than either of these usual processes.

In this invention an outer sole is suitably molded, in order that its surface may conform to the shape of the lasted shoe to which it is to be subsequently applied. Then such sole is set or studded with headed tacks, nails, or metallic fastenings, each tack being driven into the sole substantially at right angles with it at the point of driving. The points of the tacks will be driven substantially flush with the inner side of the outer sole. Preferably they will not extend through the sole, but they may extend a little below, or stop a little above the inner face of the outer sole. The heads of the tacks or nails as left by the driver will project above the outer face of the outer sole a distance sufficient to permit the tack or nail, when subsequently driven, to extend from the inner side of the outer sole through the upper and inner sole, and far enough to clinch upon an iron or iron-plated last. The tacks or nails will preferably be made to taper more or less, and the awl to make holes for their reception will be made of a corresponding taper, or a little smaller than the nail-body, so that the tacks or nails driven into holes so proportioned with reference to the size of the tack, will fit the hole throughout the thickness of the sole the same as if the tack was itself driven directly into the sole. Tacks or nails so driven will be wedged into such holes with sufficient firmness to remain there when the sole is subsequently handled. In ordinary work the hole for the nail is larger than the nail-body, and is much larger than the nail, except at or near its head, and consequently the sides of the nail do not effectually hold against the sole throughout its length.

This sole so set or studded with partially-driven tacks or nails, is then placed in position upon a lasted boot or shoe, consisting of an upper and inner sole secured to the last, and the tacks or nails are then driven, preferably several at a time, by means of a broad-faced hammer or tool, down through the outer sole and into the upper and inner sole.

By molding the sole before driving the tacks or nails therein, as described, the nails, when subsequently driven, will all point in a direction toward the center of the last, or in other words, the heads of opposite nails on opposite margins of the shoe will be farther apart than the points of such nails.

It is possible, however, to practice this invention by molding the sole after the nails are driven, but such plan would not be as well as to mold it before the tacks or nails are driven.

In this invention the tacks or nails pass through the outer sole and into the upper and inner sole at an inward inclination more or less in degree, and the tack-points cannot enter or cut the upper above the inner sole.

Heels have been loaded with nails to be subsequently driven therethrough to attach them to shoes. Such nails partially driven into heel-blanks have been made to incline outward, never inward, and the top lift of the heel corresponding with the outer surface of the sole, has never been rounded or curved to the last, as is necessary in this invention

wherein a sole is to be applied. The tacks or nails may be partially driven into the sole by the machine described in my application filed in the United States Patent Office May 5, 1876, or by means of any of the machines subsequently filed and designed for this purpose.

I do not claim the process set forth by Gordon McKay for nailing shoes, and claimed in his application filed December 11, 1876.

In the drawing, Figure 1 represents a sole supplied with partially-driven tacks, according to my invention. Fig. 2 represents the sole applied to a lasted shoe, and Fig. 3 represents a shoe and sole in cross-section, part of the nails at one side being completely driven.

The last *a* has applied to it an inner sole, *b*, about which is placed the upper *c*. The outer sole *d*, molded and supplied with partially-driven tacks or nails, is then placed upon the lasted shoe, and the tacks or nails are then driven, entering the upper and inner sole substantially in the direction indicated in Fig. 3.

The last may be of metal or metal plated, as usual. The tacks or metallic fastenings may be of any usual shape.

I claim—

The improved method or process herein described of uniting the soles and uppers of boots and shoes with metallic fastenings, consisting in supplying the outer sole with partially-driven fastenings, then applying the sole (molded to the shape of the lasted shoe, and so studded with metallic fastenings) to the lasted shoe, and driving the said fastenings held in the outer sole down through the outer sole, upper, and inner sole, all substantially as described.

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

LYMAN R. BLAKE.

Witnesses:

G. W. GREGORY,

S. B. KIDDER.