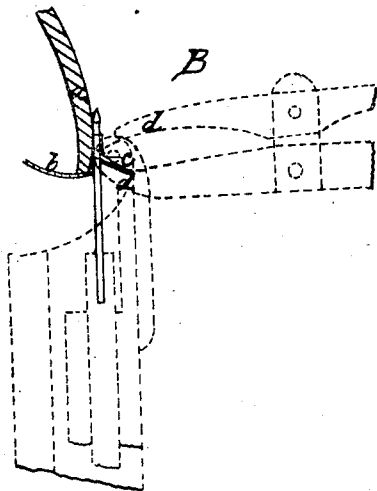
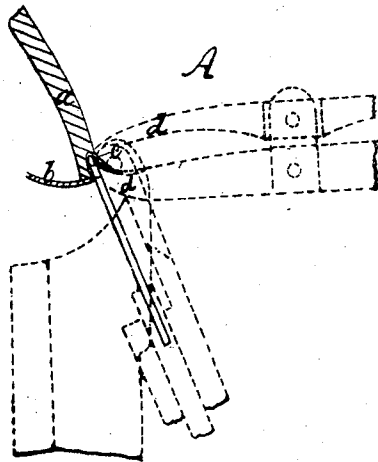


L. R. Blake.

Boots & Shoes.

N^o 102362.

Patented Apr. 26. 1870.



Inventor.

*L. R. Blake,
by his Atty,
Crosby Halsted & Gould*

Witnesses

*J. B. Kidder,
L. H. Latimer.*

UNITED STATES PATENT OFFICE.

LYMAN R. BLAKE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN THE MANUFACTURE OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. 102,362, dated April 26, 1870.

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 the Manufacture of Boots and Shoes; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates particularly to the method of uniting the soles and vamps of boots and shoes of that class known as "turns," the edge of the vamp, drawn over the edge of the outer, but ultimately inner, surface of the sole, being connected to the sole by a series of stitches passing angularly through the sole and through the edge of the upper without passing to the wearing-surface of the sole, so that when the shoe (after the vamp and sole are so united) is turned the sole may be worn through, or nearly through, before reaching the stitches—this method of connection also enabling an inner sole to be dispensed with.

In sewing by hand, the workman uses the well-known curved awl, by means of which he forms a hole, which, commencing nearly right angularly to the sole face, extends downward into the leather, and then curves up toward the surface at which it entered, so as to terminate at the same surface nearer the edge, passing at this point through the edge of the overlapped upper, the thread being passed through the curved hole thus made by the awl.

Various attempts have been made to produce such shoes by machine-stitching, using a curved needle, or curved awl and needle. These attempts have proved but indifferently successful, as the manipulation necessary to guide the curved awl, as in hand-sewing, is wanting in machine-sewing, and for the further reason that neither a curved awl nor a curved needle will stand the strain to which its continued reciprocation in a fixed curved path subjects it in machine-sewing, through stock of varying thickness and varying density.

Now, in hand-sewed turns, if a sole be cut open in the line of a stitch, it will be found that the curve of the thread is much shorter than the curve of the awl, and that any portion of the awl at the sharpest curvature is very nearly straight, for a length correspond-

ing to the length of a stitch, while the stitch is very decidedly curved. In fact, through the same hole made by the curved point of the awl, the straight part of the shank of the awl may be passed by pressing the awl further through—that is to say, the leather, as the hole is being made, is pressed aside by the awl until the hole is brought nearly into a straight form, though the awl enters and comes out upon the same side, the leather springing back after the straight part of the awl is removed. Now, if the thread was passed through by the awl, an awl with a point nearly straight could be used, as the point of the awl could be turned as it progressed. But, if the hole be made with one instrument, and the thread passed through with another, it will readily be seen that a hole must be made with an instrument having an approximation in form to the path the thread is to take, so that the leather shall not be distorted by the awl, or spring back after withdrawal of the awl, and thereby prevent insertion of the thread.

In my invention I take advantage of the yielding nature of the leather, (when moist or in temper,) and, using a strong and straight needle, I turn the needle point as it passes into and through the sole in such manner as to so press the leather that the needle-point entering the sole nearly parallel with the face thereof, and at or near the edge, strains the leather outwardly, and comes out on the outer face at some distance back from the edge, the needle-point passing through the edge of the upper before it enters the sole, the needle hooking upon the thread, and in its retreat drawing the thread through the sole and upper to form the stitch. It is in this method of uniting a sole and upper that my invention consists.

The drawings show a sectional view of a boot illustrative of my process.

A shows the position of the straight needle as its point commences to enter the sole. B shows the position of the needle when its point has penetrated through the sole and the edge of the upper.

a denotes the sole of the boot, and *b* the upper. In the edge of the sole, near the (temporarily) outer surface, I make a slit or gash about an eighth of an inch in depth, more or less, thereby forming a lip, *c*, the stitch-form-

ing thread passing through the angle at the bottom of the gash to the surface of the sole.

In the operation of stitching, the lip is passed between nippers or jaws *d*, and, as the needle is passing through the leather, the nippers close upon and hold the lip firmly. The point of the needle then rises and enters the sole at the angle of the slit, as seen at *A*, in a direction that, if continued, would carry the needle through the sole from one edge to the opposite; but the point having thus entered, the needle-carrier swings outwardly as the needle rises, and thereby changes the course of the needle relatively to the sole, so that instead of passing on through the sole, as would be indicated from the position of parts seen at *A*, it changes position (angularly) as it penetrates, and, finally, comes out on the surface of the sole at some distance from the edge, as seen at *B*. The thread being then laid into

the needle-hook, the needle retreats, drawing with it the bow of thread. The nippers then release their hold, the boot is fed, and the needle-point again passes through, as before, and in its retreat draws the new loop or bow through the previously-formed one, thus completing the stitch.

I claim—

The process of fastening the sole and upper by entering the point of the straight needle at or near the edge of the sole, the needle being parallel, or nearly parallel, with the face of the sole, and then changing the path of movement of such needle so as to cause its point to pierce through the face of the sole, as shown and described.

LYMAN R. BLAKE.

Witnesses:

FRANCIS GOULD,
S. B. KIDDER.