J. S. TURNER.

MANUFACTURE OF BOOTS AND SHOES.

No. 191,387. Patented May 29, 1877.

Fig. 1.

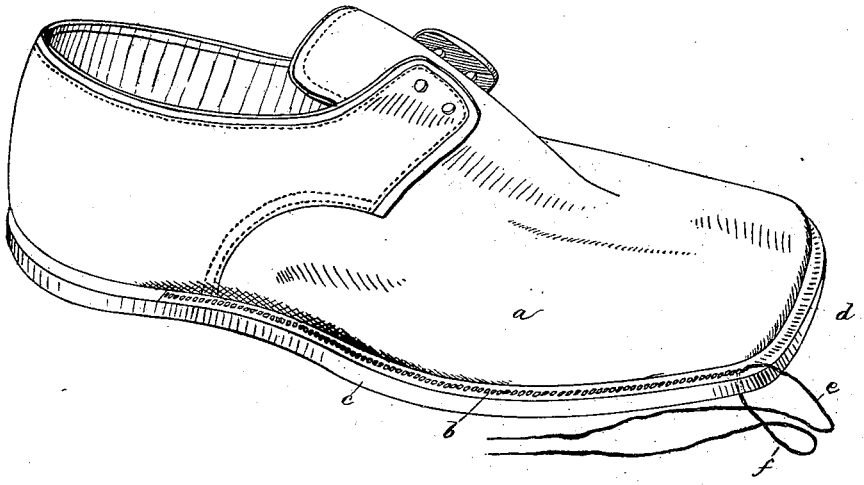
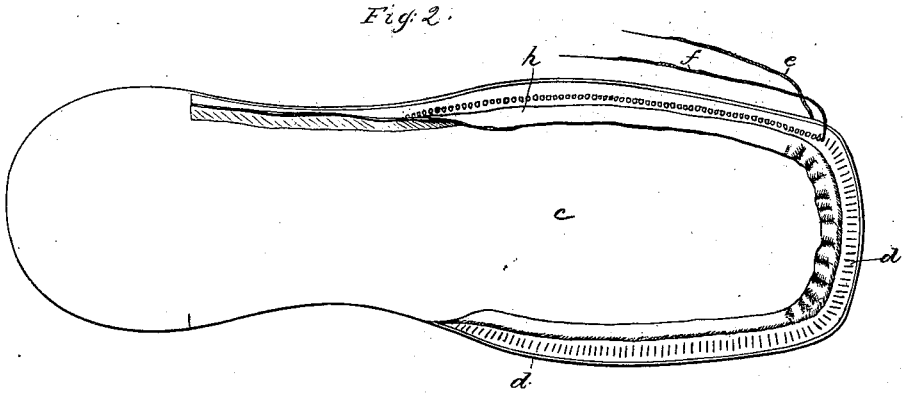


Fig. 2.



Witnesses.
L. N. Latimer
H. J. Pratt.

Inventor
Joseph S Turner
per Crosby & Gregory Attys.

UNITED STATES PATENT OFFICE

JOSEPH S. TURNER, OF ROCKLAND, MASSACHUSETTS.

IMPROVEMENT IN MANUFACTURE OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **191,387**, dated May 29, 1877; application filed April 17, 1877.

To all whom it may concern:

Be it known that I, JOSEPH S. TURNER, of Rockland, in the county of Plymouth and State of Massachusetts, have invented Improvements in the Manufacture of Boots and Shoes, of which the following is a specification:

This invention relates to an improvement in the method of manufacturing that class of boots and shoes known as "welted," wherein the outsole is stitched to a welt sewed to the inner sole.

The outsole is now sewed to the welt by hand and by machine.

When sewed by hand the stitcher, having prepared two waxed-ends, perforates the welt and outsole with an awl, for the reception of the bristles attached to such waxed-ends, and he then enters both threads through each hole from opposite directions, and draws them taut.

The stitch formed in this way is known as the "cordwainer's" stitch.

Hand-sewed work is preferable to machine-sewed work, because the threads are made of such size as to more nearly fill the awl-holes than is usual in machine-work.

In hand-work, that it may be first class, it is necessary that the stitcher handle the awl with great care, to insure that its point, entered at the welt, shall pass through it and the sole at a proper distance from the last stitch.

To stitch by hand, much skill is required to insure an even placing of the stitches in a line at a uniform distance from the upper, this being necessary for first-class work, and consequently the best hands are required for such work, and shoes made by hand are therefore much more expensive than those made by machine.

In machine-work the outsole and welt are commonly attached by means of the single-thread chain-stitch.

In those machines wherein the chain or doubled part of the stitch falls in the channel the welt (it being of a different class of leather) is liable to be cut by drawing the stitch taut.

To obviate this, other machines have been made wherein the doubled part of the chain-stitch is permitted to fall upon the welt; but shoes sewed in that way are not generally liked, because of their unusual appearance and because the chain is a designating-mark of sewing-machine work.

In this my improved method I avail myself of machine-work to secure a uniform spacing and placing of the holes in the welt and outsole for the reception of the stitches, and such holes are subsequently filled with thread by hand, two threads being used, as in hand-work.

When the holes are punched by machinery they may be placed more evenly than by hand, and may be made closer together.

Figure 1 represents a shoe partially made after my method, and Fig. 2 an under-side view thereof.

The upper *a* may be attached to the welt *b* in any usual way.

The shoe, with the welt attached, and properly placed upon a last, has the outer sole *c*, channeled at *h*, applied to it, such outer sole being held in place by the usual lasting-nails, pegs, or equivalents.

The shape of the channel will preferably be just as in hand-work, rather than as shown in the drawing.

In this condition the shoe is presented to a machine employing an awl, a supporting-plate for the material, and a feed, and the awl is made to puncture the welt and outer sole with a series of holes, *d*, at a uniform, or at the desired, distance from the upper.

The awl will be made as small as possible, so as not to enlarge the holes too much for the proper action of the thread.

A machine to perform the work will be made the subject of another application for Letters Patent.

It has provision for altering the length of the feed-stroke opposite the shank of the shoe without stopping the machine, for there the stitches need not be placed so closely together.

When the welt and outsole have been provided with a series of coinciding holes extending completely through both, the shoe may be placed in the hands of unskilled workmen or boys or girls to be completed.

The stitcher will be provided with a flattened spear-pointed awl, which will be inserted into the holes punched by the machine-operated awl, so as to open such holes for the

proper entrance of the bristles connected with the waxed-ends, and such threads are drawn through such holes, and the stitch made taut, as usual in hand-work, producing, however, superior work, because of the greater uniformity of the stitches.

The awl employed to open the holes made by the machine-awl will be provided at the proper distance from its end with a collar or stop, in order that the awl may enter the holes only a certain distance, so that the unskilled operators will be able to enlarge the holes only a certain amount.

This awl will form the subject of another application.

It is obvious that needles may be used instead of bristles.

The welt may be attached to the inner sole in other ways than by stitches, and instead of the usual narrow welt I may employ a middle sole, having a projecting portion to which the outer sole may be stitched as to the welt.

I claim—

In the manufacture of boots and shoes, the within-described method of attaching the outer sole to the welt, consisting in automatically punching the welt and outer sole with a series of coinciding holes, while the outer sole is held in position on the lasted shoe, thereby adapting the welt and outer sole to receive the two threads, which are subsequently passed alternately in opposite directions through such holes by hand, in order to permanently unite the outer sole to the welt, as shown and described.

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

JOSEPH S. TURNER.

Witnesses:
G. W. GREGORY,
W. J. PRATT.