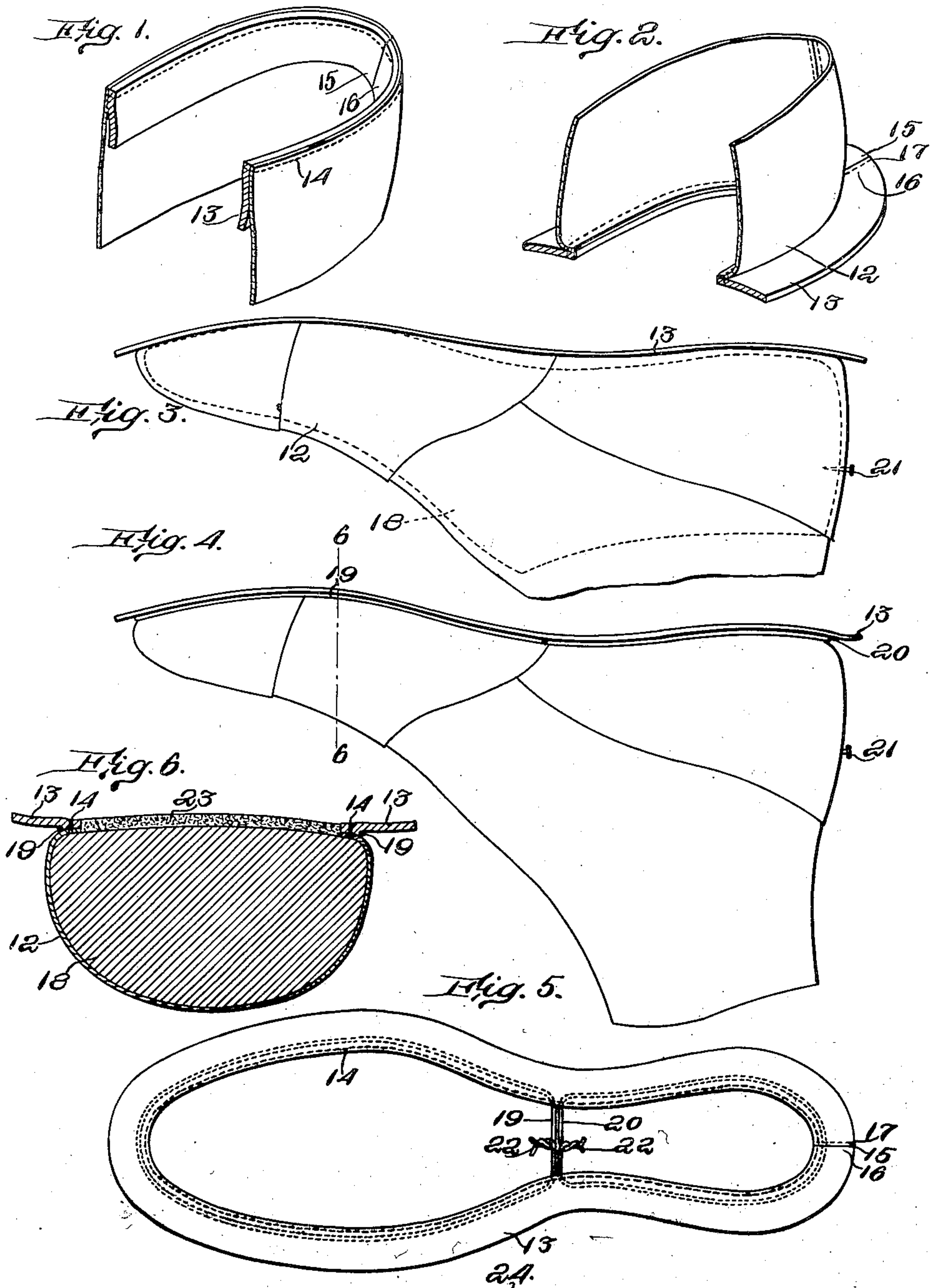


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METHOD OF WELTING AND LASTING BOOT AND SHOE UPPERS.  
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Witnesses: 13  
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# UNITED STATES PATENT OFFICE.

THOMAS F. LITTLETON, OF BROCKTON, MASSACHUSETTS.

## METHOD OF WELTING AND LASTING BOOT AND SHOE UPPERS.

No. 925,208.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, THOMAS F. LITTLETON, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Methods of Welting and Lasting Boot and Shoe Uppers, of which the following is a specification.

This invention has for its object to enable a welted boot or shoe upper to be conveniently, accurately and economically lasted without the employment of lasting mechanism, and in such manner as to insure the close conformation of the welt and upper to the last and the production of a flexible and durable connection between the welt, upper, and outer sole.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a perspective view of the heel portion of the upper and the corresponding portion of the welt, showing the relative positions of these parts when they are first stitched together, the upper being turned “wrong side outward”. Fig. 2 represents a view of the parts shown in Fig. 1 after the upper has been turned right side outward, the upper and welt being ready for application to the last. Fig. 3 represents a side view showing the upper and welt as first applied to the last, the latter being indicated by dotted lines. Fig. 4 represents a view similar to Fig. 3, showing the upper and welt conformed to the last by the ligatures hereinafter referred to. Fig. 5 represents a bottom view of the last with the upper and welt thereon, and in the condition represented in Fig. 4. Fig. 6 represents an enlarged section on line 6—6 of Fig. 4, showing a filler applied to the bottom of the last in the space surrounded by the inner edges of the welt and upper. Fig. 7 represents a fragmentary sectional view showing portions of the outer and inner soles.

The same reference characters indicate the same parts in all the figures.

In carrying out my invention, I assemble and stitch together the parts of the upper 12 in the usual or any suitable manner. Prior

to the attachment of the welt 13 to the upper, the upper is turned “wrong side out”, its finished or right side being temporarily the inner side of the upper, as indicated in Fig. 1. The welt strip 13 is then placed against the inner side of the upper, the inner edges of the upper and welt strip being flush with each other. The upper and welt are then united by a line of stitches 14 which may be formed by any suitable sewing machine, preferably a lock stitch machine. The length of the welt is such that it extends continuously around the upper, the ends 15, 16 of the strip forming the welt being overlapped at the heel end of the upper, and being left discontinued until the upper has been turned right side out, as hereinafter described.

After the welt and upper have been stitched together, these parts are immersed in water until they are thoroughly moistened, or are “in temper”, so that they are sufficiently flexible to permit the turning of the upper right side out, as indicated in Fig. 2. This operation causes the welt to project outwardly from the upper, the inner edge portion of the upper lying flat upon the inner edge portion of the welt, so that these two edge portions together form an inwardly projecting flange or lip. The outer side of the upper and the upper side of the welt collectively form a welt crease extending continuously around the upper. The overlapping ends 15 and 16 of the welt are united by means of stitches 17, this operation being performed preferably before the moistening and turning of the upper and welt.

Before lasting the assembled upper and welt, I apply two ligatures 19 and 20 to the welt crease, said ligatures being preferably lengths of flexible wire or stout cord. The ligature 19 occupies the fore-part of the welt crease and extends around the toe of the upper, while the ligature 20 occupies the heel part of the welt crease and extends around the heel of the upper. The ends of the ligatures are inserted between the attached portions of the welt and upper, suitable openings being made for their reception by inserting an awl between the welt and upper at the shank. The end portions of the ligatures are of sufficient length to



enable the operator to subsequently grasp them and exert a pull on the ligatures, as hereinafter described.

The upper and welt are next drawn on to  
 5 a last 18, which may be mounted on a suitable lasting jack. In applying the upper and welt to the last, the operator draws the toe portion of the upper backwardly against the toe portion of the last, and leaves the  
 10 heel portion of the upper projecting slightly above the bottom of the heel portion of the last, as indicated in Fig. 3. A tack 21 is then driven through the heel seam of the upper into the last to hold the heel portion  
 15 of the upper during the operation of pulling in the heel ligature 20. The operator then grasping the ends of the ligatures, exerts an inward pull on each ligature, thus causing the ligatures to sink into the portions of the  
 20 welt crease with which they are engaged, and pull the connected portions of the upper and welt inwardly over the marginal portion of the last bottom, thus contracting the welt crease and conforming the welt and upper  
 25 closely to the bottom of the last, as indicated in Fig. 4. The ends of the ligatures are then connected by twisting them together, as shown at 22 (Fig. 5) or otherwise, to prevent the ligatures from slipping backwardly.  
 30 The upper and welt are left on the last in the condition last described until they have become thoroughly dry, after which a bottom filling 23, which may be of any suitable material, is fitted to the bottom of the  
 35 last, and to the edges of the upper and welt, as indicated in Fig. 6.

The outer side of the filling and the outer side of the welt are next coated with cement, and an outer sole 24, the inner face of which  
 40 has also been coated with cement, is pressed against the cement-coated surfaces of the filling and welt, this operation confining the upper and welt so that the ligatures 19 and 20 may be removed if desired. The outer  
 45 sole may be subsequently united to the welt by stitches 25, or otherwise, this operation being performed either before or after the removal of the last. If the outer sole is stitched on after the removal of the last, the  
 50 stitches 24 may be located closer to the inner stitches 14, than would be otherwise possible. After the removal of the last, an inner sole 26, which has been molded and beveled to conform to the inner surfaces of  
 55 the filling 23, and of the inwardly turned portion of the upper, is inserted in the upper, its inner surface being coated with cement. The shoe is again placed on the last and leveled. This operation completes  
 60 the bottom of the shoe so far as the shank and fore-part are concerned. A heel may be subsequently attached to the heel end of the outer sole by nails passing through the outer

sole, welt and upper, and clenched on the inner side of the inner sole.

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The usual counter and box toe may be applied to the upper when the same is turned wrong side out, as indicated in Fig. 1, and softened with the upper and welt by water, and then turned with the upper and welt,  
 70 and applied therewith to the last prior to the lasting operation.

I claim:—

1. That improvement in the method of welting and lasting boots and shoes which  
 75 consists in stitching the welt to the upper, the welt extending entirely around the upper and forming with the outer surface of the upper a continuous welt crease, applying the assembled welt and upper to a last, applying  
 80 ligatures to the welt crease and inserting their ends between the welt and upper, applying the welt and upper to a last and drawing in the ligatures to contract the welt crease and conform the welt and the at-  
 85 tached portion of the upper to the bottom of the last.

2. That improvement in the method of welting and lasting boot and shoe uppers which consists in turning the upper to bring  
 90 its right or finished side within the upper, applying the welt to the finished side of the upper, the edges of the welt and upper being side by side, stitching the welt and upper together, softening the welt and upper by  
 95 moisture, turning the upper right side outward, the welt extending continuously around the upper and having its ends overlapped, stitching together the ends of the welt, placing the welt and upper on a last,  
 100 and exerting a contracting and conforming pressure to the welt and upper to force the welt and the attached portion of the upper inwardly over the margin of the last bottom and conform said parts to the bottom of the  
 105 last.

3. That improvement in the method of welting and lasting boot and shoe uppers which consists in turning the upper to bring  
 110 its right or finished side within the upper, applying the welt to the finished side of the upper, the edges of the welt and upper being side by side, stitching the welt and upper together, softening the welt and upper by  
 115 moisture, turning the upper right side outward thus causing the upper and welt to form a welt crease extending continuously around the upper, placing the welt and upper on a last, applying ligatures to the welt crease and inserting their ends between the  
 120 welt and upper, applying the welt and upper to a last and drawing in the ligatures to contract the welt crease and conform the welt and the attached portion of the upper to the bottom of the last.

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4. That improvement in the method of



making boots and shoes which consists in stitching the welt to the upper, the welt extending entirely around the upper, applying the assembled welt and upper to a last, exerting pressure on the welt and upper to force the welt and the attached portion of the upper inwardly over the margin of the last bottom, applying a filling to the portion of the last bottom surrounded by the welt

and the attached portion of the upper, and 10 cementing an outer sole to the filling and to the outer face of the welt.

In testimony whereof I have affixed my signature, in presence of two witnesses.

THOMAS F. LITTLETON.

Witnesses:

STEPHEN M. LITTLETON,  
IRVING L. SHORES.