This invention relates to a method of making shoes and more particularly to a method of assembling a lasted upper with a sole.

The invention has particular utility in the making of nailed or pegged shoes. In the production of this type of shoe, an upper is lasted to an insole and the lasted upper is positioned upon a preformed sole structure and nailed thereto. In the operation of positioning the lasted upper upon the sole and attaching the same thereto, it is extremely difficult to insure that the lasted upper is secured in proper position. After removal from the last the insole of a lasted upper usually assumes a convex contour which departs from that of the insole in the finished shoe. This results in distortion of the lasted upper so that its periphery is smaller and of different contour than it will be when the upper is nailed to the sole. Also the periphery of the lasted upper does not contact the sole when laid thereon. This is an entirely different condition from that encountered in making cemented shoes in which the upper is forced into final position on the sole in a single operation. An extremely skillful workman is required for the sole laying or spotting operation in making nailed shoes, and even a skilled workman requires a substantial amount of time to correctly position the upper upon the sole. Even so, frequent mistakes occur resulting in a large amount of rejects or seconds. Mechanical guides or jigs are not practical since the shoes come in various sizes and adjustment of such guides requires an undue length of time.

In accordance with the present invention the sole is provided with a false welt which preferably constitutes a narrow strip of relatively high quality leather stitched to the upper surface of the sole adjacent the edge thereof. Such a welt constitutes a visual guide or gauge for the workman in positioning the lasted upper upon the sole since he may employ either the inner edge of the welt, the row of stitches, or both, as a visual guide or gauge in positioning the lasted upper. Although the periphery of the upper is ordinarily still spaced from the welt the distance between the periphery of the upper and the sole structure is less, usually about ½ to ⅓ of an inch, and the operator quickly learns to position or spot the upper in the correct position relative to the sole. It has been found in actual practice that the operator is able to lay the uppers upon the sole approximately 40% faster when the welt is provided as a visual guide. This is of major importance as a considerable portion of the cost of making shoes is due to the cost of labor.

The employment of the welt in the type of shoe described also has another important advantage. A mid-sole of less expensive material than the outsole may be employed and the welt provides a backing for the midsole, preventing stitches from pulling through the less expensive material or the midsole.

It is therefore an object of the invention to provide an improved method of making shoes by which the sole laying or spotting operation can be accomplished in a more expeditious manner than heretofore.

Another object of the invention is to provide an improved method of making nailed shoes in which the uppers may be positioned upon the sole at a more rapid rate.

A further object of the invention is to provide an improved method of making shoes in which a visual guide on the marginal edges of the sole is employed to aid in positioning the upper upon the sole.

Other objects and advantages of the invention will appear in the following description of the preferred embodiment of the invention shown in the attached drawings in which:

Fig. 1 is a perspective view of a shoe upper;
Fig. 2 is a perspective view of a composite sole for the shoe;
Fig. 3 is a perspective view of the upper and sole placed together in assembled relation before being nailed together;
Fig. 4 is a transverse sectional view through the structure shown in Fig. 3;
Fig. 5 is a view similar to Fig. 4 showing the shoe after the upper has been nailed to the sole;
Fig. 6 is a view showing the staples for securing the outsole and midsole together prior to stitching and the staples securing the composite sole to the lasted upper;
Fig. 7 shows a modified construction in which the false welt is of non-uniform width, as compared with the welt shown in Fig. 2; and
Fig. 8 is a sectional view similar to Fig. 4 showing the cement for holding the lasted upper to the outsole.

Referring to the drawings, 10 represents a lasted shoe upper ready to be assembled to the sole shown as a composite sole in Fig. 2 and indicated generally by the number 12. The composite sole preferably comprises an outsole 14 of a good grade of leather and a midsole 16 of a less expensive material such as fiber board or the like. A relatively narrow welt member 18,
preferably of a relatively high quality leather, is positioned so as to extend along the upper marginal edges of the midsole, and the outside, middle, and heel parts are united by sewing to form a row of stitches 20 intermediate the width of the welt and slightly spaced from the outer edge of the composite sole. As illustrated in Fig. 2 the welt member 13 preferably extends along the upper marginal portion of the midsole as far back as the heel portion 22.

In assembling the sole structure, the outsole 14 and the midsole 15 may be stapled together as indicated at 15 in Fig. 2 in order to hold the midsole and outsole in assembled relation. The composite sole is then provided with the welt 18 along the marginal edge by sewing the welt to the superimposed outsole and midsole, the stitches extending through the midsole and outsole as shown in Figs. 4 and 5. This operation can be performed on a Goodyear stitching machine. The composite sole 12 is then trimmed set and set to provide a completely finished sole prior to being assembled with the upper.

In making the upper 10, the size and shape of the insole 24 and said upper are correlated with the sole 12. The insole 24 is of such size as to fit within the welt 18 and is preferably cut out so as to conform to a line spaced slightly within the inner edge of said welt. The insole 24 and the upper 10 are then positioned upon a last and the upper is fastened to the insole, for example by the tacks 25 shown in Fig. 4.

The contour and shape of commercial forms of the lasts usually employed in making nailed shoes are such as to impart to the insole the general laterally curved or convex shape and to impart to the upper the rounded periphery as illustrated in Fig. 2 so that when such a lasted upper is positioned on a relatively flat outer sole, a substantial space indicated at 25 in Figs. 3 and 4 exists between the periphery of the upper and the outer sole. In practice this distance varies from approximately 1/4 to 1/8 of an inch. This distance is usually increased upon removal of the last from the upper. When the insole is subsequently permanently nailed to the outer sole this space 25 is closed and the upper and insole are drawn down into a position such as is illustrated in Fig. 5.

In accordance with one mode of practicing the invention, the last may be removed from the upper and the lasted upper 10 with the last removed manually placed upon the outsole 12, the operator holding the lasted upper in one hand and the outsole in the other hand, and, using the inner edges of the welt 18 as a visual guide or gauge, he is enabled to accurately adjust or position the two in their proper relative position. This operation is known as “spotting.” and experience has shown that by using the stitched welt 18 as a visual guide or gauge, the operator can rapidly and accurately spot the lasted upper upon the outsole, holding the upper in one hand and the outsole in the other hand, and scanning over the edge of the upper to view the welt as a guide for properly locating the lasted upper upon the outsole.

It is apparent from the foregoing that reliance must be placed upon the operator to judge how much the opposite sides of the upper will spread when nailed to the shoe, and that the number of shoes rejected because of improper spotting depends upon the skill of the operator and the care exercised during the spotting operation. It has been found that the employment of the welt 18 as a visual guide enables the operator to more accurately position the lasted upper upon the sole and that the spotting operation can be done much more rapidly; rejects because of improper spotting being substantially eliminated.

The lasted upper 10 and the sole 12 are preferably initially secured together while held by the operator in the correctly spotted position by inserting the assembly and stapling the outsole to the insole at the toe and heel portions by staples 19, as indicated in Fig. 6.

As a modified procedure for initially securing the outsole 12 and upper 10 with its insole 24 together, the outsole and/or the insole may have applied thereto a sufficient quantity of suitable cement 23, such as a rubber cement, so that when the lasted upper is spotted by the operator upon the outsole, the cement serves to hold the parts of the assembly in the correct position and relation with respect to one another, as shown in Fig. 8. It will be understood that when cement is used, the parts will be spotted by holding one in one hand and the other in the other hand, the operator positioning the upper upon the outsole using the welt 18 as a visual guide in the same manner described hereinbefore.

After the upper and sole have been initially or temporarily secured together by either of the two methods described above, that is, stapling or cementing, the operator presents the correctly assembled upper and outsole to a nailing machine which operates to permanently fix the upper 10 to the sole 12 by a row of nails 28 arranged to clinch the insole 24 relatively close to the outer edges thereof. As illustrated in Fig. 5, the parts are so proportioned and correlated that the portions of the upper adjacent the welt member 18 are drawn down into engagement with the inner edge thereof during the nailing operation, thus closing up the space 25 between the upper and the sole and west and forming a neat and closed juncture between the upper and the sole. Thereafter, the heel is attached, the sock lining inserted and the usual finishing operations performed to complete the manufacture of the shoe, in a manner well understood in the art.

According to another mode of practicing the invention, the shoe last may be permitted to remain in the upper 10 during the spotting operation and the initial or temporary securing of the upper to the sole 12, said securing being effected by either stapling or cementing, as above described, the last is then removed and the operator presents the temporarily assembled upper and outsole to a nailing machine to nail the parts together by nails 28.

Fig. 7 illustrates a sole 12’ to which a false welt 18’ has been stitched in a manner previously described herein. The welt 18’ is of non-uniform form, as compared with the welt 18 shown in Fig. 2. It will be observed that the sole 12’ is shaped differently from that shown in the previous figures in that it is wider so that a substantial portion of the welt will show across the portion of the shoe at the ball of the foot. This provides for a different style of shoe. When a sole of the type shown in Fig. 2 is attached to an upper by nailing, the spotting operation preparatory to nailing is manifestly more difficult. However, utilizing the welt 18’ as a visual guide in the manner above described, the spotting operation becomes easy and may be performed quickly without the risk of incorrect spotting which would result in rejects.
In some instances, the temporary or initial fastening of the lasted upper and the sole by means of stapling or cementing may be dispensed with and the upper and the sole, with the last removed of course, presented to a nailing machine while held in the properly spotted position by the operator.

It will thus be seen that I have provided a method of making shoes which enables the operator to more quickly position the lasted upper upon the sole while at the same time providing a shoe of improved appearance and one in which a midsole of relatively inexpensive material can be secured to the outsole by sewing without danger of the stitches pulling through the midsole. While I have disclosed the preferred embodiment of my invention it is understood that the details thereof may be varied within the scope of the following claims.

This application is a continuation-in-part of my co-pending application Serial No. 374,688.

Having thus described the invention, what is claimed is:

1. A method of making a nailed shoe which comprises the steps of providing an outsole, uniting a relatively narrow welt strip to the marginal portions of the upper surface of said outsole with the outer edge of said strip substantially flush with the periphery of said outsole by sewing to form a row of stitches conforming to and slightly within the outer peripheral edge of said outsole, lastingly an upper to an insole having a contour conforming to a line slightly within the inner marginal edge of said welt strip, removing the last, holding said upper in one hand and said outsole in the other hand and placing the upper in assembled relation upon said outsole using the inner marginal edge of said welt as a visual guide to enable the operator to properly position the upper with relation to the outsole, and while said upper and outsole are thus positioned, presenting the same to a nailing machine to nail the upper to said outsole.

2. A method of making a nailed shoe which comprises the steps of providing an outsole, providing a midsole, superimposing the midsole on the outsole so as to coincide throughout, providing a relatively narrow Welt strip, uniting said Welt strip to the marginal portions of the upper surface of said outsole with the outer edge of said strip substantially flush with the periphery of said outsole by stitching through said midsole and outsole to form a row of stitches conforming to and slightly within the outer peripheral edge of said composite sole, lastingly an upper to an insole having an outer contour substantially conforming to the inner marginal edge of said Welt strip but lying substantially inwardly thereof, removing the last, holding said upper in one hand and said composite sole in the other hand and placing the upper in assembled relation to said composite sole using the inner marginal edge of said welt as a visual guide to enable the operator to properly position the upper with relation to the composite sole, and while said upper and composite sole are thus positioned, presenting the same to a nailing machine to nail the upper to said composite sole.

3. The method of making a nailed shoe which comprises the steps of: providing on outsole, uniting a relatively narrow Welt strip to the marginal portion of the upper surface of said outsole with the outer edge of the strip substantially flush with the periphery of said outsole by sewing to form a row of stitches conforming to and slightly within the outer peripheral edge of the outsole, the inner marginal edge of said Welt strip having a contour adapted to serve as a visual guide during the subsequent spotting of the upper on the outsole, lastingly an upper to an insole over a last shaped to impart a transverse curved shape to the insole and a rounded periphery to the upper, the insole having a contour conforming to a line slightly within the inner marginal edge of at least the major portion of said Welt strip, the operator holding before him the lasted upper in one hand and the outsole in the other hand and positioning the upper on the outsole to provide a space between the Welt and the rounded periphery of the upper while scanning over the rounded peripheral edge of the upper using the inner edge of said Welt strip as a visual guide and adjusting the upper with relation to the Welt to substantially equalize the width of said space around the sides and toe portion of the upper, fastening the upper and outsole together in the desired spotted relation, and then permanently nailing the upper to the outsole and thereby drawing down the insole to substantially close said space.

4. The method of making a nailed shoe which comprises the steps of: providing an outsole, uniting a relatively narrow Welt strip to the marginal portion of the upper surface of said outsole with the outer edge of the strip substantially flush with the periphery of said outsole by sewing to form a row of stitches conforming to and slightly within the outer peripheral edge of the outsole, the inner marginal edge of said Welt strip having a contour adapted to serve as a visual guide during the subsequent spotting of the upper on the outsole, lastingly an upper to an insole over a last shaped to impart a transverse curved shape to the insole and a rounded periphery to the upper, the insole having a contour conforming to a line slightly within the inner marginal edge of at least the major portion of said Welt strip, the operator holding before him the lasted upper in one hand and the outsole in the other hand and positioning the upper on the outsole to provide a space between the Welt and the rounded periphery of the upper while scanning over the rounded peripheral edge of the upper using the inner edge of said Welt strip as a visual guide and adjusting the upper with relation to the Welt to substantially equalize the width of said space around the sides and toe portion of the upper, fastening the upper and outsole together in the desired spotted relation, removing the last, and then permanently nailing the upper to the outsole and thereby drawing down the insole to substantially close said space.

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