April 14, 1953 W. F. HERLIHY 2,634,441

METHOD OF SHAPING THE COUNTER PORTION AND TURNING THE WRAPPER OF A SHOE OF THE FORCE-LASTED OR CALIFORNIA TYPE

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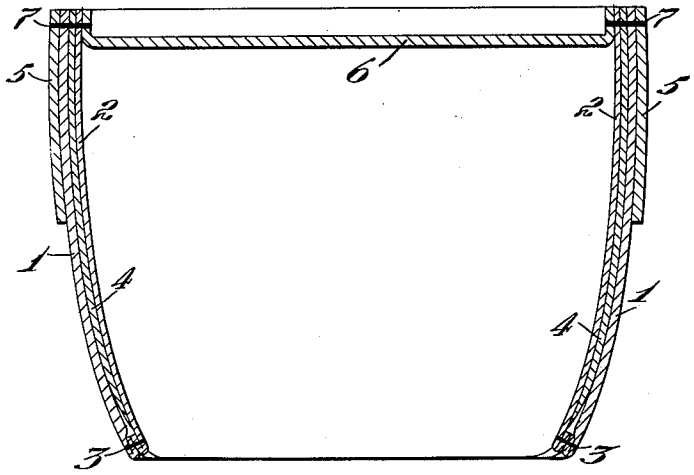


Fig. 1

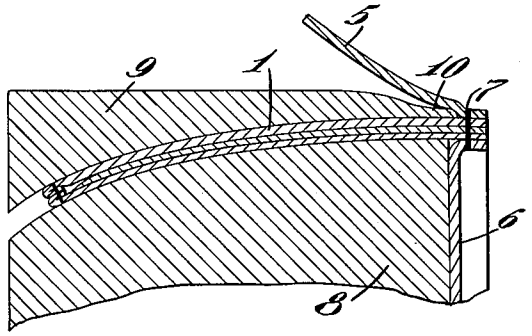
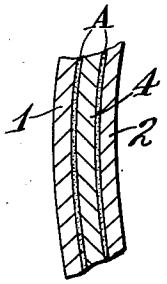


Fig. 2



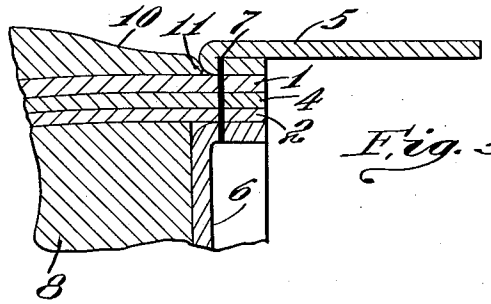


Fig. 3 Fig. 4

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METHOD OF SHAPING THE COUNTER PORTION AND TURNING THE WRAPPER OF A SHOE OF THE FORCE-LASTED OR CALIFORNIA TYPE

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8 Claims. (Cl. 12—142)

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This invention pertains to the manufacture of footwear, more particularly to footwear of the California or force-lasted type, and relates more especially to a novel method of shaping the counter portion of a shoe of that type.

In accordance with usual methods of making California shoes, the lower margin of the upper is sewed to the margin of the sock lining and to the upper edge portion of the wrapper or platform cover along the entire periphery of the shoe, and in order to incorporate a counter or stiffener element such as is customarily employed in shoes of other types special procedures have been devised. For example, as disclosed in the patent to Herlihy, No. 2,514,057, July 4, 1950, a mouldable counter is interposed between the quarter lining and the outer ply of the quarter, and the assembled parts are subjected to moulding pressure to conform the quarter portion of the upper to the final shape it is to have in the completed shoe, the assembled parts being adhesively bonded together during the moulding operation. Thereafter the sock lining and wrapper are secured to the lower edge of the moulded quarter by stitches which pass through the several constituent plies of the quarter.

According to most prior methods, the wrapper is attached inside-out to the upper and must thereafter be turned right-side out. As a result of turning the wrapper it is doubled upon itself at the region of the seam which unites it to the upper, and this doubling produces a distinctive ridge at the lower part of the quarter. Unless this ridge be even and free from waviness or variation in height, it detracts very materially from the appearance of the finished shoe. The wrapper, at the heel end of the shoe, is often of very substantial width in order that it may cover a thick heel wedge, and the formation of the attaching seam tends to draw the free edge portion of the wrapper snugly against the outer surface of the quarter near the top of the latter where the periphery of the quarter is of less extent than at the lowed edge. The result is that the wrapper must be subjected to a very strong pull, sufficient to stretch its upper portion, in turning it, and the application of this pull tends to deform the quarter even though the quarter include a stiffener element, and imposes such a severe strain on the stitches which attach the wrapper to the quarter as in some cases to cause the stitches to gap, and frequently results in making a very uneven ridge where the wrapper is turned over. If the quarter has first been moulded, as suggested in the Herlihy patent, it may be distorted during the

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wrapper-tuning operation, and since this premoulding is all of the shaping which the quarter receives, the result may be that the finished shoe is misshapen and not of first quality.

The present invention has for its principal object the provision of a novel method of making California type shoes having included stiffeners or counter elements whereby the above imperfections are eliminated, and whereby the completed shoe may be made very closely to resemble a shoe made by usual lasting methods and to have the stiff and shape-retaining character of shoes having premoulded counters. Other and further objects and advantages of the invention will be pointed out in the following more detailed description and by reference to the accompanying drawings wherein

Fig. 1 is a diagrammatic, transverse section, to large scale, through the quarter portion of a shoe in readiness for the practice of the present invention;

Fig. 2 is a fragmentary section, similar to Fig. 1, showing the quarter interposed between shaping dies;

Fig. 3 is a view generally similar to Fig. 2 but illustrating the final step of turning the wrapper; and

Fig. 4 is a fragmentary section similar to Fig. 1, but to much larger scale to show the adhesive coatings.

In accordance with one embodiment of the present invention, the quarter with its stiffener may first be shaped as described in the patent to Herlihy, No. 2,514,057, above referred to, prior to the attachment of the sock lining and wrapper, the quarter then being again introduced between dies preparatory to the turning of the wrapper. Alternatively, and as more specifically herein disclosed, the quarter with its stiffener, the wrapper and sock lining are first united by stitches and then the quarter is shaped between appropriate dies which, for the carrying out of the present invention, are somewhat modified as compared with the usual dies, in order to facilitate the turning of the wrapper.

As illustrated in the drawings, the rear, quarter or counter portion of the shoe upper comprises the outer ply 1, hereinafter referred to as the "quarter," having associated therewith a lining member 2, the quarter and lining member being united at their upper edges by a seam 3, the union of the parts at this point being such as to provide a finished edge in accordance with customary prior practice. While the quarter is shown as having a lining member, the invention

is equally applicable to the manufacture of shoes in which the quarter is unlined. A mouldable stiffener member 4, of conventional type, is assembled with the quarter 1, being interposed between the quarter and lining, if the latter be used. The quarter, with its stiffener 4, with or without a liner member, is assembled with a wrapper strip 5 and a sock lining 6, the several parts being united by a sewed seam 7 whose stitches pass through the upper margin of the wrapper strip and through the lower margins of the other plies of the counter portion, including the stiffener, and through the marginal portion of the sock lining.

Having assembled and united the parts as above described, a rigid mould member 8 is introduced into the interior of the quarter portion of the upper and a complemental mould 9 is brought into contact with the outer surface of the quarter portion. These mould members may be of the general type commonly used in moulding shoe counters and are actuated by similar means. However, in accordance with the present invention, it is preferred to use an outer mould member 9 of special shape, as illustrated in Figs. 2 and 3. This outer mould member has a relatively thin edge portion 10 which is interposed between the outer surface of the quarter 1 and the opposed surface of the wrapper strip 5. This thin portion of the mould member terminates in an edge 11 (Fig. 3) which, when the shoe parts are properly assembled between the mould members, is located at a distance from the seam 7 approximately equal to the thickness of the wrapper strip 5. With the shoe parts thus interposed between the dies, the dies are actuated in the usual way to apply moulding pressure to the shoe parts, the dies being heated, if desired, in accordance with the customary practice of moulding counters. As a preliminary step, the stiffener member 4 may be mulled, and the surface of the stiffener, and the inner and outer plies of the quarter portion, may be coated with adhesive A (Fig. 4), for example, a thermoplastic adhesive which becomes sticky when heat is applied. As a result of the moulding operation, the several constituent plies of the quarter portion of the upper are firmly bonded together and, by the action of the edge 11 of the outer die member, the wrapper strip is provided with a definite fold line close to the seam comprising the stitches 7. Since the edge 11 of the die is rigid and of a definite shape, this fold line is smooth and devoid of irregularities, and at a uniform distance from the replane defined by the lower edges of the several plies of the upper material.

While the parts are retained between the dies and under pressure, the free edge of the wrapper is seized by suitable instrumentalities, for example by pincers, and is subjected to force such as to turn the wrapper right-side out so that it finally occupies the position shown in Fig. 3. This turning operation is facilitated by the presence of the edge 11 of the outer die and by the fact that the several plies of the quarter portion of the shoe, adjacent to the seam 7, are held firmly together and in definite position while stress is being applied to the wrapper for turning it. In turning the wrapper in this way there is no danger of distorting the counter portion of a shoe, even though substantial force may be necessary to strip the wrapper away from the outer surface of the quarter in turning it right-side out. After the wrapper has been turned to the position shown in Fig. 3, the mould members are separated and withdrawn from the quarter, and the latter retains the accurate shape and contour imparted by the die blocks.

As above suggested, a preliminary moulding may be carried out such as described in the patent to Herlihy, above referred to, the wrapper and sock lining thereafter being united to the quarter by a seam similar to the seam 7. If this latter practice is followed, then, in accordance with the present invention, the quarter is again interposed between dies which may not be the original moulding dies, but which would be of the general type of the dies 8 and 9 here shown, the parts being held firmly between these dies while the wrapper is being turned.

While certain orders of steps have hereinabove been suggested as desirable in the practice of the invention, it is to be understood that the invention is broadly inclusive of any equivalent procedure whereby the desired results are obtained and as set forth in the appended claims.

I claim:

1. That method of making shoes of the California type which comprises as steps assembling a quarter with an unmoulded stiffener element capable of retaining a moulded shape, uniting the assembled quarter and stiffener element to a sock lining and wrapper by stitches which pass through all of the several assembled plies of material, moulding the quarter and stiffener element, while adhesively bonding them together, by the application of pressure to the shape of the rear end of the shoe to be made, and, during the moulding operation, forming in the wrapper a fold line spaced from the stitches which unite the wrapper and quarter by a distance substantially equalling the thickness of the wrapper.

2. That method of making shoes of the California type which comprises as steps, assembling a quarter and unmoulded stiffener means, capable of retaining a moulded shape, with a sock lining and wrapper, uniting the quarter to the sock lining and wrapper by stitches, applying moulding pressure to the assembled quarter and stiffener element thereby to impart to the assembled elements the final shape of the rear end of the shoe to be made, and, while applying such pressure to the quarter, forming a fold line in the wrapper at a distance from the stitches which unite the wrapper and quarter substantially equal to the thickness of the wrapper, and when the moulding operation is complete, but before the moulding pressure is released, turning the wrapper right-side out.

3. That method of making California shoes wherein the upper edge of a wrapper strip is united by stitches to the lower edge of a stiffened quarter and to the margin of a sock lining, which comprises as steps moulding the quarter under pressure substantially to the final shape of the quarter of the shoe to be made, and while so moulding the quarter to shape, subjecting the wrapper strip to pressure along a line spaced a uniform distance from the edges of the united wrapper strip and quarter thereby to initiate a fold line in the wrapper.

4. That method of making shoes of the California type wherein the quarter portion of the shoe comprises a stiffener element and wherein a quarter, a quarter stiffener element, a sock lining and a wrapper are all united by a sewed seam while the wrapper is inside out, the steps of applying to the quarter and quarter stiffener

element transverse compressive force closely adjacent to said seam, and, while continuing to apply such compressive force, turning the wrapper right-side out.

5. In the manufacture of shoes of the California type wherein a stiffener element is associated with the shoe quarter, the steps of providing a quarter, a quarter stiffener element and a quarter lining, said parts being united to a sock lining and to an inside-out wrapper by a sewed seam, applying compressive force to an area of the outer surface of the quarter, said area being bounded at its lower edge by a line parallel to but spaced from said seam, and, while continuing to apply said force, turning the wrapper right-side out.

6. That method of making a shoe of the California type wherein the quarter portion of the shoe comprises a stiffener element, said method comprising as steps providing a unit, including a quarter and a quarter stiffener element, having approximately the shape of the rear end of the shoe which is to be made and having a sock lining and an inside-out wrapper secured to the quarter by a sewed seam, maintaining said shape while applying pressure to the outer surface of the quarter and, in so applying pressure, deflecting the wrapper away from the quarter along a line closely adjacent to said seam, and while still maintaining said pressure, turning the wrapper right-side out.

7. That method of making a shoe of the California type having a stiffened quarter portion which comprises as steps, providing a unit including a quarter, a quarter stiffener element and

a quarter liner, said unit having substantially the shape of the rear end of the shoe to be made and having a sock lining and an inside-out wrapper secured to it by a seam whose constituent stitches pass through the quarter, quarter stiffener element and quarter liner, the quarter, quarter stiffener element and quarter liner being adhesively bonded together, subjecting said unit to transverse compression over an area which is bounded at its lower edge by a line which is spaced from the seam a distance substantially equalling the thickness of the wrapper, and, while maintaining such compression, turning the wrapper right-side out.

8. That method of making California shoes which comprises as steps providing a unit, including a quarter stiffener element assembled with a quarter, said unit having substantially the shape of the rear end of the shoe which is to be made and having a sock lining and an inside-out wrapper secured to it by a sewed seam, the steps of first forming a definite fold line in the wrapper closely adjacent and parallel to said seam, and thereafter turning the wrapper right-side out.

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