Aug. 9, 1955 W. F. HERLIHY 2,714,733

METHOD OF MAKING SHOES OF THE TYPE WHEREIN THE QUARTER PORTION OF THE SHOE COMPRISES A MOLDED STIFFENER

Filed Jan. 13, 1954 3 Sheets-Sheet 1

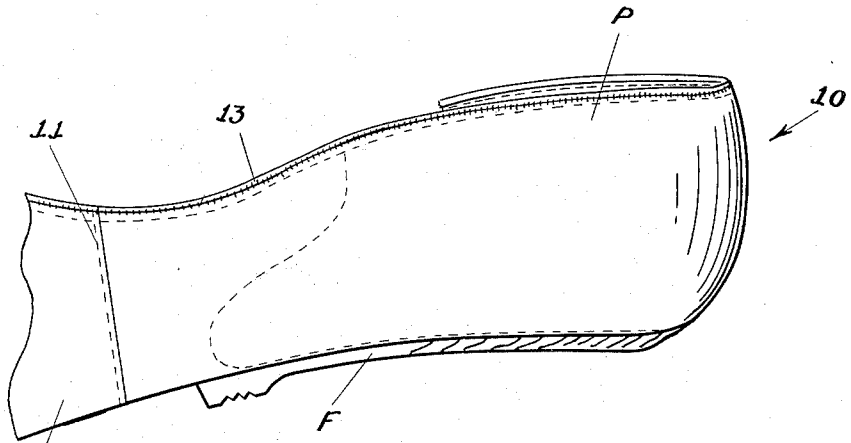


FIG. 1

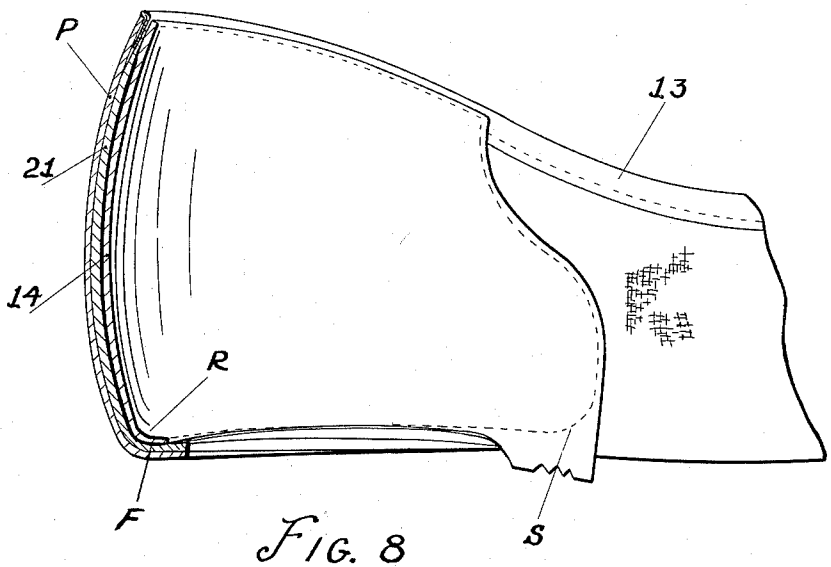


FIG. 8

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Filed Jan. 13, 1954 3 Sheets-Sheet 2

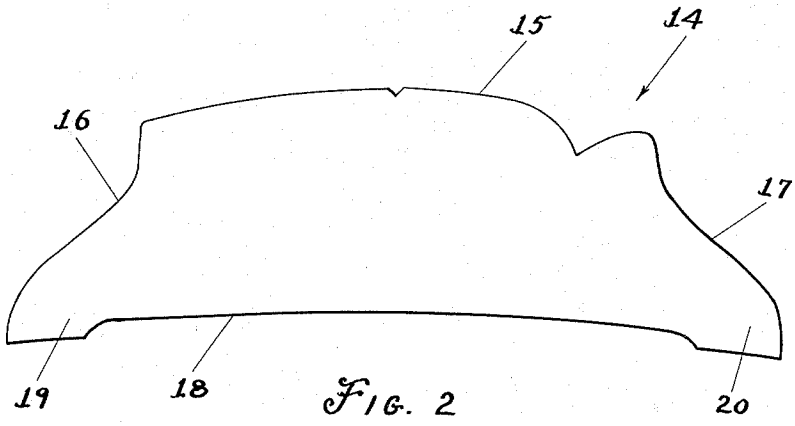


FIG. 2

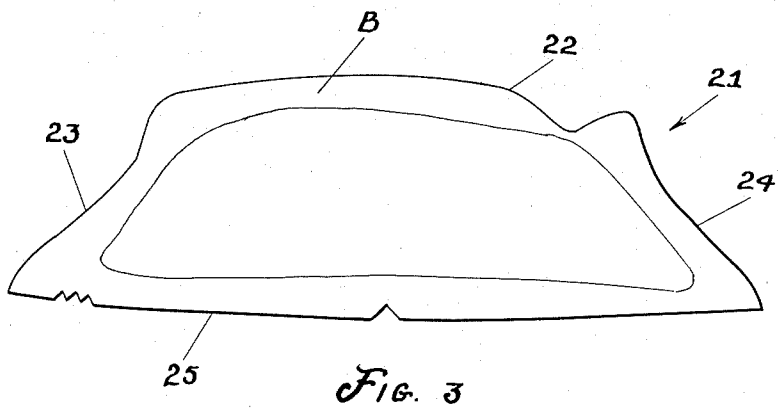


FIG. 3

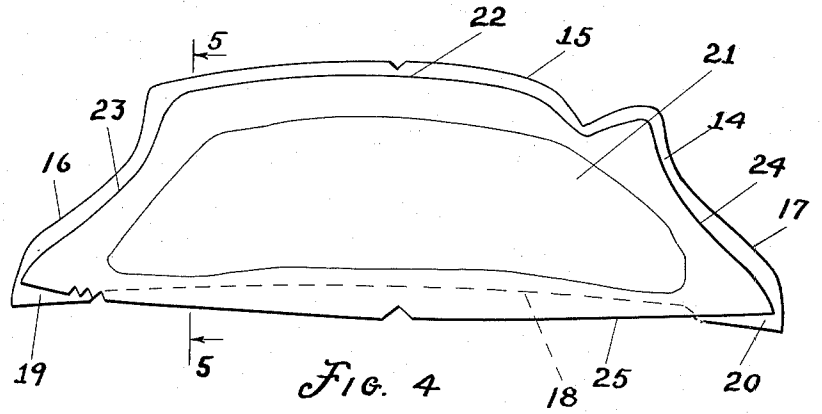


FIG. 4

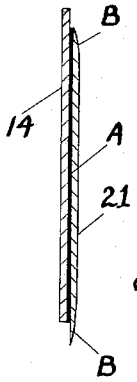


FIG. 5

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METHOD OF MAKING SHOES OF THE TYPE WHEREIN THE QUARTER PORTION OF THE SHOE COMPRISES A MOLDED STIFFENER

Filed Jan. 13, 1954 3 Sheets-Sheet 3

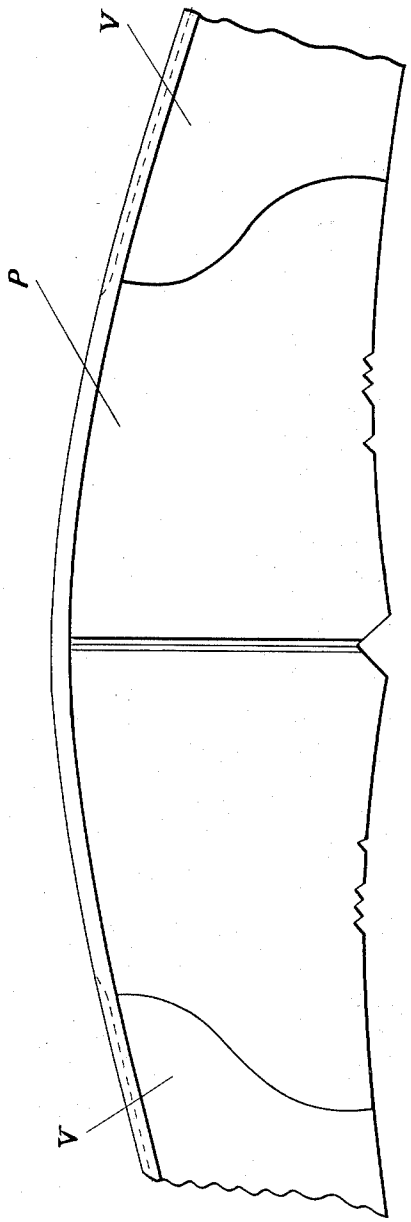


FIG 6

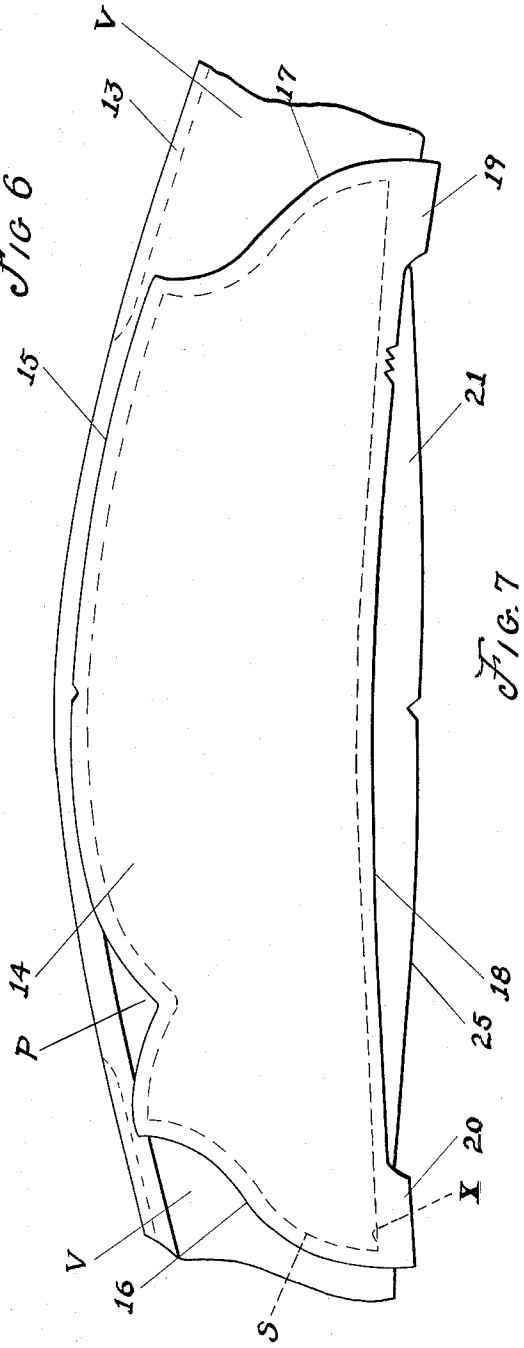


FIG. 7

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United States Patent Office 2,714,733 Patented Aug. 9, 1955

2,714,733

METHOD OF MAKING SHOES OF THE TYPE WHEREIN THE QUARTER PORTION OF THE SHOE COMPRISES A MOLDED STIFFENER

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Application January 13, 1954, Serial No. 403,897

1 Claim. (Cl. 12—142)

This invention pertains to the manufacture of footwear and more especially to a novel method of making shoes of the type wherein the quarter portion of the shoe comprises a molded stiffener or counter and to a novel shoe resultant from the practice of this method.

Heretofore it has been customary to bond the upper material which forms the exposed surface of the quarter portion of the shoe, and which for convenience is hereinafter referred to merely as the "quarter," to a pre-molded counter to prevent the material of the quarter from sagging away from the counter and developing wrinkles during use.

The present invention has for objects the provision of a novel method of shoe manufacture whereby the material of the quarter is adequately connected to the counter without the application of adhesive to the quarter, thus avoiding difficulties customarily experienced in the employment of adhesive for this purpose, and at the same time reducing the cost of manufacture and providing an improved product. A further object is to provide a shoe upper comprising a pre-molded quarter portion including a molded counter and wherein the material of the quarter is adequately connected to the counter so as to prevent the quarter from sagging or wrinkling, thereby to insure the desired fine appearance, and wherein the inner surface of the quarter is entirely free from adhesive or cementitious material.

According to customary prior practice, the counter has first been molded to the desired shape and provided with an attaching flange at its lower edge and then, after coating the interior of the quarter with adhesive, the molded counter is assembled with the quarter, for example by inserting it in a pocket formed between the quarter and a quarter liner. The operation of coating the interior of the quarter with adhesive and inserting the counter into the pocket is very troublesome; it is disliked by operators; it is wasteful of cement and, when dealing with thin upper material, often results in staining the material.

According to the present invention, the only adhesive employed is used for securing the counter to the quarter liner and this operation may be performed while the counter is still flat, that is to say, in the unmolded condition so that the cement applying operation may readily be performed by machine and at a relatively low cost as compared with the hand operation of applying adhesive to the interior of the quarter portion of a closed upper.

According to the present invention the dimensions of the counter blank and the quarter liner are such that a marginal portion of the liner extends beyond the edges of the counter blank at the top and sides of the latter when the parts are assembled. After the counter blank and liner have been united, the combined assembly is so treated, as by a mulling operation, that the counter becomes soft and pliable. While in this condition and while still flat, that is to say, unmolded, the assembled liner and counter are associated with the quarter and the margin of the liner is secured to the quarter by sewing stitches, an operation which may readily be performed by

the use of a flat bed sewing machine, even though the upper has already been closed. Then the assembled parts are subjected to a molding operation while the counter is still pliable. The stitching, whereby the assembled counter and liner are connected to the quarter, extends along the exposed margin of the liner at its top and end edges and also along the lower margin of the counter so that, in the molded quarter portion of the shoe, the quarter is adequately connected to the counter although no adhesive has been applied to the quarter. Thus, in the completed shoe, the quarter remains taut and snug and does not tend to sag or wrinkle during use even though it is not directly connected to the counter except along the lower margin of the counter.

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 fragmentary side elevation of a shoe upper having a quarter portion constructed in accordance with the present invention;

Fig. 2 is a plan view of a quarter liner before assembly with the other parts;

Fig. 3 is a plan view showing the rear or outer surface of a counter blank before the latter has been molded, this being the surface which is in contact with the inner surface of the quarter in the completed shoe;

Fig. 4 is a plan view showing the counter blank assembled with the quarter liner;

Fig. 5 is a diagrammatic section on the line 5—5 of Fig. 4;

Fig. 6 is a fragmentary plan view of the quarter portion of the shoe (as it would appear if laid flat), showing its inner surface as it appears when the upper is inside out and before the assembly of the counter and quarter liner therewith;

Fig. 7 is a view similar to Fig. 6, but showing the quarter liner and counter assembled with the quarter and secured thereto by stitching in accordance with the present invention, but before the upper has been turned right side out; and

Fig. 8 is a fragmentary vertical section, to larger scale, showing the quarter portion of a shoe made in accordance with the present invention and after the upper has been turned right side out and after the parts have been molded to shape.

Referring to the drawings, the numeral **10** (Fig. 1) designates the pre-molded quarter portion of a shoe made in accordance with the method of the present invention, this quarter portion or "assembly" being shown as having been molded substantially to the final shape which it is to have in the completed shoe and comprising the outer ply P (which although it may be of one or more thicknesses) is hereinafter referred to merely as the "quarter" and which, for example, may be of leather upper stock, and which is secured at its forward ends by seams such as the seam **11** to the vamp **12** of the shoe. The upper edge of the quarter assembly **10** is shown as having a finish bead **13** of customary type and as having the attaching flange F at its lower edge by means of which the quarter assembly is secured to the insole.

The quarter assembly, according to the present invention, comprises a liner **14** (Figs. 2 and 8), which may be of any suitable material, for example sheepskin or textile fabric and, as illustrated, has the upper edge **15**, the end edges **16** and **17** and the lower edge **18** and as here illustrated is shaped to provide downwardly extending tabs **19** and **20** at its opposite ends. While this liner is here shown as of one particular contour, it is to be understood that its contour may be varied according to the style of shoe which is to be made.

The quarter assembly also comprises the stiffener ele-

ment or counter **21** (Figs. 3 and 8) which may be of any of the usual materials employed for such purpose, for example indurated fiber or one of the synthetic plastics—the material being such that it may be caused to become plastically flexible or moldable by suitable treatment such as mulling, but thereafter becomes stiff and shape-retaining. As illustrated in Fig. 3, the blank from which the counter is made has the upper edge **22**, the end edges **23** and **24** respectively, and the lower edge **25**, that surface of the counter blank which is to contact the inner surface of the quarter being beveled or skived along its margin as indicated at B.

Having prepared the liner and counter, that surface of the counter blank which is to contact the liner **14** is then coated with a suitable adhesive, indicated at A (Fig. 5), this operation being conveniently performed, while the counter blank is flat, by means of a conventional cementing machine so that the operation is very quickly performed without requiring the employment of skilled labor for the purpose. Having applied this coating of adhesive, the counter blank **21** is then laid adhesive side down on the liner **14**, so that the parts occupy the relative positions indicated in Fig. 4 with the upper edge **22** of the counter and the end edges **23** and **24** of the latter spaced from the corresponding edges **15**, **16** and **17** of the liner so as to expose the margin of the latter at these portions of the assembly. However, at the lower part of the assembly, the lower edge **25** of the counter is located below the lower edge **18** of the liner.

The shoe upper, comprising the vamp **12** with its lining, and the quarter P having been assembled and already closed according to usual practice, is illustrated in Fig. 6 as in wrong side out condition, the interior of the quarter being shown as laid out flat. While the upper is shown in Fig. 6 as wrong side out, the method, in its broader aspects, does not necessarily include the steps of turning the upper wrong side out and later returning it. In this view, rear portions V of the vamp lining are also indicated. Before assembling the combined counter blank **21** and quarter liner **14** with the quarter, they are so treated as to make the counter blank **21** plastically moldable, for example by a mulling operation, or by a solvent, according to the type of counter. They are now arranged so that the counter blank **21** is opposed to the inner surface of the quarter P (Fig. 7) and with the central point of the upper edge **15** of the liner located adjacent the central point of the upper edge of the quarter P. As thus assembled (Fig. 7) the end portions of the liner **14** overlap the rear ends V of the vamp lining of the shoe upper. A sewed seam S (Fig. 7) is now formed, starting at any convenient point, for example at the point indicated at X in Fig. 7, this seam extending up along the edge **16** of the liner **14**, then along the top edge **15** of the liner, and then down along the end edge **17** of the liner, the stitches of this portion of the seam thus formed passing through the margin of the liner **14** and through the quarter P but not through any portion of the counter **21**. After reaching a point near the lower end of the edge **17** of the liner, the seam is then continued horizontally back to the starting point X, but this lower run of the seam is spaced substantially above the lower edge **25** of the counter so that the stitches of this lower run of the seam pass through the counter **21**, the liner **14** and the quarter P.

Having completed this sewing operation and while the counter is still in plastically moldable condition, the shoe upper is turned right side out, if it was previously turned wrong side out, the counter **21** (Fig. 8) now being housed within a pocket formed by the liner **14** and the quarter P, with only the lower marginal portion of the counter exposed. Having thus turned the upper right side out, the quarter portion of the shoe upper (the counter still being in moldable condition) is subjected to a molding operation, for example by the employment of dies such as are

commonly used for molding shoe counters, thereby imparting substantially the desired final shape to the quarter, as illustrated in Figs. 1 and 8, and in this same operation forming the attaching flange F which, at its root portion R (Fig. 8) comprises the marginal portions of the liner, counter and outer ply of the quarter, but which, for the major portion of its width comprises only the counter and the quarter. After this molding operation the upper is pulled over a last and the shoe completed in customary fashion, it being noted, however, that because of the pre-molding of the quarter portion, including all of its constituent parts, no further shaping of the quarter portion is necessary after the introduction of the last.

By the present method it is thus possible to prepare a shoe upper having a pre-molded quarter portion whose several plies are adequately joined together to assure the permanent retention of the shape initially imparted to the quarter portion by molding but without necessitating the application of cement to the interior of the quarter nor the introduction of a pre-molded counter into a previously formed pocket in the quarter. In this shoe, thus made, the only direct connection between the assembled counter and quarter is that provided by the lower horizontal run of the sewed seam S, it being noted that the cementing of the counter to the quarter lining takes place while these parts are flat so that the operation may be carried out very easily and inexpensively as compared with usual practice.

While one desirable embodiment of the invention has herein been shown and described by way of example, it is to be understood that the invention is broadly inclusive of any and all modifications, including a different sequence of the method steps, such as fall within the terms of the appended claim.

I claim:

That method of making shoes which comprises as steps providing a counter blank, providing a quarter liner, assembling the counter blank and liner so that the upper and end margins of the liner project beyond the upper and end edges of the counter blank respectively, adhesively bonding the liner and blank together, while flat, throughout the entire area of the blank, providing a closed shoe upper comprising a quarter, so treating the assembled quarter liner and counter blank as to make the counter blank flexible, associating the assembled liner and counter blank with the quarter of the shoe upper in a flat condition with the counter blank in contact with the inner surface of the quarter and so disposed that the center of the upper margin of the liner is located adjacent the center of the upper edge of the quarter, providing a sewed seam uniting the exposed upper and end margins of the liner only to the quarter, said seam also uniting the lower margin of the quarter directly to the counter blank, and molding the assembled quarter, counter blank and quarter liner to the shape of the desired completed quarter portion of the shoe.

References Cited in the file of this patent

UNITED STATES PATENTS

1,221,154	Dodge	Apr. 3, 1917
1,276,090	McLaughlin	Aug. 20, 1918
1,852,422	Lawson	Apr. 5, 1932
1,885,598	Gilbert	Nov. 1, 1932
1,889,205	Libby	Nov. 29, 1932
2,128,301	Jorgensen	Aug. 30, 1938
2,197,928	Finn	Apr. 23, 1940
2,344,458	Colella	Mar. 14, 1944
2,379,681	Cohen	July 3, 1945
2,392,815	Gleason	Jan. 15, 1946
2,442,239	Herlihy	May 25, 1948
2,634,441	Herlihy	Apr. 14, 1953
2,648,081	Meltzer	Aug. 11, 1953