Aug. 22, 1939. B. F. HARTWELL ET AL 2,170,559

PROCESS OF MAKING MOLDED HEELS AND QUARTER CONSTRUCTIONS

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Fig. 1.

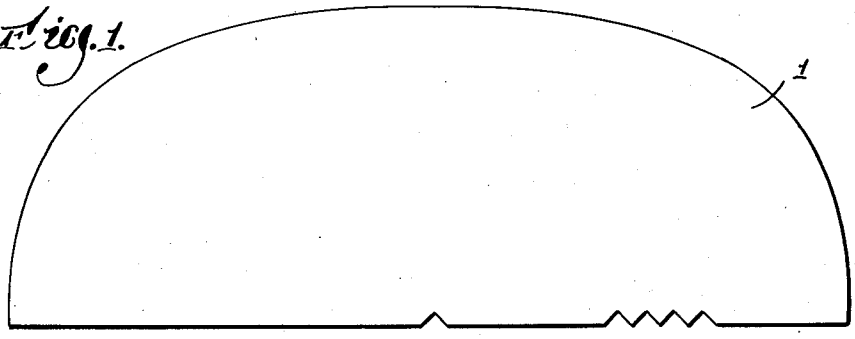


Fig. 2.

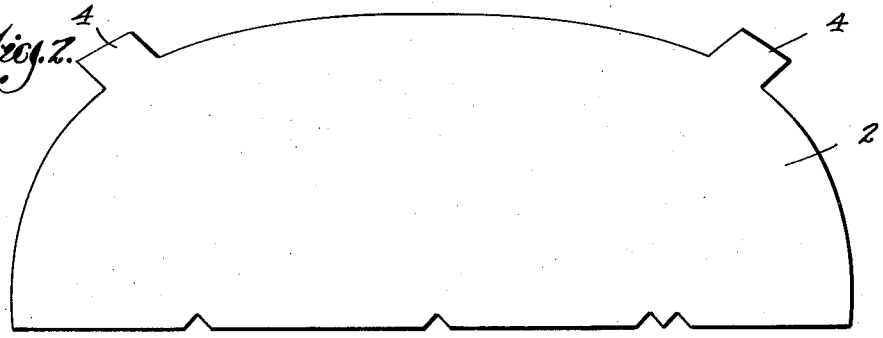


Fig. 3.

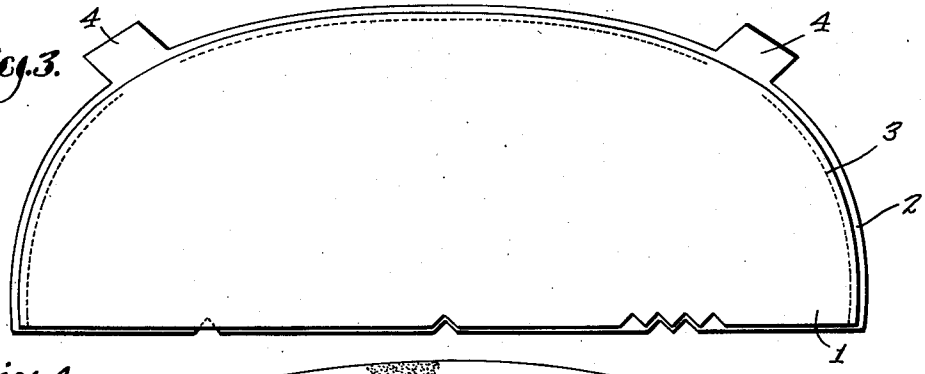
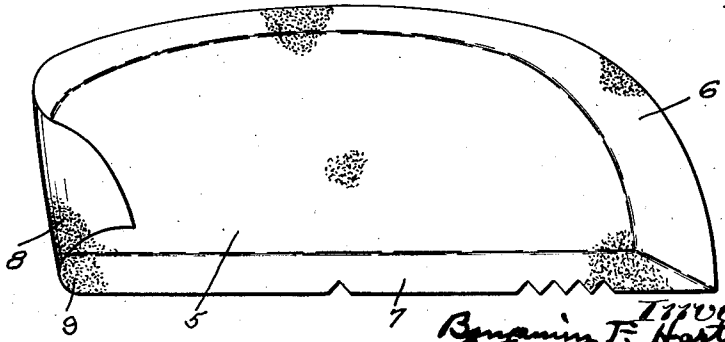


Fig. 4.



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Fig. 5.

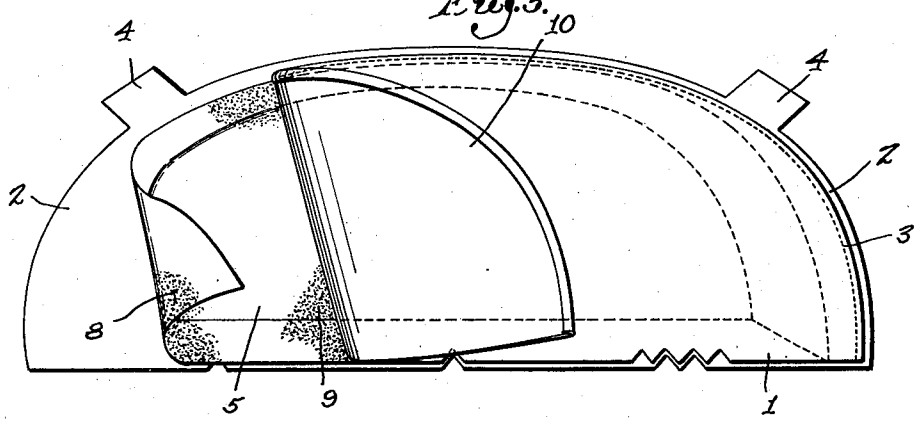


Fig. 6.

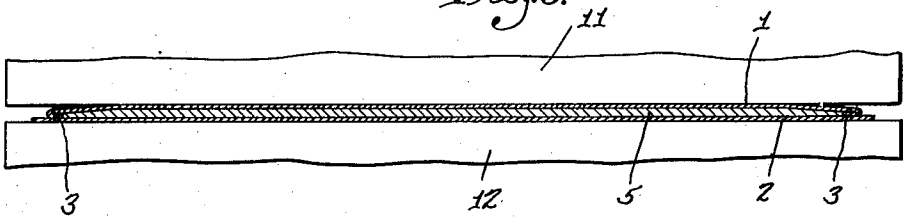


Fig. 7.

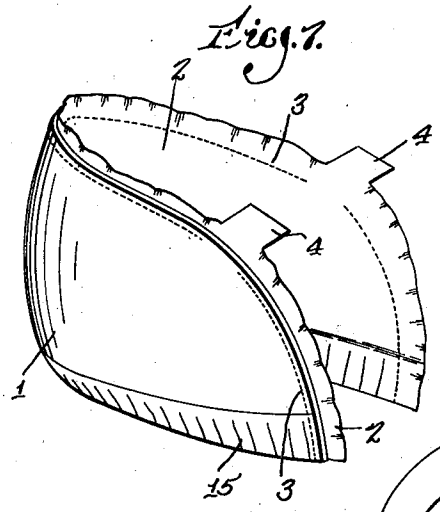


Fig. 8.

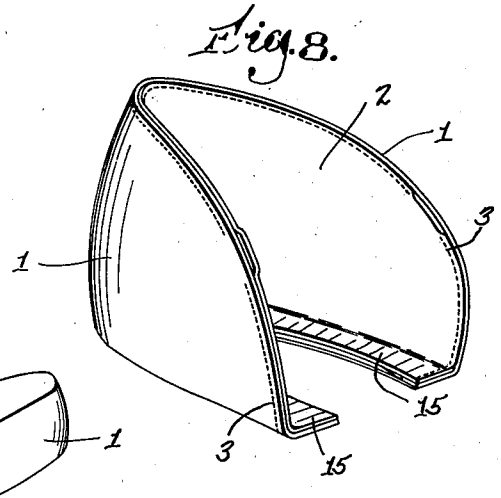
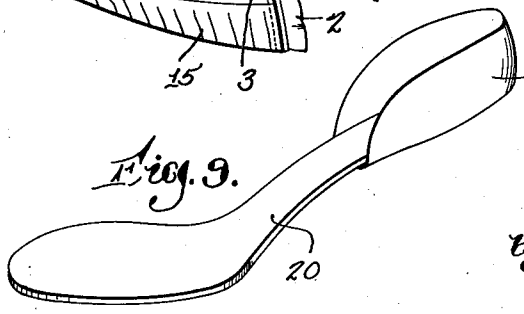


Fig. 9.



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UNITED STATES PATENT OFFICE

2,170,559

PROCESS OF MAKING MOLDED HEEL AND QUARTER CONSTRUCTIONS

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Application June 3, 1937, Serial No. 146,217

1 Claim. (Cl. 12—145)

Our present invention is directed to an improved method of making boots and shoes, and particularly to the construction and process of a molded heel and quarter portion for a shoe, sandal, pump, or the like.

In our prior and copending applications Ser. No. 104,196, filed October 6, 1936, and Ser. No. 137,708 filed April 19, 1937, we have shown and illustrated improved methods of manufacturing boots and shoes, including the molding of shoe, heel, and quarter portions, and our present invention is directed to improve and perfect such prior methods.

In our said prior and copending applications we have illustrated the assembly of upper materials comprising lining, counter stiffener, and upper, uniting the same while flat and thereupon simultaneously molding and flanging the entire series of layers constituting the heel and quarter portions of the shoe.

In our present invention we have developed a simple, efficient, and modified method wherein we first unite the upper and lining by stitching the same around the marginal portions while flat, and thereupon positioning and inserting in the united blank or pocket thus formed a flat counter stiffener, preferably coated with adhesive on each side so that the same, when positioned in the pocket formed by the upper material and lining and then pressed flat, will thus unite the plurality of layers constituting the heel and quarter of the shoe, and thereupon subjecting the same to a completing and finishing molding operation, forming the heel and quarter in proper finished contour, and simultaneously flanging the lower portion, thus providing for the attachment of the insole at the heel and quarter onto the pre-molded blank as above described, eliminating the prior operations of first assembling and then lasting the heel seat.

Our novel method of preforming a flange which is thereupon attached to the insole, all prior to assembling either the upper materials or insole on a last, and thus eliminating the former operations and methods of lasting the heel seat, the heel seat is thus accomplished readily and expeditiously and by uniting all three layers constituting the heel and quarter portions of the shoe structure while the same are flat, and easily operated upon by stitching and pressing machines, as well as greatly simplifying the assembly of the counter stiffener.

Our invention is particularly important and valuable in the construction of the modern type of light footwear for women, wherein the heel and quarter and the heel seat structure is the principal fitting and wearing portion of the shoe, the forepart comprising frequently a detached series of straps, open-work, or sandal-like vamp, the heel and quarter being complete and finished independently of the vamp or forepart.

Our present method, however, of forming such heel and quarter portions can be advantageously utilized in connection with the standard type of oxford, or the like, wherein the forepart is stitched or secured to our preformed heel and quarter sections, as more fully described in our said copending application Ser. No. 137,708 filed April 19, 1937.

In carrying out our present invention we prepare suitable blanks for the upper and for the lining, fold over the edge of the upper, if desired, to give a finished appearance; and thereupon stitch the marginal portions of the upper and lining together while flat and on a standard type of sewing machine.

Preferably these blanks thus stitched together are single sheets of material independent of a heel seam, which is necessary where two quarters are united at the back seam, although it is of course feasible to use such two quarter sections stitched at the back seam and, thereupon, united around the marginal edge to the entire lining of the heel and quarter portions, thereby forming a complete pocket for reception of the counter stiffener. Such counter stiffener may be of any suitable material, leather, fibre, fibreboard, or otherwise, and is preferably coated on each side with adhesive which will adhere on one side to the upper, and on the opposite side to the lining which, of course, may be of different materials.

We can utilize leather, imitation leather, suede, textile material, or any other suitable material for the upper as well as for the lining in our present method, fitting and positioning the counter stiffener while flat therebetween, and subjecting the same to a rolling or pressing action, all while still flat. This permits great speed of operation, and by unskilled labor, and results in uniting all three layers of the heel and quarter portions in proper position and ready for the molding and flanging of the same simultaneously to form the contour of the heel and quarter structure and the heel seat lasting flange independent of ordinary pulling-over and lasting.

The insole is thereupon secured to the preformed heel and quarter portion by uniting it with the flange either by cement, stapling, or otherwise, and by a simple pressing operation described in our said prior applications.

With our improved heel and quarter blank and structure as thus formed and subjected to the flanging and insole-attaching operations, the same is then assembled on a last for completion of the shoe.

Referring to the drawings illustrating a preferred embodiment of our present invention:

Fig. 1 is a plan view of upper material cut in blank form for the heel and quarter portion of a shoe;

Fig. 2 is a plan view of a lining for the upper of Fig. 1;

Fig. 3 illustrates the step of stitching the upper and lining together around the marginal portion, leaving the bottom edges unattached;

Fig. 4 is a plan view of the counter stiffener coated with adhesive to be fitted within the pocket formed by the united upper and lining;

Fig. 5 illustrates the counter stiffener, upper, and lining united, with a portion of the lining broken away and the counter stiffener turned back;

Fig. 6 illustrates the step of applying pressure to the three layers while flat before uniting the same;

Fig. 7 shows the heel and quarter blank after molding;

Fig. 8 illustrates same with the bottom flange molded and ready for attachment to the insole, and

Fig. 9 illustrates the heel, quarter, and insole united together prior to assembling to a last.

As shown in the drawings, and as further explained in our said prior applications, we form a suitable heel and quarter died-out from upper material and designated at **1**, preferably forming such blank independently of the heel seam, although two sections can be used and united at the heel if desired. With the upper material blank, as thus formed, a suitable lining **2** for attachment thereto is also died-out, and these two blanks are united by a row of stitching **3** around the marginal portion of the same, this stitching being accomplished while both are flat, and on a common sewing machine.

If desired, and as herein shown, we form extensions **4—4** on the lining to be subsequently utilized for stitching and attaching to an ankle strap, or other fastening means.

Fig. 4 illustrates a counter stiffener **5**, having a bevelled edge **6** around the upper and sides, and **7** across the bottom portion, which is coated with adhesive **8** and **9** on both sides, and is intended to be fitted within the pocket formed by the previously united upper and lining **1** and **2**. This counter stiffener **5** is of somewhat less area than that of the united upper and lining, and the bevelled portions **6** and **7** enable the same to be snugly fitted and firmly united when pressure is applied thereto.

As shown in Fig. 5, we have illustrated the counter stiffener in position in the pocket formed by the upper and lining, and we have illustrated same with a portion of the upper turned back, as indicated at **10**, although it will be appreciated that this is for illustrative purposes only to more clearly show the counter stiffener **5** in position in the pocket.

Fig. 6 illustrates the operation of rolling or pressing the assembled counter stiffener, upper, and lining together while flat between a pair of presser plates or rolls **11** and **12**, this feature firmly solidifying the three layers together by reason of the adhesive coatings **8** and **9** on each side of the counter stiffener.

With the blank thus prepared and all three layers firmly united, the same is then subjected to a heel-molding operation, as shown in Fig. 7, wherein the three layers are simultaneously molded into the contour of the boot or shoe heel to which the same is to be applied.

This heel molding partially forms the heel seat flange **15**, which is preferably completed by a further molding operation, as shown in Fig. 8, whereby the flange **15** is firmly crimped or molded into position for attachment to the insole **20** by suitable adhesive, staples, or other attaching means, and a heel pressing machine operation, as further illustrated and in our said copending application Ser. No. 137,708 filed April 19, 1937.

Our present improvement greatly simplifies and expedites the heel and quarter assembling and forming operations, and the simultaneous molding of all three layers constitutes an important step in this process.

We claim:

The improved method of manufacturing boots and shoes, which consists in premolding the heel and quarter portions by first preparing flat blanks of similar contour for the stiffening layer, the upper and lining material to constitute the heel and quarter structure of a shoe, uniting the marginal edge of said upper and lining around the top of same while flat, leaving the bottom portions unattached, preparing stiffening material while flat and unmolded with suitable cement on both surfaces, assembling the same between the upper and lining in position to constitute a counter for the heel and quarter of the shoe, applying pressure to the three layers to unite the same while flat, and thereupon simultaneously molding the upper, counter, and lining thus attached into predetermined final finished form with an inturned flange for attachment to the insole prior to fitting upon a last and thereupon attaching an insole to the inturned flange all prior to assembling the rest of the shoe materials onto a last and thereupon lasting the forepart and completing the shoe.

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