

Apr. 10, 1923.

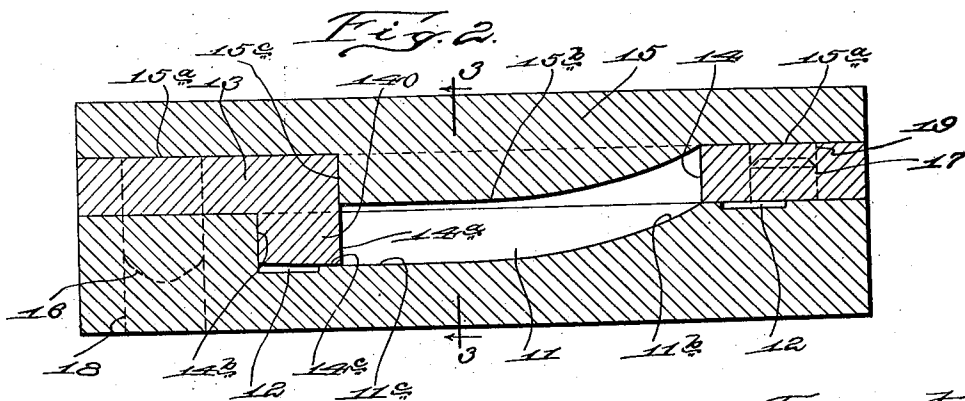
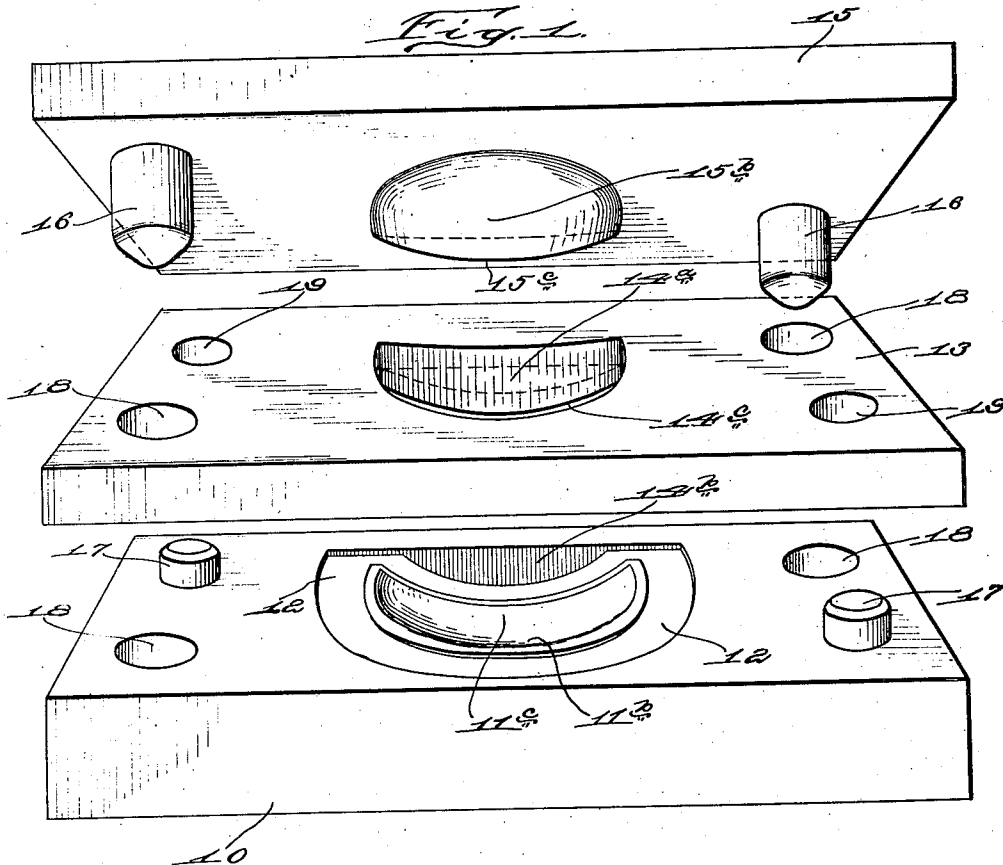
1,451,510

L. HOLMES

MOLD FOR RUBBER HEELS

Filed Aug. 23, 1921

2 sheets-sheet 1



Inventor:
Levi Holmes
By Clyde L. Rogers
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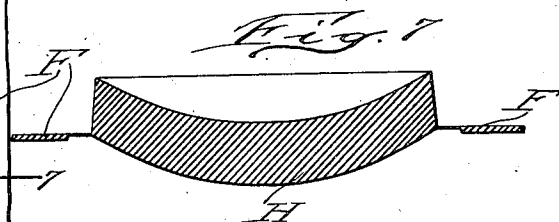
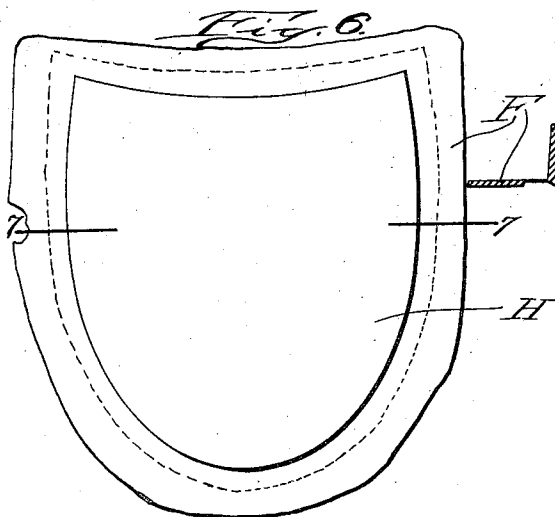
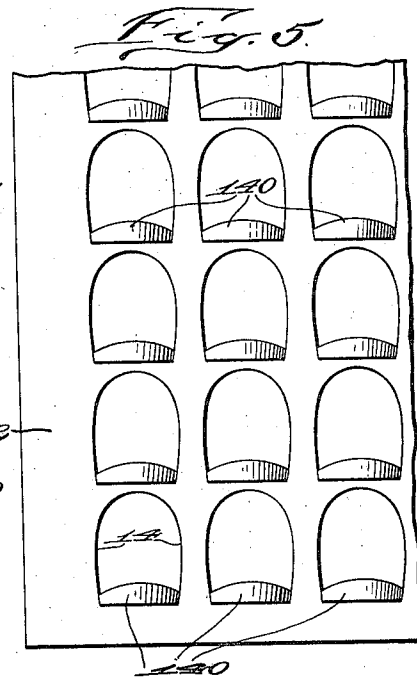
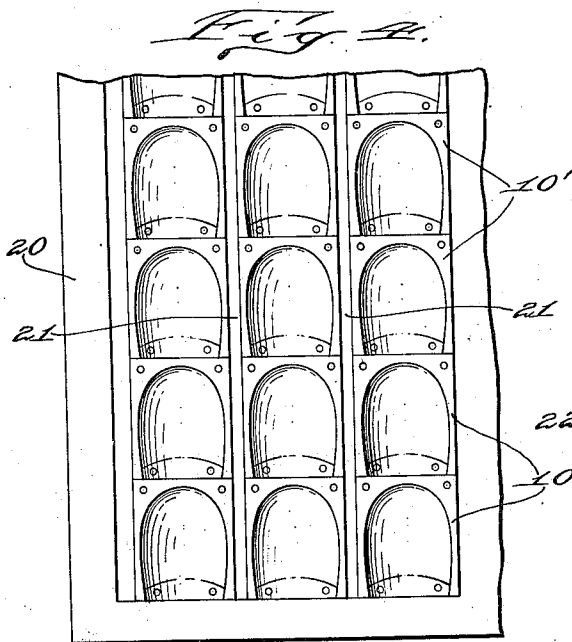
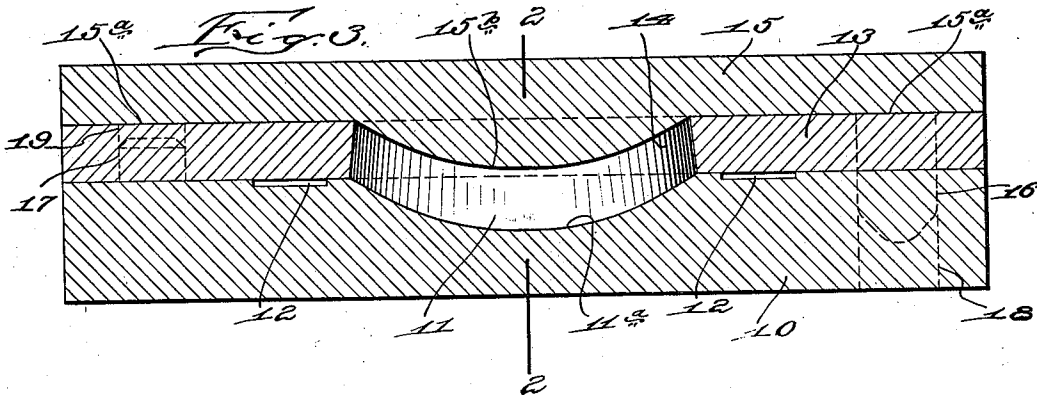
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UNITED STATES PATENT OFFICE.

LEVI HOLMES, OF RAYNHAM, MASSACHUSETTS.

MOLD FOR RUBBER HEELS.

Application filed August 23, 1921. Serial No. 494,594.

To all whom it may concern:

Be it known that I, LEVI HOLMES, a citizen of the United States, and resident of Raynham, county of Bristol, Commonwealth of Massachusetts, have invented an Improvement in Molds for Rubber Heels, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts in each of the several views.

This invention relates to molds for the manufacture of molded heels of shoes and boots and more particularly to a three-part mold of the general type commonly employed in making heels of rubber and rubber composition. While not in all respects limited thereto, the mold of the present invention is particularly adapted and designed for the making of rubber heels of a so-called "scoop" shape, i. e. a heel that is concavo-convex in cross section, but relatively flat in longitudinal section at its forward or breast portion. One principal object of the invention is to provide a mold for making heels of this type wherein the fin that unavoidably is squeezed out from the heel in the molding thereof, extends out laterally around the heel whereby it may be trimmed off readily and conveniently by the rotary trimming knives of a suitable machine,—which is not possible in cases where the fin projects downward instead of laterally. A further object is to provide a three-part heel mold with a relatively light middle plate portion, whereby this portion is easy to handle, it being understood that this middle plate is the one requiring to be lifted and manipulated to knock out the heels, and is of a considerable dimension with the multiple molds commonly in use, which may be adapted to produce fifty-six or more heels at a single operation. A further object is to provide a three-part mold that is easy to open and shut and also easy to keep clean. A still further object is to provide a three-part mold wherein the three parts of the mold are securely interlocked by the provision of stop shoulders on the respective plates, these stop shoulders being also associated with and forming part of the operating elements of the mold. The foregoing and other objects and advantages of the invention will more fully appear from the following detailed description taken in connection with the accompanying drawings,

and the distinctive features of novelty will be pointed out in the appended claims.

Referring to the drawings:

Fig. 1 is a perspective view showing the three-part mold of my invention with the three mold plates separated and ready for assembly;

Fig. 2 is a longitudinal vertical section of the mold on line 2—2 of Figure 3 with the plates assembled;

Fig. 3 is a transverse section on line 3—3 of Figure 2;

Fig. 4 is a partial elevation showing the bottom plate of a multiple mold embodying the invention;

Fig. 5 is a partial elevation showing the middle plate of a multiple mold;

Fig. 6 is an elevation of a heel produced by the mold of the invention and prior to the trimming of the fin therefrom; and

Fig. 7 is a transverse section of the heel on line 7—7 of Fig. 6.

Referring first to Figures 1, 2 and 3 which show the application of the invention in a single mold, 10 indicates the bottom plate of the mold which is formed with a matrix cavity 11 in its upper face of a shape corresponding to the contour of the heel bottom. Since the mold is designed for making scoop-shaped heels, this cavity is concave in cross section as indicated at 11^a, while in longitudinal section its rear portion curves upward as indicated at 11^b to the upper surface of the plate, while its forward portion is relatively flat as indicated at 11^c. Extending around this cavity and spaced a small distance therefrom is a valley 12 adapted to receive the overflow of the rubber which is inevitably squeezed out to some extent from the mold cavity as pressure is applied to mold the heel. 13 indicates the middle plate. In accordance with my invention this plate has an opening therethrough corresponding to the peripheral outline of the heel with vertical walls which extend upward through the plate from the plate bottom as indicated at 14 around said opening except at the front or breast portion of the mold cavity where the corresponding wall 14^a is constituted by the convex face of a formed downward projection 140 at this portion of the middle plate. The opposite side of this formed projection constitutes a shoulder abutting squarely against a corresponding vertical shoulder formed on the bottom plate

as indicated at 14^b, while the inner portion of the bottom of this projection fits closely against the bottom of the cavity wall 11^c of the bottom plate as indicated at 14^c. The top plate 15 has its peripheral portion fitting down closely upon the middle plate as indicated at 15^a. This plate is equipped with a projection 15^b extending into the cavity 11 and constituting the top wall thereof, for this purpose having its face convex in cross section and concave with a flattened front portion in longitudinal section, i. e. corresponding to the curvature of the matrix bottom. This projection 15^b presents at its forward end a square shoulder 15^c which fits and abuts against a shoulder of the middle plate 13 constituted by an upward continuation of the wall 14^a. Thus a rigid and secure backing is obtained of each superposed plate against the next lower plate in a direction forward of the heel and in the direction to withstand the pressures encountered in molding the heel, this backing being obtained by the wall 14^b with respect to the middle and bottom plates, and by the wall 15^c with respect to the middle and top plates. The excess rubber is squeezed out between the middle and lower plates into the valley 12 forming a peripheral fin F which extends out laterally from the body of the heel H in a direction where it may be readily trimmed off by usual rotary trimming or shearing knives, this being in distinction from previous molds producing this type of heel where a portion or all of the fin has projected downwardly instead of laterally, and hence required to be cut off by hand. 16, 17 denote pins in the top and bottom plates respectively which fit into holes 18, 19 of the middle and bottom plates for determining the alinement of the three plates and holding them properly assembled. Referring to Figures 4 and 5, 20 indicates a base plate or slab for a multiple mold to which a series of rows of individual bottom plates 10' may be riveted or otherwise secured. These individual mold plates 10' correspond substantially to the bottom plates 10 already described and they are arranged end to end in rows with channels 21 between the rows which constitute overflow valleys into which the excess of the rubber may flow in the molding of the heels. 22 indicates the middle plate of the multiple mold which may conveniently be formed as a single plate member with openings therethrough presenting vertical walls 14 similarly as already described and having the same downward projections 140 at the breast portions of the matrices, these projections constituting abutments having bearing against shoulders or ledges 14^b of the bottom plates as already described. The multiple top plate (not shown) may be a single plate member with series of convex downward projections 15^b the same as already described. In addition to the advantages already mentioned the present mold is also a valuable and important improvement in that it presents a construction permitting a better and more complete escape of gases in the molding operation, for the reason that its construction eliminates air traps or pockets. I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A three-part mold constructed and arranged for molding scoop-shaped rubber heels presenting abutting shoulders between each of the mold members at the front or breast portion of the heel cavity.
2. A three-part mold constructed and arranged for making scoop-shaped heels consisting in a bottom plate having a scoop-shaped cavity, a middle plate having an opening therethrough registering with said cavity, with a downward projection at the breast portion thereof abutting against a shoulder of the bottom plate, and a top plate having a scoop-shaped projection extending into said cavity, constituting the top wall thereof, and having a shoulder abutting against a vertical wall of the middle plate.
3. A multiple three-part mold comprising a base plate or slab with a series of bottom mold plates secured thereto in rows with valleys between said rows, each of said bottom plates having a matrix cavity therein, a middle plate having a series of openings registering with said cavities and having downward projections at the breast portions thereof, and a top plate having a series of convex projections fitting into said cavities to complete the mold matrices.

In testimony whereof, I have signed my name to this specification.

LEVI HOLMES.