May 25, 1943. M. L. BROWN 2,320,321

WELT TYPE SHOE

Filed Aug. 3, 1940 2 Sheets-Sheet 1

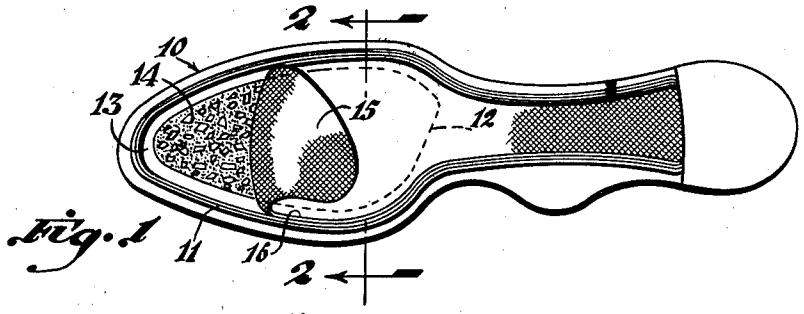


Fig. 1

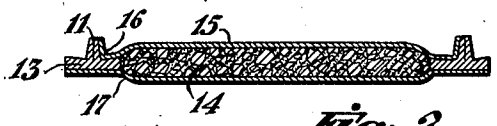


Fig. 2

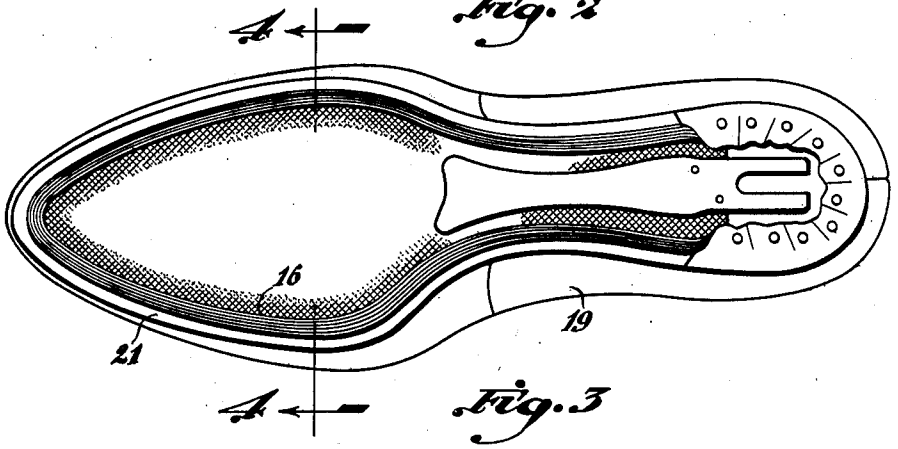


Fig. 3

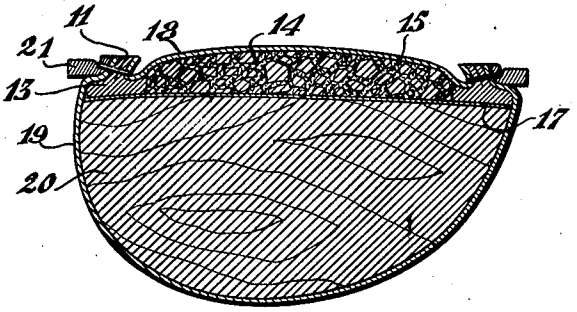


Fig. 4

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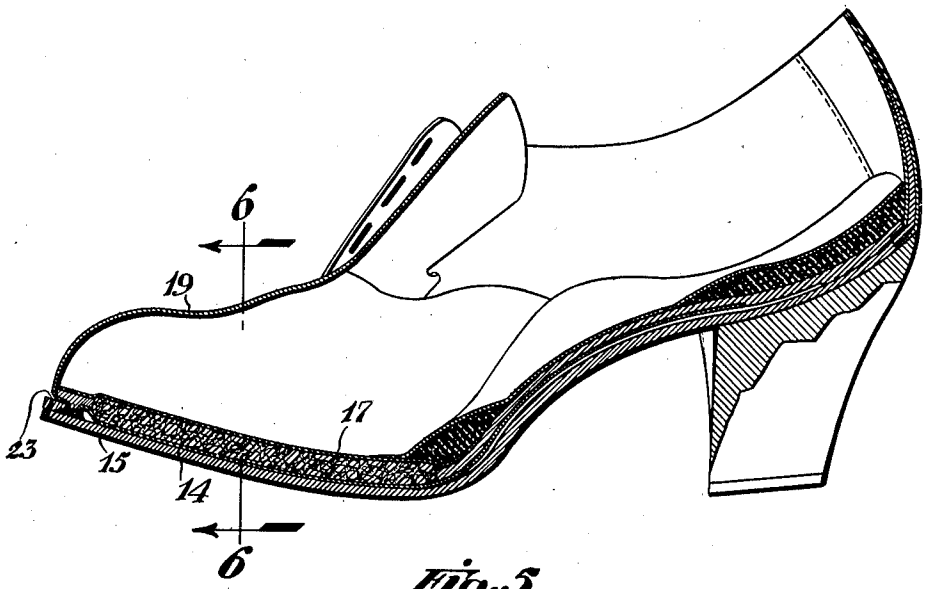


Fig. 5

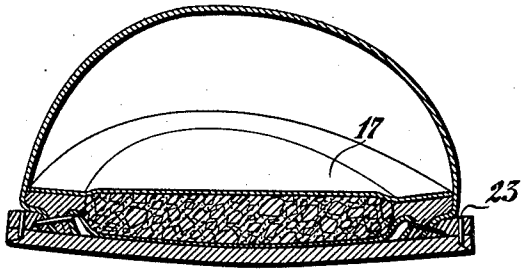


Fig. 6

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UNITED STATES PATENT OFFICE

2,320,321

WELT TYPE SHOE

Mark L. Brown, Vanceburg, Ky., assignor to L. V. Marks & Sons Company, Cincinnati, Ohio, a corporation of Ohio

Application August 3, 1940, Serial No. 350,342

2 Claims. (Cl. 12—142)

This invention relates to shoes and the manufacture thereof. It is particularly directed to a welt-type shoe, incorporating a cushioning means at the forepart thereof.

In Patent No. 2,207,437, issued July 9, 1940, to Emanuel S. Marks and Mark L. Brown, a shoe of the McKay type is disclosed, incorporating a cushioning means. It has been the object of the present inventor to produce a shoe of the welt type, providing the same comfort and durability as the shoe disclosed in the aforesaid patent. Naturally, the methods of manufacturing McKay and welt-type shoes are different, and it is obvious that the methods of constructing the welt type produce problems different from those of producing the McKay type.

Heretofore, it has been necessary in a welt shoe to provide a filler between the insole and the outsole within the space defined by the channel lip. In the present method and improved shoe, the necessity for this insert no longer exists. At the same time, maximum flexibility and cushioning are achieved throughout the forepart of the sole.

In the process of manufacturing the shoe, the resilient or yieldable cushioning means is incorporated in the insole prior to the time that the insole is placed upon the last. A pad is provided of greater thickness than the insole and as initially incorporated, projects downwardly to substantially fill in the space defined by the marginal lip or the space which is ordinarily taken up by filler material of some sort. When the shoe is lasted, the insert projects or extends within this space due to the engagement of the insole over the bottom of the last. When the excess upper material is cut away, the outsole may be placed in position wherein it has contact with the pad throughout the pad area, since the pad or a gem-duck covering on its underside, is disposed in the same plane as the edge of the lip.

For the reason that the shoe is lasted in bowed condition, the weight of the wearer in the shoe will cause the central zone of the forepart (the pad) to press upwardly and create a raised portion inside the shoe, filling in the natural cavity of the foot.

There are many advantages to this type of construction, the first, of course, being the elimination of the usual filler between the soles and others being; the increased flexibility and greater cushioning action; the durability of the shoe since the insert cannot bunch and form an irregular insole; the support afforded across the arch of the foot since the cushion forms a slight plateau; and the fact that the foot is supported throughout its arch on a soft cushion material which prevents the formation of callouses or other sores. Other objects and certain advantages will be more fully apparent from a description of the drawings in which:

Figure 1 is a bottom plan view of the insole with a portion of the gem-duck reinforcing thrown back for illustrating the cushioning pad.

Figure 2 is an enlarged sectional view taken on line 2—2 of Figure 1.

Figure 3 is a bottom plan view of the shoe, showing it with the upper lasted in position attached to the lip and with the welt stitched in position.

Figure 4 is a sectional view taken on line 4—4, Figure 3, illustrating the position of the cushioning pad while the shoe is on the last.

Figure 5 is a sectional view taken lengthwise of the finished shoe.

Figure 6 is a sectional view taken on line 6—6, Figure 5.

Referring to the drawings, the insole is indicated at 10 and is shown separately from the completed shoe in Figure 1. It is cut out and rounded in the usual manner, and the channel is then made and the usual welt lip 11 is turned up from the channel. If desired, as is common practice, the lip may be attached instead of channelled or turned up from the material of the insole. After this welt lip is turned, the portion of the insole, having its outside boundary approximately at the inside edge of the lip, is cut out and removed completely to define an opening 12, defined by the marginal portion 13. A pliable resilient cushion element 14, consisting, for example, of cork and latex bonded together, is inserted within the opening 12. This inserted pad or cushion is of the same dimension or contour as the opening in the forepart of the insole in order to fit snugly therein and extends above and below the marginal portion or rand 13, being of a thickness equal to the thickness of the rand plus the height of the lip 11.

This insert of cushioning material is of a thickness equal to, or a little greater than the combined thickness of the insole and the usual filler which is placed between the insole and outsole of a welt-type shoe. A gem-duck covering 15 is applied in the usual manner on the bottom of the insole and against the inner margin of the lip as at 16. This gem-duck covering holds the insert in place. The increased thickness of the pad is shown in Figure 2. A covering 17 is placed over the filler and the rand of the

insole on the upper side of the insole and is securely fastened by cementing, stitching, or both. The thick insert (greater in thickness than the insole) naturally causes a bulge. As the shoe is lasted, this bulge exists entirely toward the under-side of the insole; that is, within the space which is ordinarily filled. The bulge is shown at 18 (Figure 4). The insert is securely held in position due to the fact that it is covered below by the gem-duck material and above by the covering sheet 17.

In the process of lasting, the upper 19, the lining and the prepared insole shown in Figure 1, are placed upon the last 20. The upper is secured to the lip 11 by staples and in this process, the upper is drawn tightly around the edge of the last, pulling the prepared insole into a curved position or a position where the bulge must exist entirely within the space defined by the lip of the insole. Since the center portion or the insert portion of the insole is thicker, the lasting operation tends to pull the rand or margin 13 close to the last, forcing the center cushion outwardly and filling the natural cavity formed within the lip, so that when the welt 21 is attached by inseaming, there will be no cavity requiring filling.

Accordingly, the curvature of the lasted insole is accentuated because of the relatively thin rand portion (see Figures 2 and 4). This stretching of the fabricated insole across the bottom of the last holds the cushion snugly in position under pressure.

The excess materials of the lip and upper are cut away to provide a substantially flush, smooth, well-rounded bottom in condition for receiving the outsole.

The outsole is then laid and leveled to the contour of the lasted insole and upper. A line of stitching 23, disposed through the outsole and the welt fastens the outsole to the welt. Preferably, as shown in Figures 5 and 6, the insert is of enough thickness to slightly displace the covering sheet 17 to provide a raised central area within the forepart of the shoe.

In the lasting operation, the insole, including the insert, is curved to a considerable extent and accordingly, tends to remain in this condition. Thus when the outsole is applied and is firmly rolled into position, the shoe tends to maintain its curvature.

The entire structure comprises in effect, a cushion pad mounted directly upon the outsole of the shoe, the upper surface of the pad being securely bonded to the flexible sheeting 17. The sheeting in turn, is secured around its marginal edges to the margin of the insole. It may be seen from this arrangement that the insole effect upon the pliability of the forepart of the shoe is negligible. Moreover, the flexing of the forepart of the shoe will not tend to work or displace the pad forwardly since the pad is inherently flexible and resilient. In addition, the cushion is securely attached to the sheeting 17 and is maintained within the marginal edge 13 so that any creeping or bunching tendency is effectively prevented.

In manufacturing the insole, the blanks are formed in the usual manner, by dieing. After the blank has been formed, the forepart of the insole is then cut out by means of a die to form the opening 12. The cushioning pad is of the same size as the opening and it has been found most convenient to cut the pads from sheets, using the same die which has been used to form the opening. In this manner, a very accurate fit is obtained. Since all of the parts of the insole may be formed by direct dieing operations usually a plurality of members being cut from stacked sheets, the insoles are inexpensive and are adaptable for production methods of manufacture.

The weight of the body presses down on the margins of the sole, this being the natural condition in walking. The convex or curved sole permits the margin to be lowered under the weight and causes the transverse interior shape of the sole assembly to bulge upwardly to fit the natural transverse curvature of the foot. Although, as stated, this presents an uneven surface, it does fit the foot. Each bone of the forepart of the foot is gently supported on the cushioned surface in its natural position.

Having described my invention I claim:

1. In a shoe of the welt type, an upper, an insole having an opening in its forepart providing a rand surrounding the opening, said rand including a marginal lip, a pad of greater thickness than the insole filling the opening and surrounded by the rand, the outer edge of the pad being in engagement with the margin of the opening, a welt strip attached to the lip, a covering sheet secured to the inner face of the insole and pad, a covering sheet attached to the outer face of the insole and pad and having its margin, at the forepart of the insole, secured to the lip by means of stitching which attaches the welt strip to the shoe, and an outsole attached to the welt strip, said pad being in contact with the outsole throughout the area of the pad, said insole being disposed under tension in outwardly bowed condition and said pad extending slightly above the level of the top of the insole so as to fill in the arch of the foot when the weight of the wearer is upon the shoe.

2. A method of making shoes of the welt type and including the steps of: providing an insole having the forepart cut out to provide an opening surrounded by a rand having a marginal lip, placing a cushioning pad of greater thickness than the insole in the opening in the insole with the pad extending above and below the upper and lower surfaces of the rand and with the pad's outer edge in contact with the margin of the opening, cementing covering sheets over the top and bottom respectively of the insole and pad, assembling an upper and the insole assembly on a last having a curved bottom, pulling the rand against the curved bottom of the last by attaching the upper to the lip provided on the rand while bending the insole over the curved bottom of the last and at this time attaching a welt strip to the lip and the outer margin of the outer covering sheet to the lip by means of stitching, whereby the pad is compressed tightly within the opening and, thereafter laying, leveling, and attaching a curved outsole on the lasted shoe by securing the outsole to the welt strip with the outsole in engagement with the pad throughout the area of the pad and through the interposed outer covering sheet.

MARK L. BROWN.