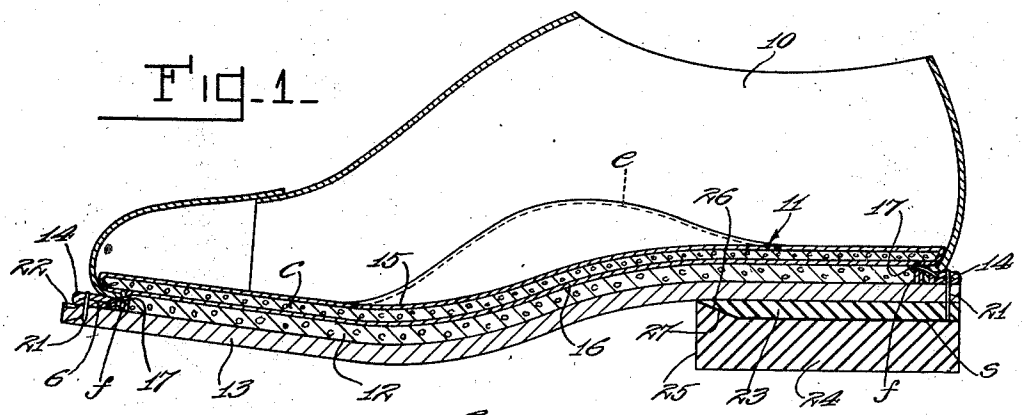
Jan. 21, 1930. J. V. MATTOS 1,744,322

SHOE

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Fig. 1.



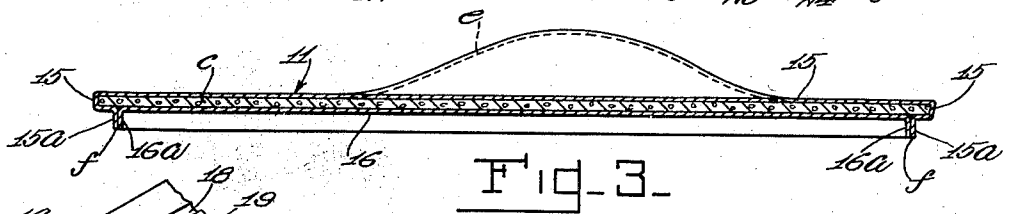


Fig. 3.

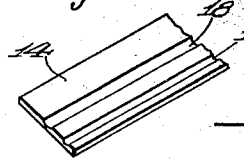


Fig. 5.

Fig. 2.

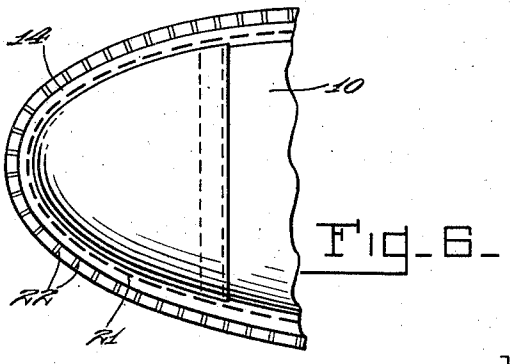


Fig. 6.

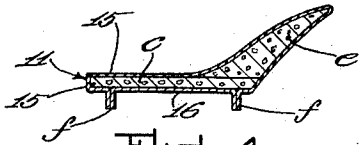


Fig. 4.

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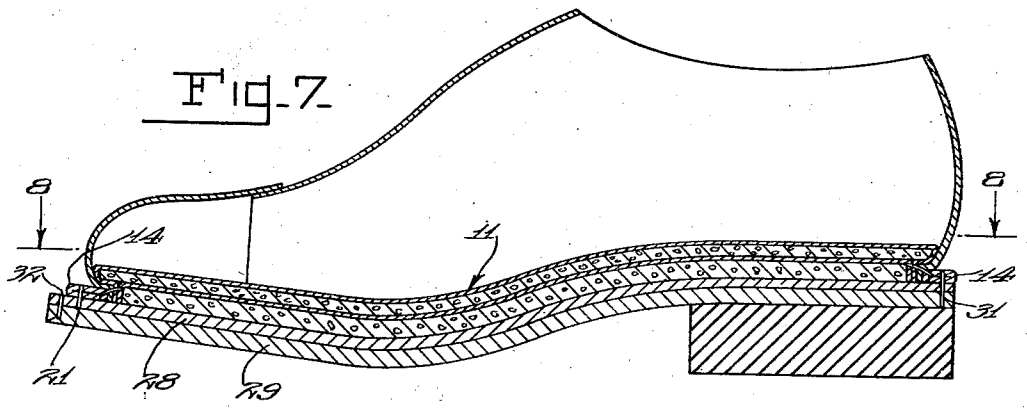
Attys

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SHOE

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Fig. 7.



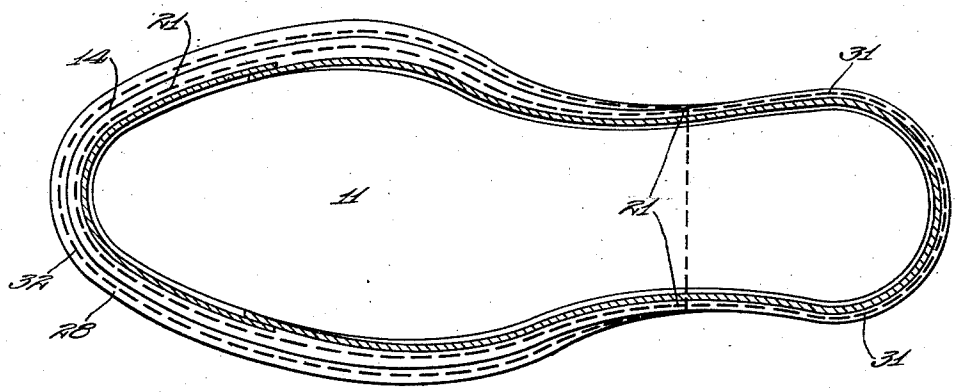


Fig. 8.

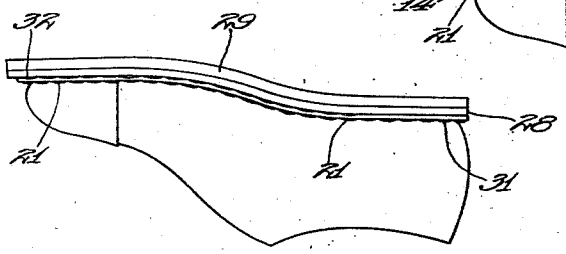


Fig. 10.

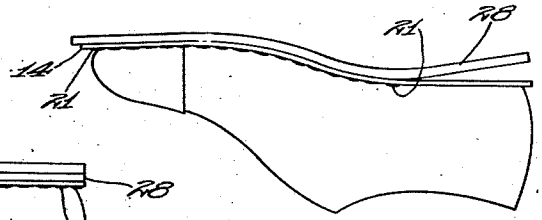


Fig. 9.

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Patented Jan. 21, 1930 1,744,322

UNITED STATES PATENT OFFICE

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SHOE

Application filed September 26, 1927. Serial No. 221,902.

The invention relates to a new and useful improvement in shoes. One object of the invention is to provide a shoe with an insole which will be flexible and which will also cushion the outer sole.

Another object is to provide a combination inner sole and arch support.

Another object is to provide a new and novel method of attaching the outer sole.

Another object is to provide a new and novel method of attaching a rubber heel to the shoe.

Another feature of the invention relates to the welt.

Other objects and features of this invention will be more particularly set forth hereinafter.

The invention will be fully understood from the following description when taken in connection with the accompanying drawings and the novel features thereof will be pointed out and clearly defined in the claims at the close of this specification.

In the drawings:

Fig. 1 is a longitudinal section of one form of shoe having incorporated therein features embodying the invention.

Fig. 2 is a plan view of the insole before it is applied to the shoe.

Fig. 3 is a longitudinal section of the insole taken on line 3—3, Fig. 2.

Fig. 4 is a cross-section taken on line 4—4, Fig. 2.

Fig. 5 is a detail perspective view of a portion of the welt.

Fig. 6 is a fragmentary plan view of the completed shoe.

Fig. 7 is a longitudinal section of a double-sole shoe embodying the invention.

Fig. 8 is a section taken on line 8—8, Fig. 7.

Figs. 9 and 10 are views illustrating successive operations in the production of the shoe shown in Fig. 7.

Referring to the drawings, there is shown at 10 the upper of a shoe, at 11 the insole, at 12 the filler, at 13 the outer sole and at 14 the welt. The body of the insole 11 is made of sheet cork C cut to the suitable configuration of the insole and if the shoe is to be provided with an arch support, the said insole is provided with a lateral extension *e* of sheet cork which may be either integral with the main body of the insole or made as a separate piece of cork as shown in Fig. 4, which overlaps the main body of the insole. If it is made as a separate piece, it should be secured to the main body of the insole by cement or other suitable means in such manner that the combination inner sole and arch support will be a substantially unitary member. The arch supporting portion of the cork insole should be considerably thicker on the inside than on the outside, being curved from the inside to the outside as shown in Fig. 4.

The said insole together with the arch supporting portion, provided it has an arch supporting portion, is enclosed in a casing comprising a top and edge covering portion 15 and a bottom covering portion 16, the upper portion 15 preferably being of leather and the under portion 16 preferably being of canvas although the said covering portions may be of any suitable flexible material. The upper covering portion 15 extends over the edge of the insole and partly around on the underside and is there turned to form a lip portion 15^a. The under cover portion 16 meets the portion 15 somewhat inside of the margin of the insole and is turned to form a lip 16^a, the said two lip portions 15^a and 16^a facing each other, as shown in Figs. 1 and 3, to form a two-ply lip *f* to receive the stitches 17 for uniting the upper, the inner sole and welt.

The welt 14 (see Fig. 5) is formed with a longitudinal groove 18 in one face thereof to facilitate the folding of the welt as will be hereinafter described and is also formed with a longitudinal groove 19 to form a channel for the stitches.

The upper will be provided with the usual linings which are omitted in the drawings for the purpose of avoiding confusion.

The covering members 15 and 16 for the insole are cemented thereto and pounded down and the lip portions 15^a and 16^a have their contiguous portions provided with a film of cement, said lip portions being firmly pressed together so that they will adhere. The lip *f* formed by the lip portions 15^a and

16ª is substantially at right angles to the under side of the insole.

In the process of making the shoe, the insole is temporarily secured to the bottom of the last by tacks, after which the upper 10 is put on the last and lasted in the usual manner and the welt 14 is stitched to the upper 10 and to the lip *f* of the insole. The welt is sewed to the insole and the upper by the stitches 17 before the welt is folded and the upper is trimmed close to the welt. Preferably a rubber lining is provided to cover the welt stitching, but it is not deemed necessary to show this in the drawings. The filler 12 which is preferably also of sheet cork is then applied to the under face of the insole 11 within the recess bordered by the lip *f* and is secured to the insole preferably by cementing it to the covering 16 on the under side of the insole.

The welt 14 is then folded along the line of the groove 18 so that the fold is on the outer or exposed edge as shown in Fig. 1, thus making a two-ply welt, the two plies being in contact with each other. Preferably the two plies of the folded welt are cemented together as shown at 6 in Fig. 1. The welt is then beaten by a beating-out machine and the outer surface sand papered after the welt is folded.

The outer sole 13 is then applied over the cork filler 12 and is sewed to the welt 14 by stitches 21 which pass through the sole and both folds of the welt 14 as clearly shown in Fig. 1.

The outer sole is then trimmed closed to the folded edge of the welt. If desired, the outer sole may have a row of false stitching 22 formed in well known manner on its upper face near the edge.

If the shoe has a leather sole and is to have a rubber heel, there is first secured to the underside of the heel portion of the outer sole 13, a lift 23 of rubber which is secured thereto by the same stitching 21 which secures the outer sole to the welt 14. The rubber reel 24 may then be secured to the rubber lift 23 by cement S without the use of either nails or stitching. The reason for the employment of the rubber lift 23 between the heel 24 and the outer sole is that the rubber heel cannot be securely attached to the leather sole by cement alone but requires in addition either sewing or nailing, but rubber can be securely attached to rubber by adhesive. By the use of the intermediate rubber lift sewed to the leather sole and then cementing the main heel to said rubber lift there is no exposed stitching in the heel to become worn through and let the heel become detached from the sole and there are no nails which impair the elasticity or the cushion effect of the rubber heel when the heel becomes worn down to the heads of the nails.

The top lift 23 is skived off on its front edge as shown at 26 and the breast portion of the heel 24 has an upwardly inclined front portion 27 to fit the inclined front edge 26 of the lift 23 so that the machine can sew right along on the incline without stopping as would be necessary if it were an abrupt shoulder.

If the sole is rubber the entire rubber heel can be cemented to the sole without making the heel in two parts.

The shoe shown in Fig. 7 is provided with a double sole. It has the cork insole and filler and folded welt as shown in Fig. 1 except that the cork insole in this instance is formed without the arch support although, if desired, the arch support may also be embodied in the double sole shoe.

There is provided an intermediate sole 28 which covers the entire under surface of the filler and extends beyond the welt having practically the same contour and size as in the case of the single outer sole 13. It is secured to the welt 14 in the same manner in which the outer sole 13 of Fig. 1 is secured to the welt except that at the time the intermediate sole and the welt are secured together by the stitches 21, the said stitching is applied only to that portion of the intermediate sole which is forward of the plane of the breast portion of the heel, the portion of the intermediate sole which is to be covered by the heel being still free at this stage of the operation as shown in Fig. 9. The outer or wear sole 29 is then applied to the under face of the said intermediate sole 28 and the said outer sole 29, intermediate sole 28, and welt 14 are all stitched together around the heel portion thereof by one line of stitching 31 which extends from the point where the stitching 21 terminated at the plane of the breast of the heel.

At this stage that portion of the outer sole which is forward of the plane of the breast of the heel is still unattached to the intermediate sole. The said intermediate sole and outer sole will now be secured together by stitching 32 which passes through said intermediate sole and said outer sole. The said intermediate sole 28 thus serves as a welt and may be termed a welt sole as distinguished from an ordinary strip welt or instead of such a welt as shown at 14.

What I claim is:

1. A shoe having an insole formed with a lip projecting from the under face thereof near its margin to form a recess for a filler, a welt and an upper secured to said lip by a line of stitching, a filler within the recess surrounded by said lip, a welt sole secured to said welt by a line of stitching around that part which is forward of the plane of the breast of the heel, an outer sole applied to said welt sole and having that portion of the outer sole which

is at the rear of the plane of the breast portion of the heel secured to the welt sole and welt by a line of stitching which passes through said outer sole, welt sole and welt, the portion of said outer sole which is forward of the plane of the breast portion of the heel being secured to said welt sole by stitching which passes through said welt sole and outer sole.

2. A shoe having an upper, a welt secured to the upper, a sole secured to said welt by a line of stitching around that part of the sole which is forward of the breast of the heel, an outer sole having that portion which is at the rear of the breast of the heel secured to said first sole by a line of stitching which passes through both of said soles and said welt, the portion of said outer sole which is forward of the breast portion of the heel being secured to said first named sole by a separate line of stitching which passes through both of said soles.

In testimony whereof I affix my signature.

JOHN V. MATTOS.