July 17, 1928. 1,677,343

R. E. HOWLETT

STITCH DOWN SHOE AND PROCESS OF MAKING SAME

Filed Nov. 18, 1924 2 Sheets-Sheet 1

Fig. 1

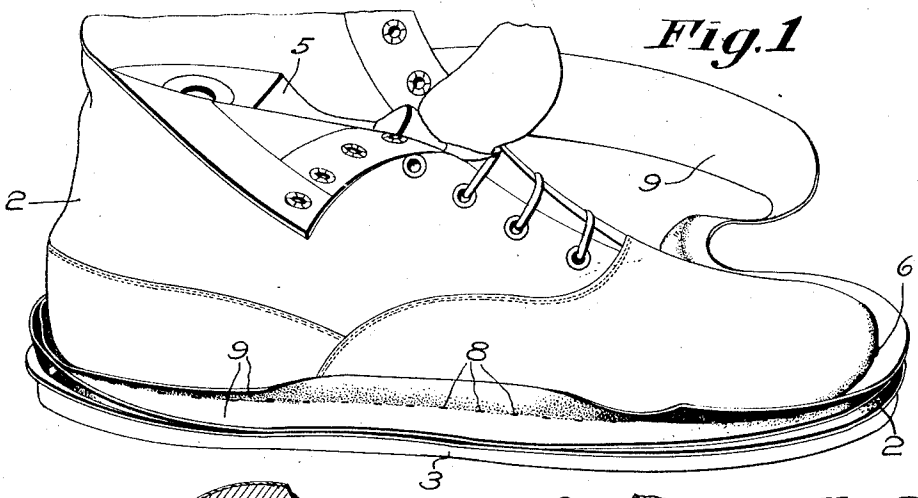


Fig. 2

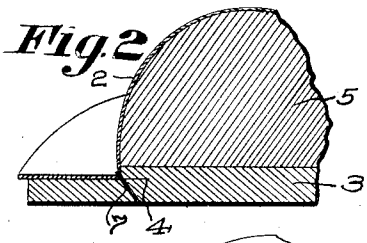


Fig. 3

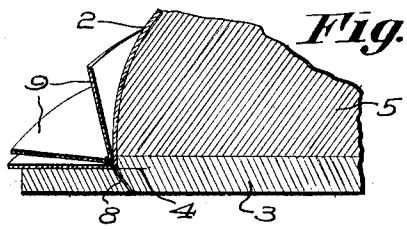


Fig. 4

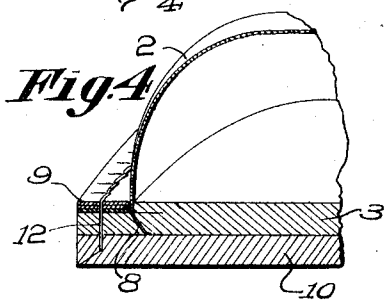


Fig. 5

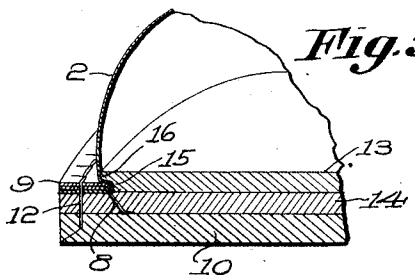


Fig. 6

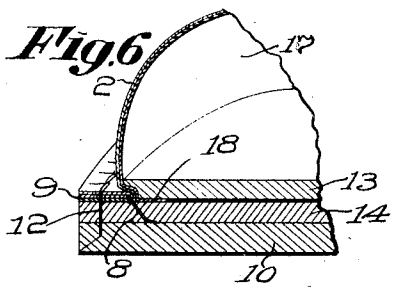
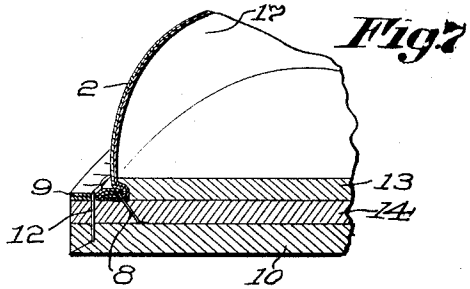


Fig. 7



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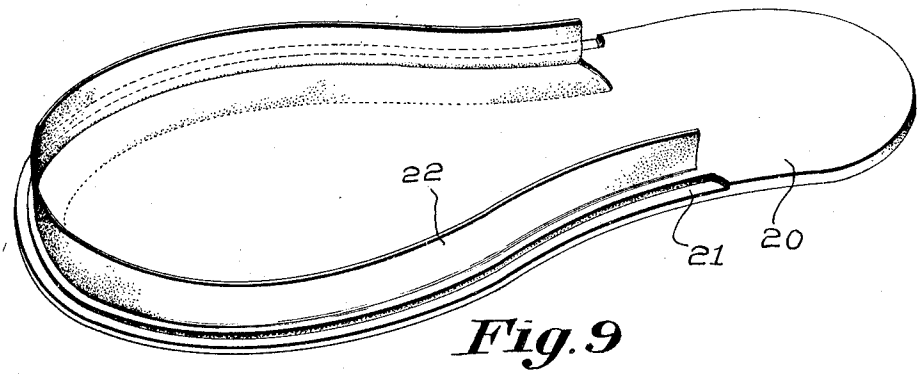


Fig. 9

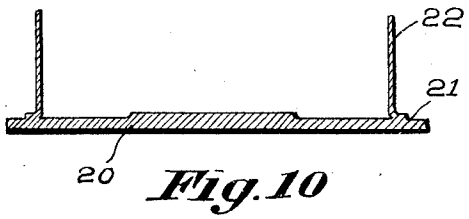


Fig. 10

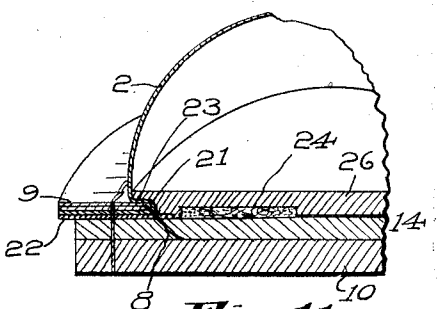


Fig. 11

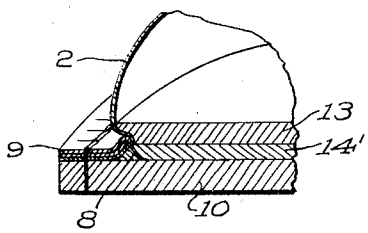


Fig. 8

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UNITED STATES PATENT OFFICE.

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STITCH-DOWN SHOE AND PROCESS OF MAKING SAME.

Application filed November 18, 1924. Serial No. 750,568.

This invention relates to shoes, and more particularly to shoes of the type in which the sole is secured to an outwardly turned margin of the upper and which are commonly known as "stitch down" shoes.

The invention has for its general object to improve both the construction and methods of manufacture of shoes of this type with a view to improving their comfort, appearance and wearing qualities.

Stitch down shoes as heretofore manufactured are open to the objection that the upper face of the insole lies below the upper surface of the welt. The foot thus is surrounded by an upwardly projecting ridge or shoulder, and if the foot has any tendency to "roll" in either direction, the presence of this ridge or shoulder makes the shoe very uncomfortable. It is one of the objects of this invention, therefore, to devise a stitch down shoe construction which will not have this objectionable feature.

A further objection to stitch down shoes as heretofore manufactured is that there is a relatively wide crease between the welt and upper which becomes very pronounced if the foot tends to push the upper away from the welt. The wide edge, also, which projects laterally beyond the upper in a shoe of this kind, and which has been regarded as necessary, is very objectionable from the standpoint of appearance, and it has been a serious handicap to the commercial introduction of these shoes. The present invention also deals with this problem and provides a shoe which is not open to either of the objections just mentioned. The invention is further directed to the improvement of shoes of this type with a view to facilitating repair, and aims to devise a shoe which can be repaired in substantially the same manner as welt shoes, and by the use of the same machinery.

The nature of the invention will be readily understood from the following description when read in connection with the accompanying drawings, and the novel features will be particularly pointed out in the appended claims.

Referring now to the drawings,

Figure 1 is a perspective view of a shoe embodying this invention but showing the shoe at an intermediate stage in the process of manufacture;

Figs. 2, 3 and 4 are perspective, cross-sectional views of a portion of the shoe shown in Fig. 1 illustrating various steps in the process of manufacture; and

Figs. 5 to 8 inclusive are views similar to Fig. 4 but showing different constructions embodying the present invention.

Figs. 9 to 11 are perspective and cross-sectional views of a modified form of insole and a perspective, cross-sectional view of a shoe having this form of insole, respectively.

According to the present process the parts of the upper and the lining, if one is used, may be cut out of suitable stock and sewed together in the usual manner. Referring first to Figs. 1 to 4, 2 designates the upper, and 3 an insole provided with a shouldered margin. The shoulder is preferably undercut, as indicated at 4; that is, the margin of the insole is reduced in thickness and the cut which forms the upper surface of the reduced portion is extended under the shoulder slightly.

After the upper and insole have been properly prepared, they are assembled on a last 5 and they are secured in their assembled relationship preferably by four staples, two of these staples being driven at the toe and heel, respectively, and two more at the opposite sides of the forepart near the ends of the toe cap seam. The toe staple is shown in Fig. 1 at 6 and one of the side staples is shown in Fig. 2 at 7. These staples may be conveniently driven by a staple laster. When this operation has been completed, the outturned margin of the upper lies on the reduced margin of the insole.

Instead of proceeding now with the lasting operation, I prefer to combine this operation with that of welting, performing them both simultaneously. I prefer also to use a welt which is folded longitudinally in the middle. This combined welting and lasting operation usually is started at one side of the shoe adjacent to the breast corner and proceeds first around the heel and then around the forepart. The operation preferably is performed in a step by step manner with the aid of a staple laster. The shoe should be presented to the nose or nozzle of the machine in such a position that the staples will be driven through the welt, upper and

insole at an angle directed downwardly and inwardly with reference to the shoe so that the staples will draw the welt and upper firmly into the angle of the shoulder in the insole. This arrangement is best illustrated in Fig. 3 in which the staple 8 is shown driven through the middle of the welt strip 9 and into the corner of the shoulder. This makes a tight joint between the welt and the upper and between the upper and the insole. I find that the undercutting of the shoulder as shown at 4 also facilitates the making of a tight joint between these parts. Fig. 1 shows a shoe with one side welted and lasted. The ends of the staples are clinched upon the lower face of the insole so that they securely fasten the welt, upper and insole together.

When this combined welting and lasting operation has been completed, the inner surfaces of the welt are coated with cement and the two parts of the welt are then folded down together as shown in Fig. 4. The outsole 10 is next applied and is stitched to the folded welt, the insole and the outturned marginal flange of the upper, as shown in 4, the outseam being shown at 12.

After the stitching operation has been completed, the remaining manufacturing operations may be performed in any suitable manner. Usually the heel is attached, the edges are rough rounded and trimmed, and the other finishing operations are performed.

In the construction shown in Fig. 5 the insole is made of two parts 13 and 14, the upper part 13 lying entirely inside the shoe and its edge forming the shoulder of the insole. In this construction the undercut is formed by grooving the edge of the insole member 13, as indicated at 15. These two sections of the insole may be secured together by tacks or staples driven through both members and clinched, or they may be cemented together. The process of manufacturing this shoe is essentially like that above described in connection with Figs. 1 to 4, except for differences in the preparation of the insole. This construction has the advantage, however, of locating the staples 8 entirely within the outline of the upper surface of the insole. It will be observed that in both this construction and that above described, the staples are located inside their point of anchorage in the welt, but in Fig. 5 the staples lie entirely under, or inside of, the shoulder, whereas in the construction shown in Fig. 4 the upper portion of each staple 8 is outside the shoulder of the insole.

The construction shown in Fig. 5 also has the further advantage that the edge 16 of the upper section 13 of the insole occupies the same relative position in the shoe as does the feather of the insole of a Goodyear welt shoe. This edge may be used as a guide in performing the rough rounding and outseaming operations exactly as it is in manufacturing Goodyear shoes. In fact, this shoe resembles a Goodyear welt shoe very closely.

Both the shoes above described are unlined. It will be evident, however, that a lining may be used if desired, and that the margin of this lining may be turned outwardly with the upper and then trimmed off, as usual. Another method of disposing of the lining is shown in Fig. 6 which illustrates a shoe of the same construction as shown in Fig. 5, except that it includes a lining 17. After the upper and the insole section 13 have been assembled on a last, the lining is pulled over the margin of the insole layer 13 and is cemented to it, this marginal portion being indicated in Fig. 6 at 18. Thereafter the insole section 14 is secured to the part 13, and the other manufacturing operations are carried on as before.

Another variation is illustrated in Fig. 7 in which the greater part of the outturned margin of the upper 2 and lining 17 is trimmed off before the outseaming operation. In other respects the shoe is like that shown in Fig. 5. This has the result of reducing the thickness of the edge since a certain amount of the surplus marginal stock underlying the welt is removed.

Fig. 8 shows a construction like Fig. 5 except that the lower insole section 14′ is made much lighter or thinner, and a substantial part of the projecting margin of this section of the insole is trimmed off after the lasting and welting operation and before the outseam is run. This also has the effect of reducing the amount of stock between the welt and the outsole, and thus makes a shoe having a thinner edge.

In securing the folds of the welt together in all of these constructions it is preferable to use a waterproof cement or marine glue so that these parts will stay permanently united, notwithstanding the fact that they may not always be trimmed close to the outseam.

It will be observed that in none of these constructions is there any ridge of material outside of the upper and above the level of the insole. In the construction shown in Figs. 5 to 8 inclusive the surface of the welt lies substantially below the upper surface of the insole, the shoe in this respect being exactly like a welt shoe and being fully as comfortable.

It should also be observed that the shoe has a solid bottom, no filler being required, and in this respect it is superior to a welt shoe. In appearance the shoe resembles a welt very closely, particularly the thinner edge constructions above described. The upper and welt are drawn into the angle of the shoulder in the insole so firmly that the

wide crease which formerly has been objectionable in stitch-down shoes is completely eliminated. The staples are entirely concealed by the folded welt. This shoe can also be easily re-soled by ripping off the outsole and stitching a new outsole on the shoe exactly as welt shoes are repaired. The fact that all the staples are well inside the outseam makes it impossible for the needle of the outsole stitcher to strike any of the staples.

While I prefer to use staples 8 to secure the welt and upper to the insole, other fastening means could be used for this purpose, as, for instance, stitches. It is preferable, however, from the standpoint of reducing manufacturing expense to use staples since this permits the lasting and inseaming operations to be combined, whereas these operations could not be combined and still be performed by machinery if these parts were to be sewed together. In other words, this step in the process would have to be performed by hand if a stitched inseam were to be used.

It will be evident that the insole shown in Figs. 5 to 8 instead of being made of two pieces, could be made of a single piece of stock, the edge being reduced and grooved before the assembling operation.

A novel construction of insole, which also can be used to advantage in this type of shoe, is shown in Figs. 9, 10 and 11. This insole preferably is made from an insole blank 20 of leather by first cutting a groove 21 in the margin thereof from the vicinity of one breast corner, around the toe, to the opposite breast corner. A wide lip or flange 22 is then cut out of the body of the insole, this flange extending around the portion of the insole which is provided with the groove 21. After this flange has been cut it is turned upwardly and outwardly, the flange being slashed, if desired, around the toe and beaten down. The flange is cut out of the flesh side of the stock, and it is assembled on the last with the grain side against the bottom of the last, as will be obvious from an inspection of Fig. 11. The manufacturing operations are then carried on as above described.

The stock removed by the formation of the groove 21 provides the necessary space for the reception of the portions of the welt and upper that underlie the edge 23 of the body portion of the insole. At the same time the flange 22, which has been cut from the body of the insole, projects outwardly beyond the edge 23 far enough to receive the outseam. Preferably the space 24 from which the flange 22 has been cut, is filled with some filling material, such as that used in the bottoms of welt shoes; and, if desired, the lower face of this insole may be reinforced with textile fabric cemented thereto. This insole may be used either alone or as one member of an insole of the character shown in Figs. 5 to 8.

It will be evident that the construction of the shoe and the manufacturing processes will vary somewhat with the style, size and general character of the shoe. For example, it is not necessary to have the welt go entirely around the heel, but the welt may be stopped in the shank and the heel portion of the upper and lining, if used, lasted under. This, however, is a common expedient. The invention, therefore, is not limited to the precise details of the disclosure above made.

Having thus described my invention, what I desire to claim as new is:

1. A stitch down shoe comprising an insole, an upper having an outturned marginal portion lying on the margin of the insole, a folded welt on said outturned margin of the upper, a series of staples securing the welt, upper and insole together, said staples engaging the welt between the folds thereof and being clinched on the lower surface of the insole, and an outsole secured to said welt.

2. A stitch down shoe comprising an insole having a marginal shoulder, an upper having an outturned margin overlying the margin of the insole, a folded welt on said outturned margin, a line of fastenings extending along the base of said shoulder and directed downwardly and inwardly through the welt, upper and insole, said fastenings being anchored in the welt between the folds thereof and being clinched on the lower surface of said insole, whereby they draw the welt and upper into the angle of said shoulder, and an outsole secured to said welt.

3. That improvement in the art of making stitch down shoes, which comprises placing an upper on an insole with the margin of the upper turned outwardly on the marginal portion of the insole, working the upper step by step into substantially its final relationship to the insole with the margin of said upper resting on the margin of said insole, and substantially simultaneously therewith securing a welt to the upper and insole by fastening means extending through the welt at an intermediate point in its width, turning a portion of said welt down over said fastening means to conceal them, and then securing an outsole to said welt.

4. That improvement in the art of making stitch down shoes, which comprises assembling the upper and insole on a last with the margin of the upper turned outwardly upon the marginal portion of the insole, securing the upper and insole in the proper relationship preparatory to performing the making operations, working the upper into the desired relationship to the last and simultaneously therewith laying a welt on the outturned margin of the upper and securing

both the welt and upper to the insole, folding a portion of the welt over the securing means to conceal them, and then performing the outseaming operation.

5. That improvement in the art of making stitch down shoes, which comprises assembling the upper and insole on a last with the margin of the upper turned outwardly upon the marginal portion of the insole, securing the upper and insole in the proper relationship preparatory to performing the making operations, performing simultaneously the lasting and welting operations, folding a portion of the welt over the fastening means by which the upper is secured in lasted position to conceal said fastening means, and then securing the outsole to the shoe by stitches passing through the turned over portion of the welt.

6. A stitch down shoe comprising an insole having a reduced margin with an upwardly extending undercut shoulder at the junction of said margin with the main body of the insole, said shoulder including a part overlying the undercut, an upper having an outturned margin lying on said reduced margin of the insole, a folded welt on said outturned margin, a line of metallic fastenings anchored in the welt between the folds thereof and extending downwardly and inwardly through the welt, upper and insole and clinched on the lower side of the insole, said fastenings holding said upper securely against the undercut portion of said shoulder, and an outsole secured to said welt.

7. That improvement in the art of making stitch down shoes which comprises assembling the upper and insole of a shoe on a last with the margin of the upper turned outwardly on the marginal portion of the insole, securing the upper and insole in the proper relationship to each other preparatory to performing the making operations, and then performing the lasting and welting operations simultaneously,

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