Nov. 5, 1946. J. Q. STRONG 2,410,530

SHOE CONSTRUCTION

Original Filed Jan. 21, 1942 2 Sheets-Sheet 1

FIG. 1.

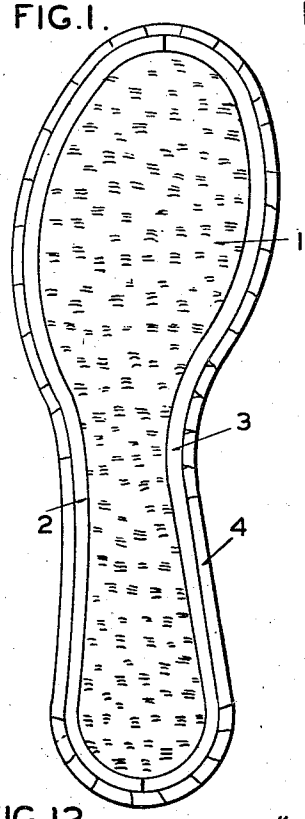


FIG. 2.

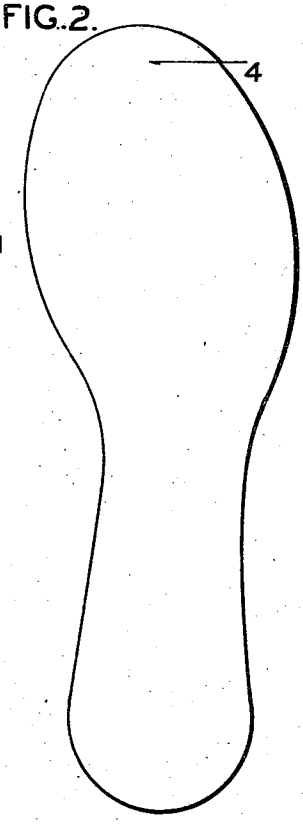


FIG. 3.

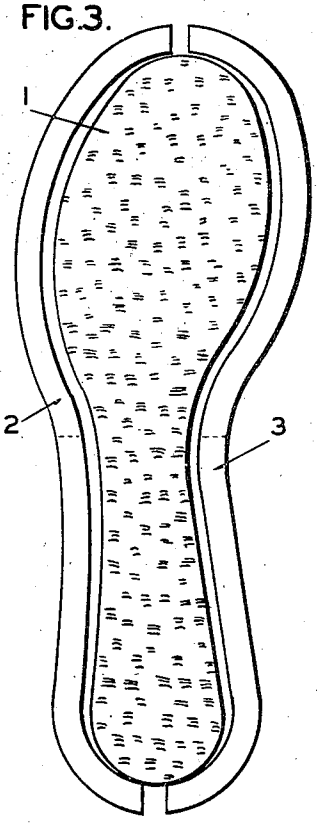


FIG. 12.

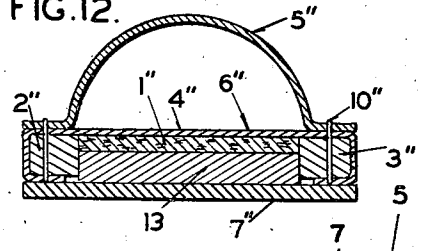


FIG. 5.

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FIG.4.

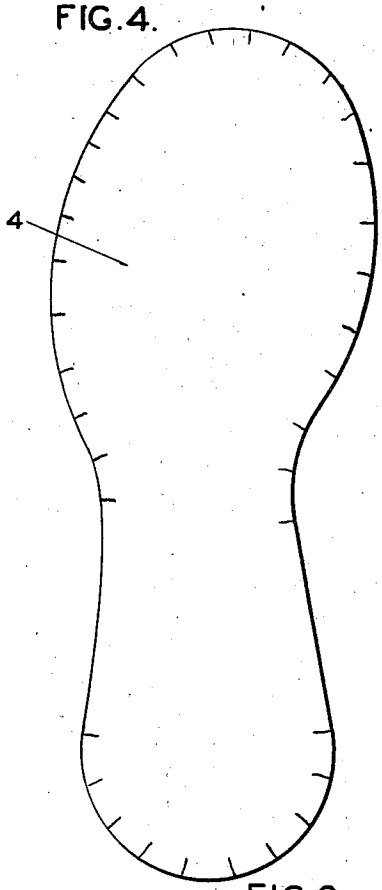


FIG.6

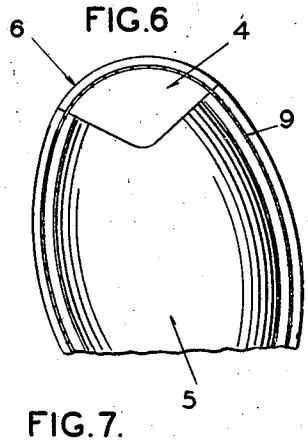


FIG.7.

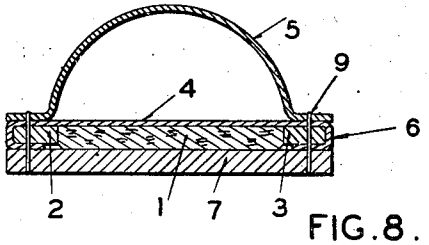


FIG.8.

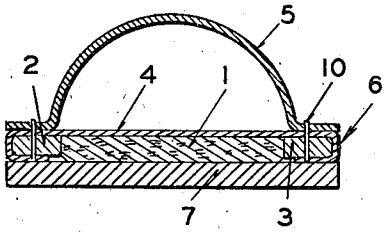


FIG.9.

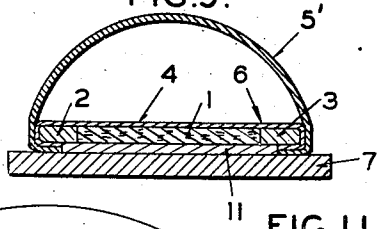


FIG.10.

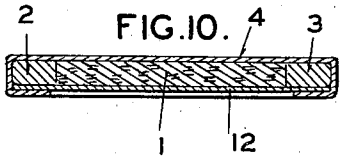
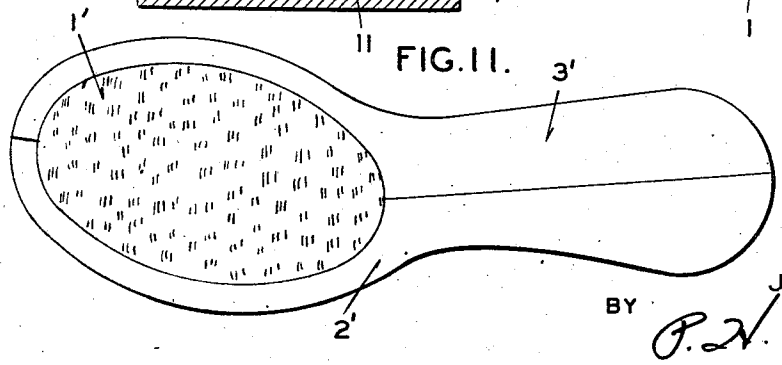


FIG.11.



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Patented Nov. 5, 1946 2,410,530

UNITED STATES PATENT OFFICE

2,410,530

SHOE CONSTRUCTION

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Original application January 21, 1942, Serial No. 427,571. Divided and this application August 2, 1944, Serial No. 547,678

9 Claims. (Cl. 36—30)

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This application is a divisional application of my co-pending application, Serial No. 427,571, filed January 21, 1942, for Shoe construction, which application matured into Patent No. 2,362,169 on November 7, 1944. My invention relates to shoe construction, and more particularly to a cushion means for embodying in a shoe.

One of the objects of my invention is to produce an improved cushioning means for the sole of a shoe which is simple in construction, economical to manufacture and embody in the shoe and which is so constructed that it can be embodied in any shoe regardless of the lasting method used in the shoe construction.

Another object of my invention is to construct a cushioning means for a shoe which will embody as a unitary assembly a resilient member, a retaining means or shoulder laterally surrounding the resilient member, and a sock lining portion.

Still another object of my invention is to so construct a unitary assembly for use in shoe manufacture that it will embody both a resilient member and a sock lining which can be employed either as a combined platform and insole in certain types of construction or as an insole only in other types of construction.

Yet another object of my invention is to construct a unitary assembly for use in a shoe construction which will embody a resilient member, a retaining means, and a sock lining so associated with each other that the retaining means can be made from a plurality of pieces instead of a single piece having a cut-out portion for receiving the resilient member, thus resulting in a saving in material and a low cost of manufacture.

Another object of my invention is to so combine a resilient member and sock lining for a shoe that they can be employed as a platform to produce an improved stitch-down or equivalent type of shoe.

Other objects of my invention will become apparent from the following description taken in connection with the accompanying drawings in which Figure 1 is a bottom view showing the unitary assembly embodying my invention and including the resilient member, the retaining means or shoulder, and the sock lining portion; Figure 2 is a top view of the unitary assembly; Figure 3 is a view showing the construction of the resilient member and the retaining strips forming the shoulder; Figure 4 is a view of the sock lining portion prior to assembly; Figure 5 is a side view of a shoe showing the manner in which the unitary assembly can be embodied in one type of completed shoe; Figure 6 is a top

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view of the toe end of the shoe of Figure 5; Figure 7 is a sectional view taken on the line 7—7 of Figure 5; Figure 8 is a sectional view similar to Figure 7 showing a slightly different shoe construction wherein the outsole is glued to the unitary assembly embodying the resilient member; Figure 9 is another sectional view similar to Figure 7 but showing the unitary assembly used as an insole; Figure 10 is a sectional view showing a modified unitary assembly; Figure 11 is a view showing a modified arrangement of the resilient member and retaining means or shoulder strips; and Figure 12 is a sectional view of a shoe constructed similar to that of Figure 8 but having an extra thick platform.

Referring to the drawings and first to Figures 1 to 4, inclusive, the numeral 1 indicates a resilient member which may be made from rubber, cork, felt or any other material giving the proper cushioning function desired. As shown, the shape of this resilient member is similar to that of the sole of a shoe but slightly narrower and shorter. Such a shape will give a cushioning effect for the entire foot.

In surrounding relation to the resilient member is a retaining means or shoulder shown as comprising two strips 2 and 3. The inner edges of these strips are shaped to fit the marginal edge of the resilient member and the outer edges are shaped to give the proper contour depending upon how the assembly is to be embodied in the finished shoe. The material from which these strips are made must be one having a firm body and also fairly non-resilient but capable of some flexing. Types of material which may be employed are leather, pressed paper, cardboard, prepared material commonly used for insoles, or other like material. The purpose of the retaining means is to prevent spreading of the resilient material and to also produce a marginal portion having such body that other material such as the upper of the shoe or the outer sole may be attached thereto as by stitching, lacing, nailing or gluing. I have shown only two strips as comprising the retaining means or shoulder but more may be employed, such being indicated by the dotted lines in Figure 3. It is also possible to employ a single integral piece as the retaining means or shoulder and such use is intended to come within the scope of certain features of my invention, but I prefer to employ several pieces as such results in economy of material due to the fact that the strips may be cut from smaller sheets of material and without excessive waste. If a single integral piece were employed, then the cut-out portion

replaced by the resilient material would be wasted. The thickness of the strips may be the same as that of the resilient material or slightly thinner or greater as circumstances warrant.

Associated with the strips and the resilient member is a thin sheet of material 4 which is employed to hold the strips and the resilient member together to produce a unitary construction and also prevent the spreading or lateral separating of the resilient member and the strips. This thin sheet of material also takes the place of the sock lining in the finished shoe. The material employed for the thin sheet may be leather, cloth or any material which does not stretch. The shape of the sheet is similar to that of the resilient member and the strips when the latter are placed around said resilient member but is larger so that the marginal edge projects beyond the strips. The sheet is shown in Figure 4. The resilient member and strips, as shown in Figure 3, are placed on this sheet and secured thereto and to each other by a suitable glue or cement. The marginal portions of the sheet are then folded over the edges of the strips and glued, cemented or stitched to the strips on their faces opposite that adjacent the sheet. To facilitate the folding operation and to make a smooth securing job, the marginal portion of the sheet is provided with suitable cuts as shown. The bottom of the resulting assembly is shown in Figure 1 and the top in Figure 2. The top is smooth. When the unitary assembly, generally indicated by numeral 6, is embodied in the finished shoe, it is next to the foot of the wearer. Thus with this smooth top surface no extra sock lining need be inserted after the shoe is finished. Although the resilient member is shown as extending from one end to the other of the unitary assembly, it may be of less length. If only the forward part of the foot is desired to be cushioned, the heel portion of the resilient member may be replaced by other material or the strips so cut as to take its place. Also, the central part of the resilient material may be replaced by other firmer material if desired. In Figure 11 there is shown a modified arrangement wherein the resilient member 1' is only employed to cushion the forward part of the foot and the retaining strips 2' and 3' are so cut as to replace the heel portion. This construction also has its advantages when it is desired to attach heels by nailing as the strips present a better material to receive the nails.

Referring now to Figures 5, 6, and 7, there is disclosed a shoe in which is embodied the unitary assembly just described and shown in Figures 1 and 4. This type of shoe is a sport model which has an open toe and heel but it is to be understood that this showing is by way of example only as the use of the unitary assembly is not limited to any particular type of shoe. The shoe comprises an upper 5, the unitary assembly 6, an outsole 7, and a heel 8. In assembling the shoe the bottom marginal portion of the upper may be glued to the marginal portion of the top side of the unitary assembly which embodies the resilient member. Following this the outsole is spotted to the bottom side of the unitary assembly. The next operation is to stitch together the outer marginal portion of the upper, the unitary member, and the outsole by the stitching 9. The upper is thus fastened to the unitary member and the outsole by what is termed a stitch-down process. After this stitching operation, the heel is then fastened to the rear end of the outsole. It is thus seen that with the shoe constructed in this manner the unitary assembly becomes a platform for the foot as the foot will rest upon the top smooth surface of the unitary member. No sock lining is required as the sheet of thin material covering the retaining strips and the yieldable member acts as the sock lining. There is no possibility of the resilient material of the resilient member 1 from spreading outwardly as the non-yieldable strips and the enclosing sheet 4 prevent such spreading. The resilient member is confined between the shoulder strips and also between the sheet 4 and the outsole 7. The entire bottom of the foot of the wearer rests upon the resilient member and thus it is seen that there is a cushion means between the foot and the outsole. The result is a very comfortable shoe which eliminates jars to the body during walking and also makes the shoe very comfortable to stand upon. The feet thus do not become tired as quickly as would be the case if no cushioning means were employed. Since the strips surrounding the yieldable member are made of a relatively non-yieldable material, they present a good body to which the lower marginal portion of the upper and the outsole can be stitched. In making the shoe of Figure 5, the outsole may be spotted to the bottom of the unitary assembly as the first step in the attachment of the outsole and then the upper sewed to the combined outsole and unitary assembly. This is an important method of assembly for it permits the outsole to be pre-trimmed and pre-inked before any attachment. Thus there results a saving in labor as the trimming and inking have previously been done after the outsole was attached to the upper.

In Figure 8 there is shown a slight modification wherein the upper 5 is stitched only to the marginal portion of the unitary assembly 6 by stitches 10. The sole is secured to the bottom side of the unitary assembly only by suitable glue or cement. Due to the relatively firm body and non-yieldability of the strips 2 and 3, the stitching of the upper to the unitary member is permitted which would not be possible if these strips were not employed and the resilient member only enclosed in the sheet 4. In place of the stitching 9 shown in Figure 7 and the stitching 10 shown in Figure 8, other securing means may be employed if desired, such as, for example, lacing, tacking, or riveting. Lacing would be particularly adapted in the shoe construction shown in Figure 8, especially where it is desired to employ a very flexible outsole as, for example, in house shoes or slippers. It is also to be understood that the type of outsole used is not limited to leather as it may be made of rope, rubber, and so forth.

In Figure 9 I have shown a cross-sectional view of a shoe construction wherein the unitary assembly 6 is employed as an insole for a shoe. In this construction the unitary assembly is placed upon the last and then the upper 5' is folded over the bottom of the unitary assembly 6 and the marginal edges secured to the marginal edges of sheet 4 which have already been turned over and glued to the bottom edges of strips 2 and 3 in forming the assembly 6. The outsole 7 is then secured to the unitary assembly 6 in the usual manner either by a suitable cement or stitching. Thus it is seen that in this method of shoe manufacture, the unitary assembly 6 acts as the usual insole and yet it embodies the yieldable material upon which the foot rests. There is no necessity for any sock lining as this is taken care of by the sheet 4 of the unitary assembly. If desired, in this construction the bottom of the unitary as-

sembly may have glued thereto a suitable shaped sheet of material 11 to fill in the space between the bottom of the yieldable material and the outsole, said space resulting from the inter-positioning of the lower marginal portion of the upper between the bottom marginal portion of the unitary assembly 6 and the outsole. A similar construction is shown in Figure 10 but in this instance the marginal edge of sheet 12 extends under the folded edges of sheet 4. By the use of such a sheet as 12 the parts of the unitary member are more firmly held together as both sheets 4 and 12 cooperate to hold the strips against the edge of the resilient material and prevent spreading whenever pressure is placed on the resilient member. This sheet 12 may also be useful in assembling the resilient member and the strips as they can first be glued to such sheet. When the member and strips are so held together, the addition of the sheet 4 is facilitated as the positioning of the member and strip on sheet 4 is easier when held together than when they are separate pieces.

In all of the shoe constructions shown, if a shank piece is desired, it may be riveted in the usual manner to the inner surface of the outsole.

In Figure 12 is shown a sectional view of a shoe having a thick platform and embodying the unitary assembly 6''. The strips 2'' and 3'' are made of considerably thicker material than the resilient member 1''. Below the resilient member is positioned a filler member 13 of any suitable material, said member being cemented, glued, or otherwise attached to the resilient member. The sheet 4'' holds the strips and resilient member together. The rest of the shoe construction is the same as shown in Figure 8 except that the outsole 7'' may be thinner. The upper 5'' is stitched to the unitary assembly by stitches 10''. When the strips 2'' and 3'' are thick, their flexibility may not be as great as desired, especially over that portion below the ball of the foot but this can be remedied by putting crosscuts in the material of the strips.

From the foregoing description of my invention it is seen that there is combined in one assembly a cushioning agent, a sock lining, and a platform or insole structure. This single unit can be embodied in the shoe by one operation regardless of the shoe construction employed. The unit thus results in considerable saving in cost of manufacture. Also, by the use of strips to form the shoulder for the resilient member, many pieces can be employed which would otherwise be wasted material in cutting or dieing.

Being aware of the possibility of modifications in the particular structure herein described without departing from the fundamental principles of my invention, I do not intend that its scope be limited except as set forth by the appended claims.

What is claimed is:

1. In a cushioning construction for use as a foundation means in shoes and upon which the foot of the wearer rests, said construction comprising a sheet of resilient material, shoulder means surrounding the perimeter of said material and abutting the edges thereof for preventing spreading of said material when compressed, said shoulder means comprising two pieces of relatively firm and non-resilient material positioned in end-to-end relation at both the forward and rearward ends of the resilient material with the top surfaces thereof flush with the top surface of the

sheet of resilient material, and a sheet of non-stretchable material overlying and engaging the top surface of the resilient material and having its marginal portions secured to the pieces forming the shoulder means.

2. In a cushioning construction for use as a foundation means in shoes and upon which the foot of the wearer rests, said construction comprising a sheet of resilient material, shoulder means surrounding at least the major portion of the perimeter of said material and abutting the edges thereof for preventing spreading of said material when compressed, said means comprising a plurality of pieces of relatively firm and non-resilient material positioned in end-to-end relation with the top surfaces thereof flush with the top surface of the sheet of resilient material, and a sheet of non-stretchable material overlying and engaging the top surface of the resilient material and the top surfaces of the pieces and having its marginal edges folded over the outer edges of the strips and secured to the bottom surfaces of the pieces.

3. A unitary assembly for use as a platform or as a foundation insole of a shoe comprising a flat resilient member, a shoulder surrounding said resilient member and being composed of relatively firm and non-resilient material, said shoulder being made from a plurality of strips positioned in end-to-end relation with their top surfaces flush with the top surface of the resilient member and having an outer edge contour similar to the outsole of the shoe, and a thin sheet of leather adhered to and overlying the top surfaces of the resilient member and the strips and having its marginal portions folded over the outer edges of the strips and adhered to the bottom surfaces of said strips.

4. In a shoe construction, a unitary assembly for embodiment in a shoe as a foundation means and upon which the foot of the wearer rests, said assembly comprising a flat member of resilient material, a plurality of retaining strips surrounding the periphery of the resilient member with at least one separate strip on each side thereof and composed of relatively firm and non-resilient material to thereby confine the resilient material, said strips being of substantially the same thickness as the resilient member with the top surfaces flush with the top surface of the resilient member and having a marginal contour similar to the outsole of a shoe, and a thin sheet of non-stretchable material secured to and overlying the top side of the resilient member and the same sides of the strips and having its marginal portion folded over the outer edges of the strips and secured to the other sides thereof.

5. In a shoe construction, a unitary assembly for embodiment in a shoe as a foundation means and upon which the foot of the wearer rests, said assembly comprising a flat member of resilient material, retaining means surrounding the periphery of the resilient member and composed of relatively firm and non-resilient material to thereby confine the resilient material, said retaining means being of substantially the same thickness as the resilient member and having a marginal contour similar to the outsole of a shoe, and a single sheet of non-stretchable material secured to and overlying the top side of the resilient member and the same side of the retaining means and having its marginal portion folded over the outer edge of the retaining means and secured to the bottom side thereof, and a second sheet of material secured to the bottom side of the resilient

material and to the bottom side of the retaining means.

6. In a cushioning construction for use as a foundation means in shoes and upon which the foot of the wearer rests, said construction comprising a sheet of resilient material for the forward part of the foot, shoulder pieces of relatively firm and non-resilient material surrounding the resilient sheet with their top surfaces flush with the top surface of the resilient material and provided with integral juxtapositioned portions extending rearwardly with their adjacent edges in abutting engagement for forming the heel resting part for the foot, and a sheet of non-stretchable material secured to the top surfaces of the resilient sheet and the shoulder pieces.

7. In a cushioning construction for use as a foundation means in shoes and upon which the foot of the wearer rests, said construction comprising a sheet of resilient material for the forward part of the foot, shoulder pieces of relatively firm and non-resilient material surrounding the resilient sheet with their top surfaces flush with the top surface of the resilient material and provided with integral juxtapositioned portions extending rearwardly with their adjacent edges in abutting engagement for forming the heel resting part for the foot, and a sheet of non-stretchable material secured to the top surfaces of the resilient sheet and the shoulder pieces and having its marginal portions folded over the outer edges of said shoulder pieces and secured to the bottom surfaces thereof.

8. In a cushioning construction for use as a foundation means in shoes, said construction comprising a sheet of resilient material for the forward part of the foot, a plurality of shoulder pieces of relatively firm and non-resilient material positioned in end-to-end relation and surrounding and abutting the resilient sheet on at least its forward edge and side edges, the top surfaces of the shoulder pieces being flush with the top surface of the resilient material, and a sheet of material secured to the top surface of the resilient material and the top surfaces of the shoulder pieces and folded over the edges of said shoulder pieces and secured to the bottom surfaces thereof.

9. A platform construction for embodying in a shoe above the outsole of the shoe, said platform construction comprising a sheet of material, a plurality of shoulder pieces positioned around the edges of the material in end-to-end relation, said shoulder pieces being thicker than the sheet of material, filler means below the sheet of material and lying between the shoulder pieces, and a single sheet of thin non-stretchable material secured to the top surfaces of the first named sheet of material and the shoulders and having its marginal portions folded over the edges of the shoulder pieces and secured to the bottom sides thereof, said thin sheet forming the sock lining for the shoe in which the platform is embodied and also a covering for the outer edges of the platform.

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