

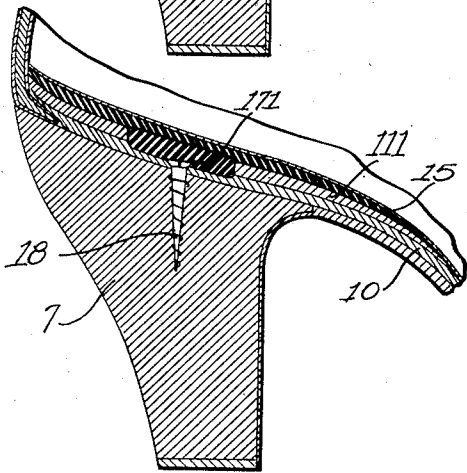
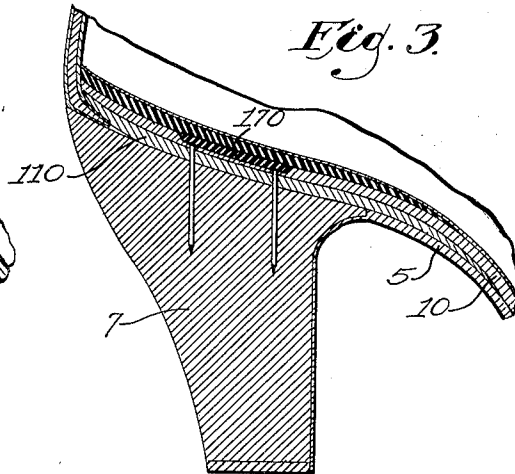
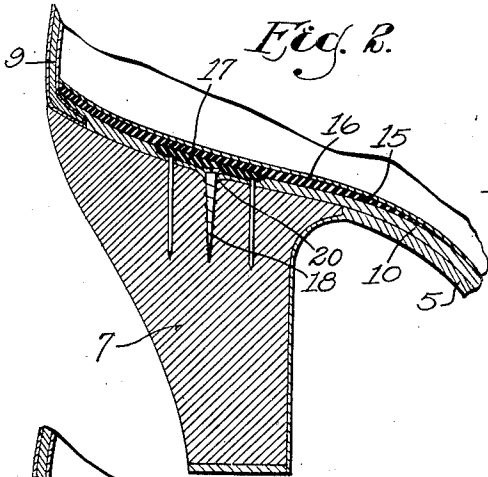
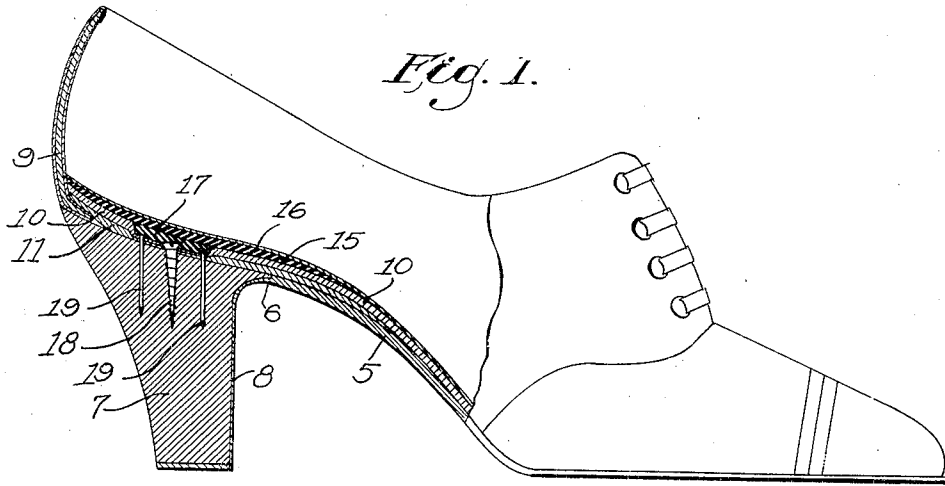
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CUSHION CONSTRUCTION FOR SHOES

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# UNITED STATES PATENT OFFICE

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## CUSHION CONSTRUCTION FOR SHOES

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6 Claims. (Cl. 36—37)

This invention relates to improvements in cushion constructions for shoes. The invention has particular application to the heel portions of shoes having heels fastened from the inside, but is also of more general application.

It is the object of the invention to provide a novel and improved construction which not only accommodates an additional ply of cushion material at the heel but, in addition, stiffens the shoe at the point at which the heel is connected.

In the past the recess necessary for the accommodation of special cushion plies has been made either by inserting a semi-annular piece of material as a lift or by cutting, punching, or skiving away portions of the sole material to provide the necessary opening. The present invention contemplates the compression of the sole material whereby the necessary recess is provided without the removal of any material from the sole, the compressed material being greatly hardened and rigidified to provide a better anchorage for screws or nails used in the attachment of the heel, and the heads of such screws or nails being covered by the cushion inserted in the recess thus made by compression.

In the drawing:

Figure 1 is a side elevation of a woman's shoe embodying the invention, portions of the shoe at the heel being broken away to a longitudinal section exposing the parts in which the invention is embodied.

Figures 2, 3 and 4 are similar views on an enlarged scale of the heel portions of shoes showing modified embodiments of the invention.

Like parts are identified by the same reference characters throughout the several views.

In the construction chosen for illustrating my invention the outer sole 5 terminates at 6 at the forward margin of the heel 7 except that the bottom ply of the outsole is preferably extended downwardly along the front of the heel at 8. The counter 9 rests on the heel at the rear in the usual way, and between the insole 10 and the heel 7 I have interposed a piece of fiber stiffening 11 which tapers forwardly in thickness until it finally terminates at the shank of the shoe.

From the insole at the heel portion of the shoe there is a cushion ply 15 which likewise tapers forwardly to the shank, and which supports the forward sock lining 16.

Immediately beneath the heel bone I provide an extra cushion ply at 17. The space for this ply is provided by subjecting the insole 10 to considerable pressure sufficient to greatly reduce

its thickness. In addition, it may, if desired, be bodily offset in a recess punched or molded in the fiber reinforcing ply 11, as is clearly shown in Fig. 1. The compression and offset not only provide a recess into which the extra cushion ply 17 can be introduced, but it also greatly stiffens and rigidifies the leather. Consequently the screw 18 and nails 19 used to anchor the heel find a more firm seat in the portions of the insole which have been rigidified by the compression. The heads of the fastening devices, whether screws, nails, or both, will have additional cushioning under the added cushion ply 17, and are thus rendered entirely imperceptible to the wearer's foot.

In the Fig. 2 construction the heel 7 is slightly countersunk at 20 so that the head of the screw 18 can more adequately be seated in the portion of the insole 10 which has been thinned and rigidified by compression. The fiber stiffener 11 has been omitted in this construction, which is otherwise identical with that of Fig. 1.

In the Fig. 3 construction the fiber stiffener 110 is used but has not been subjected to compression. The cushion 170 is received into a recess formed by compression of the insole 10 only.

In the Fig. 4 construction the fiber stiffener 111 has been placed on top of the insole and the hole has been completely punched through the stiffener to receive the cushion ply 171. In registration with this hole and immediately therebeneath, the insole 10 has been reduced in thickness and rigidified by compression in the manner already described. To exemplify the use of different types of fastenings I have shown in Fig. 3 the use of nails only, as a means of anchoring the heel, while in Fig. 4 I have shown the use of a screw only, as a means of anchoring the heel.

I claim:

1. In a shoe, the combination with a cushion ply adapted to support the heel bone, of a sole portion in the shoe reduced as to thickness and increased as to density under compression to provide a rigid area beneath said cushion, and a recess in which said cushion is fixed, together with a heel for said shoe and anchorage means for said heel extending through the rigidified sole portion of the shoe into the heel beneath said cushion ply, said means including a head covered by the cushion ply.

2. In a shoe, the combination with superposed portions, of an insole and a stiffening having predetermined registering areas compacted and

densified under compression to provide a recess, the portions of said inner sole and stiffener at the bottom of the recess being densified and rigidified by compression.

5 3. In a shoe, the combination with a heel having a countersunk top portion, of a sole ply superposed on the heel and having an area above said heel compacted and densified under compression to rigidify the sole material in said area and to provide a recess, fastening means having  
10 a head portion seated on the compacted area at the bottom of the recess and extending through said countersunk portion of said heel into engagement in the heel, said rigidified sole portion being deformed into the countersunk portion of  
15 the heel, and a cushion ply positioned in said recess and covering said anchorage means.

4. In a shoe, the combination with sole material having a predetermined area compacted and densified under compression to provide a  
20 recess, of an anchorage device extending through said sole material in its compacted area and having a head positioned in abutment with said sole material in said recess, a cushion ply fitted  
25 in said recess over said head, a larger cushion ply applied across said sole material and the cushion ply aforesaid, and a finishing ply superposed on said larger cushion ply.

5. In a shoe, the combination with a heel, of

a sole portion disposed above the heel and having a limited area so compacted under pressure as to be densified and reduced in thickness and anchorage means extending through said limited area downwardly into the heel and having a  
5 head portion engaging the upper surface of the densified area, a ply of sole material having an aperture registering with said area, and a cushion of greater thickness than said ply filling said  
10 aperture and the recess formed by the densification of said area, said cushion covering the head of said anchorage means.

6. In a shoe, the combination with a heel, of a sole portion disposed above the heel and having a limited area so compacted under pressure  
15 as to be densified and reduced in thickness and anchorage means extending through said limited area downwardly into the heel and having a head portion engaging the upper surface of the densified area, a ply of sole material having an aperture  
20 registering with said area, a cushion of greater thickness than said ply filling said aperture and the recess formed by the densification of said area, said cushion covering the head of  
25 said anchorage means, a second cushion substantially covering the heel portion of said sole and also covering said first mentioned cushion, and a liner over said second cushion.

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