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CUSHION INSOLE FOR BOOTS AND SHOES.

APPLICATION FILED OCT. 19, 1915.

1,194,152.

Patented Aug. 8, 1916.

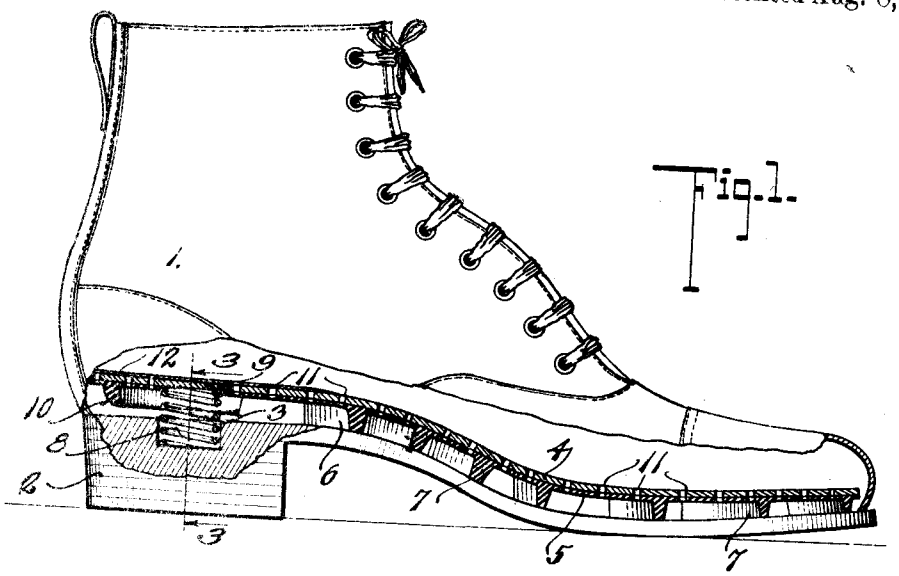


Fig. 1.

Fig. 2.

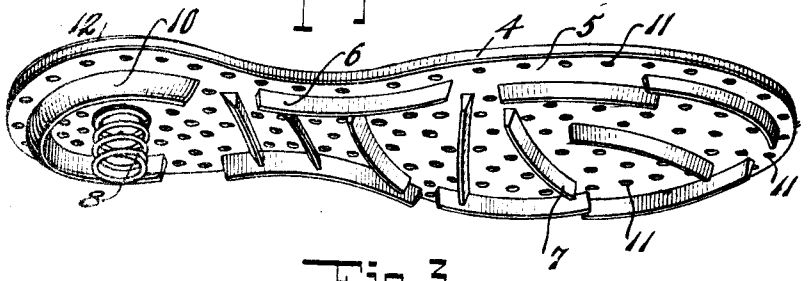
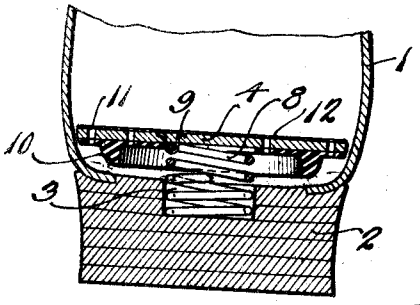


Fig. 3.



Witness

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CUSHION-INSOLE FOR BOOTS AND SHOES.

1,194,152. Specification of Letters Patent. Patented Aug. 8, 1916.

Application filed October 19, 1915. Serial No. 56,766.

To all whom it may concern:

Be it known that I, PHILIP FAIRCLEUGH DOUGLAS, a subject of the King of Great Britain, residing at Minnedosa, in the Province of Manitoba and Dominion of Canada, have invented certain new and useful Improvements in Cushion-Insoles for Boots and Shoes, of which the following is a specification.

The present invention appertains to improvements in insoles for boots and shoes, and is especially designed to provide for cushioning the jars incident to walking as well as to afford a desirable ventilation for the foot.

To this end the sole construction of this invention is provided on its under surface with yieldable rib members purposely arranged in a special manner with a view to preventing the tendency of the insole to buckle or slide about in the shoe in which it is disposed.

It is further contemplated to employ in conjunction with the yieldable members hereinbefore mentioned an auxiliary cushion coöperating with said members to sustain the weight of the wearer and attain a maximum amount of resilient action.

For a full understanding of the present invention, reference is to be had to the following description and the accompanying drawings, in which:

Figure 1 is a side elevation of a shoe, partly broken away and showing in longitudinal section the insole constructed in accordance with my invention applied in position; Fig. 2 is a perspective view of the embodiment of my invention; and Fig. 3 is an enlarged vertical sectional view taken about on the line 3—3 of Fig. 1.

Referring to the drawing, the numeral 1 designates a shoe of conventional form and construction, being provided with the heel 2 which is formed with an inner centrally located recess 3 to receive an element of the insole structure forming the subject matter of this application. The insole consists of the upper layer or body 4 which may consist of cork, heavy canvas or other similar flexible materials shaped to conform to the interior of a boot or shoe. Beneath the upper layer 4 of the insole is attached by means of adhesive or the like the cushioning means of this invention, said means comprising a layer of material 5 conforming to the shape of the upper layer 4 and preferably attached thereto by means of adhesive.

In carrying out this invention the under layer 5 is preferably composed of rubber and has integrally formed thereon a plurality of rib members disposed in spaced relation and extending from the arch or forward portion of the heel to the toe portion of the insole. By reference to Fig. 2 it will be noted that these rib members consist of; firstly, substantially longitudinally arranged elements 6 which are formed adjacent to the lateral edges of the sole, following the general contour thereof; and, secondly, of the substantially transversely arranged elements 7. It will also be observed that these inner or transverse rib members 7 are curved slightly longitudinally in opposing directions.

All of the rib members at that portion of the insole corresponding to the arch of the foot are of heavier or thicker formation than the remaining rib members beneath the toe portion of the insole. The function of these rib members is to hold the insole spaced from the sole of the shoe and to provide a cushion to receive the jar of the foot incidental to walking, running or jumping. The particular arrangement of these rib members is an essential feature of this invention inasmuch as they are designed to perform the yielding action without collapsing or lateral bending of the rib members. Thus the longitudinally disposed rib members 6 tend to resist any sliding action or movement of the insole owing to the natural pressure of the foot in a forward direction while the transversely arranged rib members 7 resist the tendency to lateral movement. Thus the transversely arranged rib members substantially counteract the yielding action of the longitudinally arranged rib members in lateral directions, and vice versa. Therefore the yielding of the insole upon pressure of the foot thereupon is the natural resilient action inherent to the material of which the cushioning means is composed.

At the heel portion of the insole is located a spiral spring 8 which is attached to the insole or upper layer 4 by means of fastening members 9, the under layer 5 being cut away at this point to permit the direct attachment just mentioned. The spring for the purposes of this description may be termed a primary

cushioning element which is designed to hold the heel portion of the insole spaced from the heel of the shoe, the spring being of sufficient strength to adequately cushion the jar and yieldably sustain the weight of the wearer of the shoe. The spring at its lower end is disposed in the heel recess 3 and this interlocks the insole with the heel at the rear end of the construction so that said spring coöperates with rib members 6 and 7 to maintain the insole from buckling or sliding in the manner hereinbefore described.

Practically surrounding the spring 8 and formed upon the under layer 5 of the insole is a secondary cushion element or rib 10 which is normally held slightly spaced from the heel by the spring just described. As the spring 8 is compressed in the action of walking the element or rib member 10 is brought into contact with the heel to form a yieldable cushion auxiliary to the spring 8, this combination affording a maximum amount of resiliency at the point where the greatest pressure is exerted upon the insole. The rib members at the arch portion of the shoe being stronger than at the toe portion naturally receive a relative proportion of the weight or pressure at this point, and where the pressure is least, as at the toe portion, the rib members are slightly more yieldable, as above described.

The upper and lower layers 4 and 5 respectively are formed with a plurality of apertures 11 so that as the insole yields under pressure of the foot the air beneath the insole is forced upwardly through the openings and thereby affords a ventilation for the foot.

At the heel I preferably attach a cover member 12 which is designed to protect the wearer from any roughness due to the securing of the spring 8 by means of the fastening members 9, the cover being of any desired material and preferably glued to the surface of the upper layer 4.

It will be understood that the insole construction hereinbefore described may be made a permanent structural feature of a shoe at the time of its manufacture and in such case the insole, particularly about the toe portion of the shoe, would be attached by the usual stitching for the regular outer sole. It will also be understood that the strength of the spring 8 and the ribs 6 and 7 may be gaged according to the weight of the wearer of the particular style of shoe.

Having thus described the invention, what is claimed is:

1. An insole construction for boots or shoes comprising a layer of flexible material, cushion means attached beneath said material at the toe portion of said insole and consisting of a plurality of rib members, and heel cushioning means comprising a primary cushion member consisting of a compressible spring normally holding the heel portion of the insole spaced from the shoe-heel, and a secondary cushion member consisting of a rib element substantially surrounding the spring, normally spaced from the shoe heel, and adapted to receive the jar upon compression of said spring.

2. An insole construction for boots or shoes comprising an upper layer of flexible material and a lower layer of rubber material having formed thereon a plurality of elongated rib members, certain of said rib members being arranged longitudinally of the sole and adjacent to its edges, and certain of said rib members being arranged transversely of the sole intermediate the lateral rib members aforesaid, the rib members at the central portion of the sole being relatively larger than the rib members at the end portion of said sole.

In testimony whereof I affix my signature.

PHILIP FAIRCLEUGH DOUGLAS.