Feb. 12, 1952 W. L. KNIPE 2,585,391

SHOE

Filed May 27, 1950

Fig. 1.

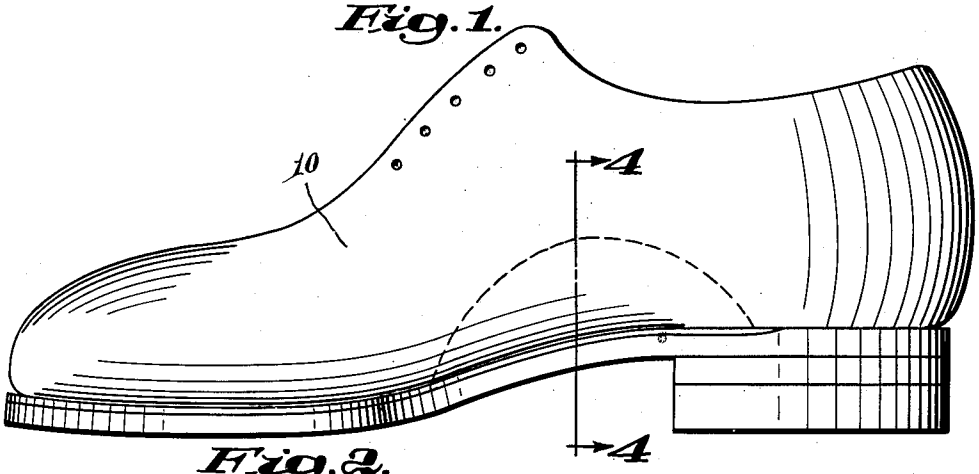


Fig. 2.

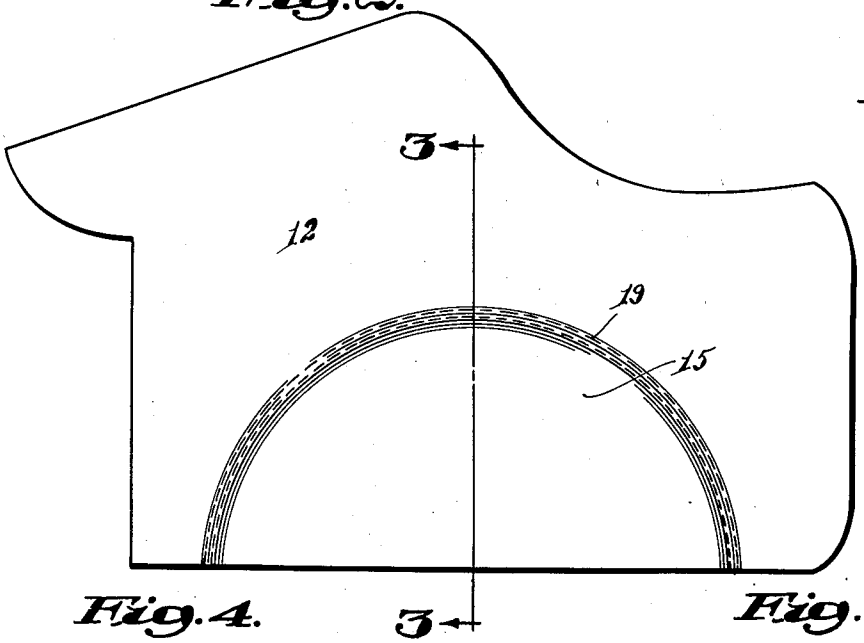


Fig. 3.

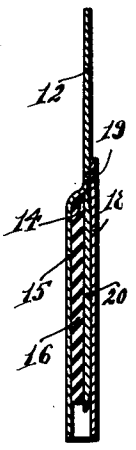


Fig. 4.

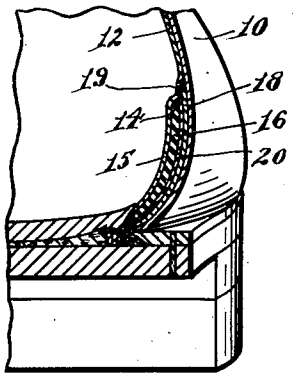
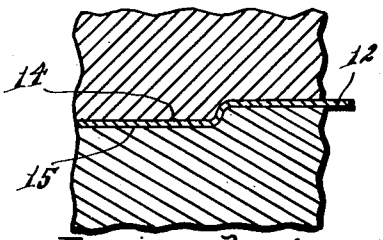


Fig. 5.



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SHOE

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6 Claims. (Cl. 36—8.5)

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This invention relates to improvements in shoes and more particularly to an improved arch-supporting shoe structure which provides a superior degree of cushioned support for the arch of a foot as compared with any prior cushioned support of which I am aware.

Various proposals have been made heretofore directed toward improving the arch-supporting qualities of shoes while cushioning the support to provide increased comfort for the wearer of the shoes. These have included a pocket on the upper lining within which a suitable stiffener has been enclosed with cushioning material intervening between the stiffener and a patch of leather, or the like, stitched to the inner surface of the lining for constituting one side wall of the pocket. The edges of such a patch are exposed interiorly of the shoe and detract from the interior appearance as well as providing discomforting ridges notwithstanding that the margin of the patch may be skived to minimize the prominence of the edges. Perhaps of greater importance is the fact that the attainment of a cushioning pad within the shoe at the region of the interior patch involves application of pressure to the cushioning material within the pocket sufficient to force the major area of the patch inward of the adjacent surfaces of the lining, and the stiffener within the pocket and the lining to which the patch is stitched must be assembled with the cushioning material in a manner to maintain the mentioned pressure on the cushioning material. Hence, much of the wanted cushioning resilience of the cushioning material is rendered useless by the required substantial compression of the material in assembling the shoe. This is particularly true around the margins of the in-pressed patch-pad where the cushioning material becomes relatively highly compressed in the process of forcing the patch inward around its stitching. As a result, the margins of the in-pressed patch-pad, where a cushioning action is most desirable, are rendered substantially non-yielding. In other words, the margins of the patch-pad are deprived of any appreciable cushioning action by the magnitude of the assembly-compression of the marginal portions of the cushioning material within the pocket.

It is an object of the present invention to provide a cushioned arch-supporting shoe structure wherein a cushioning arch-supporting pad has substantially greater cushioning capacity than is attainable with any of the prior comparable arch-supporting shoe structures of which I am aware. According to the invention, a pocket

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is formed on the lining of the shoe, for reception of a stiffener and a cushioning member, and the inner side wall of the pocket is preliminarily molded, or otherwise pre-formed, to provide a depression in said wall interiorly of the pocket within which depression the cushioning member may be disposed with the stiffener between it and the outer wall of the pocket. When the shoe is assembled, the cushioning member, in the pre-formed depression, is not subjected to any substantial compression within the pocket and substantially its total resilient cushioning properties are available in the finished shoe. The inner wall of the pocket is preformed with a desirable projection of the arch-supporting pad portion thereof inward beyond the adjacent surfaces of the lining so that applied pressure is unnecessary for forcing the wall into inward projecting pad form. Hence, the margins of the pads, as well as other portions thereof, can yield resiliently in response to pressure of a foot thereon.

Another object of the invention is to provide a cushioned arch-supporting shoe structure wherein the lining of the shoe is entirely free of raw edges or ridges, interiorly of the shoe, and due to embodiment of the arch-supporting structure therein, yet a relatively prominent arch-supporting pad having superior foot-cushioning properties is exposed interiorly of the shoe. In a preferred embodiment of the invention the arch region of the shoe lining is molded or otherwise pre-formed to provide an inwardly pressed pad area of the lining resulting in a pad-receiving depression in the outer side of the lining. A patch is stitched to the lining at the outer surface thereof to provide a pocket between the lining and patch. By making the depression in the lining approximately as deep as the thickness of the pad, the pad may be enclosed within the pocket during assembly of the shoe without any appreciable compression of the pad, whereby the full resilient capacity of the pad for being compressed is preserved for cushioning response to pressure of a foot in use of the shoe.

It is, moreover, my purpose and object generally to improve the arch-supporting and arch-cushioning qualities of shoes.

In the accompanying drawings:

Fig. 1 is a side elevation of a shoe having an arch-supporting pad embodying features of the invention indicated by a dotted line;

Fig. 2 is a plan view of the lining section in which the arch-supporting pad is formed;

Fig. 3 is a cross-sectional view on line 3—3 of Fig. 2;

Fig. 4 is a cross-sectional view on line 4—4 of Fig. 1; and

Fig. 5 is a fragmentary cross-sectional view illustrating the molding or other pre-forming of the lining pocket between elements of a press, or the like.

Referring to the drawings, the upper of a shoe is represented at 10 and its lining at 12.

According to the invention, the portion of the lining 12 which extends under the arch of a foot in the shoe is preliminarily molded or otherwise pre-formed to provide a depression or recess 14 in the outward-facing surface thereof, which results in a definite protuberance 15 on the inwardly facing surface of the lining. The depression or recess 14 has contour generally conforming to the desired shape of an arch-supporting cushioning pad of which the protuberance 15 provides the exposed surfaces, and has depth approximating the thickness of a cushioning element 16 which is arranged in the recess and which preferably will be of sponge rubber or a comparable relatively soft resilient material.

A patch 18, of leather or the like, is stitched at 19 to the lining 12 around the margin of the recess 14, on the outward-facing surface of the lining, the lower edge portion of the patch being not stitched to the lining so that an opening is left at this lower edge through which the cushioning element 16 and a stiffener 20 may be inserted into the pocket formed between lining 12 and patch 18. The stiffener 20 may be a thin piece of an available stiffening material commonly used for stiffening toe-boxes and counters, the material having the quality that when moistened, it may be readily shaped to conform to the shank curvature of the shoe during the lasting operation but which, when subsequently dried, acquires stiffening characteristics capable of satisfactorily maintaining the shank curvature of the shoe when in use. Both the cushioning element 16 and the stiffener 20 terminate within the pocket so that a lasting allowance on the upper and on the lining extend beyond the lower edges of the cushion and stiffener for being lasted in the usual manner without the cushion and stiffener needing to be turned appreciably inward in the lasting operation.

It is a feature of the invention that the molded or otherwise pre-formed recess 14 provides a substantial depression within the pocket for reception of the cushioning element 16 so that the element 16 can substantially fill the recess without being appreciably compressed or condensed therein. The stiffener 20 merely backs the resilient element 16 and, when lasting of the shoe is completed, the cushioning element continues approximately free of condensing compression whereby the maximum cushioning properties of the element 16 are preserved for cushioning the protuberance 15. This is in contrast to prior proposals in which any arch-supporting pad interiorly of a shoe has required a pocket wall to be deformed inward by pressure applied to a pad element during assembly of the shoe with substantial compression of the pad element. In other words, much of the resilient cushioning effect of the prior pads has been lost by substantial compression of the pad in providing the interior pad protuberance, whereas the invention pre-forms the protuberance and merely fills its hollow with sponge rubber, or the like, whose property for resilient yielding is substantially undiminished by compression during manufacture of the shoe. Hence, even the marginal regions of the arch pad are softly yieldable under the pressure of a foot, and the over-all cushioning effect is definitely more comforting and satisfying than the prior comparable arch pads which, in addition to being substantially less soft and resiliently yieldable, have had a raw edge interiorly of the shoe resulting from an interior stitched-on patch for providing the pocket for reception of the pad and stiffener.

It is intended that the patent shall cover, by suitable expression in the appended claims, whatever features of patentable novelty exist in the invention disclosed.

I claim as my invention:

1. A shoe comprising an upper and a lining therefor, said lining having a portion at the shank region of the shoe molded to provide a recess therein of predetermined shape and depth at that side of the lining which is toward the upper and to provide a generally flat protuberance of corresponding shape on that side of the lining which is exposed interiorly of the shoe, and a resiliently compressible cushioning element substantially filling said recess and having thickness approximating the depth of the recess with its edges butted against the edge walls of the recess.

2. A shoe comprising an upper and a lining therefor, an element of flexible sheet material stitched to the lining at the shank region of the shoe to provide a pocket between the lining and said element, that wall of the pocket which is exposed interiorly of the shoe being molded to provide a recess of predetermined shape and depth between the walls of said pocket, a resilient pad arranged in said recess and having thickness approximating the depth of the recess, a relatively thin stiffening member backing said pad in said pocket, said pad and stiffener being maintained in said pocket with substantially all of the initial resilient cushioning properties of the pad preserved for cushioning the arch of a foot in the shoe.

3. A shoe comprising an upper and a lining therefor, an element of flexible sheet material between the upper and lining and stitched to the lining at the shank region of the shoe to provide a pocket between the lining and said element, the pocket wall which is provided by the lining being molded to provide a recess therein within the pocket and to provide a generally flat protuberance on the side of the lining which is exposed interiorly of the shoe, a piece of sponge rubber arranged in said recess and substantially filling the recess, and a relatively thin stiffening member backing the rubber within said pocket while leaving substantially all of the initial resilient cushioning properties of the rubber available for cushioning said generally flat protuberance interiorly of the shoe.

4. A shoe comprising an upper and a lining of which the lining is molded at the shank region of the shoe to provide a pad-receiving recess between the upper and lining and to provide a generally flat protuberance at that side of the lining which is exposed within the shoe, a pad of soft resilient material substantially filling said recess and cushioning said protuberance, and a relatively thin stiffening member between the upper and said pad backing the pad, said pad having substantially its maximum thickness in the completed shoe, whereby its maximum cushioning properties are preserved for cushioning the arch of a foot in the shoe.

5. A shoe comprising an upper and a lining of

which the lining is molded at the shank region of the shoe to provide a pad-receiving recess between the upper and lining and to provide a generally flat protuberance at that side of the lining which is exposed within the shoe, a flexible sheet element stitched to the lining around a substantial portion of the margin of said recess on the recessed side of the lining whereby a pocket is provided between the lining and said flexible sheet element, a pad of soft resilient material substantially filling said recess and cushioning said protuberance, and a relatively thin stiffening member in said pocket backing said pad in said recess, said pad having substantially its maximum thickness in the completed shoe, whereby its maximum cushioning properties are preserved for cushioning the arch of a foot in the shoe engaging said protuberance.

6. In a shoe, two flexible sheet elements extending in superimposed relation at the shank region of the shoe, one of said sheet elements being exposed interiorly of the shoe at said shank region and being molded to provide a recess of

predetermined shape and depth between said sheet elements, a member of resilient material substantially filling said recess and having thickness approximating the depth of said recess with its edges butted against the edge walls of the recess, whereby said resilient member retains substantially its original thickness and its full capacity for resilient yielding when said sheet elements are in their assembled relation in a completed shoe and said butted edges of the resilient member constituting cushioning means for said edge walls of the recess.

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The following references are of record in the file of this patent:

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