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M. R. CROSSMAN

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ARCH SUPPORT

Filed March 4, 1920

Fig. 1.

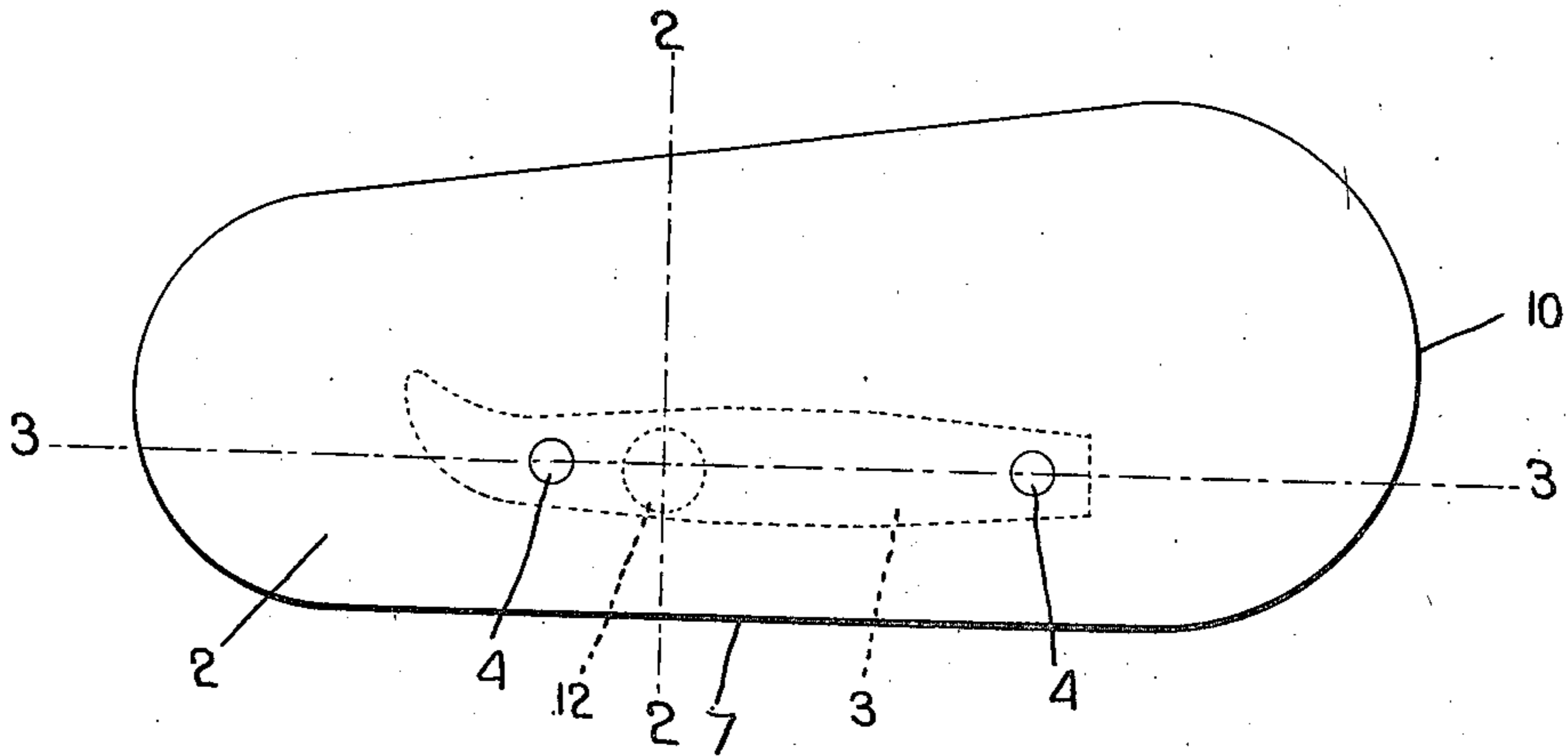


Fig. 2.

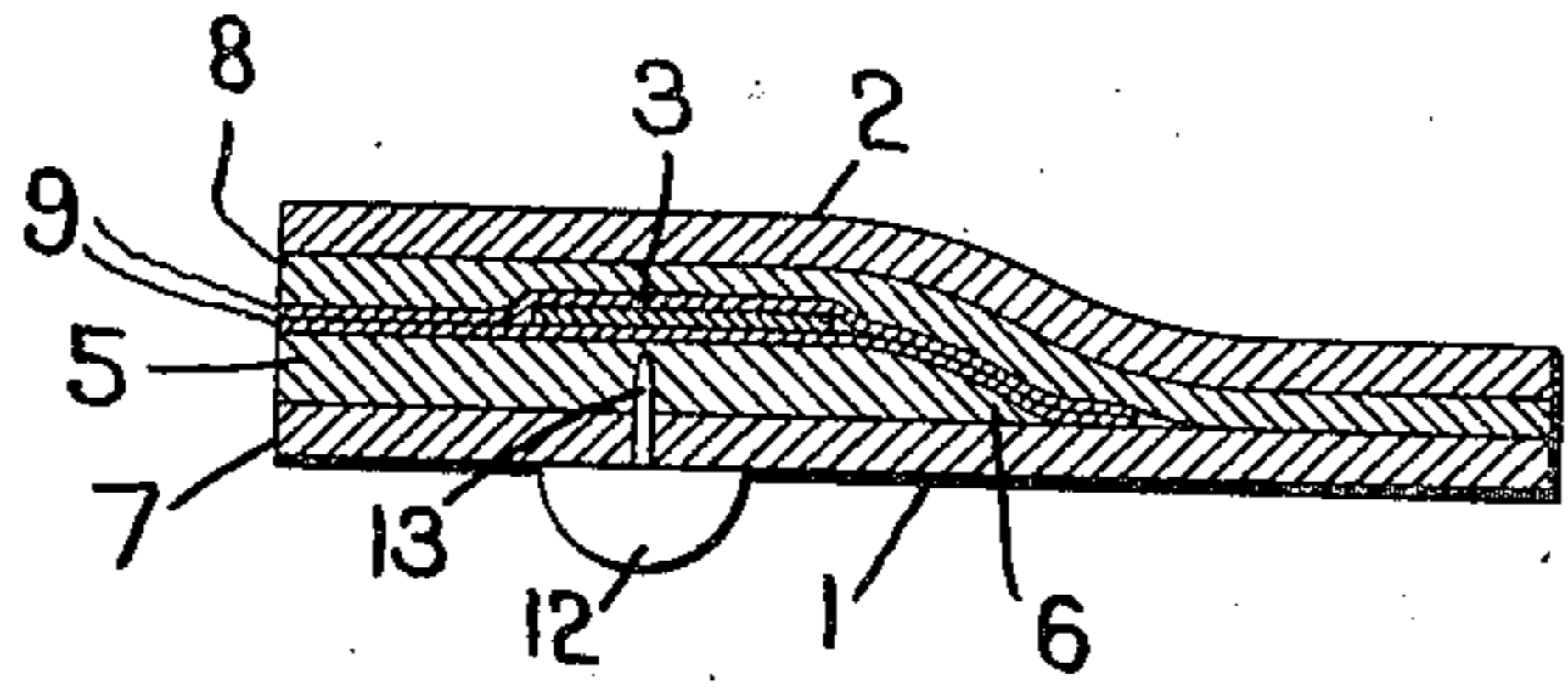


Fig. 3.

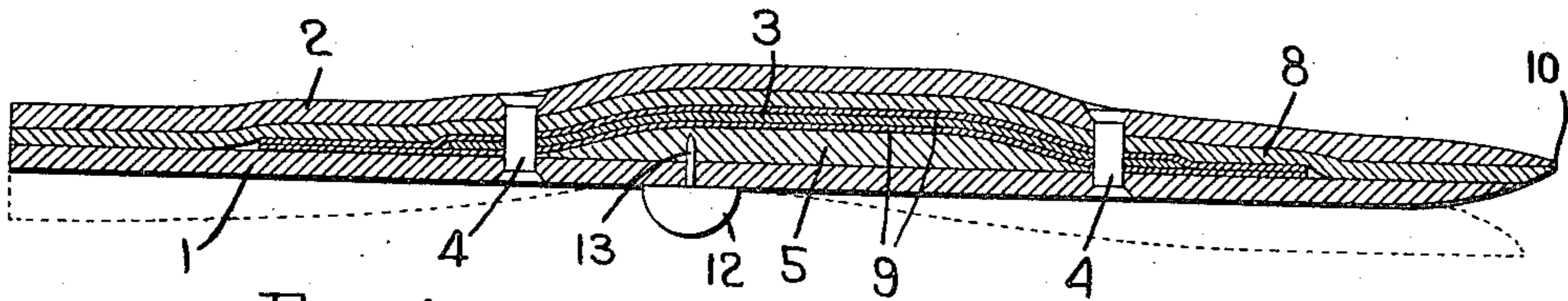
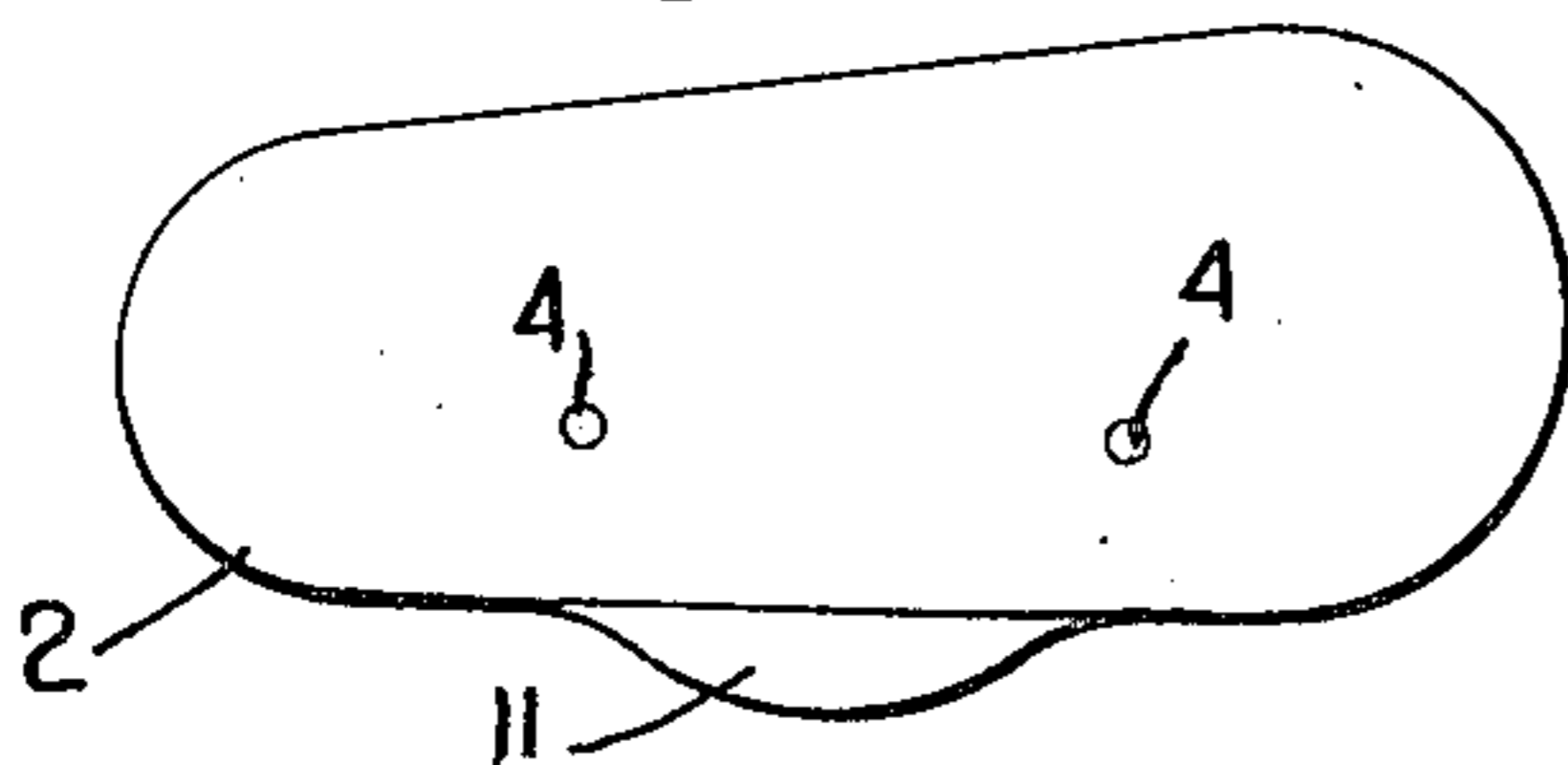


Fig. 4.



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UNITED STATES PATENT OFFICE.

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ARCH SUPPORT.

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To all whom it may concern:

Be it known that I, MARTIN R. CROSSMAN, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Arch Supports, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts. This invention relates to arch supports and has for its object to provide a novel arch support which can be inexpensively manufactured; which is constructed so that it will readily adapt itself to the shape of the foot of the user, and thus form a perfect support for the astragalus, and which has other advantages, all as will be more fully hereinafter set forth.

In order to give an understanding of my invention, I have illustrated in the drawings a selected embodiment thereof which will now be described, after which the novel features will be pointed out in the appended claim.

In the drawings, Fig. 1 is a plan view of an arch support embodying my invention;

Fig. 2 is a section on the line 2—2, Fig. 1, looking to the left;

Fig. 3 is a section on the line 3—3, Fig. 1;

Fig. 4 shows a modification.

My improved arch support comprises a base layer 1 of some suitable material, such as leather, leather-board, fiber, linoleum and the like, which is of a length to extend from the heel forward to a point just beyond the ball of the foot, and which has a width to fit into the shoe; an upper layer 2 which is preferably coextensive with the base layer 1 and which preferably will be made of leather, although linoleum may be used if desired, and means intermediate said layers which gives the necessary shape to the upper layer 2 and which provides a resilient and yielding support for the arch of the foot. This means will preferably be in the form of a spring steel strip 3 which is arch-shaped and is situated so that it comes beneath the arch of the foot. This strip 3 is relatively narrow, as shown by dotted lines, Fig. 1, and it is situated adjacent the inner edge of the arch support so that it will best support the arch of the foot. This spring metal element 3 is preferably held in place by suitable rivets 4 which extend through apertures in the ends of the metal plate and through both the

base layer 1 and the upper layer 2, as best seen in Fig. 3.

Situated between the metal arch member 3 and the base layer 1 is a supporting member 5 of leather, leather-board, linoleum or the like, which supporting member has a flat under face, and the upper face of which has a contour in a direction longitudinally of the arch support corresponding to the contour of the arch member 3. This supporting member 5 extends from the inner edge 7 of the arch support partially across the latter to a point outside of the arch member 3, the outer edge 6 of the supporting member being chamfered or beveled, as shown best in Fig. 2.

I may if desired interpose a layer 8 of some cushion material, such as felt, between the base layer 1 and the upper layer 2, although this felt layer is not essential to the invention. This layer 8 when used provides a cushion effect which makes the arch support comfortable in use. Furthermore, it allows the top layer 2 to give more or less in different places and thereby to conform more readily to the actual contour of the foot so that after the arch support has been in use for a short time, the upper surface thereof conforms accurately to the under surface of the foot, thus increasing the comfort with which a person may use the arch support.

I may if desired make the layer 8 with a water-proof surface, although this is not essential.

I have shown herein two layers 9 of some suitable fabric, such as duck, situated either side of the arch member 3. The purpose of these layers 9 is to prevent the metallic member 3 from injuring the layers either side thereof, and they also assist in eliminating any liability of the arch support to squeak when in use.

I find from practice that it is not necessary to secure the layers together in any other way than by means of the rivets 4 which hold the metal arch member 3 in position, although, of course, if desired the various layers might be stitched together around the edge. This, however, is not essential, as they may be secured together by gluing or in any other suitable way.

The arch support will preferably have a rounded front edge 10 which preferably comes at the roots of the toes, and this edge

may conveniently be chamfered so as not to produce any discomfort to the wearer.

The supporting member 5 is shown as situated between the rivets 4 and to hold it in place I propose to employ a pin or spike 13 which is inserted through the bottom layer 1 and into the supporting layer. The pin herein shown for this purpose is provided with a relatively large head 12 which forms a projection on the under side of the arch supporter and which gives added thickness to it at this point. Such projection is desirable in case an arch supporter of extra thickness is required.

Where the protuberance is employed the portions of the arch support either side thereof will bend down slightly when the arch support is in use as shown in dotted lines Fig. 3.

In Fig. 4 I have shown a slightly different modification of the invention in which the arch support is provided with a side extension 11 that fits the side of the arch of the foot. This side extension may be formed by extending either the base layer 1 or the top layer 2 as desired, preferably the top layer.

The construction shown in Fig. 1 is especially adapted for use where the top layer at least of the arch support is made of leather.

I find from experience that linoleum makes an excellent material for both the top and the bottom layers, and where the arch support does not have the lip 11, I find an extremely efficient arch can be produced by using linoleum in the top as well as the bot-

tom layer. The filling or supporting member 5 may also be made of linoleum.

Where the construction shown in Figs. 2 and 3 is employed involving the protuberance 12 having the wire shank 13, said shank serves not only to secure the protuberance to the arch support in the proper position, but also serves to anchor the filling member 5 and prevent it from moving laterally.

I claim:

An arch support comprising a non-metallic base layer extending from the heel to about the ball of the foot, a non-metallic upper layer co-extensive with the base layer, a supporting member situated between said layers and extending from the inner side of the arch support to a point slightly beyond the median line, a pin extending through the bottom layer and into the arch-supporting member for holding the latter in position, said supporting member being relatively short in the direction of the length of the arch support and being situated centrally thereof, a spring steel strip extending longitudinally of the arch support and situated between the top layer and the supporting member both ends of said strip extending beyond the supporting member, and rivets extending through and connecting the top and bottom layers and said spring strip, said rivets being situated at either end of the supporting member.

In testimony whereof, I have signed my name to this specification.

MARTIN R. CROSSMAN.