May 19, 1942. R. LENTHALL 2,283,446

FOOT ARCH SUPPORT

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Fig. 1.

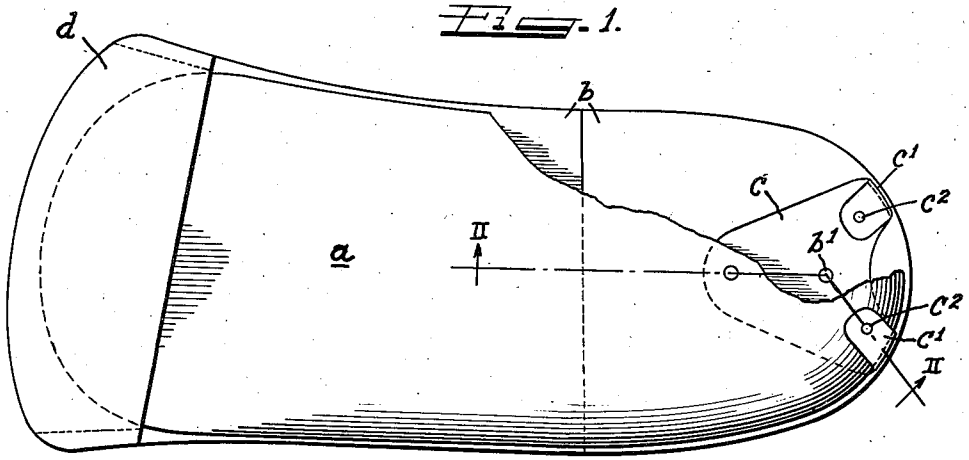


Fig. 2.

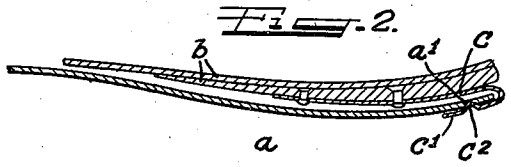


Fig. 3.

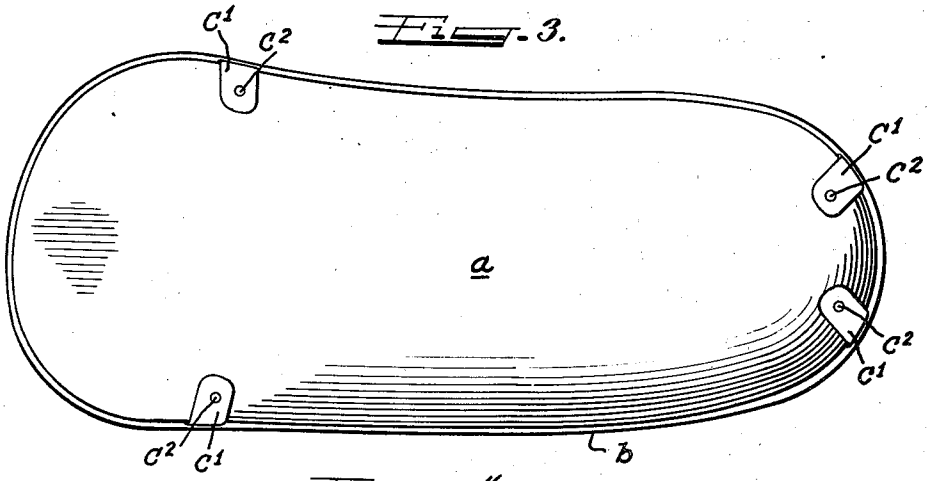
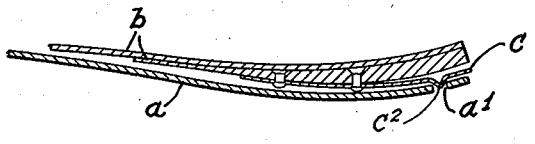


Fig. 4.



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Fig.

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Fig. 5.

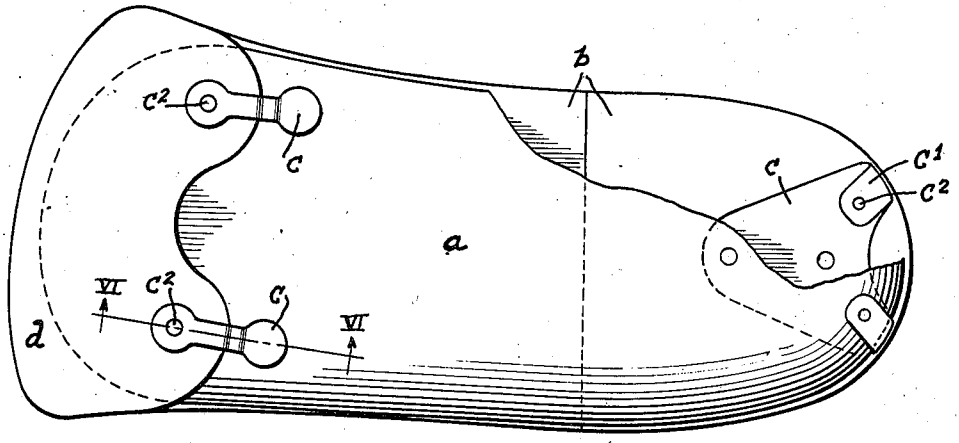
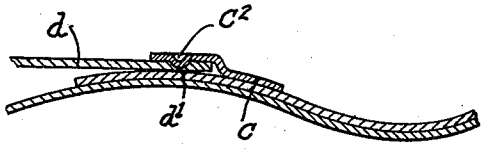


Fig. 6.



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UNITED STATES PATENT OFFICE

2,283,446

FOOT ARCH SUPPORT

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Application May 16, 1940, Serial No. 335,566
In Great Britain May 25, 1939

5 Claims. (Cl. 36—71)

This invention has reference to foot arch supports comprising stiff shaped plates, usually of metal, with coverings and/or protecting pads of leather or other material. Generally the leather or other coverings or pads are secured to the plates by rivets in a substantially permanent manner.

According to the present invention, the coverings or pads are secured to the plates by means enabling them to be secured and released without the use of tools, thus enabling fresh coverings or pads of the same or different thicknesses or shapes to be readily substituted either by the salesman or by the user to suit personal requirements or for renovation.

Further according to the invention a covering or pad of leather or other material and the stiff shaped plate of a foot arch support are secured together by means of a thin metal piece or plate or pieces or plates attached to the one or the other so as to leave a part or parts of the piece or pieces or plate or plates set outwardly or spaced from the covering (or pad) or stiff plate as the case may be to which it is attached so that the said part or parts of the piece or pieces or plate or plates will underlie and grip and, it may engage a part of the stiff plate or the covering (or pad) as the case may be. If definite but easily releasable engagement is desired, the outwardly set part or parts of the metal piece or pieces or plate or plates may be formed with a projection or projections adapted to engage in a correspondingly located hole or holes or recess or recesses formed in the covering or pad or stiff plate as the case may be.

In the accompanying drawings,

Fig. 1 is an underside view of a foot arch support having a top covering extending the full length of the stiff plate; part of the stiff plate is shown broken away.

Fig. 2 is a part section on the line 2—2, Fig. 1.

Fig. 3 is an underside view of a similar support.

Fig. 4 is a section corresponding to Fig. 2 showing modified means of securing the top covering to the plate.

Fig. 5 is an underside view of a foot arch support which has detachably secured to its stiff shaped plate, not only a top covering as in Figs. 1 and 2, but also a protective pad beneath its front edge.

Fig. 6 is a part section on the line 6—6 Fig. 5.

In the arrangement shown in Figs. 1 and 2 the stiff plate a of the arch support is formed with one or more recesses a^1 or holes and the cover b has attached to it, as by rivets b^1 or other means, one or more thin pieces c of spring metal with one or more arms c^1 which are bent under the attached body part of the piece, the arms being each formed with a punched up rounded projection c^2 or projections so positioned and shaped that, on the covering being slipped on to the plate of the support so that the arms pass under and grip the plate, the projections c^2 are sprung into the recesses a^1 or holes in the plate and secure the covering against displacement during use of the support.

The spring in the thin metal piece allows the projections c^2 to be released from the recesses a^1 or holes upon manually slipping back the covering.

As shown in Figs. 1 and 2, only one thin metal piece is provided at the heel end of a covering and it is formed with two bent-under arms which are spaced apart and incline forwardly towards each other.

The front end of the covering b is shown fitted with a rubber protecting pad d which can be sprung over the front end of the plate when the covering has been secured to it at the heel end, the pad not only serving to obviate wear of the shoe insole as well understood but also serving as a supplementary securing means.

In the case of a covering extending beyond the heel portion of the support, recesses a^1 or holes may be formed near or towards the forward part of the plate a of the support and one or more thin spring metal pieces c attached correspondingly to the covering so that the projections in its arms will engage in the said recesses or holes. Fig. 3 shows such an arrangement.

In the modification shown in Fig. 4, there is attached to the underside of the covering b a thin metal piece c without bent under arms but formed with one or more downward projections c^2 which, as shown, enter from above and engage holes a^1 in the plate, but this is not such a reliable means of releasably securing the covering.

As will be realized Figs. 2 and 4 of the drawings show parts that in fact lie close together spaced apart for the sake of clearness.

The invention is particularly useful in connection with coverings built up of shaped layers of leather or other material one or more of which are of wedge shape in transverse section, the thin spring metal pieces being riveted to the under layer to which one or more changeable upper layers can be secured by adhesive or other means.

The coverings may be such as to cover the whole or only part of the plate of the support.

Figs. 5 and 6 illustrate the invention applied to the securing to a shaped plate of metal or other stiff material of a protecting pad to prevent its front edge chafing or wearing the inner sole of the footwear with which the support is used.

The stiff supporting plate *a* is formed or provided on its underside, somewhat backward of its front edge with metal plates *c* the forward parts of which are set outwardly or spaced from the underside of the plate *a* so as to underlie the rear part of the pad *d* when in position and the pad *d* is detachably held by projections c^2 on the plates *c* engaging in holes or recesses d^1 in the pad.

Each plate *c* may be of dumb-bell shape as seen from beneath, the stem being bent so that the rear enlargement lies flat against the underside of the support to which it is welded, soldered or otherwise secured and the forward enlargement lies nearly parallel thereto but at a distance from the underside of the stiff support sufficient to accommodate the thickness of the pad. On pushing the pad rearwardly into the space between the support and the plate or plates, the pad will be firmly gripped and held but can be easily withdrawn for replacement by another pad.

In some cases, holes or recesses may be made in the forward part of the plate or plates and projections provided on the pad may engage therein.

The plate or plates in some cases may be stamped out of the metal or other material of the support.

In the case of supports with top coverings of leather or other material, the front end portions of the pad and the covering preferably chamfered, may be adhesively attached to each other, as by rubber solution, in a detachable manner.

What I claim is:

1. In an arch support, a flexible top cover, a spring clip projecting inwardly in spaced relationship to said cover adjacent the heel end of the cover, said clip having a raised detent thereon, a member disposed transversely across the underside of the forward portion of said cover to form with the cover a rearwardly opening socket, and a relatively stiff supporting plate slidable inside said clip and having a recess adjacent the heel end thereof for engagement by said detent, the forward end portion of said plate being freely insertable in said socket for relative movement longitudinally of the support between the plate and cover while walking.

2. In an arch support, a flexible top cover, a spring clip projecting inwardly in spaced relationship to said cover adjacent the heel end of the cover, said clip having a raised detent thereon, a member disposed transversely across the underside of the forward portion of said cover to form with the cover a rearwardly opening socket, a relatively stiff supporting plate slidable inside said clip and having a recess adjacent the heel end thereof for engagement by said detent, the forward end portion of said plate being freely insertable in said socket for relative movement longitudinally of the support between the plate and cover while walking, and clip means carried by said plate on the underside for removable engagement with said transversely disposed member.

3. In an arch support, a flexible top cover, a plurality of converging spring clips attached to said cover and projecting inwardly in spaced relationship to the cover adjacent the heel end thereof, said clips each having a raised detent thereon, a relatively stiff supporting plate removably associated with said cover, said plate being slidable inside said clips to be engaged thereby from different angles simultaneously and having recesses therein for engagement by said detents, and means attached to said cover for removably engaging the forward portion of said plate.

4. In an arch support, a flexible top cover, a plurality of converging spring clips attached to said cover and projecting inwardly in spaced relationship to the cover adjacent the heel end thereof, said clips each having a raised detent thereon, a relatively stiff supporting plate removably associated with said cover, said plate being slidable inside said clips and having recesses therein for engagement by said detents, and similar clips extending inwardly from opposite sides of the forward portion of said cover, and said plate having recesses in its forward portion for engagement by the detents on the last said clips.

5. In an arch support, flexible cover means, a plurality of converging spring clip members carried by said cover means and projecting inwardly in spaced relationship to said cover means adjacent the heel end thereof, a relatively stiff supporting plate member slidable inside said clip members, said clip members and said plate member having complemental engaging means associated therewith and said plate member being removably engaged by said clip members from different angles simultaneously to maintain the plate member in proper position relatively to said cover means, a member disposed transversely along the underside of the forward portion of said cover means to form therewith a socket for the free reception of the forward end portion of said plate member to permit relative movement longitudinally of the support between the plate member and cover means while the support is in use.

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