March 14, 1939. W. H. NICKERSON 2,150,779

ARCH SUPPORT FOR SHOES

Filed Jan. 26, 1938

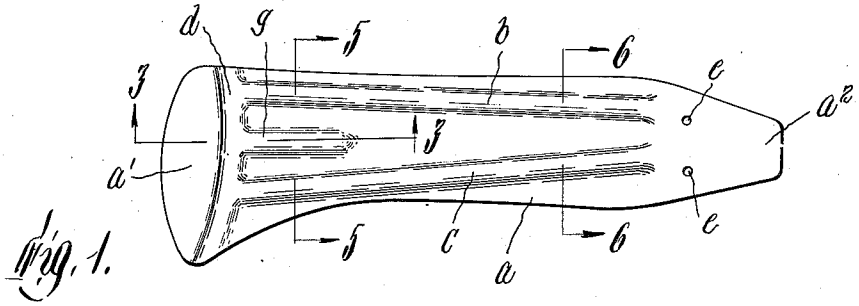


Fig. 1.

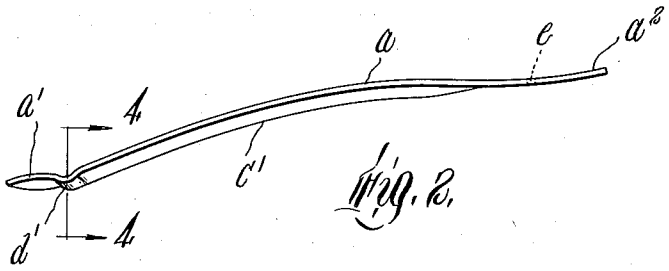


Fig. 2.

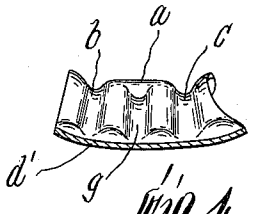


Fig. 4.

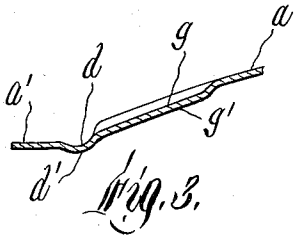


Fig. 3.



Fig. 5.

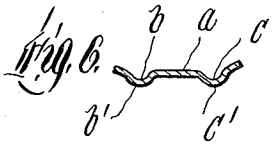


Fig. 6.

Fig. 7.

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Patented Mar. 14, 1939 2,150,779

UNITED STATES PATENT OFFICE

2,150,779

ARCH SUPPORT FOR SHOES

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Application January 26, 1938, Serial No. 187,029

4 Claims. (Cl. 36—76)

This invention relates to metal arch supports of the type which are built into the shank portions of shoes between the inner and outer soles thereof instead of being placed loosely within the completed shoe. This type of arch support is usually made of sheet steel sufficiently thick to have considerable stiffness, and is additionally stiffened by two longitudinally extending offset ribs located each between the longitudinal median line and one edge of the piece. Such arch supports are frequently combined also with a resilient pad to give additional support to the transverse arch of the foot, although they are also used without pads.

The object of the present invention is to provide a support of this type which is stiffer at the forward end than the supports of this type heretofore known of equal characteristics and dimensions in other respects; and which has greater strength and ability to sustain a pad of the type referred to when such is used. The invention consists in an arch support having means for effecting the above stated objects and other characteristics substantially as explained and defined in the following specification and claims.

In the drawing,—

Fig. 1 is a plan view of my improved arch support represented with that side uppermost which is placed against the innersole when the support is built into a shoe;

Fig. 2 is a side elevation of the arch support thus shown;

Fig. 3 is a longitudinal section of the forward end of the arch support taken on line 3—3 of Fig. 1;

Fig. 4 is a cross section taken on line 4—4 of Fig. 2;

Figs. 5 and 6 are cross sections taken on lines 5—5 and 6—6 respectively of Fig. 1;

Fig. 7 is a side view of a shoe, with the shank portion thereof shown in section, illustrating the manner in which this arch support is built into a shoe and the manner in which it supports a pad when such a pad is used.

Like reference characters designate the same parts wherever they occur in all the figures.

The arch support here illustrated, which is designated as a whole by the reference letter *a*, is made of sheet steel having a thickness in the order of .050", (although it may be more or less thick than this if desired), and is grooved or offset to form two longitudinally extending channels or grooves *bc* in the side which, in use, is placed against the innersole of a shoe, and corresponding ribs *b'c'* on the opposite, or under, side. Both the piece as a whole and these ribs are curved longitudinally conformably to the arch curvature designed to be made in the shank part of a shoe. It is of nearly uniform width throughout the major part of its length, but is sharply widened at its forward end *a'* to give support to the transverse arch of the wearer's foot, and is there stiffened by a transversely extending offset which forms a groove *d* in the upper side and a corresponding rib *d'* in the under side. At the rear end a^2, the arch support or plate is narrowed and provided with holes *e* through which nails *f* (see Fig. 7) or equivalent fastenings may be passed into engagement with the innersole of the shoe, to prevent the plate from becoming displaced endwise.

An intermediate grooved rib *gg'* is formed in the forward part of the arch support approximately midway between the grooved ribs *bb'* and *cc'*, and extending longitudinally from the transverse grooved rib in the rearward direction for a fraction of the length of the entire arch support. This intermediate rib provides stiffness in the widened forward part of the arch support where, by reason of its greater width and the divergence of the ribs *bb'* and *cc'*, the stiffness per unit of width dimension is less than in the rear portion of the plate.

The forward extremity of the plate, which forms a sort of lip in front of the transverse rib, is bent up slightly with respect to the main part of the plate. Such bent formation, together with the transverse groove, forms a shallow pocket adapted to contain a pad *h* (Fig. 7) of vulcanized rubber, or other more or less yieldable, resilient material. Such pad is adapted to support the transverse arch of the wearer's foot, when such support is needed, and pads of various heights and various contours at the top may be provided for use in different shoes which are designed to correct or relieve foot troubles of various types. The intermediate rib *gg'* gives useful rigidity as a foundation for such a pad. It is important for that reason in all situations where a pad is provided. But it has utility also in the absence of a pad, as previously described.

As will be understood from the foregoing description, and in any event by those skilled in the art, the arch support here described is put to use by being built into a shoe between the innersole *k* and the outersole *l* thereof. The rear end is made fast by one or more tacks or equivalent fastenings, driven through the holes *e* into the innersole, and clinched. The pad *h*, when used, is placed between the innersole and arch support-

ing plate in the shallow pocket at the forward end of the latter, as described. The innersole is locally raised by such pad, but when the pad is omitted the innersole extends smoothly over the forward end of the arch support.

What I claim and desire to secure by Letters Patent is:

1. An arch support adapted to be built into a shoe consisting of a plate having spaced apart longitudinal stiffening ribs, a transverse stiffening rib near the forward end of the plate, and an additional stiffening rib extending from said transverse rib rearwardly between the longitudinal ribs first named.

2. An arch support for shoes consisting of a sheet metal plate curved longitudinally to conform with the arch curvature of a shoe, having a forward end bent up at an obtuse angle to the major part of the plate, having a transverse stiffening rib at the junction between its main portion and such bent up end, having two longitudinal ribs adjacent to its opposite edges extending rearwardly from said transverse rib, and having a third longitudinal rib extending from said transverse rib and located between the forward ends of the previously named longitudinal ribs.

3. An arch support for shoes consisting of a sheet metal plate curved longitudinally to conform with the arch curvature of a shoe, having a forward end bent up at an obtuse angle to the major part of the plate, having a transverse stiffening rib at the junction between its main portion and such bent up end, having two longitudinal ribs adjacent to its opposite edges extending rearwardly from said transverse rib, and having a third longitudinal rib extending from said transverse rib and located between the forward ends of the previously named longitudinal ribs, the last named rib providing rigidity for the widened forward end portion of the support.

4. An arch support for shoes consisting of a sheet metal plate curved longitudinally to conform with the arch curvature of a shoe, having a forward end bent up at an obtuse angle to the major part of the plate, having a transverse stiffening rib at the junction between its main portion and such bent up end, having two longitudinal ribs adjacent to its opposite edges extending rearwardly from said transverse rib, and having a third longitudinal rib extending from said transverse rib and located between the forward ends of the previously named longitudinal ribs, said upturned forward end and transverse rib providing a pocket adapted to receive a pad, and the last named longitudinal rib providing rigidity in the backing for said pad.

WILLIAM H. NICKERSON.