Nov. 17, 1931. W. J. RILEY 1,832,659

ARCH SUPPORTER

Filed July 29, 1929

Fig. 1.

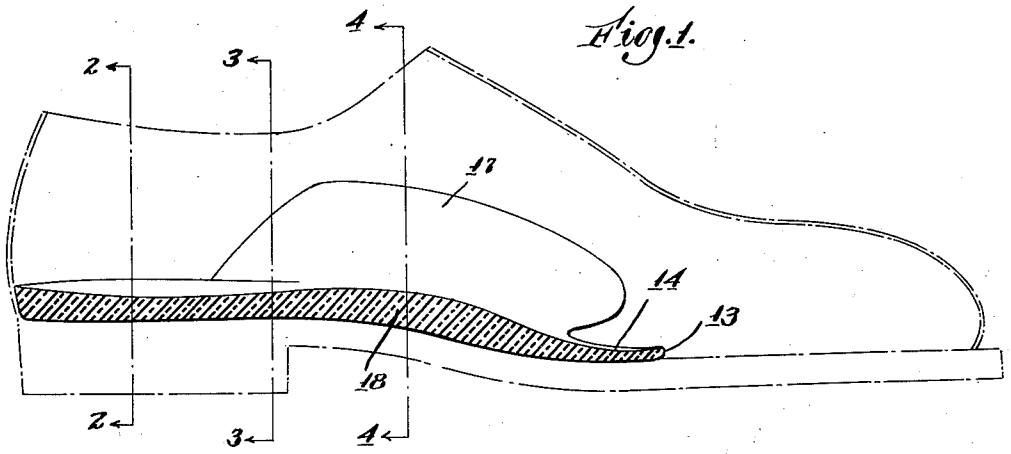


Fig. 2.

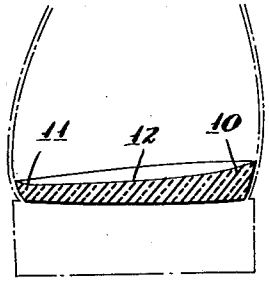


Fig. 3.

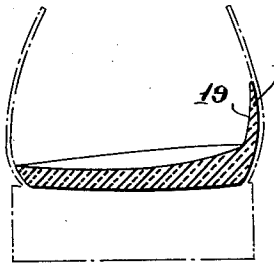


Fig. 4.

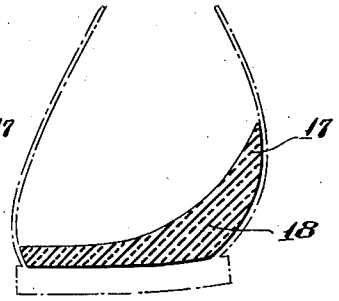
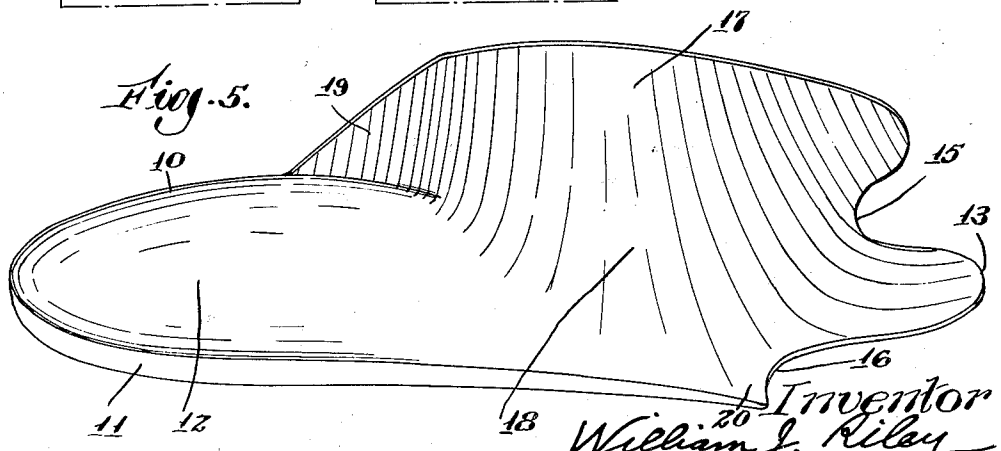


Fig. 5.



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UNITED STATES PATENT OFFICE

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ARCH SUPPORTER

Application filed July 29, 1929. Serial No. 381,762.

My present invention relates to arch supporters, and more particularly to a novel and improved removable arch supporter for use in boots and shoes.

An important object of the present invention resides in the provision of an arch supporter, preferably of flexible cushioning material, which will combine the functions of forming a support both for the metatarsal arch and for the longitudinal arch of the foot.

Another object of the invention resides in forming the inner edge of the heel portion of my arch supporter of greater thickness than the outer edge. Combined with this wedge shaped heel portion is the longitudinal arch supporting portion of the supporter, curved in such a way that, as the foot of the wearer is tilted by the wedge shaped heel, the foot will be forced or thrown around said longitudinal arch supporting portion, to assume the natural shape.

Another object of this invention resides in so forming the forward portion of the arch supporter as to allow full freedom of the great toe and the great toe socket joint, as well as allowing full freedom for the outer ball of the foot.

A still further feature of the invention consists in the fact that the supporter, and particularly the forward portion thereof, is so formed and shaped as to allow the entrance of the foot into a shoe of the same size as the user is accustomed to wear. This enables my novel arch supporter to be utilized in shoes which the user has, not necessitating the purchase of new shoes, or shoes of a larger size than that to which the user is accustomed.

Another object of the invention resides in constructing the supporter of sufficient depth at the shank portion thereof to permit bending of the inner margin of the shank portion to lay level on the inner sole when the weight of the wearer is on same. Thus my novel supporter is self-correcting by the curve thus formed in the shank portion.

While I preferably construct this supporter of cushioning material, such as soft rubber, it will be appreciated that I may make the same of other materials, such as leather if desired.

My novel supporter, therefore, combines several advantageous features, all in a readily removable and replaceable supporter.

Said supporter is economical and simple to manufacture, particularly when made of soft or cushioned rubber, as the same may be molded in a single operation to finished, completed form.

The above and other objects of the invention, details, and advantages, will be herein after more fully pointed out, described and claimed.

Referring to the drawings illustrating a preferred embodiment of the present invention,

Fig. 1 is a longitudinal sectional view of my novel supporter in a shoe, the shoe being illustrated only in outline;

Fig. 2 is a cross sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1;

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

Fig. 5 is a perspective view of the complete arch supporter.

Referring now to the drawings for a particular description of the invention, my novel arch supporter is provided with a wedge shaped heel portion, being of greater thickness at the inner edge, as illustrated at 10, and tapering from said inner edge to the outer edge 11, the heel contacting portion of the supporter being slightly dished or cupped as illustrated at 12. The forward end of the arch supporter is formed with a forwardly projecting tongue 13, having a slight upward curvature, which forms a cup or depression 14. This tongue 13 is so constructed and arranged that, when inserted in a shoe, and the foot of the wearer placed in the shoe, said tongue will be positioned under the metatarsal or transverse arch of the foot, said tongue being of sufficient thickness to properly function as a metatarsal arch support, although the tongue is of less thickness than the remainder of the body portion of the supporter.

porter is cut away, as illustrated at 15 and 16. This cut away portion 15 is in such a position as to receive the great toe socket joint, or inner ball of the foot, and to allow full freedom thereof. The outer cut away portion 16 is so shaped as to receive the outer ball of the foot, and to allow full freedom thereof. The supporter being of flexible material, and the tongue 13 being relatively thin and narrow, permits of free flexing or bending of the foot, and this feature, coupled with the freedom of the inner and the outer balls of the foot, result in a comfortably fitting arch supporter, the tongue 13 performing its metatarsal arch supporting function without discomfort to the wearer.

The inner side of the supporter is provided with a wall 17 extending considerably above the foot contacting surface of the supporter, this wall 17 being of considerable thickness, particularly at the bend 18 where it rises from the body of the supporter. The said wall 17 rises from said foot contacting surface in a curve, except at the rearward portion thereof, where, as illustrated at 19, there is a vertical rise or wall, this vertical rise extending partly around the heel portion of the supporter. The outer forward edge of the supporter, as illustrated at 20, tapers to a relatively thin edge. The side opposite the wall 17 is formed substantially straight longitudinally of the supporter and of the shoe and with a substantial taper toward the forward edge at 20, as above explained. This feature is clearly shown in Fig. 5 and is of decided importance in producing my balanced shoe construction, the supporter thus positively repositioning the foot in a shoe irrespective of the contour of the foot supporting surface of the shoe to which it is applied.

When my novel supporter is positioned in a shoe, the user is enabled to insert his foot past or over the supporter, without dislodging the supporter from its normal position in the shoe.

When the foot of the wearer is in the shoe, and the wearer's weight applied to the supporter, the wedge shape of the heel will tend to tilt the foot outwardly, while the bulge of the supporter at the thickened portion 18 will tend to throw the forward portion of the foot around said thickened arch supporting portion 18, allowing the foot to assume its normal position, with the inner ball or great toe socket joint seated in the recess 15, the outer ball of the foot seated in the recess 16, and with the tongue 13 positioned in its metatarsal arch supporting position. The thickened portion 18, as illustrated in Fig. 1, extends transversely of the supporter a sufficient distance from the inner side thereof to support the central longitudinal arch, the bulge of this thickened portion where it rises in the wall 17 forming an ample support for the inner longitudinal arch, the tension pur-

chase of the foot of the wearer on the outer side of the arch supporter forcing the cushioning material of which the supporter is formed to assume the shape desired or required for the particular arch being supported. Thus my novel supporter is self-adjusting, as will be clearly apparent.

The benefits, advantages, and orthopedic qualities of my novel arch supporter will be instantly apparent to those skilled in the art, as well as to the users and wearers thereof, and since I believe said supporter to be novel, I have claimed the same in the present application.

While I have necessarily described my present invention somewhat in detail, it will be appreciated that I may vary the size and arrangement of said supporter within reasonably wide limits without departing from the spirit of the invention.

My invention is further described and defined in the form of claim as follows:

A flexible foot supporter adapted to be fitted within a boot or shoe to reposition the foot of the wearer therein and to support the foot from the heel forwardly to the metatarsal arch, comprising a relatively thick heel to constitute a cushion heel extending forwardly, tapering to a thin edge at each side of a centrally projecting tongue, which tongue is rounded to fit under the metatarsal arch of the foot, and a cut-away portion at each side tapered to a thin edge to receive the inner and outer balls of the foot of the wearer, the inner shank portion intermediate the thickened heel portion and the said tongue being of greater thickness and extending upwardly along the inner shank portion to constitute a longitudinal arch supporter, the opposite edge of the supporter being substantially straight longitudinally from the heel to the forward thin edge and formed on a progressive taper.

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

WILLIAM J. RILEY.