Feb. 4, 1936. L. C. BRAND 2,029,409

ARCH SUPPORT SHOE

Filed May 29, 1935

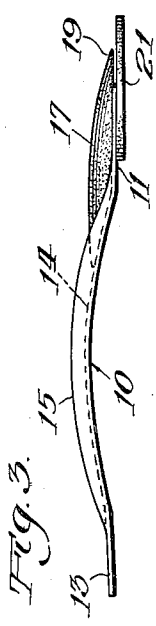


Fig. 3.

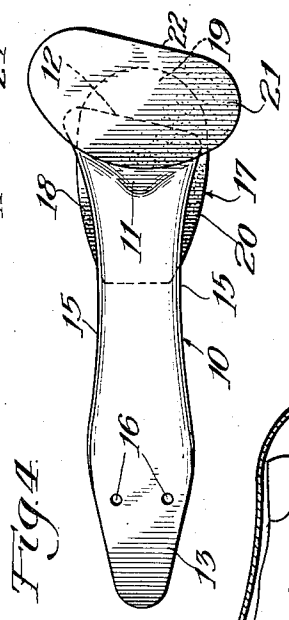


Fig. 4.

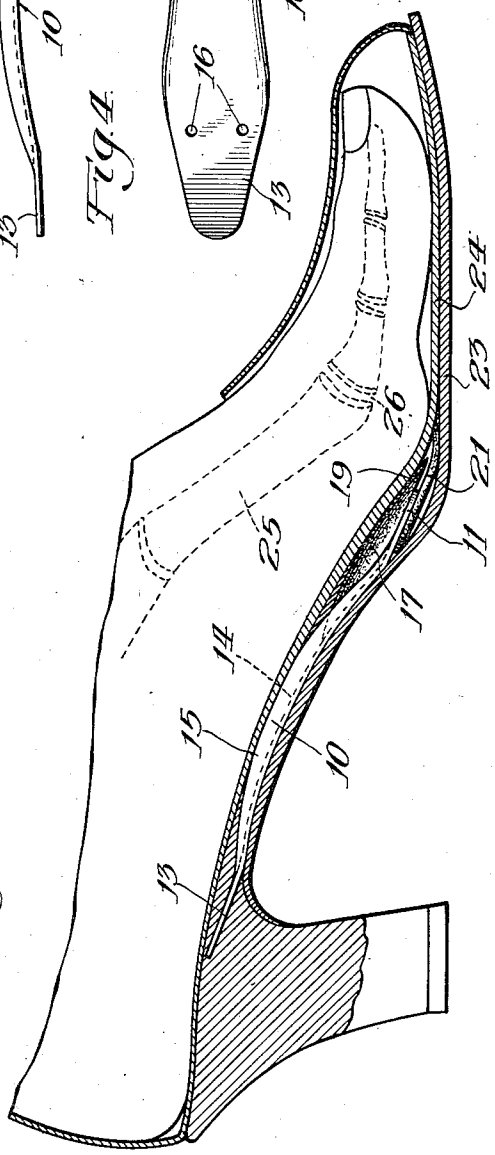


Fig. 1.

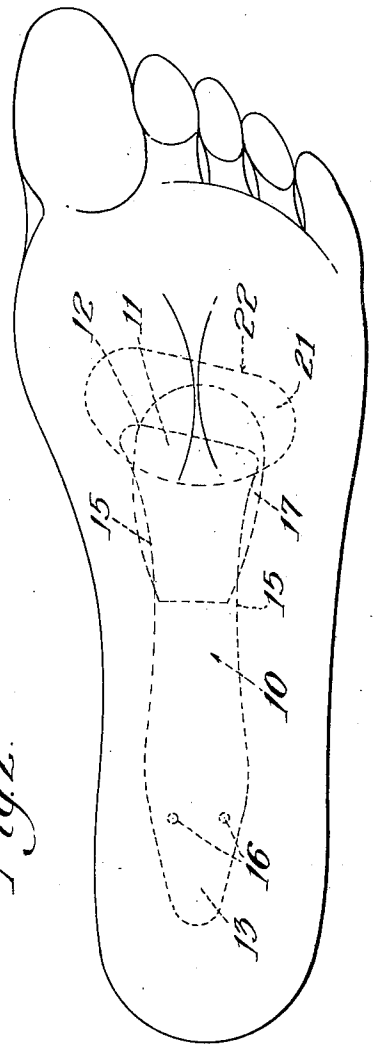


Fig. 2.

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ARCH SUPPORT SHOE

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2 Claims. (Cl. 36—71)

This invention relates to arch support shoes and the object is to produce arch supports for embodiment in shoes which will prevent fallen arches and give relief and support to arch troubled feet.

Another object is to design the arch support so that when installed in the shoe, the inner sole will present a smooth surface corresponding to the natural contour of the bottom of the foot.

The arch support comprises a light weight steel stiffener which supports the longitudinal arch, and two resilient pads attached to the steel stiffener near its forward end, the upper of the two pads supporting the metatarsal arch and the lower functioning to absorb shocks, to augment the resilience of the stiffener, and to assist in the supporting functions of the device as a whole. The invention consists in the combination of these parts in the relative positions hereinafter described.

In the drawing:

Fig. 1 is a longitudinal sectional view of a shoe embodying my invention and showing the correct position of the metatarsal bones of the foot.

Fig. 2 is a bottom plan view of the arch support of my invention, shown in dotted lines in its intended position relatively to the foot it supports.

Fig. 3 is a side elevation of the arch support.

Fig. 4 is a bottom plan view of the same.

As shown in the drawing, the arch support comprises a light weight metal stiffener 10, having a substantially flat portion 11 adjacent its forward edge 12, and curved longitudinally between said portion 11 and the opposite end portion 13 to provide an upper longitudinally convex surface 14. The stiffener is also curved transversely whereby the surface 14 is made concave between its side edges 15, 15. Apertures 16 are provided in the rearward end of the stiffener 10 to facilitate attaching of the support to the shoe such as by nails or brads not shown and by the heel slot indicated. The stiffener is slightly resilient and is attached to the shoe at its rearward end being preferably unattached at its forward end.

A resilient pad 17, oval in outline, flat on its lower surface and crowned on top, and almost half as long as the stiffener, is cemented or otherwise suitably secured to the upper surface of the forward end of the stiffener 10. The pad 17 substantially covers the end portion 11 of the stiffener and projects beyond the stiffener end edge 12 and side edges 15, 15, as indicated by the dotted and full line outlines of the pad 17 in Fig. 4, the projecting portions being indicated at 18, 19 and 20. It also extends upwardly on the stiffener to about one-third the length of the stiffener 10.

A second pad, indicated at 21, also made of resilient material, such as rubber or the like, is secured to the bottom of the forward end of the stiffener 10. The pad 21 is substantially flat and oval in shape except at the forward margin 22 which is substantially straight. The major axis of the pad 21 is not quite at a right angle to the major axis of the pad 17. The pad 21 is located so as to underlie the end portion 11 of the stiffener and to project sidewise and forwardly of the stiffener end portion 11 and also beyond the side and end edges of the forward end of the pad 17. The construction is such that the metatarsal arch is springily supported.

The support I have shown in the drawing is designed for a left shoe, the forward edge 12 being diagonal to the major axis of the device and extending toward the large toe. In a right shoe support the corresponding parts would be reversed, so that said front edge would also extend diagonally toward the large toe of the right foot.

The outer sole of the shoe is indicated at 23 and the inner sole at 24. The arch support is located between the two soles, as shown in Fig. 1.

The slightly flexible stiffener carrying the resilient pads 17 and 21 is so mounted and located that the forward portion forms a firm but resilient support for the metatarsal bones 25 and prevents the formation of gaps between the ends of the bones at the points 26. When the space occupied by the pads 17 and 21, adjacent the base of the shank or place where the sole hinges, is not properly filled, the metatarsal bones are not properly supported and assume a slightly more perpendicular position which results in the formation of gaps between the bone ends at the points 26 and consequent breaking down of the arches.

The relative positions of the upper and lower pads on the stiffener and their location in the shoe is such that the stiffener does not extend forwardly sufficiently to interfere with the hinge action of the sole but the pads extend forwardly of the edge 12 of the stiffener in such relationship to each other that the pad 17 supports the metatarsal bones and the pad 21 absorbs shocks and resiliently supports the stiffener end.

Changes may be made in details of construction without departing from the scope of my in-

vention and I do not intend to be limited to the exact form shown and described, except as set forth in the appended claims.

I claim:—

1. An arch support shoe comprising an arch support extending longitudinally beneath the inner sole on the shank of the shoe, secured to the shoe at its rearward end and unattached at its forward end, said support consisting of a metal stiffener having an upper surface longitudinally convex and a flattened outer end portion, said convex portion being of less length than the shank over which it extends, whereby the flattened end portion projects over and is spaced from the hinge portion between the tread and shank portions of the sole, an upper crowned resilient pad secured to the forward end portion of the stiffener to overlie approximately one-third of the stiffener surface and protruding beyond the forward end, and a flat lower pad secured to the under side of the stiffener and protruding forwardly and sidewise of the forward portion of the upper pad and bridging the hinge portion of the tread and shank.

2. An arch support shoe comprising an arch support extending longitudinally beneath the inner sole on the shank of the shoe, secured to the shoe at its rearward end and unattached at its forward end, the forward end portion overlying the base of the shank where the sole hinges, said arch support comprising a metal stiffener the intermediate portion of which is arched to overlie the major portion of the shank and the forward end portion is flattened above the base of the shank to extend outwardly towards the tread of the sole in spaced relation to the hinge portion of the shank and tread, and resilient pads secured to the upper and lower surfaces of the forward end of the stiffener, the longitudinal curvature of the stiffener being such that its forward portion springily supports the metatarsal bones of the foot of a wearer, and the lower pad being located to underlie the forward end of the stiffener and to protrude beyond the forward end of the upper pad and engage the sole at a point forwardly of the end of the stiffener.

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