Aug. 25, 1931. A. F. KRAUSZ 1,820,747

ARCH SUPPORT

Filed Dec. 6, 1930 2 Sheets-Sheet 1

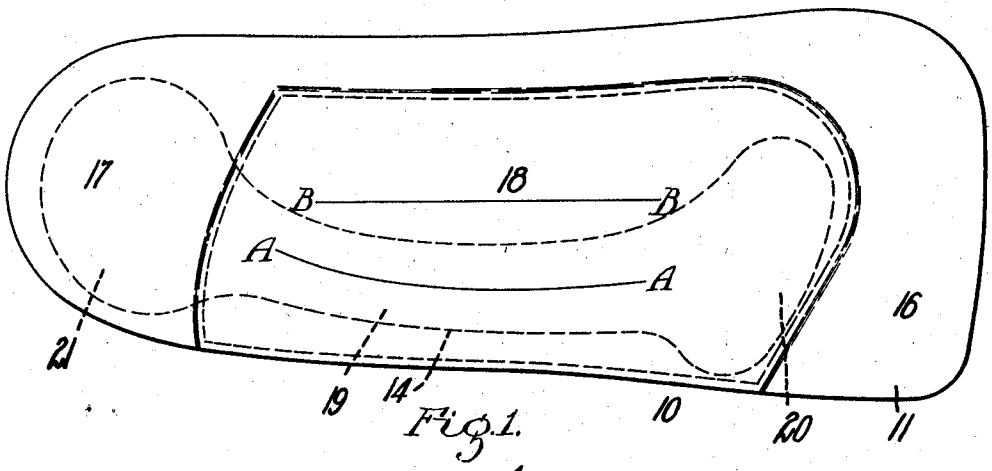

Fig. 1.

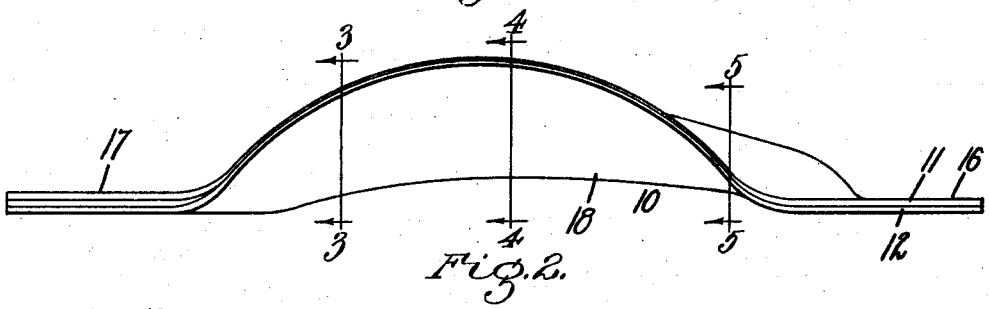

Fig. 2.

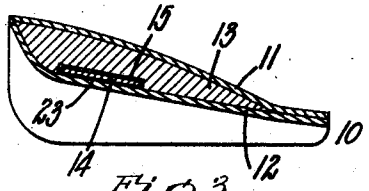

Fig. 3.

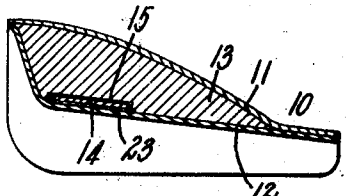

Fig. 4.

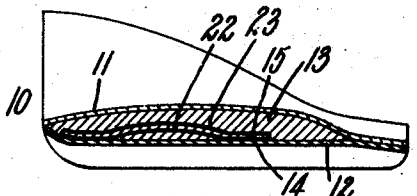

Fig. 5

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ARCH SUPPORT

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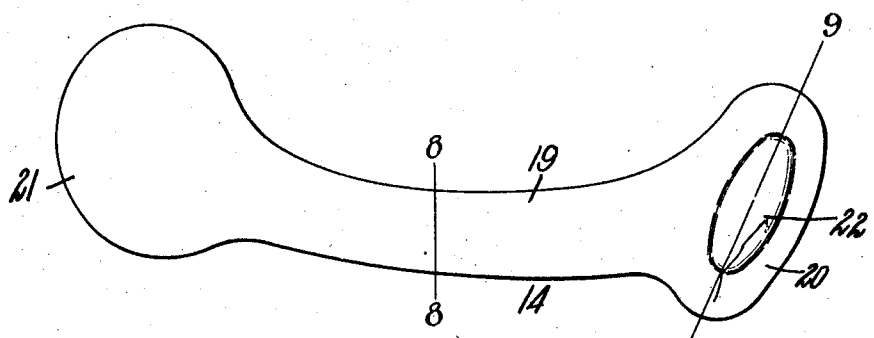

Fig. 6.

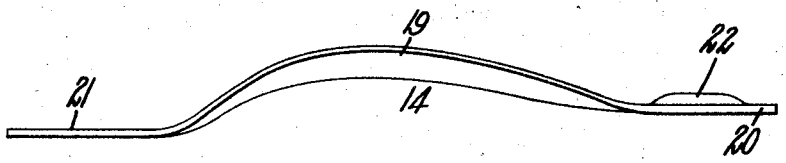

Fig. 7.

Fig. 8.

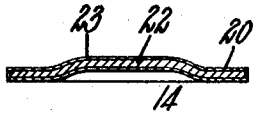

Fig. 9.

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Patented Aug. 25, 1931 1,820,747

UNITED STATES PATENT OFFICE

ARTHUR F. KRAUSZ, OF BOSTON, MASSACHUSETTS

ARCH SUPPORT

Application filed December 6, 1930. Serial No. 500,521.

This invention relates to an improved arch support adapted to be used in a shoe.

The object of the invention is to provide an arch support which while bracing the arch of the foot will resiliently support the same, while it is capable of yielding to the weight of the wearer, it has embodied therein a strip of resilient material, preferably tempered spring steel, which allows the arch to yield downwardly against a constant tendency to react upwardly, and the spring steel when not subjected to pressure will always retain its normal arched shape and will not become flattened.

Muscles are strengthened by exercise. Weak muscles and strained ligaments are the cause of flat feet or fallen arches. All rubber pad arch supports lie flat on the shank of the sole of the shoe, making easier walking, but the weakened muscles do not get the needed exercise to develop strength in such muscles. It is the object of my improved arch support to provide a device whereby the arch of the foot is supported and the muscles have an opportunity to be strengthened by exercise as when the spring embodied in the arch yields downwardly and then moves upwardly. The arched spring of my improved arch support when in use is located beneath the navicular and cuneiform bones and acts as a support to raise such bones when they have become fallen down, the arch being highest beneath these two bones.

The front end portion of the arch support projects beneath and up to the heads of the metatarsal bones of the foot, said front end portion being wider than the intermediate portion and the central portion of said front end portion being curved upwardly to still further assist in supporting the metatarsal bones. The heel portion of the arch support is also wider than said intermediate portion to efficiently support the heel of the foot.

The skeleton of the foot is raised and kept in normal position and in time the muscles and ligaments shorten to meet the new condition which means that the natural arch in the foot has been restored to its normal position.

The steel arch supports of commerce are uncomfortable and heavy and also interfere with the natural walking movement of the twenty-six joints which are located in the foot. The arch of this invention is elastic and corrects the position of fallen down cuneiform and navicular bones. By the use of the arch support of this invention the muscles are constantly exercised causing them to be strengthened and also, the circulation of the blood in the foot is very much improved by reason of this muscular action.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claim thereof.

Referring to the drawings:

Fig. 1 is a plan view of an arch support for a shoe embodying my invention, the same being for a left foot.

Fig. 2 is a side elevation of the same.

Figs. 3, 4 and 5 are sectional elevations taken on lines 3, 4 and 5, Fig. 2, respectively.

Fig. 6 is a plan view of the resilient member of my improved arch support.

Fig. 7 is a side elevation of the resilient member.

Fig. 8 is a transverse section taken on the line 8—8, Fig. 6.

Fig. 9 is a detail section taken on the line 9—9, Fig. 6.

Like numerals refer to like parts in the several views of the drawings.

In the drawings, 10 is the arch support embodying my invention, the same comprising an upper layer 11 and a lower layer 12 of soft material such as leather. A cushion 13 of soft material such as rubber is interposed between the layers 11 and 12 and a strip 14 of resilient material, preferably spring steel, tempered so that it will always retain its shape and not be permanently distorted or flattened from use, is interposed between the cushion 13 and the lower layer 12. The cushion 13 is provided with a depressed portion 15 in its under side in which the resilient strip 14 is positioned.

The arch suppport is of a contour to approximately fit within a shoe and comprises as a whole a front end portion 16, a heel portion 17 and an intermediate portion 18, the

intermediate portion 18 being arched longitudinally thereof in order to support the navicular and cuneiform bones of the foot and to keep them in normal position. The arch support is also curved in a variety of arcs transversely thereof as illustrated in Figs. 3, 4 and 5 to fit and support the instep of the foot.

The resilient strip 14 comprises a comparatively narrow intermediate portion 19, a front end portion 20 and a heel portion 21. The intermediate portion 19 acts as a support for the cuneiform and navicular bones of the foot, while the front end portion 20 projects beneath and supports the metatarsal bones of the foot extending at its front end up to the heads of the metatarsal bones. The portion 20 of the resilient member is also curved transversely thereof at 22, as particularly illustrated in Fig. 9. The heel portion 21 of the resilient member is also extended laterally as compared with the intermediate portion 19, in order to efficiently support the heel of the wearer. The resilient member 14 is covered with a layer of relatively soft material 23 such as rubber, see Fig. 5, this rubber being stuck to the metal of the resilient member 14 by an adhesive. The object of the rubber covering of the resilient member 14 is to prevent slipping upon the parts adjacent thereto when in use, thus eliminating any tendency to squeak.

The resilient strip 14 is preferably positioned within the arch support 10 with the median longitudinal line A—A of its intermediate portion positioned nearer the inner edge of the arch support 10 than the median longitudinal line B—B of the intermediate portion of said arch support.

When in use, the arch support is placed in the interior of the shoe in the usual manner and when the shoe is upon the foot of the wearer the heel will be supported on the end portion 17, the front part of the foot will be supported on the portion 16, and the instep of the foot will be supported by the arch portion 18 of the arch support, said arch portion 18 acting as a support for the cuneiform and navicular bones of the arch of the foot.

I claim:

An arch support for a shoe having, in combination, a heel portion, a front end portion and an intermediate portion, the said support being of a contour to approximately fit within a shoe, the intermediate portion being arched longitudinally thereof, said arch support embodying an upper and a lower layer of soft sheet material, a cushion of soft material interposed between said layers, and a relatively narrow strip of resilient material interposed between said cushion and lower layer extending longitudinally of said arch support and arched to provide a resilient support for the instep of a human foot, the front end of said strip terminating in a laterally widened portion with an arcuate contour with the central portion thereof curved upwardly and adapted when in use to project beneath and suppport the metatarsal bones of the foot.

In testimony whereof I have hereunto set my hand.

ARTHUR F. KRAUSZ.