May 26, 1959 J. D. ENGELMANN 2,887,796

CONTOUR ARCH CUSHION FOR SHOES

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Fig. 1

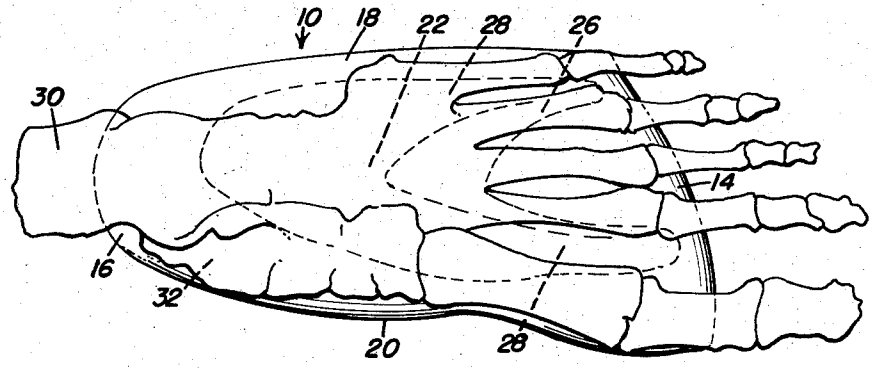


Fig. 2

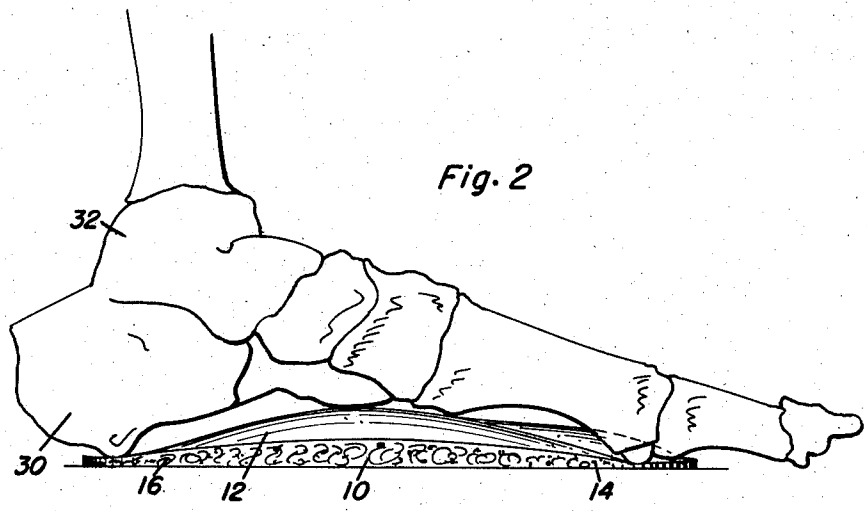
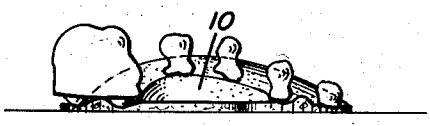


Fig. 3



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Fig. 4

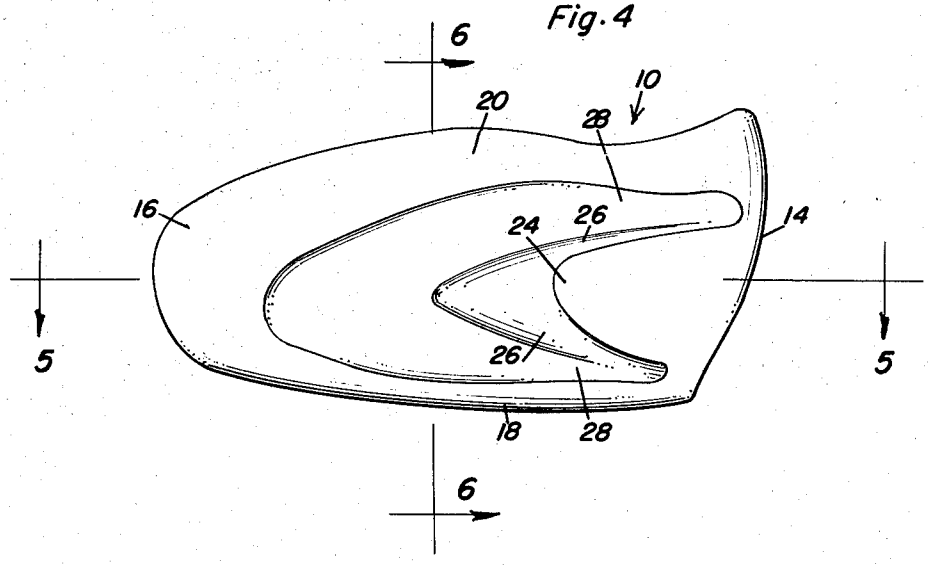


Fig. 5

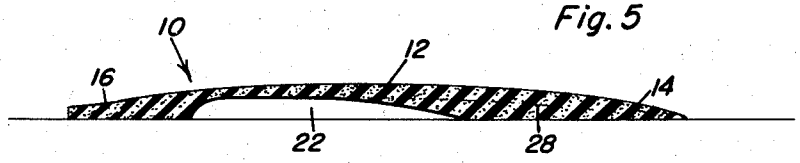
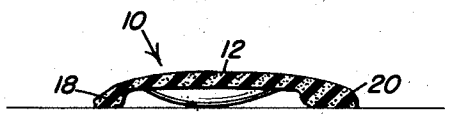


Fig. 6



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CONTOUR ARCH CUSHION FOR SHOES

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Application August 26, 1957, Serial No. 680,344

1 Claim. (Cl. 36—71)

This invention comprises a novel and useful contour arch cushion for shoes and more particularly relates to a resilient pad specifically adapted to be inserted in shoes to provide a cushioned support for the arch structure of the foot.

The principal object of this invention is to provide a shock absorbing walking base for the foot and to effect this result by a cushioning pad which may be readily inserted into shoes in order to adapt them to this purpose.

A more specific object of the invention is to provide a resilient foot supporting pad which shall be so shaped and contoured as to cause it to apply increased supporting force to the inner and outer longitudinal arches of the foot structure, while relieving pressure upon the plantar fascia of the foot.

A further specific object of the invention is to provide a cushioning pad which shall be effective to direct and channel the weight to the central portion of the arch of the foot.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a diagrammatic view showing in bottom plan the bone structure of a left foot and a cushioning pad in accordance with this invention applied therebeneath, the relative position of the structural elements of the pad being shown in operative relation with the bone structure of the foot with which they cooperate;

Figure 2 is a diagrammatic side elevational view showing the manner in which the cushioning pad of this invention is applied to the arch portion on the underside of the foot bone structure;

Figure 3 is a diagrammatic view in front elevation of Figure 2;

Figure 4 is a plan view of the bottom of the arch cushion in accordance with this invention;

Figure 5 is a central vertical longitudinal sectional view taken substantially upon the plane of the section line 5—5 of Figure 4; and

Figure 6 is a vertical central transverse sectional view through the cushioning pad of Figure 4 substantially upon the plane of the section line 6—6 thereof.

The primary purpose of this invention is not to correct a defective foot, but to cushion a normal foot and afford it sufficient support to enable it to better perform its desired functions and retain its normal condition. Specifically, the purposes of this invention are obtained by providing a cushioning pad adapted to fit beneath the arch of a foot and which is so contoured as to reduce the pressure upon the plantar fascia during the operative functioning of a foot, and to apply a slightly greater force and proportion of the load to the inner and outer longitudinal arches and thereby ensures and guides the engagement of the foot upon the ground to ensure a proper weight distribution upon the structure of the foot and

which will further cushion and absorb the major part of jars and shocks to the joints of the foot, ankle, knee, hip and spine.

It will be appreciated that an arch cushion in accordance with this invention will be formed of an appropriate size and contour in order to obtain optimum cooperation between the shape of the cushion and the structure of a particular foot with which the cushion is to be employed. Thus, from a practical standpoint, the use of this invention will result in a dealer carrying a considerable number of individual sizes and shapes of arch cushions, each adapted specifically to cooperate with a particular size and shape of foot structure. However, regardless of such specific differences as adapted to each arch cushion for a particular foot, there are certain basic and fundamental common features to all of these cushions.

Referring first to Figures 4–6 it will be seen that the arch cushion is designated generally by the numeral **10** consists of a plate-like body of a suitable yieldable resilient and cushioning material such as foam rubber, cork, or the like. Preferably this body is formed of a single piece of material, although it will be appreciated that in some instances the body may be formed by building up different layers of materials in order to obtain the desired contour and shape.

As shown in Figures 5 and 6, the top surface of the arch cushion pad is provided with a generally flat surface **12**, although it may be generally convex if desired and of its maximum thickness at the central portion of the pad, and is gently beveled or tapered at its front and rear ends **14** and **16** respectively, and also is transversely or laterally beveled at its two side edges. At the outside edge **18**, which is adapted to be placed at the outside edge of the shoe sole, the pad is relatively thin as will be apparent from Figure 6, while at its inside edge **20** which is adapted to be placed on the instep portion of the sole, the pad is relatively thick. Further, although the outside edge **18** is substantially straight, the inside edge **20** curves rather sharply from its wider midportion to its front and rear ends as will be apparent from Figure 4.

Beneath its bottom surface, the pad is provided with an elongated channel or recess **22** extending longitudinally thereof. A triangular shaped prominance **24**, having beveled side edges **26** extends into the channel **22** and divides the forward end thereof into a pair of branches or arms **28**. The forward, beveled edge **14** of the pad curves laterally and gently rearwardly from its junction with the edge **20** to its midpoint and then more sharply rearwardly to its junction with the edge **18**.

Reference is next made to Figures 1–3 for a better understanding of the proportioning of the size of the elements of the pad and of their specific location with respect to the structure of a foot. As shown best in Figure 1, the sharply curving forward portion **14** of the pad underlies and supports the metatarsals of the foot structure, while the rear portion underlies and supports the oscalsis or heel bone **30** and the astragalus or ankle bone **32**. Thus, as shown in Figure 2, the longitudinal extent of the arch cushion extends beneath the arch portion of the foot, supporting at its front end the metatarsals and at its rear end the oscalsis and astragalus, so that the arch support thus supports both the interior and the longitudinal arches of the foot.

It will further be observed that the elongated channel or relieved portion on the bottom surface of the cushion underlies the plantar fascia of the foot and provides a compression beneath the same thereby relieving this portion of the foot of some of its load. In turn, the lateral portions of the pad on the opposite sides **18**, **20** of the channel **22** exert relatively increased pressure upon the

inner and outer longitudinal arches of the foot, as will be apparent from Figure 1. Thus, the increased pressure upon the inner and outer longitudinal arches and together with the relief of pressure below the plantar fascia serves to center the foot with respect to its load bearing functions.

It will be observed by reference to Figure 1 that one leg **28** underlies the second metatarsal, while the other leg **28** underlies the fourth metatarsals.

By the cushioning action, the pad reduces shocks and jars to the body structure, and by its resiliency improves circulation in the blood vessels of the foot, relieves pressure on nerves and obtains a better balanced distribution of weight upon the two longitudinal arches of the foot structure, while relieving the central portion of some of this weight.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

An arch cushion for shoes comprising a pad of a yieldable resilient material for positioning upon the sole of a shoe and beneath the arch of a foot, said pad having its front portion underlying the metatarsals and its rear portion underlying the heel and ankle bones, said pad having portions underlying and elevated to apply supporting pressure upon the inner and the outer longitudinal arches, said pad having a central relieved and cut away portion of reduced thickness to reduce pressure upon the plantar fascia, said pad having a V-shaped channel upon its bottom surface, the legs of the V-shaped channel opening beneath the second and fourth metatarsals while the apex of the V-shaped channel underlies the plantar fascia.

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