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ARCH SUPPORT.
APPLICATION FILED JULY 29, 1918.

1,320,364. Patented Oct. 28, 1919.

Fig. 1.

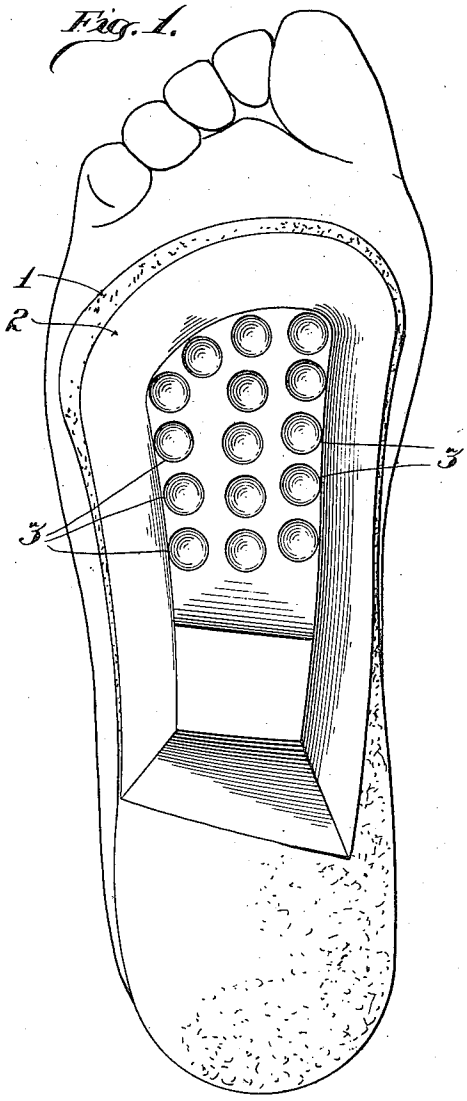


Fig. 2.

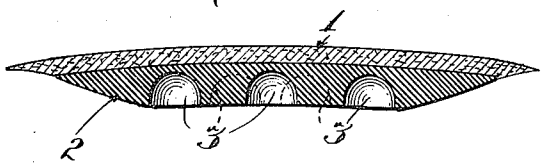
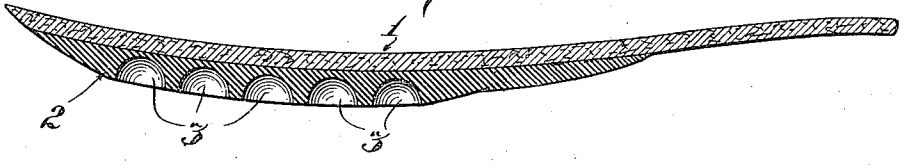


Fig. 3.



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UNITED STATES PATENT OFFICE.

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ARCH-SUPPORT.

1,320,364. Specification of Letters Patent. Patented Oct. 28, 1919.

Application filed July 29, 1918. Serial No. 247,221.

To all whom it may concern:

Be it known that I, SELDEN H. BOONE, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Arch-Supports, of which the following is a specification.

The invention relates to arch supports of the kind adapted to be placed in the interior of a shoe to act as a supporting means for the longitudinal and transverse arches of the foot.

It is an object of the invention to provide an arch support which is pneumatic, *i. e.* which is constructed with depressions in which air columns are locked and compressed when the weight of the bearer rests on the arch support.

It is also an object of the invention to provide an arch support having a contour conforming to the structure of the foot such that a support is provided for the longitudinal and transverse arches of the foot which is of integral construction and possesses a form to adequately relieve the cramp like condition in the forward portion of the metatarsal phalangeal articulation just back of the ball of the toes, commonly known as Morton's neuralgia or rheumatism of the leg and foot.

It is a further object of the invention to provide an arch support comprising an insole in contact with the foot and a rubber portion secured to the insole and adapted to perform the required functions of raising the metatarsal phalangeal articulation and taking the immediate pressure from the external plantar artery and nerve.

It is also an object of the invention to provide an arch support which can be worn without discomfort even when extended walks are undertaken.

To the accomplishment of these and related ends the preferred embodiment of the invention is described in the specification and particularly pointed out in the appended claims, the annexed drawing showing but one of the various ways in which the principle of the invention may be utilized.

In the drawing:

Figure 1 is a bottom plan view of the improved arch support as applied to the foot.

Fig. 2 is a transverse section through the device, and

Fig. 3 is a longitudinal section thereof.

The arch support as illustrated in the drawing comprises a flexible insole 1, preferably made of leather and cut to conform to the sole section of a shoe. The support extends from the heel to approximately the front edge of the ball of the foot. Secured to the insole 1 is a section 2 arranged toward the forward portion of the insole 1, such that that part of the leather which lies beneath the astragalus, the calcaneum, the scaphoid and cuboid bones is free from the rubber portion 2 because the longitudinal arch of the foot originates at the cuneiform bones and no support is necessary for the heel portion of the foot. The rubber portion 2 is of a form and shape whereby the insole 1 assumes a position in which it conforms to the longitudinal and transverse arches of the foot so as to prevent the malady, commonly termed flat foot or fallen arch and relieving muscular strains which would exist in the absence of the improved device.

The rubber piece 2 as indicated in the sectional views of the drawing increases in thickness in longitudinal direction until it assumes a certain constant thickness and finally decreases so as to constitute a long drawn curve of continuous camber. Similarly in transverse direction the thickness of the element 2 is largest in the middle portion thereof and decreases toward the ends to coalesce into the plane of the leather sole 1.

The forward portion of the rubber section 2 is provided with a plurality of depressions or apertures 3 which stop short of the upper side of the element 2 and have the function of cups to tightly adhere to the sole of the shoe so as to be secured against displacement thereon.

The part of the rubber section 3 constituting a support for the transverse or metatarsal arch of the foot has a larger number of recesses 3 than the remaining portion of the rubber element. It is evident that when the insole is placed such that the rubber portion is arranged on the sole of the shoe, the weight applied to the arch support will cause intimate contact between the rubber portion and the shoe sole so as to secure the former against displacement. The column of air locked in the various cups 3, however, will maintain the life of the rubber portion for a long time even

where considerable weight is continuously applied to the arch support.

While the arch support has been described as a two-piece organization made of leather and rubber it is, of course, not intended to limit the invention to these materials nor to their particular arrangement. Various changes and modifications will suggest themselves to those versed in the art and I therefore claim my invention as broad as the state of the art will permit.

I claim:

1. An arch support comprising an insole extending from the heel approximately to the front edge of the ball of the foot, and a resilient pad secured to the underside of said insole, said pad being of constant thickness at the portion underlying the longitudinal arch, increasing in thickness to a maximum to be adapted to support the metatarsal phalangeal articulation, and then sharply decreasing.

2. An arch support comprising an insole extending from the heel approximately to the front edge of the ball of the foot, and a resilient pad secured to the underside of said insole and extending from the interior portion of the heel to the forward edge of the insole, said pad increasing in thickness toward the metatarsal arch, supporting the latter and then sharply decreasing.

3. An arch support comprising an insole extending from the heel approximately to the front edge of the ball of the foot, and a resilient pad secured to the underside of said insole and extending from the interior portion of the heel to the forward edge of the insole, the side and rear edges of said pad being beveled, and said pad increasing in thickness from a line midway, the insole reaching a maximum thickness under the metatarsal arch to support the latter and then sharply decreasing.

In testimony whereof I affix my signature in the presence of two witnesses.

SELDEN H. BOONE.

Witnesses:
DANIEL A. BRENNAN,
WALTER E. HARVEY.