

A. MAYER.
ARCH SUPPORT.
APPLICATION FILED NOV. 4, 1918.

1,311,240.

Patented July 29, 1919.

FIG. 1.

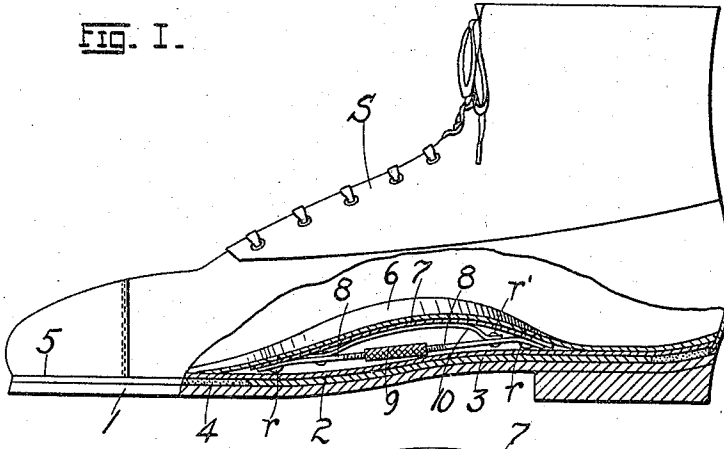


FIG. 2.

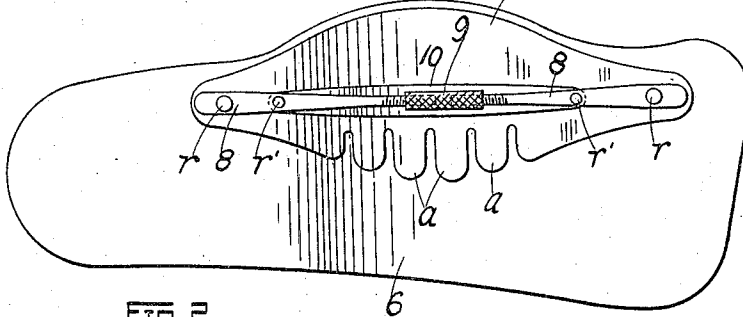


FIG. 3.

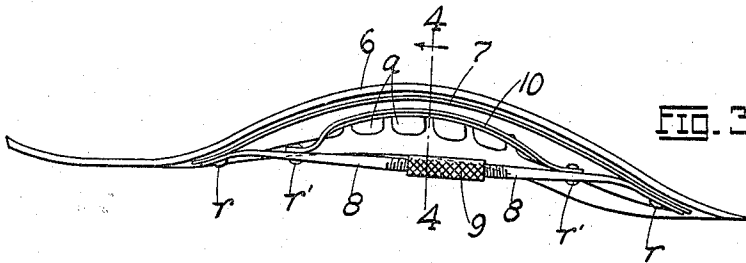


FIG. 4.

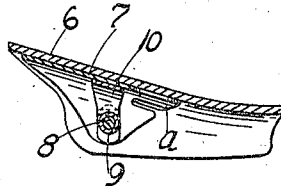
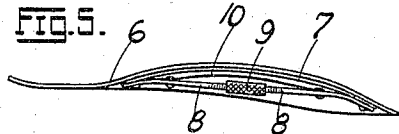


FIG. 5.



WITNESSES:
Harry A. Beiney
Else M. Siegel

INVENTOR.
Abraham Mayer.
BY *Paul Storer*
ATTORNEY.

UNITED STATES PATENT OFFICE.

ABRAHAM MAYER, OF ST. LOUIS, MISSOURI.

ARCH-SUPPORT.

1,311,240.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ABRAHAM MAYER, a citizen of the United States residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Arch-Supports, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

The present invention is directed to improvements in arch-supports, and has for its object to provide a support which shall be elastic, one which may be adjusted to the arch of the foot, one devoid of the usual inserts thereby making the support light, one engaging the bottom as well as the inside arches of the foot, and one possessing certain structural advantages better apparent from the following detailed description in connection with the accompanying drawing in which—

Figure 1 represents an outside elevation of a shoe partly in longitudinal middle vertical section to expose the layers of the support and of the outsole and insole of the shoe; Fig. 2 is a bottom plan of the support; Fig. 3 is a side elevation thereof; Fig. 4 is a cross-section on the line 4—4 of Fig. 3; and Fig. 5 is a view similar to Fig. 3 but on a smaller scale showing the arch of the support slightly flattened.

Referring to the drawings, S, represents a conventional shoe, the same being provided with the usual outsole 1, insole 2, shank brace 3, filler 4, and welt 5, as well understood in the art. In the present embodiment of my invention I form the arch-support of a flexible sheet 6 preferably of leather, the same being deposited on the insole and extending from the heel to a point beyond the ball of the foot, the portion spanning the shank of the shoe being arched longitudinally of the shoe to conform to the bottom and inside arches of the foot. The arched portion of the sheet 6 is reinforced by a bottom metallic arch plate 7 which is more or less resilient, said plate being in the form of an elongated ellipse (Fig. 2), the ends of the plate being riveted to the sheet 6. The outer edge of the plate substantially follows the corresponding edge of the sheet 6, the inner edge being formed with a series of lobes *a* whereby the necessary flexibility and pliability is imparted to the plate. The reinforcing arch plate 7 in substantially one-half the width of the

sheet or layer 6, as clearly seen in Fig. 2. The rivets *r* by which the plate 7 is secured to the sheet 6 likewise served to secure to the plate 7 and to the member 6, the outer ends of the tension member sections 8, 8, the inner ends of the said sections being formed with right and left threads and provided with a turnbuckle 9 by which the distance between the terminals of the plate 7 may be adjusted, thereby regulating the height of the arch formed by said plate, as clearly shown in Figs. 3 and 5, the latter figure showing the tension rods 8, 8, extended by an unscrewing of the turnbuckle so as to flatten the arch, whereas in Fig. 3 the turnbuckle has been turned to draw the rods 8, 8, together thereby causing the plate 7 to bend outwardly and increase the height of the arch. The height of the arch to which the plate 7 is adjusted will of course depend on the degree of flatness of the arch of the foot to be supported. The plate 7 should be more or less cushioned, and at the same time some provision should be made to partially relieve the strain on the turnbuckle 9. I accomplish both objects by the interposition of a flexed or bowed steel spring 10 spanning the turnbuckle 9 and having its opposite ends secured to the links or tie rod sections 8, 8, preferably by rivets *r'*. This cushioning strip of steel 10 necessarily flattens and expands with any flattening and expanding movements of the plate 7 resulting either from adjustments by the turnbuckle, or from the yielding which the arch plate necessarily undergoes in service when once adjusted. Obviously when the arch-support is in the shoe, the tension member composed of the links 8, 8, and turnbuckle 9 will engage the shank of the shoe. The tendency of the steel cushioning strip of course is to bow outwardly thereby tending to pull or draw the ends of the strip toward one another. This tendency naturally assists to reduce the strain on the turnbuckle thus in a measure relieving the tension on the threads. The strain to which the arch plate is subjected is thus sustained by the tension members 8, 8, 9, and by the bow spring 10 jointly. There being an absence of pads and inserts, it follows that the present arch-support keeps the feet cool.

Having thus described my invention what I claim is:

1. An arch-support comprising a flexible

sheet insertible into a shoe and arched over the shank of the shoe, a longitudinally disposed tension member spanning the arch, a bottom reinforcing plate contoured to the arch of the sheet and supporting said tension member, and a bowed cushioning member interposed between the plate and tension member and secured at its ends to said tension member.

2. An arch-support comprising a flexible sheet insertible into a shoe and arched longitudinally across the shank of the shoe, an adjustable tension member spanning the arch, and a bowed cushioning strip interposed between the tension member and arched portion of the sheet and having its ends secured to the tension member.

3. An arch-support comprising a flexible sheet insertible into a shoe and arched

longitudinally across the shank of the shoe, a reinforcing plate secured to the bottom of the sheet opposite the arched portion and contoured to conform to said arch, a longitudinally disposed tension or tie rod composed of two sections spanning the arch, the outer ends of the sections being secured to the plate, a turnbuckle for connecting the inner adjacent ends of the tie rod sections and a flexible bowed cushioning strip having its ends secured to the respective tie rod sections, interposed between the tie rod and the reinforcing plate.

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

ABRAHAM MAYER.

Witnesses:

EMIL STAREK,
ELSE M. SIEGEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."