

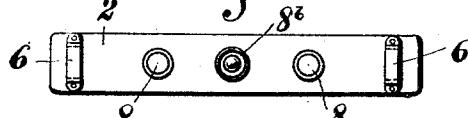
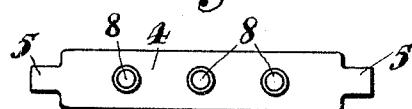
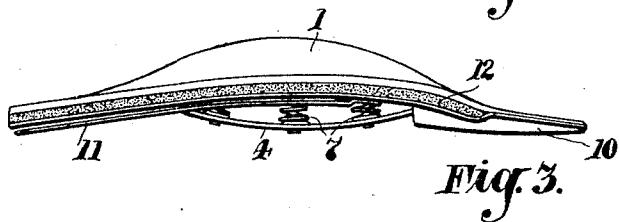
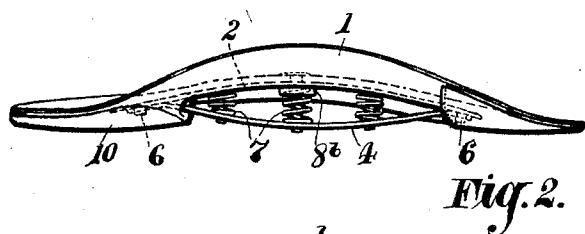
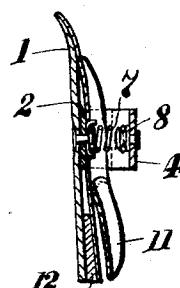
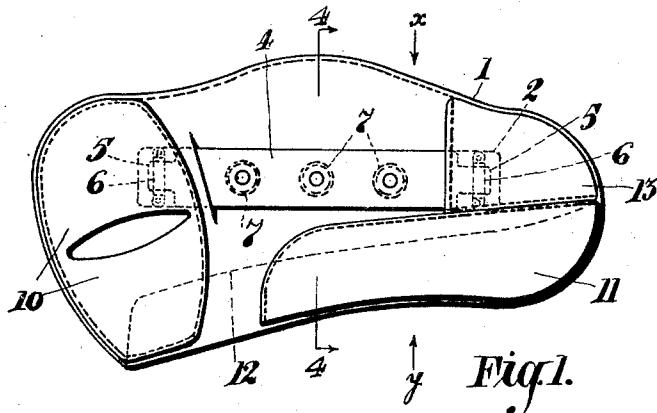
Feb. 12, 1929.

1,702,012

C. E. LACEY

FOOT ARCH SUPPORT.

Filed June 17, 1927



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UNITED STATES PATENT OFFICE.

CYRIL EDWARD LACEY, OF BIRMINGHAM, ENGLAND.

FOOT-ARCH SUPPORT.

Application filed June 17, 1927, Serial No. 199,551, and in Great Britain July 21, 1926.

This invention comprises improvements in foot supports, comprising an arched pad which is adapted to fit under the arch of the foot to form a support, and with which pad 5 may be combined a heel leveller or levellers and a metatarsal support or supports or the like; and this invention has for its object an improved form whereby the foot-arch support is resiliently supported in an improved 10 manner.

According to the present improvements, a pad of leather or other suitable material, which is blocked out to form an arch shaped configuration, has a flexible metal strip secured to the underside, such metal strip being characterized in that it is not shaped transversely so that it can freely flex along its entire length. Both ends of this flexible strip 15 are slidably connected to a base metal strip so that such base metal strip can be supported on the inside of the boot or shoe without any sliding movement when the first mentioned strip is flexed. Spiral springs are inserted between the two strips to resiliently react 20 against the flexing of the metal strip secured to the leather or like pad. The two metal strips may be formed of rustless steel so that the resiliency of the device is obtained by the use of the said inserted springs.

30 Referring to the drawings:—

Figure 1 is an inside view of a pad constructed according to this invention.

Figure 2 is a side elevation looking in the direction of arrow *x* Figure 1.

35 Figure 3 is a side elevation looking in the direction of arrow *y* Figure 1.

Figure 4 is a section on line 4—4 of Figure 1.

Figure 5 is a face view of the base strip 40 hereinafter referred to.

Figure 6 is an edge view, and

Figure 7 is a face view of the metal strip fixed to the underside of the pad.

According to a convenient embodiment of 45 this invention, the support comprises a pad 1 of leather or other suitable material which may be blocked out to form an arch shaped configuration, at one side of the foot, to conform with the shape of the foot arch. A thin strip 50 of preferably flexible non-rustless metal 2 is riveted at the centre to the underside of this pad. This strip is located against the under face of the arched pad. A second strip or ribbon of preferably rust- 55 less metal 4 is slidably mounted at each end

on the ends of the first mentioned spring strip. Conveniently for this purpose the ends of this base strip have tongues 5 which slidably engage in the bridge piece 6.

Spiral springs 7 are interposed between the 60 strips 2 and 4 to provide the resilient support, and such springs are preferably detachable such as by means of the end coils engaging over projections 8 riveted to the strips or plates 2 and 4. The projections 8 may 65 have grooves 8^a to be engaged in the coils of the springs. A cup 8^b may be provided for receiving the centre spiral spring. Conveniently three springs are used and by substituting stronger or weaker springs, considerable variation in the strength of the support may be obtained in accordance with the 70 weight of the wearer or other conditions. The strength of the resilient support may also be gradually strengthened or weakened, 75 whilst in the particular example shown any one, or any two springs may be used.

In the aforescribed construction the strips or plates 2 or 4 are constructed of rustless metal and the resilient support is obtained by the interposed springs.

If desired however, the strips or plates 2 or 4 may be formed from spring steel. Or again the strip or plate 2 only may be formed of spring steel. When the strip or plate 2 is 85 formed from spring steel, the ends of the base plate 4 are preferably so connected that a limited sliding movement only is allowed.

The base strip 4 in use is substantially flat, and therefore when a load is placed on the 90 arch, the ends of the curved strip 2 will slide outwardly in relation to the base strip. The arrangement is such that complete flexibility along the entire length of the arch is obtained and therefore the arch conforms to 95 any shape and will not apply a local pressure to the arch of the foot.

The base strip 4 will also conform to the shape of the boot, and preferably the outer heads of the rivets 8 on the plate 4 are shaped 100 to prevent the pad slipping from the correct position in the boot or shoe. A rubber insert 12 may be provided in the pad.

The front of the pad may have two oppositely arranged pockets 10 with the openings 105 or mouths facing one another and directed towards the centre of the pad. A single piece of sponge rubber or pad of somewhat oval-shape can thus be fixed in the two pockets, one end of the pad engaging one pocket, 110

whilst the other end engages the other pocket, or again single pads may be placed in each pocket.

A heel leveller may be also provided and such heel leveller comprises a pocket 11 formed such as by a leather strip which is sewn or fixed at one edge to the right hand or outer side of the pad. This pocket extends from the centre of the heel down a considerable length of the pad and the pocket is open from the centre of the heel down the side. A number of superimposed pockets may be provided so that one, two, or more insertions can be fitted. A smaller pocket 13 may also be provided on the inner side for an insert or pad.

A feature of this support is that the natural flexion and extension of the foot or rise and fall of the arch is encouraged. This causes the muscles to act in a natural manner, and thereby exercising and strengthening the muscles so that they can ultimately function without a support; a rigid support, for instance, causes the muscles to atrophy and become set, and a support is permanently required.

Claims:

1. A foot-arch support comprising a pad, a metal strip secured to the underside of the pad, a metal base strip slidably connected at

both ends to the first mentioned strip, and interposed springs between the two strips, the interposed springs imparting the required flexible support.

2. A foot-arch support comprising a pad, 35 a flexible metal strip, which is free to flex longitudinally, secured to the underside of the pad, a metal base strip slidably connected at both ends to the first mentioned metal strip, 40 fittings on the opposed faces of the two metal strips and a plurality of spiral springs detachably connected in position on the said fittings and individually removable from the fittings, to vary the resiliency of the support afforded by the springs.

3. A foot-arch support comprising a pad, a flexible metal strip secured to the pad, centrally offset bridge pieces disposed transversely of the strip and located adjacent to the ends of the strip, means for connecting 50 the ends of the bridge pieces to the strip, and a second strip arched away from the first specified strip and reduced in width at its ends to form tongues received in the offset portions of the bridge pieces for sliding movement longitudinally of the first specified strip.

In witness whereof I have signed this specification.

CYRIL EDWARD LACEY.