Aug. 28, 1945. M. L. BECKER 2,383,583

FOOT CORRECTIVE APPLIANCE

Filed Jan. 8, 1943

FIG. 1.

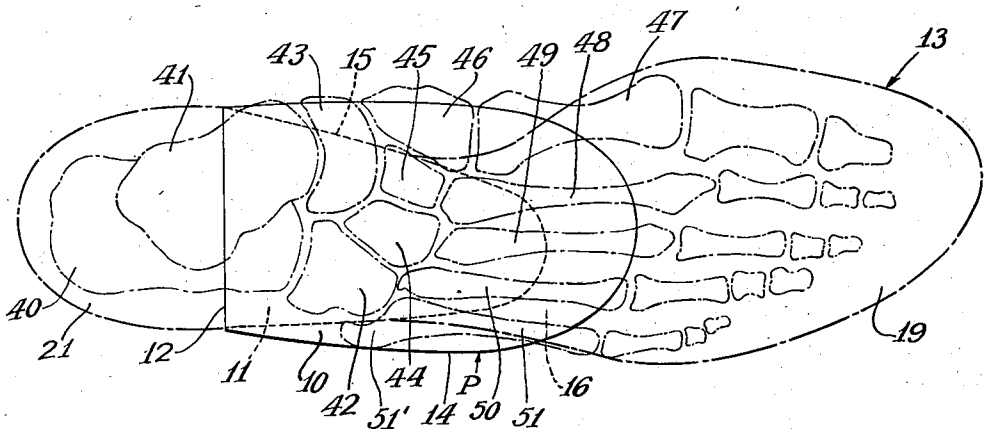


FIG. 2.

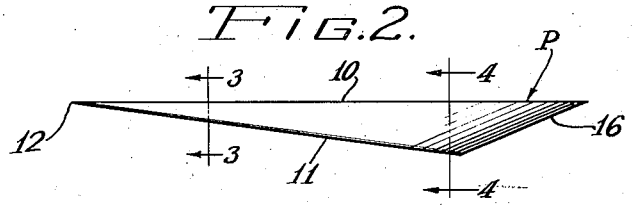


FIG. 3.

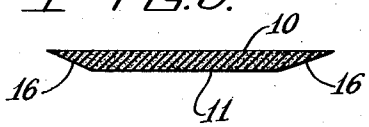


FIG. 4.

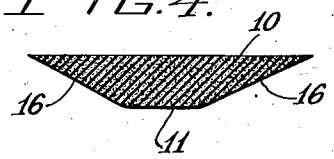


FIG. 5.

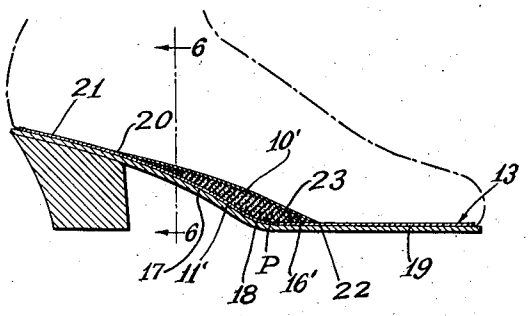
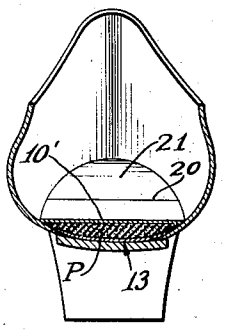


FIG. 6.



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2,383,583

FOOT CORRECTIVE APPLIANCE

Morris L. Becker, Chicago, Ill.

Application January 8, 1943, Serial No. 471,742

2 Claims. (Cl. 36—71)

This invention relates to a foot corrective appliance to be worn in a shoe and has for its general object the improvement of the balance of the foot within the shoe.

A further object of this invention is the provision of a pad compensating for a considerable part of the elevation of the rear portion of a shoe having a heel. In its usual form such a shoe has the rear portion of its sole connected to the forepart of the sole by means of a curved and substantially rigid shank. This shoe construction is the cause of strains upon, and contractions of, plantar tissues of the foot wearing the shoe. As a consequence of such contractions, very often an abnormal inclination of the heel bone and displacement of bones in the mid-tarsal area of the foot, particularly of the base of the fifth metatarsal bone, may be found. It is an object of this invention to provide in a shoe a resting platform for the mid-tarsal area of the foot in such a manner, that the contractions mentioned will not develop, or where they are already present as a result of faulty footwear the strains due to such contractions will be relieved.

A still further object of this invention is to restore to the mid-tarsal area of the foot its normal weight-bearing function, which may have become impaired as a consequence of the above mentioned displacement of bones of this area.

Other objects of this invention will be apparent from the following detailed description when taken in connection with the accompanying drawing, in which—

Fig. 1 is a plan view of a pad embodying my invention, exemplifying by dotted lines the bone structure of a foot and the contour of the inner sole of a shoe;

Fig. 2 is a side elevation to a larger scale of the pad;

Fig. 3 is a section on the line 3—3 of Fig. 2;

Fig. 4 is a section on the line 4—4 of Fig. 2;

Fig. 5 is a side elevation in section, illustrating the pad placed in a shoe, part of the latter being shown diagrammatically; and

Fig. 6 is a section on the line 6—6 of Fig. 5, drawn to a larger scale.

In the drawing, P indicates in general the pad of my invention, which, in a preferred embodiment, is made of resilient material, e. g., sponge rubber.

The pad presents two plane surfaces 10 and 11 inclined to each other so as to determine a wedgelike body. At the line of intersection 12 of the two surfaces 10 and 11 these surfaces are of the same width, said width corresponding approximately to the width of that portion of the inner sole 13 of the shoe upon which the edge 12 rests when the pad is placed in the shoe. The surface 10 is of larger size than the surface 11, the contour line 14 of the first extending outside of the contour line 15 of the surface 11. A beveled surface 16 extending along and between the contour lines 14 and 15 completes the delimitation of the pad P. Thus, a pad is provided having its central longitudinal section in the shape of a triangle and having cross-sections in the shape of trapezoids where these cross-sections are taken within the region covered by the smaller surface 11 (Figs. 3 and 4).

The pad is so dimensioned that when placed above the shank part 17 of the inner sole 13 of the shoe it will cover this shank part at all points. As may be seen from Fig. 5, the pad extends in the longitudinal direction from approximately the rear end 20 of the shank portion 17 to a point 22 which is situated a certain distance beyond the meeting line or area 18 of the forepart 19 of the inner sole 13 with said shank 17. Those parts of the pad which are intended to rest upon the inner sole of the shoe must have or assume a shape corresponding to the curvature of this inner sole 13 between the aforementioned points 20 and 22. In Figs. 2 to 4 the pad is shown in a position in which its surface 10 forms the top side. Placing the pad in the shoe with the surface 10 of the pad as the top side, the pad will assume the position and shape shown in Fig. 5, its longitudinal section being in the shape of the substantially triangular geometric figure having the sides 10', 11', 16'. Whilst the side 10' of this triangle covers the distance 20—22 mentioned above as an almost straight line, the two other sides 11' and 16' extend along the inner sole 13 meeting each other at the point 18 at which the shank part 17 of the inner sole 13 meets the forepart 19 of said sole.

In the transverse direction, the pad does not only cover the whole width of the shank part 17 of the inner sole 13 of the shoe but extends considerably beyond the contour line of this shank part of the inner sole 13 at least on the outer side of the shoe. The contour line 15 of the rear portion of the smaller surface 11 of the pad follows approximately the contour line of the inner sole 13. The surface 10 of the pad is of a width sufficient to form a supporting platform for the whole mid-tarsal area of a foot, as may be seen from Fig. 1, where the skeletal structure of a

human foot is indicated. In this Fig. 1, 40 denotes the heel bone of the foot, 41 the astragalus, 42 the cuboid bone, and 43 the scaphoid; 44 is the external cuneiform, 45 the middle cuneiform, and 46 the internal cuneiform; 47, 48, 49, 50 and 51 denote respectively the first, second, third, fourth and fifth metatarsal bone. The pad forms a resting platform underneath the cuboid, the scaphoid, the cuneiforms, and the rear bases of the metatarsals, but does not reach far enough to underlie the front portions or heads of the metatarsals 47—51, nor the posterior tuberosities of the heel bone 40, that is to say, does not cover the heel portion 21 of the inner sole 13 of the shoe. It is important that the platform 10' afforded by the pad should extend far enough in the transverse direction so as to underlie the tuberosity of the base 51' of the fifth metatarsal 51. This tuberosity is situated at a region of the human foot which, when the foot is placed in a conventional shoe, lies above and beyond the contour line of the sole 13 of the shoe, and it is for this reason that, as mentioned above, the pad is made so as to extend a sufficient distance beyond the outer contour line of the shank part of the sole. In this manner, a participation of the base 51' of the fifth metatarsal in the weight-bearing function of the foot is assured; this base 51' of the bone 51 just resting upon the pad P without being pushed upwardly or sidewardly as has been done by many of the corrective pads heretofore used.

As may be seen from Fig. 5, the pad P levels out to a very considerable extent the bend which exists in the length profile of the sole of the shoe due to the shank portion thereof, and in its transverse sections the pad is level on the upper side along the whole width of the shank part 17 of the inner sole 13 of the shoe (Fig. 6).

It is to be noted that if the pad is made of sufficiently resilient material it may be placed in the shoe with the large surface 10 resting on the inner sole 13. By forcing the pad into the shape in which this surface 10 will follow the curvature of the inner sole 13 between the points 20 and 22, the two surfaces 11 and 16 (now on top) will move into positions in which they form a continuous surface corresponding to the surface 10' shown in Fig. 5.

A cover 23 (Figs. 5 and 6) made of leather or the like may be used to assist in keeping the pad in the desired shape.

It is to be understood that various changes in form, arrangement and material may be made without departing from the spirit of the invention or the scope of the appended claims.

What I claim is:

1. A foot corrective appliance to be worn in a shoe, comprising a pad adapted to be placed above the shank part of the sole of the shoe so as to cover this shank part at all points, said pad having a central longitudinal section substantially in the shape of a triangle and cross-sections in the shape of trapezoids with the shorter of the two parallel sides having a length substantially equal to the width of the corresponding portion of the shank of the shoe and the longer of the two parallel sides extending considerably beyond the contour line of the corresponding portion of the shank of the shoe, the extending portion of said pad on the outer side when in use underlying the base of the fifth metatarsal bone and providing a transverse level support therefor.

2. A foot corrective appliance to be worn in a shoe, comprising a pad adapted to be placed above the shank part of the sole of the shoe so as to cover this shank part of the sole of the shoe at all points, said pad, when placed in the shoe, having its central longitudinal section substantially in the shape of a triangle in which the longest side forms the top side whereas of its two other sides the one is adapted to extend from the meeting point of the forepart of the sole of the shoe with the shank along said shank to approximately the heel and the other is adapted to extend from said meeting point along the forepart of the sole over a portion only of the latter, and said pad having cross-sections in the shape of trapezoids with the shorter of the two parallel sides of each trapezoid being the lower side and having a length approximately equal to the width of the corresponding portion of the shank of the shoe and the longer of the two parallel sides of said trapezoids being the top side and extending considerably beyond the contour line of the corresponding portion of the shank of the shoe at the side corresponding to the outer side of the shoe as to provide in use a transverse level support for the base of the fifth metatarsal bone.

MORRIS L. BECKER.