

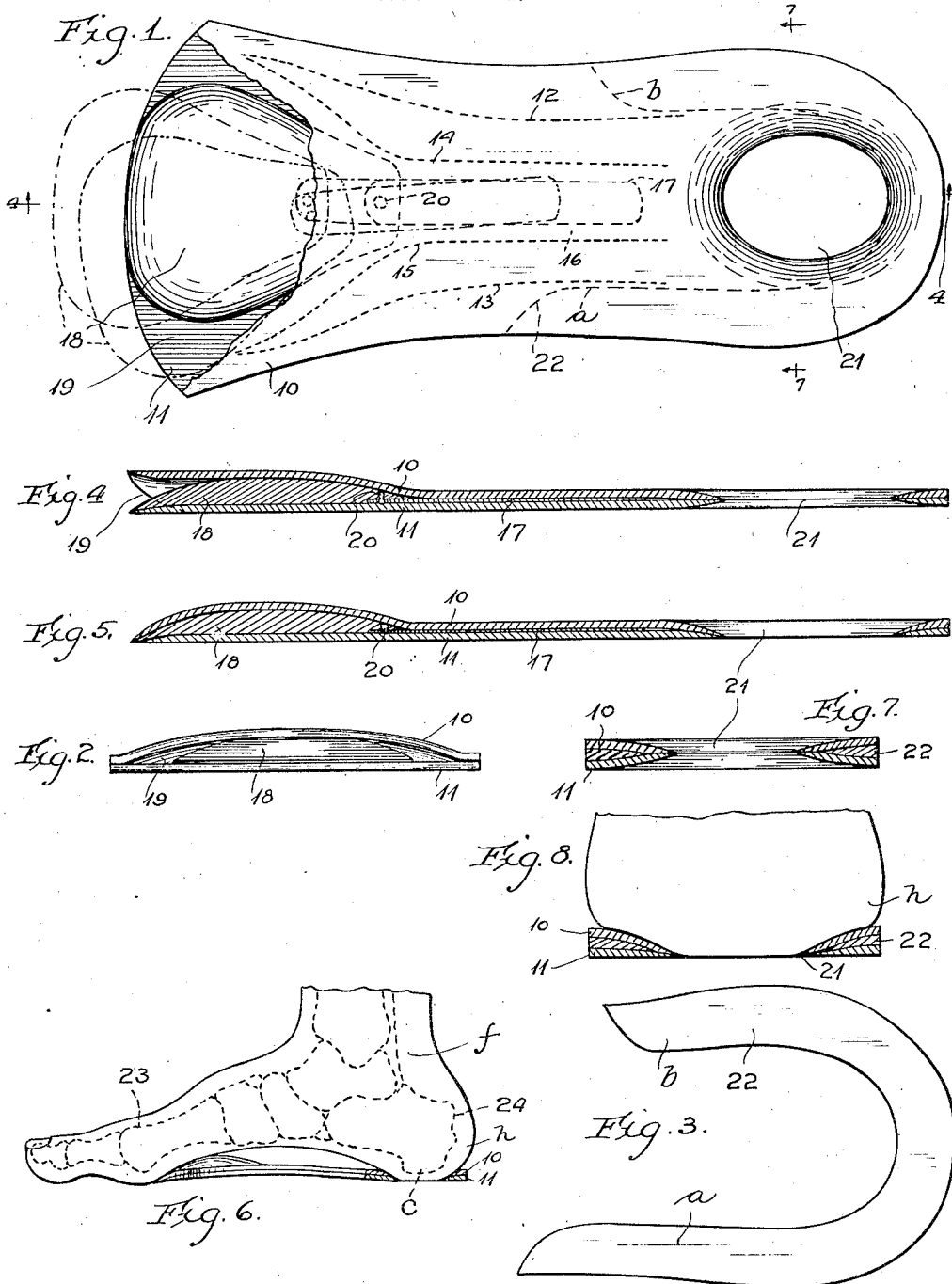
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FOOT SUPPORTING AND CORRECTING DEVICE

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FOOT SUPPORTING AND CORRECTING DEVICE.

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To all whom it may concern:

Be it known that I, FREDERICK W. KRECH, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Foot Supporting and Correcting Devices, of which the following is a specification.

My invention relates to devices particularly adapted to be worn in the shoes to support, relieve and correct the feet. The anterior metatarsal arch extends across the ball of the foot, and may become distorted through poorly fitting shoes. The bones may be forced out of proper position and may drop and the result is thickening and hardening of the skin and the formation of what is known as calli which may become very painful particularly when walking. The afflicted person, in order to relieve the pain, will tend to walk particularly on the outside of the foot and eventually other foot disturbances and distortions will result. One important object of my invention is therefore to provide an improved device by means of which a prop or pad is provided under the foot, directly back of the ball or callous sensitive part of the foot, such prop or pad serving to hold up the metatarsal bones and prevent them from exerting undue pressure against the skin when a person walks. The prop or pad in my improved device is yielding and cushioning, and is also adjustable, so that eventually the cause of callousing will be removed and the foot bones brought back into proper relative position.

In using foot supporting devices of the class referred to care must always be taken to keep the heel and ankle properly aligned. A considerable part of a person's weight is always borne by a small area at the rear end of the os calcis or heel bone, and to find relief some persons acquire the habit of turning the foot outwardly. If this is practised too much it will eventually result in weakening and distortion of the foot. Another important object of my invention is therefore to provide in my improved device a construction and arrangement for relieving this small area of the heel bone from the entire load, and to distribute the load over a much greater heel or bone area, and at the same time providing support for the forward areas of the heel bone to there-

by take considerable strain off such bone. I accomplish this by providing a depressed or dish section at the rear end of my improved support which section fits the rounded or ball-shape of the heel and thus distributes the load over a greater area of the heel and prevents concentration of the load on the small area of the heel below the rear downwardly projected end of the heel bone. I also provide means for increasing the depth of and otherwise adjusting such heel seat.

My improved device and its method of application and operation is clearly disclosed on the accompanying drawing, in which

Fig. 1 is a plan view with parts broken away,

Fig. 2 is a front end view,

Fig. 3 is a plan view of an insert for adjusting the heel seat,

Fig. 4 is a sectional view on plane 4-4 Fig. 1, showing the shape of the device when manufactured,

Fig. 5 is a similar sectional view showing the arrangement of the device when it is worn in the shoe,

Fig. 6 is an elevational view of a foot and bones therein showing my device applied,

Fig. 7 is a sectional view on plane 7-7, Fig. 1, and

Fig. 8 is a similar sectional view showing the arrangement of the parts and manner of relieving the heel.

As shown in Fig. 1 my improved device is shaped to fit the sole on the inside of the shoe in which it is to be worn. It comprises the two similar flexible walls 10 and 11 preferably of leather, these walls being secured together by the outer sewing lines 12 and 13 and the inner sewing lines 14 and 15, the outer lines extending up to the heel section and being spaced inwardly a distance from the longitudinal edges of the walls in front of the heel section. The inner sewing lines 14 and 15 also extend rearwardly to the heel section and are spaced apart to leave a friction channel 16 for the anchoring strip 17 of the pad 18, the sewing lines diverging toward the front of the device to meet the outer sewing lines 12 and 13 and to provide a pocket 19 for the pad 18, the sewing lines at their front ends extending close up to the ends of the leather walls.

The pad 18 shown is pear-shaped in plan view, it being pivoted at its apex by a rivet 20 or other means to the front end of the anchoring strip 17 in order that the pad may be swung laterally into different positions in the retaining pocket 19. As best shown in Figs. 2, 4 and 5 the pad is flat on one side but convex on the opposite side and it is preferably constructed of some yieldable cushioning material such as felt or soft rubber. The pad can be swung laterally into various positions within the pocket 19 and it can also be pulled outwardly a distance, all depending upon the section of the foot where its effect is desired. The frictional engagement of the anchoring strip 17 in the channel 16 and also the frictional engagement of the pad with the rough inner sides of the leather walls will hold the pad in any adjusted position, the front edges of the leather walls being well skived and the pad tapering practically to an edge so that when worn these edges will come together as shown in Fig. 5 to eliminate any frictional edges or obstruction to the foot and to gradually merge into the sole and present a smooth unbroken surface to the foot.

In accordance with my invention I provide the hole 21 in the heel section of the device, this hole being preferably elongated longitudinally of the device. The edges of the walls surrounding the opening are well skived as shown in Fig. 4 so that when the device is in use as shown in Figs. 5, 6 and 8 the top surface around the opening will decline gradually to the bottom surface and so that this inclined wall together with the bottom of the shoe will form a smooth, comfortable pocket or dish for receiving the heel, as shown in Figs. 6 and 8. If it is desired to increase the depth of this pocket a U-shaped insert 22 of leather may be used and inserted as indicated in Fig. 1, around the opening 21 and along the sides of the device, the inner leg *a* extending preferably farther forwardly than the other leg *b* to assist in giving support to the foot part in front of the heel. This insert is also well skived as indicated in Figs. 7 and 8 so that the heel *h* of the foot shown may find smooth seating.

In Figs. 6 and 8 I show how the device cooperates with the foot *f* to relieve and correct the strain. In Fig. 6 I have shown the outline of the various bones of the foot in order that the purpose and operation of my device may be better understood. The device is placed in the bottom of the shoe and is of the proper size so that the pad 18 when within its pocket 19 will be directly back of the ball of the foot or the callous or affected part. The pad will be engaged by the metatarsal bones 23 and will hold these bones and keep their front joint ends from pressing the skin, and thus the calloused

area will be relieved and protected. After a period of wear the pad which is transversely arched will tend to restore the transverse or anterior metatarsal arch and bring the metatarsal bones and also the toe bones into their proper position. If any special part of the callous or sore area is desired to be relieved the pad can be shifted laterally or pulled outwardly to the desired location as has been already explained. By engaging under the metatarsal bones the pad will also materially assist the bones of the foot in preserving the longitudinal arches.

The heel of the foot fits comfortably into the depression or dish formed by the opening 21 and the inclined tapered edges of the surrounding material, and the projection *c* on the os calcis or heel bone 24 will extend through the opening 21 to permit the surrounding area of the heel to engage with the tapered and top sides surrounding the opening, the seating of the heel being much like the seating afforded by the old fashioned shoemaker's bench. Fig. 8 clearly shows how pressure is relieved from the end *c* of the heel bone and distributed over the entire heel.

If the insert 22 is used the depth of the seat will be increased depending upon the thickness of the insert, as illustrated in Fig. 8. This heel seat by receiving the heel will also serve to hold the device in proper position with its front padded end properly located and held below the metatarsal region, and when the insert 22 is used its inner leg *a* will act more or less as a support for the longitudinal arches of the foot, and as the limbs of the insert are skived inclined surfaces will be provided around the heel section tending to force the heel and rear part of the foot into proper central position within the shoe and will tend to prevent crooked walking and crooked heels as well as relieving the foot. This insert 22 may be used entirely alone in the shoe and will relieve the heel of considerable concentration of weight on the heel bone and will tend to centralize the foot in the shoe in proper position.

My improved device is reversible, that is, the structure for the left foot is the same as that for the right foot and they may be interchanged by merely turning around the felt pad 18 in order to bring the convex side of the pad 18 uppermost. I do not desire to be limited to the exact construction and arrangement shown and described, as changes and modifications can be made which will still come within the scope of the invention.

I claim as follows:

1. In a device of the class described, the combination of similar upper and lower walls of flexible material secured together intermediate their ends, there being a pocket

between said walls at the front end thereof, and a friction passageway behind said pocket, an anchor strip engaging in said passageway, and a pad of yieldable material
 5 pivoted to said strip to be adjustable laterally in said pocket, said strip being adjustable longitudinally in said passageway, whereby to effect longitudinal adjustment of said pad.

10 2. In a device of the class described, the combination of similar flexible walls set together to fit in the bottom of a shoe, said walls being secured together by sewing lines, there being a pocket at the front end
 15 of said walls between said sewing lines and a passageway extending rearwardly from said pocket between said sewing lines, a pad in said pocket, and an anchoring strip having frictional engagement with said
 20 passageway and pivoted at its front end to the rear end of said pad whereby said pad may be adjusted laterally in said pocket, said strip being shiftable in said passageway to thereby adjust the pad longitudi-
 25 nally.

3. In a foot support shaped to fit the bottom of a shoe from the heel to a point just behind the metatarsal arch of the foot, said support comprising similar layers of
 30 flexible material sewed together along lines to provide a V-shaped pocket between the front ends of said layers and a friction passageway extending rearwardly from said pocket, a pear-shaped flexible pad in
 35 said pocket, and a friction strip engaging in said passageway and hinged at its front end to the apex end of said pad, said strip being adjustable longitudinally and said pad being adapted to swing laterally where-
 40 by the pad may be adjusted laterally and longitudinally in said pocket.

4. A foot support adapted to fit the bottom of a shoe, said support comprising similar layers of flexible material secured to-
 45 gether, there being an opening through said layers at the heel section, the layers adjacent said opening being skived whereby to cooperate with the bottom of the shoe to

form a concave seat for the heel, and an insert between said layers extending around
 50 said opening and having its inner edges skived to cooperate with the beveled edges surrounding said opening, said insert serving to increase the depth of said concave seat.
 55

5. A foot support for insertion in shoes comprising a heel section having an opening, the material around said opening being skived to form inclined surfaces, said
 60 inclined surfaces, said opening and the bottom of the shoe forming a heel receiving seat or depression, and means for adjusting the depth of said depression.

6. A foot support of the class described, having a heel section and composed of layers of material, there being an opening
 65 through said heel section, said material around said opening being skived and cooperating with the bottom of the shoe in which the support is placed to form a dish-
 70 shaped seat for the heel, there being an insert receiving space between said layers, and a detachable insert between said layers and around said opening having its edges skived to cooperate with the skived edges
 75 of the material, said insert serving to increase the depth of said heel seat.

7. In a support of the class described, the combination of two layers secured together inwardly of their edges and forming
 80 a pocket at the front end, a resilient pad adjustable in said pocket, there being an opening in the heel section of said support and the edges around said opening being beveled whereby to cooperate with the bot-
 85 tom of the shoe to form a depression or seat for the heel, and a U-shaped insert adapted to be inserted between said layers around said opening for increasing the depth of said seat, the inner leg of said insert
 90 being longer than the outer leg.

In witness whereof, I hereunto subscribe my name this 29th day of January, A. D., 1924.

FREDERICK W. KRECH.