

July 27, 1937.

E. FREI

2,088,511

FOOTWEAR

Filed July 17, 1935

2 Sheets-Sheet 1

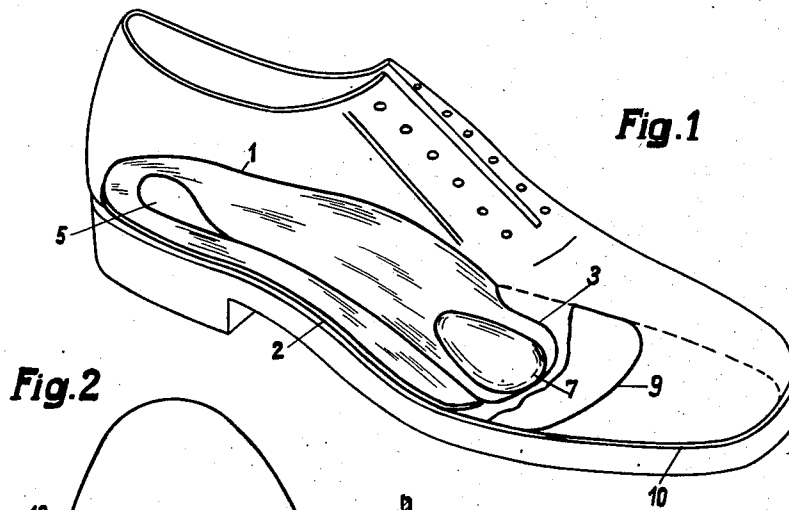


Fig. 2

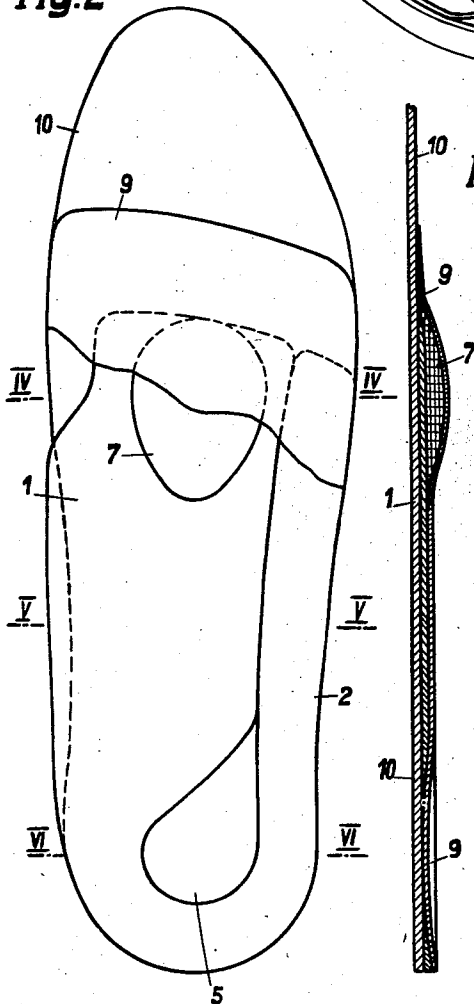


Fig. 3

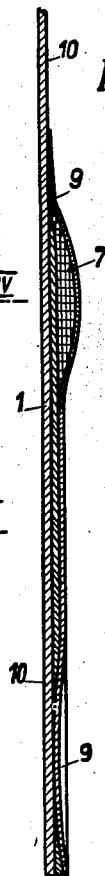


Fig. 4

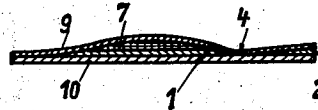


Fig. 5

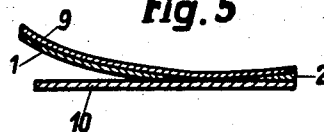
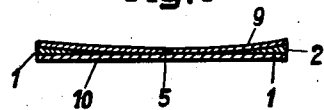


Fig. 6



Inventor
Elisabeth Frei
By B. Singer, atty

July 27, 1937.

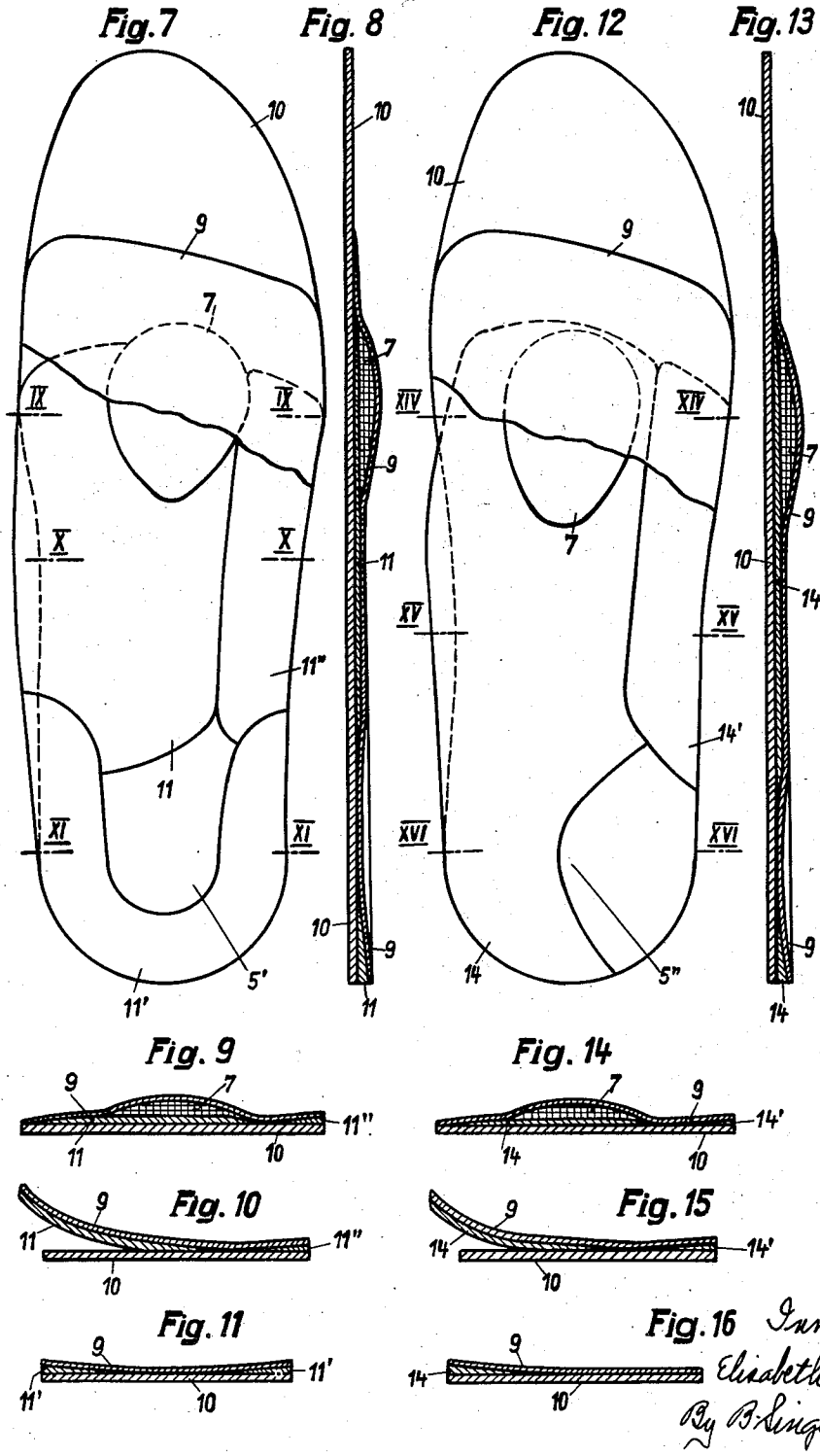
E. FREI

2,088,511

FOOTWEAR

Filed July 17, 1935

2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,088,511

FOOTWEAR

Elisabeth Frei, Zurich, Switzerland

Application July 17, 1935, Serial No. 31,937
In Germany July 28, 1934

4 Claims. (Cl. 36-71)

This invention relates to shoes and boots, hereinafter referred to as shoes, and is designed for the purpose of making the soles of the shoes of a shape which will be comfortable and will support the feet of the wearer in the best manner.

It is well known to place plates of metal of fibrous material into shoes for the better support of the wearer's feet, such plates being usually known as insertions and in some cases these insertions have been made with pockets to receive wedge-shaped pieces so as to vary the thickness of the insertion and to support certain parts of the sole only, but the present invention differs from such devices in that it consists of a foot support of varying cross-sectional thickness which either forms part of the inner sole of the shoe or of a shoe sock fashioned so as to provide an unbroken upper surface supporting equally the sole of the foot or at least the greater part thereof causing the sock to present a surface corresponding closely to the undulations of the sole of the foot.

This support extends substantially the whole width of the shoe from the heel of the shoe to the metatarsus and is constructed with clearances, holes or depressions to receive the heel and the ball of the big toe as well as that of the small toe or any one or two of these three parts.

In a simple form the support is of substantially U shape in plan and made from one piece, but it may be of other shape and may be constructed from more than one piece of material, said material being preferably non-metallic and of resilient nature such as could be made from sheet pressed paper, granulated cork, or some fibrous substances having a suitable binding agent and the variations in thickness can be obtained by pressing or by skiving the material after the support is cut from the sheet. If it is desired to increase the thickness of the support the sock of the shoe may be raised to give access to the upper face of the support or of the inner sole and additional pieces of the same or of other suitable material may be applied to the said face and secured by adhesive and the sock replaced.

The support may be curved in any desired directions and the two limbs of the U shape may be of distinctly different widths, that limb which lies under the outer side of the foot being much narrower than the other limb and the adjoining edges of the limbs may be skived to extreme thinness and may if desired slightly overlap each other.

The support may be cast, if of rubber or some

suitable plastic material, and may be affixed to, or form part of, the inner sole of the shoe.

Various examples of construction are shown in the accompanying drawings, wherein:—

Fig. 1 illustrates a shoe with device in sectional elevation,

Fig. 2 shows an insole in a plan view,

Fig. 3 is a sectional elevation,

Figs. 4 to 6 are cross-sections taken on lines IV—IV, V—V, VI—VI of Fig. 2,

Figs. 7 and 8 are plan view and sectional elevation of a second embodiment of my invention,

Figs. 9 to 11 are cross-sections taken on lines IX—IX, X—X and XI—XI of Fig. 7,

Figs. 12 and 13 show a third example of the new device, Fig. 12 being a plan view and Fig. 13 a sectional elevation,

Figs. 14 to 16 are cross-sections on the lines XIV—XIV, XV—XV and XVI—XVI of Fig. 14 respectively.

The foot supporting and correcting device shown in Figs. 1 to 6 is shaped to fit the sole of the shoe in which it is to be worn. It comprises a shank 1 such as is employed for strengthening the arched portion of a shoe between the heel and the tread portion. This plate 1 may be made of springy or elastic material for instance of some synthetic material of vulcanized fibre, of wood or of some suitable metal. The plate 1 may be permanently incorporated into the shoe structure or it may be fixed between the innersole and the outersole of the shoe or it may be inserted loosely in a shoe fitting therein to prevent a lengthwise or a transverse displacement. The plate 1 not only strengthens the shank of the shoe but also forms a support or prop for the foot arch and extends to the heel section. At the fore end a pad 7 is arranged which is held by a cover 9 suitably fastened to the plate 1 or to the shoe sole 10 by adhesives or otherwise. The pad 7 supports heads of the anterior metatarsal arch. It is known that the first and the fifth heads of the anterior metatarsal arch form the base of the arch and in conjunction with the heel portion the bearing points of the foot. According to this invention the plate 1 is narrowed at 3 and 4 at this section to allow the first and the fifth head to rest low in the shoe on the innersole or even on the outersole while the other bones of this arch are supported by the insert 7. The cut away portions 3, 4 allow the purchaser needing foot treatment the use of shoes of comparatively small size, the foot finds sufficient room even when the device is inserted in factory made shoes of his usual size. On the plate 1 pads, 55

wedges or cushions may be arranged. In the preferred construction a pad 2 runs along the marginal line of the plate 1. The inner side of the pad 2 is well skived, the pad 2 tapering to an edge gradually merging into the plate 1 to form a good bearing for the heel bone. The skived inclined surfaces present an unbroken surface to the foot and eliminate any obstruction and any excessive pressure. The seating of the heel section is low in the shoe. The pad 2 may be of cork, rubber, leather, fibre, synthetic material, impregnated paper and so on.

The device shown in Figs. 7 to 11 differs from the construction shown in Figs. 1 to 6 in that several pads 11, 11', 11'' are removably arranged and fixed on the plate 1 by adhesives. Each of the said pads may be removed singly and replaced by another one of different dimensions to suit the requirement. If any special part of the foot is desired to be relieved, one or more of the pads may be shifted laterally or longitudinally to the desired location or any pad may be replaced by another one of other shape and dimension or any other material, of softer or harder material to give the foot the required seating. The heel of the foot finds in any case a smooth seating at 5'.

The device illustrated in Figs. 12 to 16 differs from that shown in Figs. 7 to 11 in that only two pads 14, 14' are provided. The pads 14, 14' are removably attached to the plate 1 or to the sole 10 or to both by adhesive. The pads may be displaced and exchanged individually and they may be located in any desired position on the plate 1. The heel bone finds a snug rest at 5'' on the sole 10.

The cover 9 may be of soft leather which is fastened only at some points to the sole 10 to allow an easy access to the pads to effect longitudinal or transverse adjustment of any or all of the pads, according to requirements.

If a particular purchaser of a pair of shoes containing the improved device has need of a re-adjustment of the pads he may dislocate a shift and re-arrange the pads himself.

In all the three devices shown the plate 1 may receive any curvature parts thereof may run askew to others and so on to suit the foot sole.

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 and desire to protect by Letters Patent:

1. A shoe provided with a foot support shaped to fit from the heel to the ball the sole of the shoe in which it is to be worn, said support being of varying cross-sectional thickness, said foot support extending the full width of the shoe from the heel to the ball, said support being provided with a recess or clearance to receive the wearer's heel, the variation in cross-sectional thickness being constructed to conform to the undulations of the sole of the foot of the wearer, said foot support being substantially U-shaped in plan view, and said support having that limb of the U which lies under the outer side of the foot much narrower than the other limb.

2. A shoe provided with a foot support shaped to fit from the heel to the ball the sole of the shoe in which it is to be worn, said support being of varying cross-sectional thickness and which extends the full width of the shoe from the heel to the ball, said support being provided with recesses or clearances to receive the wearer's heel, ball of the big toe, and ball of the little toe, the variation in cross-sectional thickness being constructed to conform to the undulations of the sole of the foot of the wearer, said foot support being substantially U-shaped in plan view, and said support having that limb of the U which lies under the outer side of the foot much narrower than the other limb.

3. A shoe having a foot support of flexible non-metallic material fixed under the sock and comprising two limb or armlike parts one for each side of the shoe and each of which is thinned on its inner edge to provide a lengthwise depression, and a third part extending from the rear ends thereof to the heel and provided with a cut away portion to accommodate the heel bone.

4. A shoe having a foot support of flexible non-metallic material fixed under the sock and comprising two limb or armlike parts one for each side of the shoe and each of which is thinned on its inner edge to provide a lengthwise depression, and a third part extending from the rear ends thereof to the heel and provided with a cut away portion to accommodate the heel bone, said support including inserted bodies further to vary the thickness and produce an undulated upper surface.

ELISABETH FREI.