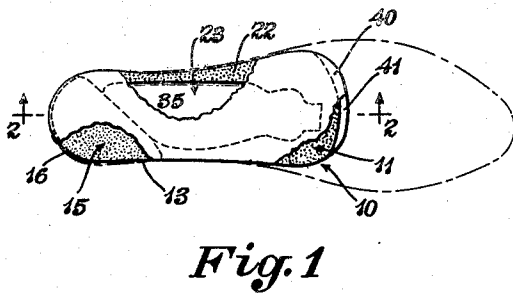
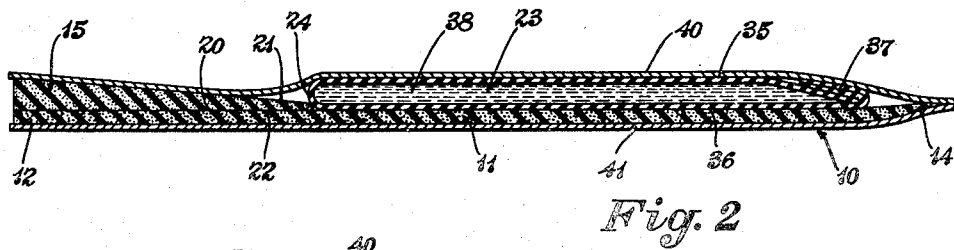
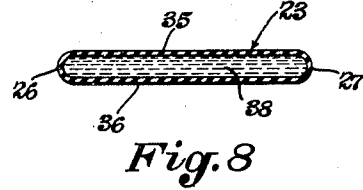
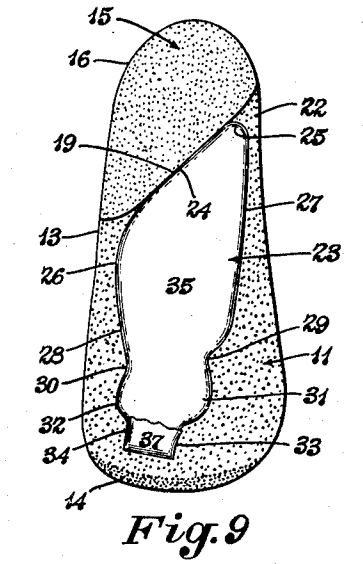
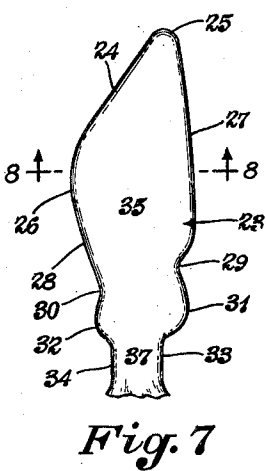
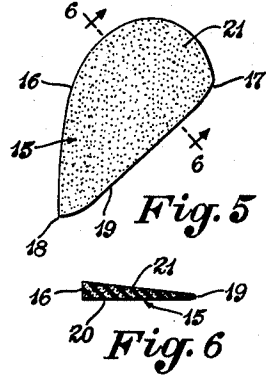
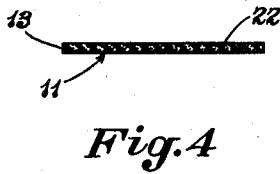
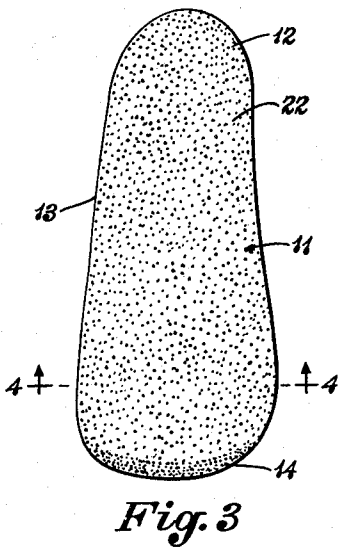


July 27, 1954

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ARCH SUPPORT CONSTRUCTION

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ARCH SUPPORT CONSTRUCTION

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2 Claims. (Cl. 36-71)

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The invention or discovery relates to arch support construction of the type including an arch bag. Arch supports including arch bags in prior constructions do not provide sufficient mechanical and orthopedic adjustments to the weak feet of the users to properly effect improvements in their abnormal conditions or syndromes.

The basic theory of all arch supports is to shift the body weight to the outer border of the foot and support the longitudinal arch. Merely to shift the body weight in this manner is not sufficient to correct most weak foot syndromes which are usually characterized in each case by a lowered metatarsal arch and a thickening of the second metatarsal, so that it bears twice the normal weight that it should. In addition, in most weak foot syndromes there is a tendency to an atrophy of the muscles. The usual prior arch support of the arch bag type does not correct or improve either the metatarsal condition or the muscular condition.

The objects of the present invention include the provision of a new and improved arch support construction of the arch bag type, and which not only shifts the body weight of the foot, but also raises the metatarsal arch and particularly the second metatarsal, and simultaneously kneads or massages the under arch muscles.

The foregoing and other objects are attained by the arch support construction, parts, combinations, and sub-combinations, which comprise the present invention or discovery, and the nature of which is set forth in the following general statement and preferred embodiments of which are set forth in the following description, and which are particularly and distinctly pointed out and set forth in the appended claims forming part hereof.

The nature of the improved arch support construction of the present invention or discovery may be stated in general terms as including a support body made of surgical sponge rubber and shaped to shoe size, a heel wedge secured to the inside of the heel end of the support body, a paste filled arch bag secured to the support body forwardly of the heel wedge, and preferably top and bottom covers secured at their peripheries to the support body.

By way of example, embodiments of the new and improved arch support construction and component parts of the present invention or discovery are illustrated in the accompanying drawing forming part hereof, in which:

Figure 1 is a fragmentary top plan view of an arch support for a left foot including the im-

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proved construction hereof shown in full and dotted lines, and its relation to the inner bottom of a left shoe, shown in dot-dash lines.

Fig. 2 is an enlarged longitudinal section of the improved arch support of Fig. 1, on line 2-2, Fig. 1, looking in the direction of the arrows.

Fig. 3 is a top plan view of a support body used in making the improved arch support hereof; and Fig. 4 is a transverse section thereof, on line 4-4, Fig. 3, looking in the direction of the arrows.

Fig. 5 is a top plan view of a heel wedge used in making the improved arch support hereof; and Fig. 6 is a transverse section thereof, on line 6-6, Fig. 5, looking in the direction of the arrows.

Fig. 7 is a top plan view of a paste filled arch bag used in making the improved arch support hereof; and Fig. 8 is an enlarged transverse section thereof, on line 8-8, Fig. 7, looking in the direction of the arrows.

Fig. 9 is a top plan view, showing a sub-assembly of the parts of the improved arch support hereof before the application of the covers.

Similar numerals refer to similar parts throughout the drawings.

One embodiment of an arch support including the improved construction of the present invention or discovery is indicated by Figs. 1 and 2. The separate parts of the arch support 10 are illustrated in detail in Figs. 3 to 8, inclusive; and a sub-assembly thereof is shown in Fig. 9.

The improved arch support 10 includes a support body 11 made of surgical sponge rubber and shaped to the size of the heel and forward portions of a shoe inner sole. The support body 11 has a heel or posterior end portion 12 with an inside edge 13, and a front end or anterior portion 14 which is selved.

The improved arch support 10 furthermore includes a heel wedge 15 made of moulded sponge rubber, and which has a curved outer periphery 16 conforming to the inside and rear portion of the periphery of the heel portion 12 of the support body 11 and its inside edge 13. The outer periphery 16 of the heel wedge 15 terminates at an outer corner 17 and at an inner corner 18 forwardly displaced from the outer corner 17. The forward straight edge 19 of the heel wedge 15 extends diagonally between the corners 17 and 18.

The heel wedge 15 has its greatest thickness at the outer periphery 16, and tapers uniformly from the rear peripheral edge 16 to the straight diagonal forward edge 19, as best shown in Figs. 2 and 6.

The heel wedge 15 has a bottom face 20 and a

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top face 21. The bottom face 20 is secured as by rubber cement to the top face 22 of the support body 11.

The top face 21 of the heel wedge 15 slopes diagonally from the inside of the heel portion 12 of the support body 11 towards the outside thereof.

The improved arch support 10 furthermore includes a paste filled arch bag 23, which is made of synthetic rubber material and has the irregular shape best shown in Figs. 7 and 9. This irregular shape includes a heel end diagonal border wall 24 which abuts the heel wedge diagonal edge 19 in the sub-assembly shown in Fig. 9. The diagonal wall 24 has a heel end corner 25 at its rear extremity on the outside, and a rounded forward corner 26 on the inside. From the corner 25 a substantially straight outside wall 27 extends forwardly, and from the corner 26 an angled wall 28 extends forwardly. The walls 27 and 28 form neck portions 29 and 30 respectively, and continue in bulbous portions 31 and 32, respectively, which terminate in filler neck straight portions 33 and 34, respectively. The bag 23 furthermore includes top and bottom walls 35 and 36.

A filler neck 37 is thus formed for the bag 23, and when the bag 23 is filled with paste 38 through the neck 37, the neck is folded over and sealed, as shown.

The paste 38 has a flowing consistency and may preferably consist of bentonite, glycerine, and soft soap mixed to a flowing consistency.

In the sub-assembly shown in Fig. 9, the arch bag 23 may be secured to the top face 22 of the support body 11, as by rubber cement.

The improved arch support 10 is preferably finished by a top cover 40 and a bottom cover 41, each made of leather or other flexible material and having border portions generally conforming to the border portions of the support body 11, and secured thereto or to each other.

In the paste filled arch bag 23 taken as a whole, the intermediate portion including the bag wall neck portions 27 and 28 may be termed an "intermediate neck portion," and the next adjacent portion including the bag wall bulbous portions 31 and 32 may be termed an "outer end bulbous portion." At the other side of the neck portion of the paste filled arch bag 23 taken as a whole, the tapered heel end portion may be termed a "heel end arrowhead portion."

In use, when a step is taken by a person whose left shoe is equipped with one of the improved arch supports 10 as shown and above described, the heel wedge 15 shifts the weight of the body to the outer border of the foot as the heel strikes the ground and body weight is transmitted thereto. The heel end arrowhead portion of the flowing paste filled arch bag 23 then receives the weight, and automatically forces the paste in the bag to expand the arrowhead portion and fill the natural concavity of the longitudinal arch of the user's foot, or where that concavity should be, and gently supports the longitudinal arch.

Due to the flowing action of the paste, the outer end bulbous portion of the arch bag 23 will receive a quantity of the paste under pressure, and this bulbous portion of the arch bag 23 is located under the metatarsal dome of the

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foot of the user. The metatarsal dome becomes filled with the expanding bulbous portion of the arch bag 23, the pressure of the bulbous portion being concentrated under the second metatarsal.

As the step on the left foot continues, and a step on the right foot is taken, the pressure on the flowing paste filled arch bag 23 is released and equalized, causing a reverse flow of paste in the bag 23. This surging or flowing of the paste back and forth in the bag, kneads or massages the plantar or under muscles of the foot. Tendencies towards atrophy of these muscles are thus relieved, and the muscles are toned at the same time.

In the foregoing description, certain terms have been used for brevity, clearness, and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved construction illustrated and described herein are by way of example, and the scope of the present invention is not limited to the exact details of construction.

Having now described the invention, the construction, the operation and use of preferred embodiments thereof, and the advantageous new and useful results obtained thereby; the new and useful constructions, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

I claim:

1. In an arch support, a support body shaped to the size of the heel and forward portions of a shoe inner sole and having inner and outer edges and a top face, a heel wedge secured to said top face conforming in contour with the heel end portion of the support body, the wedge having inner and outer corners and a straight diagonal forward edge extending between said corners, said inner corner being located along the body inner edge forwardly a greater distance than the location of said outer corner along the body outer edge, the wedge tapering uniformly from greatest thickness at its rear peripheral edge to said diagonal forward edge and sloping from the inner to the outer edge of the support body, a paste filled arch bag secured to the top face of the support body forwardly of the heel wedge, and said bag having a rear diagonal end abutting said diagonal forward wedge edge and terminating in a rear corner adjacent the wedge outer corner.

2. The construction defined in claim 1 in which the bag tapers from its rear corner to maximum width forward of said wedge inner corner, then decreases in width to form an intermediate neck portion terminating forwardly in an increased width bulbous end portion.

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