Jan. 13, 1931. G. V. ARTHUR 1,788,852

ORTHOPEDIC APPLIANCE

Filed Jan. 11, 1930

Fig. 1.

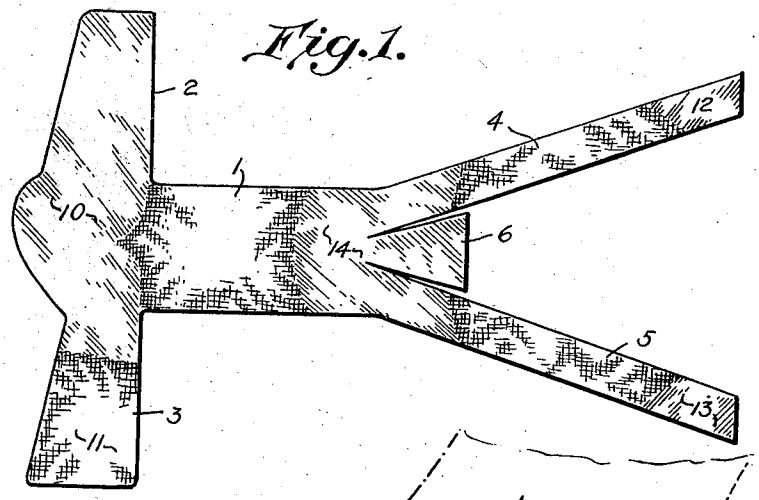


Fig. 2.

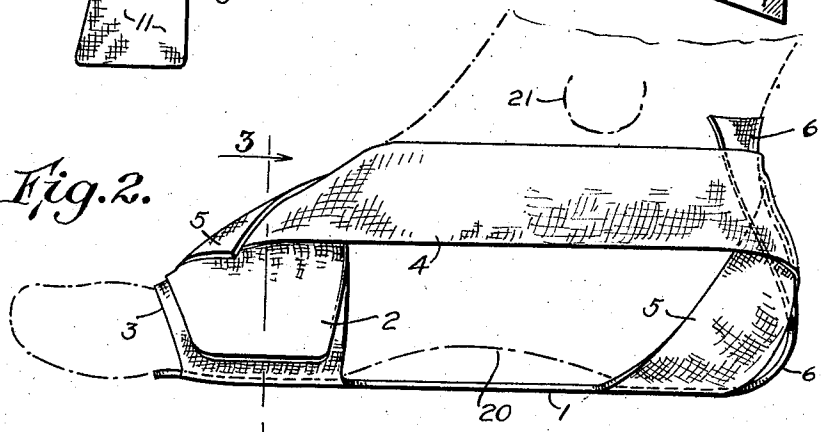


Fig. 3.

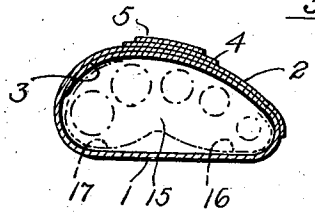
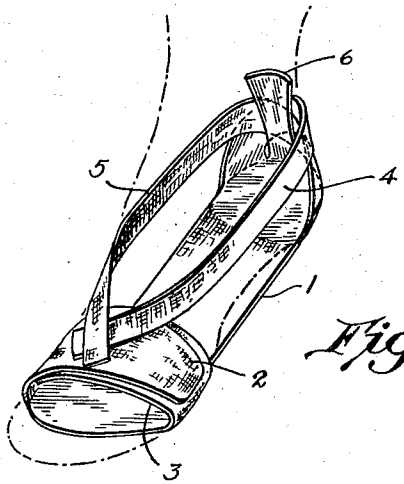


Fig. 4.



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UNITED STATES PATENT OFFICE

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ORTHOPEDIC APPLIANCE

Application filed January 11, 1930. Serial No. 420,118.

This invention relates to orthopedic appliances and has for its object to provide a device which may be readily applied and found more efficient in use than those heretofore proposed.

With these and other objects in view the invention consists in the novel details of construction and combinations of parts as will be disclosed more fully hereinafter and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals designate like parts in all the views,

Fig. 1 is a plan view of the appliance before application;

Fig. 2 illustrates the appliance in position on a foot, said view being a side elevation;

Fig. 3 is a transverse sectional view of the parts shown in Fig. 2 taken as on the line 3—3 thereof and looking in the direction of the arrows; and

Fig. 4 is a phantom perspective view of a foot with the appliance thereon.

This invention is not to be confused with a surgical dressing nor a common bandage since the purpose of this appliance is to affect the ligaments and smaller muscles of the parts to which it is applied. In this connection the present invention is an appliance for the foot, and is especially adapted for treatments of fallen arches and sprained ligaments, the device being of a character to hold the parts of the foot in certain positions to relieve them of undue strains. Stated in other words, this appliance is designed to deal with the structure of deformity and not with diseases or wounds.

Referring to the drawings, the device consists of a straight main body portion 1 having at one end thereof a pair of laterally and oppositely extending toe straps 2 and 3, and having at the other end thereof a pair of relatively long ankle straps 4 and 5 each leading from a corner of the main body portion and both ankle straps being of similar shape and size. Between the ankle straps, and also connected to the body portion 1, is a heel tab 6 which is preferably made of substantially triangular shape, the free end of the tab being enlarged. The device may be cut from a single piece of material or it may be fabricated, and in emergencies it may be formed of plural pieces of surgical adhesive tape.

Some of the surface portions of the various members just described are treated to cause adhesion of said members to the flesh and to each other. In other words, the cross-line shading in Figure 1 is intended to denote dry surfaces or areas to which an adhesive has not been applied, whereas the remaining surfaces have been so treated, and these treated surfaces are indicated in said figure by the diagonal surface shading lines. That is to say, 10 indicates a sticky area extending from the extremity of the toe strap 2 to a point just beyond the junction of the other toe strap 3 with the main body portion, leaving the surface 11 of the strap 3 dry. The extreme end portions 12 and 13 of the ankle straps 4 and 5 are treated to give an adhesive surface, and the areas adjacent the junction of said straps with the main body portion are likewise provided with adhesive as well as the entire surface of the heel tab 6, all as indicated by the numeral 14.

In application the device is laid flat, sticky side up, and then the forward part of the foot is placed thereon so that the forward arch of the foot may receive the toe straps 2 and 3. The forward part of the foot is preferably laterally compressed to accentuate the curvature of the forward arch 15 and then the forward pads of the foot are gently laid on the adhesive surface 10, as indicated at 16 and 17 in Fig. 3, to preserve the said accentuated curvature. Then the strap 3 is brought upwardly and over the top of the foot and immediately the other strap 2 is brought upwardly and over on top of the

strap 3. Considerable pressure is applied in drawing the straps 2 and 3 about the foot in order to maintain the forward arch to the utmost when subsequently receiving weight of the body. The dry surface 11 prevents adhesion of the device to the upper side of the foot, and the sticky surface 10 is provided to prevent slippage of the forward part of the appliance not only by creating adhesion between it and the pads of the foot but, due to the large area of said surface, the strap 2 will adhesively engage the major portion of strap 3. In this connection it should be observed that the toe strap 2 decreases in width, whereas the strap 3 increases in width in a direction away from the main body portion 1 of the device, whereby no portion of the strap 2 may touch the upper side of the foot to cause adhesion thereto.

The foot is then flexed to accentuate the curvature of the large arch 20 and then the heel is brought down upon the rear end of the main body portion 1 of the appliance, the heel tab 6 in the meantime having been pulled rearwardly to place considerable strain on the main body portion 1 in a direction from toe to heel. When the heel comes to rest the heel tab 6 is firmly pulled upwardly thereover and pressed tightly against the back portion of the foot. The ankle straps 4 and 5 are then tightly crossed over the heel tab under strain and brought forwardly on opposite sides of the foot immediately below the ankle joint, represented at 21 in Figure 2, the extreme ends of the straps being adhesively secured to the toe strap 2 and to each other.

From the foregoing it will thus be seen that this invention provides an orthopedic appliance which comprises a main body portion 1, constituting a support for the foot and fitting the sole thereof, to the ends of which has been applied an adhesive for securing said portion to the forward pads of the foot as well as to the heel pad thereof. Beside the main body portion, this device includes straps 2 and 3 joined to and extending laterally from one end thereof, the strap 2 decreasing in width while the strap 3 increases in width in a direction away from said portion, adhesive being provided to cover strap 2 only. These straps serve as means for securing the main body portion to the foot while operating to correct the forward arch, in that they are drawn tightly around the foot after it has been compressed to increase the curvature of said arch. There is also provided a pair of straps 4 and 5 each extending longitudinally from a corner of the other end of the main body portion, with adhesive applied to the ends of each strap for additionally securing the appliance on the foot, since said straps cross the heel tab 6 and pass along the sides of the foot, the extreme ends of said straps secured together by the adhesive to each other and to the straps 2 and 3. Lastly there is provided the tab 6 intermediate the straps 4 and 5 and joined to the main body portion, said tab entirely covered with adhesive which enables the same to be firmly secured to the foot at the heel thereof after the foot has been flexed to increase the curvature of the main or large arch. The tab 6 and long narrow straps 4 and 5 cooperate with the main body portion 1 and toe straps 2 and 3 to constitute means for correcting the deformities that may exist in the ligaments, muscles, and lesser bones of the foot.

It is obvious that those skilled in the art may vary the details of construction as well as arrangement of parts without departing from the spirit of the invention, and therefore it is not desired to be limited to the foregoing except as may be required by the claims.

What is claimed is:—

1. An appliance for the foot the same comprising a main body portion fitting the sole, a pair of straps extending laterally from said portion and passing around the forward arch section of the foot, a tab extending from said portion and passing upwardly over the heel, a second pair of straps extending from the heel section of said portion across said tab and along opposite sides of the foot to said first named straps, means to secure said portion to the forward and heel pads of the foot, and means to secure said first and second named straps together and to each other.

2. An appliance for the foot the same comprising a main body portion fitting the sole, a pair of straps extending laterally from said portion and passing around the forward arch section of the foot, a tab extending from said portion and passing upwardly over the heel, a second pair of straps extending from the heel section of said portion across said tab and along opposite sides of the foot to said first named straps, means to secure said portion to the forward and heel pads of the foot, means to secure said first and second named straps together and to each other, and means to secure said second named straps together and to said tab.

3. An orthopedic appliance the same comprising a sole fitting main body portion, a strap joined to the forward end of said portion and extending over the top of the foot, a tab in prolongation of said portion and engaging the heel, and a second strap extending from the junction of said portion with said tab said strap passing about the ankle and meeting said first named strap.

4. An orthopedic appliance the same comprising a sole fitting main body portion, a pair of straps joined to the forward end of said portion and extending in opposite directions over the top of the foot, a tab in prolongation of said portion and engaging the heel, and a second pair of straps extending from the junction of said portion with said tab

said straps passing along opposite sides of the ankle and meeting said first named straps.

5. An orthopedic appliance the same comprising a sole fitting main body portion, a strap joined to the forward end of said portion and extending laterally therefrom over the top of the foot, a tab in prolongation of said portion and engaging the heel, and a second strap extending from the junction of said portion with said tab said strap passing back of the heel and forwardly about the ankle to meet said first named strap.

In testimony whereof I affix my signature.

GILBERT V. ARTHUR.