W. H. WOOD.

ARCH SUPPORT.

APPLICATION FILED JULY 15, 1916.

1,215,090. Patented Feb. 6, 1917.

Fig. 1.

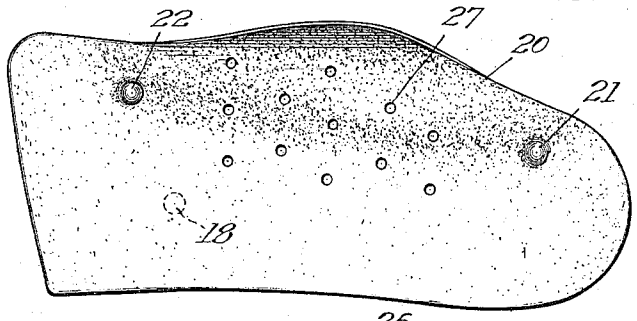


Fig. 2.

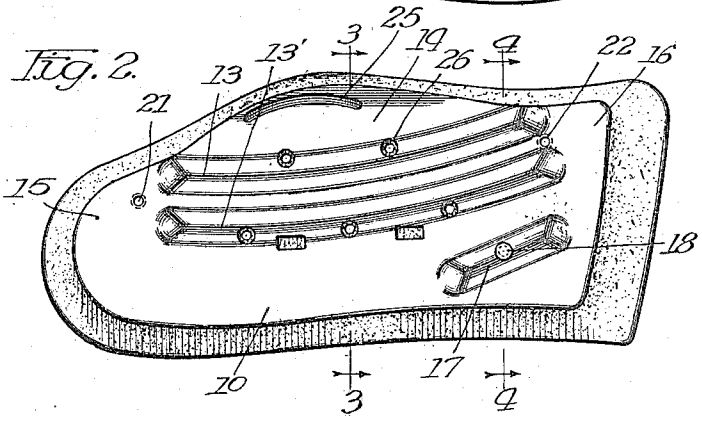


Fig. 3.

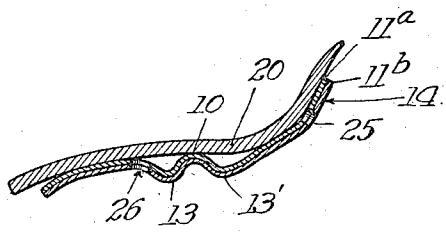
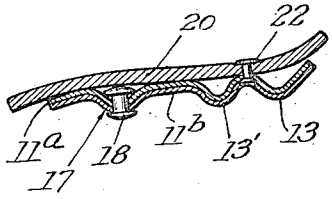


Fig. 4.



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ARCH-SUPPORT.

1,215,090. Specification of Letters Patent. Patented Feb. 6, 1917.

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To all whom it may concern:

Be it known that I, WILLIAM H. WOOD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Arch-Supports, of which the following is a specification.

My invention relates to improvements in arch supports, and has for its primary object to provide an arch support structure particularly adapted for facile assemblage of a plurality of plates for the desirable provision of extra-strength construction.

Other and further objects of my invention will become apparent to those skilled in the art from the following description taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a plan view of an arch support;

Fig. 2 is an inverted plan view thereof;

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

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

It is not uncommon, in the manufacture of arch supports, to meet with requirements for extra-strength construction, as for the use of very heavy persons, or persons whose walking habits are destructive of arch supports of ordinary strength. From a manufacturing viewpoint there are many disadvantages involved in the use of exceptionally thick-gage metal, requiring special dies, etc.; and my present invention has particularly to do with the provision of arch supports involving superimposed plates of relatively light material to give a strength that otherwise would be attainable only at the expense of using very thick metal. By the association of duplicate, relatively-light, plates, I am able to make an arch support of any desired degree of strength without departure from the usual, relatively-narrow range of metal-thicknesses commonly employed for arches of ordinary strength; thereby avoiding need for special dies, and by my invention I unite the plates most securely and economically.

In the drawings 10 indicates in general a metallic arch support structure comprising superimposed duplicate plates 11^a and 11^b of relatively thin metal, either of which, alone, is appropriate for use as an ordinary or relatively-light arch support shaped to extend from heel to ball of the foot and approximately to conform to normal foot-curvatures. Each plate has one or more depressed ribs or corrugations 13—13′, preferably extending lengthwise of the plate throughout a major portion of its length along the highest arched or elevated waist portion 14 of the plate and merging into the plate so leaving the ends 15 and 16 of the plate uninterrupted for proper bearing on the shoe. An additional rib 17 is preferably provided, to one side of the longitudinal axis of the plate, preferably adjacent its forward end, this depressed rib 17 being preferably relatively short. Two such plates, superimposed, with their ribs, 13—17, in nesting relation, I rivet together, preferably by a single rivet 18, located in one of the depressed ribs, preferably in the rib 17.

I prefer to overlay the multi-plate metallic structure with a cover piece 20 of leather, secured to the uppermost plate 11^a by rivets 21 and 22 that extend through said uppermost plate, only, in the usual countersunk fashion, these rivets penetrating portions of the plate that are extraneous to the ribs aforesaid, at points preferably near the highest arched margin of the plate remote from the rib 17.

It will be apparent that in accordance with my invention a stock arch support of ordinary form made up of a single plate 11^a with the cover piece 20 attached thereto by rivets 21 and 22 may be reinforced for the provision of an extra-strength plate by the mere underlaying of plate 11^a with a plate 11^b of duplicate form and of the same or thinner gage metal by the riveting of said two plates by a single rivet 18. The nesting arrangement of the ribs that extend longitudinally along the highest arch and longitudinally curved portions of the plate, and that all terminate between the ends of the plates, hold said plates firmly together against slippage in any direction, and the location of the plate-joining rivet 18 at a point remote from the line of leather-holding rivets 21 and 22, enables this plate riveting work to be done most conveniently, as the cover piece 20 is loose over rib 17 and may be laid back while the riveting is being done. Two plates, so joined have a slight "come and go" or relative slippage without material displacement, so giving to the compounded plate a resistance to crystallization that is very desirable and that I be-

lieve to be greater than is the resistance of an equally thick single-plate.

The general features of construction above described may be supplemented by the provision of a slot 25 in the highest arched portion of each plate structure, and the provision of ventilating openings 26 in the metallic structure for register with corresponding openings 27 in the leather cover piece.

While I have herein described in some detail a particular embodiment of my invention it will be apparent to those skilled in the art that changes in the details of construction, as in arrangements of the ribs, and in the shape and precise location of parts, might be made without departure from the spirit of my invention, within the scope of the appended claims.

Having described my invention, what I claim is:—

1. An arch support comprising a plurality of superimposed plates of duplicate form having nesting ribs, said plates joined by rivet means located in said ribs.

2. In an arch support, a plurality of duplicate plates having longitudinally extending ribs, said plates superimposed with the ribs nesting, and a single rivet uniting said plates.

3. In an arch support, a plurality of duplicate plates having longitudinally extending ribs, said plates superimposed with the ribs nesting, and a single rivet uniting said plates and located in one of the ribs.

4. In an arch support, a cover piece, an arch plate riveted thereto at points to one side of the longitudinal median line of the plate, a duplicate arch plate underlying the first said arch plate, and rivet means uniting said plates and free from the cover piece, such rivet means located to the other side of the median line of the plate from the first mentioned rivets.

5. In an arch support, a cover piece, an arch plate riveted thereto at points to one side of the longitudinal median line of the plate, a duplicate arch plate underlying the first said arch plate, and rivet means uniting said plates and free from the cover piece, such rivet means located to the other side of the median line of the plate from the first mentioned rivets, said plates having inter-engaging portions to prevent their relative displacement.

6. In an arch support, a cover piece, an arch plate riveted thereto at points to one side of the longitudinal median line of the plate, a duplicate arch plate underlying the first said arch plate, and rivet means uniting said plates and free from the cover piece, such rivet means located to the other side of the median line of the plate from the first mentioned rivets, said plates having depressed ribs terminating within the confines of the plates, arranged in nesting relation to prevent relative displacement of the plates.

7. In an arch support, the combination of a comparatively thin metallic arch plate adapted to extend from the heel of a human foot to a point approximately at the ball of the foot and having a lateral projection to extend up the inside curve of the shank of the foot, a cover piece overlying such plate, a rivet joining the said plate and cover piece, at one side of the longitudinal median line of the plate, a duplicate arch plate of comparatively thin metal underlying the first plate, and a single rivet means uniting said plates and located at the other side of the median line of the plate from the first mentioned rivet, said plates having depressed ribs terminating within the confines of the plates, arranged in nesting relation to prevent relative displacement of the plates.

In testimony whereof I hereunto set my hand.

WILLIAM H. WOOD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."