F. TRANMER.

ANKLE BRACE AND ARCH SUPPORT.

APPLICATION FILED JUNE 6, 1919.

1,336,001.

Patented Apr. 6, 1920.

Fig. 1.

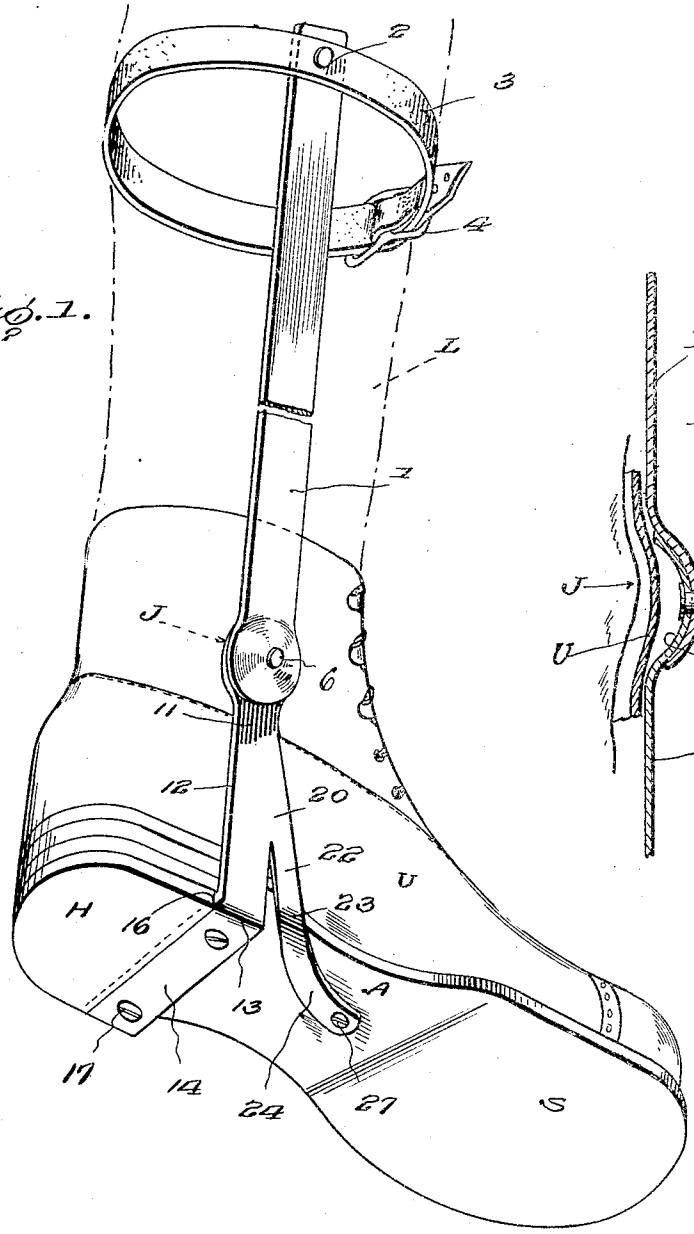


Fig. 2.

Inventor:

Fred Tranmer.

by Lacey & Lacey,

Attorneys.

UNITED STATES PATENT OFFICE.

FRED TRANMER, OF GORDON, NEBRASKA, ASSIGNOR OF ONE-HALF TO WILLIAM ADELBERT HILLS, OF GORDON, NEBRASKA.

ANKLE-BRACE AND ARCH-SUPPORT.

1,336,001. Specification of Letters Patent. **Patented Apr. 6, 1920.**

Application filed June 6, 1919. Serial No. 302,361.

To all whom it may concern:

Be it known that I, FRED TRANMER, a citizen of the United States, residing at Gordon, in the county of Sheridan and State of Nebraska, have invented certain new and useful Improvements in Ankle-Braces and Arch-Supports, of which the following is a specification.

This invention relates to surgery, being a device serving at once both as an arch support and an ankle brace. It is well known that a weak or defective foot and ankle often need mechanical assistance for preventing the ankle from turning and a support for preventing the arch from falling, and the primary object of my invention is to produce a unitary structure which performs both these functions.

As to the ankle brace, the invention includes a peculiar form of pivot between its members, giving them great strength and at the same time protecting the ankle joint.

As to the arch support, the invention includes means whereby the weight of the wearer on a weak or falling arch is sustained directly from the surface of the ground.

The invention therefore consists in details of construction with respect to both these cooperating features, all of which are set forth in the following specification and claims.

In the drawings:

Figure 1 is a perspective view of this surgical appliance attached to the shoe and leg.

Fig. 2 is a sectional detail through the pivot.

The drawings show the left leg L in dotted lines and indicate the ankle joint J, and also they illustrate a high shoe including an upper U, a heel H and sole S, and the usual arch A.

The ankle brace is made up of two stout metal elements respectively called herein the leg member and the foot member. The former is a stiff metal strip 1 to whose upper end at 2 is riveted a strap 3 for inclosing the leg L, a suitable buckle 4 being provided for fastening the strap as indicated. The lower end of this member is enlarged into a disk 5 which is cupped or concavo-convex as seen in Fig. 2.

The lower member 11 is also a stout metal element shown herein as standing in alinement with the upper member along the inner side of the shoe, its upper end being enlarged into a disk 15 also cupped or made concavo-convex and fitting closely within the disk 5, and a pivot pin 6 connects the centers of said cupped disks. The pivot should aline with the ankle joint J, and the cupped shape of the disks not only throws the pivot itself out of contact with the shoe so that there is no wear on the shoe and therefore the parts of the pivot do not press upon the ankle joint, but the latter is also protected against accidental blows.

The foot member is branched, the main branch 12 extending straight downward alongside the upper U and heel H and bent at its lower end 13 in under the heel, being preferably formed into a foot 14 extending transversely of the heel and inset into a recess 16 therein, and held by screws 17 or other appropriate fastening means. Thus the lower ends 13 of this member 11 bears directly on the ground and has a considerable contact therewith if it be continued into a foot 14 as shown; and as the member lies alongside the shoe and ankle and connects with the upper member 1 which in turn is attached to the leg, the structure affords considerable assistance in supporting the weight of the wearer, while the right-angular disposition of the foot 14 gives it ample contact with the ground and prevents the wearer's foot from turning accidentally to the left.

The other branch 22 of the lower member is integral with the main branch 12 at the point 20, and while the main branch extends straight downward from the pivot the second branch or finger 22 preferably extends obliquely forward from the main branch and may be made somewhat narrower. Where it passes the edge of the sole it is bent as at 23, and its inturned end or tip 24 extends beneath the arch A and is attached thereto by screws or other fastening devices 27. It is possible that the thickness of the tip 24 will be equal to the distance of the lower face of the arch A from the ground, and in that event the arch will be directly supported from the ground by the tip. But on the assumption that the heel is of considerable height, probably normal, and the patient's arch has not yet fallen, it will be clear that it is supported by the finger 22, the finger in turn being supported by its union at 20 with the main branch 12, and the latter in turn is supported where its lower end 13 rests on the ground and is held upright by the contact

of its foot 14 with the ground. Therefore, this structure produces a serviceable arch support by amplifying the foot member 11 of the ankle brace, and a wearer who is doubly afflicted as first suggested above finds much comfort by use of the appliance.

Having thus described the invention, what is claimed as new is:

1. An arch support comprising a forked member, one branch thereof being adapted to be secured to a shoe so as to stand upright at the inside of the heel with its lower end contacting with the ground, and the other branch extending from the first branch under and adapted to be secured to the lower face of the arch.

2. An arch support comprising a forked member, one branch thereof being adapted to be secured to the shoe so as to stand upright at the inside of the heel with its lower end contacting with the ground and bent under and secured across the heel, and the other branch extending from the first branch under and adapted to be secured to the lower face of the arch.

3. A combination structure for the purpose described comprising a lower member constituting an arch support and consisting of an upright branch secured along the inside of the heel and an oblique branch extending therefrom and bent under the arch, an upper member attached to the leg, and a pivot connecting said members.

4. A combination structure for the purpose described comprising a lower member constituting an arch support and consisting of an upright branch secured along the inside of the heel and an oblique branch extending therefrom and bent under the arch, an upper member attached to the leg, the contiguous ends of said members lapping each other and being cupped opposite the ankle joint, and a pivot through the centers of the cups.

5. In a structure of the type described, a foot member bent at right angles and adapted to be secured across the heel at its front edge, a leg member having means for connecting its upper end with the leg, concavo-convex mating disks at the contiguous ends of said members, and a pivot through the centers of the disks opposite the ankle joint.

In testimony whereof I affix my signature.

FRED TRANMER. [L. S.]