

Oct. 5, 1965

R. L. WALKER

3,209,749

CLUB-FOOT BRACE.

Filed Oct. 30, 1964

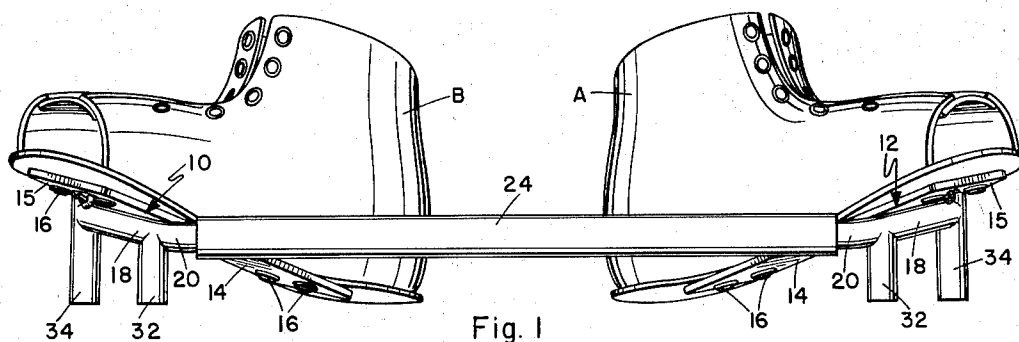


Fig. 1

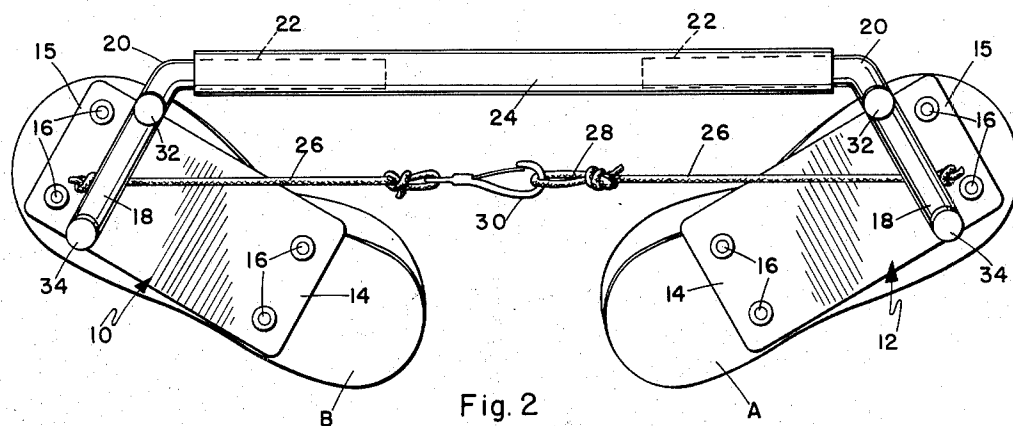


Fig. 2

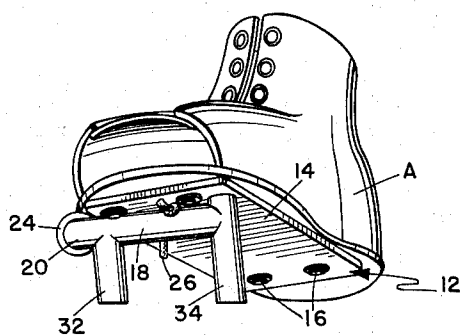


Fig. 3

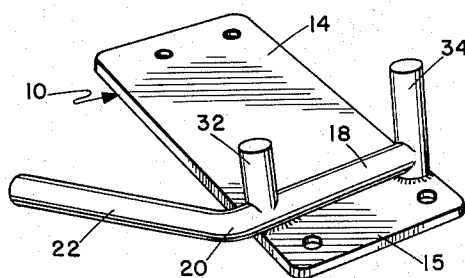


Fig. 4

INVENTOR.
ROY L. WALKER

BY

Knox & Knox

1

3,209,749

CLUB-FOOT BRACE

Roy L. Walker, 3921 Vermont St., San Bernardino, Calif.
Filed Oct. 30, 1964, Ser. No. 407,640
3 Claims. (Cl. 128—80)

This application is a continuation-in-part of my application Serial No. 264,454, filed March 11, 1963, now abandoned.

The present invention relates generally to an orthopedic brace and more particularly to such a brace designed to be worn by infants for the correction of talipesquinovarus.

Most deformities in infants' feet may be classified as either the toe-out type or the fold-in type. The toe-out type is much less frequent than the fold-in type. Regardless of the type, certain factors must be taken into consideration where proper correction of the deformity is to be achieved.

To insure proper correction the entire foot area has to be corrected at the same time, after the forward foot has been corrected during the first six months of infancy, usually by the continuous application of casts. The knees should not be subjected to twisting or bending backwards. The brace must be light yet sufficiently rigid so that it may be worn both day and night to prevent losing the obtained correction.

The improved brace also finds application in one of the two types of cerebral palsy. When the affliction is limited to only one leg and arm, there is usually a constant flexibility problem in addition to the lack of coordination. My improved brace, when worn continually or frequently during the first five years, will keep the ankle and knee in normal flexion without retarding the normal development of the feet.

It is accordingly the primary object of this invention to provide an improved orthopedic brace having three fixed angles to control the position of the feet.

It is a further object of this invention to provide an improved orthopedic brace which will permit normal ankle flexion.

It is a still further object of this invention to provide an improved orthopedic brace that may be used with stock, readily available shoes, the shoes being positioned on the brace in a position reversed from normal usage to assist in the correction of the curvature on the outside of the foot.

Finally it is an object to provide an orthopedic brace of the aforementioned character which is simple and convenient to use and which will enable continuous correction and give durable service.

With these and other objects definitely in view, this invention consists in the novel construction, combination and arrangement of elements and portions, as will be hereinafter fully described in the specification, particularly pointed out in the claims, and illustrated in the drawing which forms a material part of this disclosure, and in which:

FIGURE 1 is a front view of my improved brace with the shoes attached thereto;

FIGURE 2 is a bottom plan view;

FIGURE 3 is a view of one supporting plate and shoe with angle bracket attached; and

FIGURE 4 is a view of the supporting plate with angle bracket attached.

With particular reference to FIGURES 1 and 2 of the drawing, I have shown my improved brace in assembled relation with a pair of shoes A and B, respectively. These shoes are standard, commercially available shoes. The toe portion of the shoes may be cut off if desired, for I have found that this increases the usefulness of

2

the shoes without retarding development of the toes. To assist in forming the foot, the position of the shoes may be reversed, i.e. shoe A, which would normally fit the right foot, is assembled on the brace in position to receive the left foot and shoe B, which would normally fit the left foot, is used for the right foot.

Shoes A and B are mounted on a pair of supporting members which are allochirally related and are indicated by the reference numerals 10 and 12, respectively. Each supporting member consists of a supporting plate 14 which is generally rectangular in shape and permanently secured to the soles of the shoes by rivets 16. The forward or toe portion 15 of each plate 14 has secured thereto, as by welding, one arm 18 of an angle bracket 20. This arm 18 extends transversely across the support plate 14 so that it is positioned approximately normal to the longitudinal axis of the shoe. The other arm 22 of the angle bracket 20 extends at an angle of approximately 60 degrees to the axis of the arm 18 and lies in a plane which is closely adjacent to and parallel to the plane of supporting plate 14. This fixed angle holds the feet at 60 degrees off the parallel, this being the maximum angle that does not interfere with development of a normal foot in the cases of one-foot correction.

The supporting plates 14 are spaced apart the proper distance by a spacing member 24 which may be in the shape of a tube or a rod with hollow end portions. Arms 22 are inserted into the ends of spacing member 24 and are journaled therein to make possible normal ankle flexion during correction. Suitable means is provided to prevent separation of the shoes A and B. As here shown, a section of cord 26 is secured between each arm 18 and plate 14 and the adjacent ends of the cord are provided with a loop 28 and snap hook 30 which, when interengaged, provide a suitable means for preventing separation of shoes A and B. This flexible cord means has been found to be very convenient and more acceptable than other means.

It is essential that the toes be elevated relative to the heels when the infant wearing the brace is in a standing position. This elevation stretches the gastrocnemius and makes it unnecessary for the achilles tendon to be lengthened by surgery. To accomplish this elevation, the arm 18 is provided with elevator means, here shown in the form of cylindrical blocks 32 and 34 integrally connected thereto. As will be evident from FIGURE 4, the outermost block 34 is the longer of the two. This tilts the shoes with the outside up as shown in FIGURE 1. This structure utilizes the body weight to increase the correction of the hind foot. The sensation of tilting increases slightly as the weight goes onto the toes, thus encouraging the user to maintain a maximum proportion of his weight on the heels.

It is understood that minor variation from the form of the invention disclosed herein may be made without departure from the spirit and scope of the invention, and that the specification and drawing are to be considered as merely illustrative rather than limiting.

I claim:

1. An orthopedic device for the correction of deformed feet comprising:

a pair of elongated supporting plate members having toe portions and adapted to be permanently attached individually to the soles of a pair of shoes;

an angle bracket connected to each plate member, said angle bracket having one arm extending transversely across the supporting member adjacent the toe portion thereof and secured thereto;

a spacing bar having sockets in opposite ends thereof, the other arm of each angle bracket being journaled in the corresponding socket;

3

means to connect said supporting plate members to prevent separation thereof; and elevator means on each said one arm for supporting said toe portion inclined upwardly.

2. The structure of claim 1 in which said elevator means consists of spaced blocks with the outermost block being longer whereby the outer edge of the shoe is tilted upwardly.

3. The structure of claim 1 in which said first named means comprises a flexible cord.

5

10

4

References Cited by the Examiner

UNITED STATES PATENTS

2,514,870	7/50	Israel	-----	128—80
2,588,411	3/52	Robinson	-----	128—80
2,630,801	3/53	Mest et al.	-----	128—80
2,960,261	9/59	Craig	-----	128—80
2,963,020	12/60	Moran	-----	128—80

RICHARD A. GAUDET, *Primary Examiner.*