Feb. 12, 1952 W. H. MORGAN 2,585,342

CLUBFOOT SPLINT

Filed Dec. 29, 1948

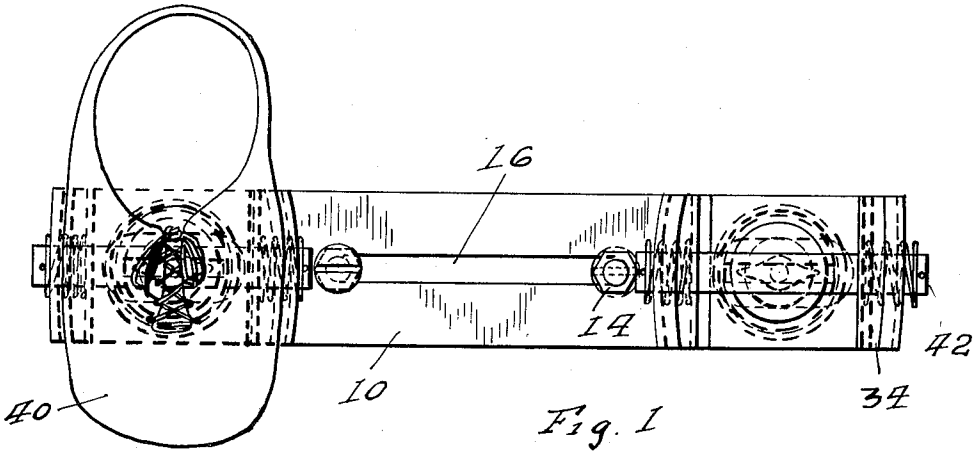


Fig. 1

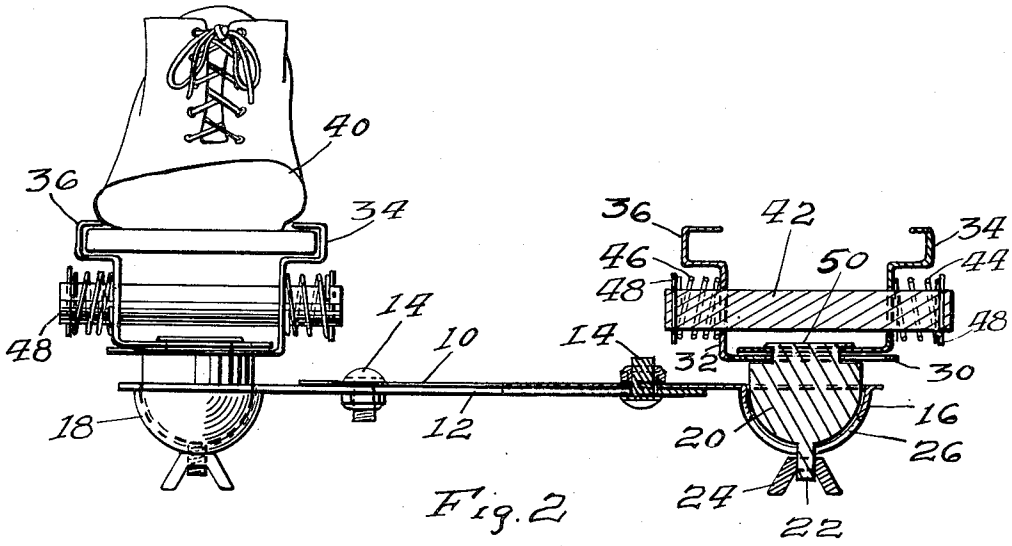


Fig. 2

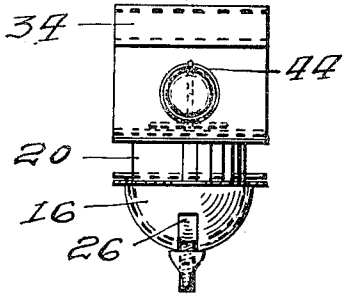


Fig. 3

WILLIAM H. MORGAN
INVENTOR.

BY Albert J. Fike
ATTORNEY

Patented Feb. 12, 1952

2,585,342

UNITED STATES PATENT OFFICE

2,585,342

CLUBFOOT SPLINT

William H. Morgan, Glendale, Calif.

Application December 29, 1948, Serial No. 68,005

3 Claims. (Cl. 128—80)

1

This invention relates to an improved orthopedic device and has for one of its principal objects the provision of an appliance whereby deformities in the feet and legs can be remedied or corrected, particularly when such deformities occur in children.

One of the important objects of this invention is to provide in an orthopedic device means for correcting inturned and out-turned feet or congential club feet and in varus or valgus deformities of the feet occurring either in one foot or both feet.

Another important object of this invention is to provide an orthopedic device or splint which is adjustable in all directions and can be used on young as well as older children.

A still further object of this invention is the provision of a splint which can be used in connection with the shoes ordinarily worn by the child but which is removable from the shoes and can be changed from one pair of shoes to another.

Yet another object is to provide a foot correcting device which can be used as a night splint and removed in the morning, allowing the child to wear the same shoes at night for corrective purposes as he does in his daily activities.

Another advantage of the improved splint of this invention is that it can be applied to all sorts of shoes while the child is wearing the same and will not injure or even mar the shoes in any way.

Other and further important objects of the invention will be apparent from the disclosures in the accompanying drawings and following specification.

The invention, in a preferred form, is illustrated in the drawings and hereinafter more fully described.

In the drawings:

Figure 1 is a top plan view of the improved orthopedic device or splint of this invention, showing one shoe in position thereon.

Figure 2 is a front elevation of the orthopedic device of this invention showing a shoe thereon and illustrating the various adjustable features.

Figure 3 is an end view of the device as shown in Figures 1 and 2.

As shown in the drawings:

The reference numeral 10 indicates generally one of the cross pieces which comprise the main supporting element of this invention. This cross piece overlays another similar cross piece indicated at 12, and the two pieces are adjustable relatively to each other by means of bolts and nuts 14 fitted in longitudinal slots 16 in the elements 10 and 12. The effective length of the

2

cross pieces can thus be varied and fixed within a reasonable range.

A socket-shaped semi-spherical extension 16 is fitted on to one end of the cross piece 10, and a similar extension 18 is at one end of the other cross piece 12. Into each of these sockets is fitted a semi-spherical element 20 thereby providing a ball and socket joint. Each ball element has an integral screw-threaded projection 22 upon which is fitted a winged nut 24, and the screw-threaded projection 22 operates in a slot 26 milled or cut into the socket 16. This slot is preferably along the longitudinal axis of the combined cross pieces 10 and 12.

Mounted at the upper end of the ball element 20 is a platform which is composed of two elements 30 and 32. These elements extend upwardly and terminate in inwardly bent hooks 34 and 36 respectively which are adapted to receive and retain the sole of a shoe 40.

Each of the vertical projections of the elements 30—34 and 32—36 is provided with an opening and these openings are aligned so that a rod or a shaft 42 can be fitted thereunto just above the level of the platform 30—32.

The sole-gripping elements 34 and 36 are normally impelled into shoe-gripping position by means of springs 44 and 46 mounted on the ends of the rod or shaft 42 and maintained in compressed relationship by means of pins or the like 48 passing through the ends of the rod 42.

The platform elements 30 and 32 are adapted to slide relatively to each other, being mounted upon a stud integral with the upper part of the ball 20 and are held in position by means of a plate 50 on the upper face of the stud.

The shoes 40 of the child can be placed on the feet and the device then clamped on to the shoes in a very simple manner. The splint is necessarily previously adjusted by the physician into such a position that the desired pull upon the tendons and leg muscles will result when the same is applied to the feet, thereby remedying deformities. The soles of the shoes can be tilted at considerable angles with respect to each other by simply adjusting the position of the projections 22 in the slots 26 and the feet can be turned inwardly or outwardly in a single plane by twisting the shoe supports and this condition is assured by tightening the wing nuts on the studs 22. Furthermore, the distance between the feet can be regulated.

The apparatus can be applied to the child's feet after the shoes have been placed on the feet, and this application is very simple and ef-

fective requiring but a few moments. The fact that the device has been previously adjusted to hold the feet in a desired relationship to each other enables the physician's wishes and instructions to be carried out with practically no difficulty and beneficial results are usually obtained in a comparatively short time.

I am aware that many changes may be made and numerous details of construction varied throughout a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon otherwise than as necessitated by the prior art.

I claim as my invention:

1. An orthopedic splint comprising a longitudinally adjustable cross piece formed of a pair of longitudinally slotted bars connected together in adjusted position by clamping means extending through the slots in said bars; each of said bars having a hemispherical socket at the outer end thereof, a ball-ended element disposed in each of said sockets with capacity for both angular and rotative movement therein, each of said elements including a clamping means engageable with said cross piece and operable to secure said elements in adjusted positions in their respective sockets and a shoe gripping means carried by each of said elements.

2. An orthopedic splint comprising a longitudinally adjustable cross piece, a pair of shoe-holding elements mounted one on each end of the cross piece and including separate means for adjusting the angular relationship of each of the shoe-holding elements to the cross piece, said adjusting means being constructed and arranged additionally to permit rotative movement of each of said elements and comprising a ball and socket joint, a slot in the socket element, a stud on the ball projecting through the slot and locking means on the stud, the stud being axially aligned with the center of the ball with resultant capacity of the ball to be rotated in the socket about the axis of said stud at any angular position of the stud in the slot.

3. An orthopedic splint comprising a longitudinally adjustable cross piece, a shoe-holding element on each end of the cross piece including means for adjusting the angular relationship of the shoe-holding element to the cross piece comprising a ball on each shoe-holding element seated in sockets at the ends of said cross piece, a slot in each socket element, a stud on each ball projecting through the slot and locking means on each stud, the studs being axially aligned with the center of the ball with resultant capacity of the ball to be rotated and clamped in the socket at any angular position of the studs in the slots.

WILLIAM H. MORGAN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
9,472	Hussey	Dec. 14, 1852
1,136,397	Bloch	Apr. 20, 1915
2,482,646	Brachman et al.	Sept. 20, 1949
2,514,870	Israel	July 11, 1950

FOREIGN PATENTS

Number	Country	Date
314,669	Germany	Aug. 8, 1919

OTHER REFERENCES

"Journal of Bone and Joint Surgery" for Oct. 1944, page 805. (Copy in Patent Office Library.)

Catalog of Zimmer Mfg. Co. of Warsaw, Indiana, page 114, Feb. 1, 1947. (Copy in Div. 55.)

Journal of Bone and Joint Surgery for January 1943, page 186.