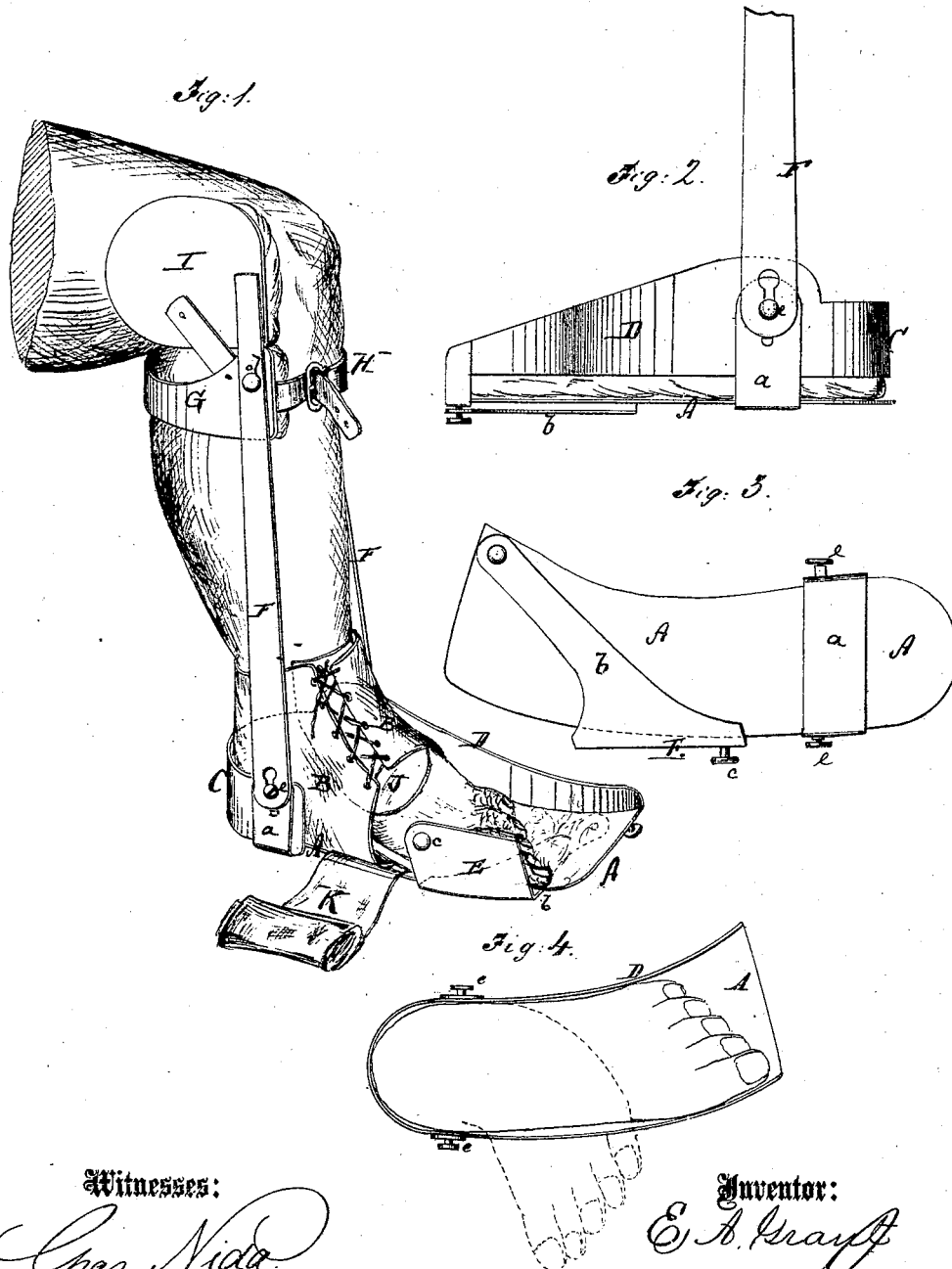


E. A. GRANT.

Improvement in Surgical Instruments for the Treatment of Club-Foot.

No. 114,669.

Patented May 9, 1871.



Witnesses:

Chas. Nida  
L. S. Mabee

Inventor:

E. A. Grant

PER

Munn & Co.  
Attorneys.

# United States Patent Office.

EMORY A. GRANT, OF LOUISVILLE, KENTUCKY.

Letters Patent No. 114,669, dated May 9, 1871.

## IMPROVEMENT IN SURGICAL INSTRUMENTS FOR THE TREATMENT OF CLUB-FOOT.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EMORY A. GRANT, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and improved Surgical Instrument; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a perspective view of my improved surgical instrument.

Figure 2 is a detail side view of the same.

Figure 3 is a bottom view of the same.

Figure 4 is a plan view of the main part of the instrument applied to a human foot, shown in dotted lines as curved before treatment, and in full lines as shaped subsequent thereto.

Similar letters of reference indicate corresponding parts.

The object of this invention is to construct an improved instrument by which club-feet can be gradually straightened and cured, and the tendons leading thereto properly developed.

The invention consists in a new construction of rigid shoe, which has a convex side, against which the outer side of the foot is to be held and gradually bent into proper shape.

The invention also consists in a new device for holding and retaining the foot in said rigid shoe, and for bracing the entire apparatus from the calf or knee, all as hereinafter more fully described.

A in the drawing represents the rigid sole of my instrument.

This sole is made of sheet metal or other suitable material of the requisite shape, and is attached to a half-shoe, B, made of soft flexible material.

C is a heel-guard or plate projecting from the back part of the sole, and made, also, of sheet metal or other strong rigid material.

This heel-guard is on the outer side of the shoe continued into a plate, D, which I intend to term the resistance-plate. It is curved so as to be convex on the inner side, and against this convex face will be placed the convex outer side of the crippled foot.

A metallic stirrup-strap, *a*, may be secured under the sole and have its ends bent up at the sides of the shoe for the purpose of bracing the plate D and to form a support for the leg-braces.

E is an upright plate secured to a horizontal arm, *b*, which is pivoted to the under side of the sole. This plate can be drawn against the inner side of the foot to crowd the same against the resistance-plate D, and serves, also, to keep the bandage in place.

F F are the leg-braces, secured with their lower ends to the sides of the shoe, preferably to the ends

of the strap *a*, as shown, while their upper ends are connected by a calf-band, G, behind, and by a knee-strap, H, in front.

I is a knee-pad, secured rigidly to the inner leg-brace.

The foot is placed into the half-shoe, a pad, J, being placed upon the instep. The shoe is then firmly laced to properly retain the foot within the heel-band.

The toes are then involved in a loop of a roller-bandage, K, which is secured to the sole, and the foot is by the same firmly drawn against the resistance-plate D by winding the bandage around foot and sole.

The plate E is then moved against the foot to prevent the same from overcoming the tension of the bandage.

A strap secured to a button, *c*, on E, and to a button, *d*, on the upper part of the inner leg-brace, holds the plate E in place, and serves, also, to elevate the toes and to lengthen the heel-tendon, (*tendo Achilles*.)

The lower ends of the leg-braces are slotted to fit upon buttons *e* that project from the strap *a*, so that such braces may be readily removed when not needed, especially while the surgeon is inspecting or arranging the foot.

When the band H is buckled and the strap connected with the plate E drawn tight enough, the foot is held as firmly as necessary.

The knee-pad is important, as it presses upon the inside of the knee when the same is bent, and thereby turns the toes out and prevents them from turning inward.

The foot can, on the plate D, be turned beyond its normal line, whereby the contracted tendons are more readily elongated.

Both the resistance-plate and the sole being curved, as shown, serve to support every convexity or projection of the deformed foot, and to force the same by gradual, almost imperceptible, pressure, back to its proper form.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The rigid laterally-curved sole A, provided with the heel-band C and the rigid convex resistance-plate D, substantially as and for the purpose specified.

2. The plate E, constructed as described, pivoted to the under side of the plate A, and arranged with relation to the convex resistance-plate, D, as shown and described.

3. The leg-braces F, provided with key-hole slots, and with the pads I I extending backward to form braces for the shoe or plate A, as shown and described.

Witnesses:

E. A. GRANT.

JACOB KNEIGER, Sr.,

H. B. GRANT.