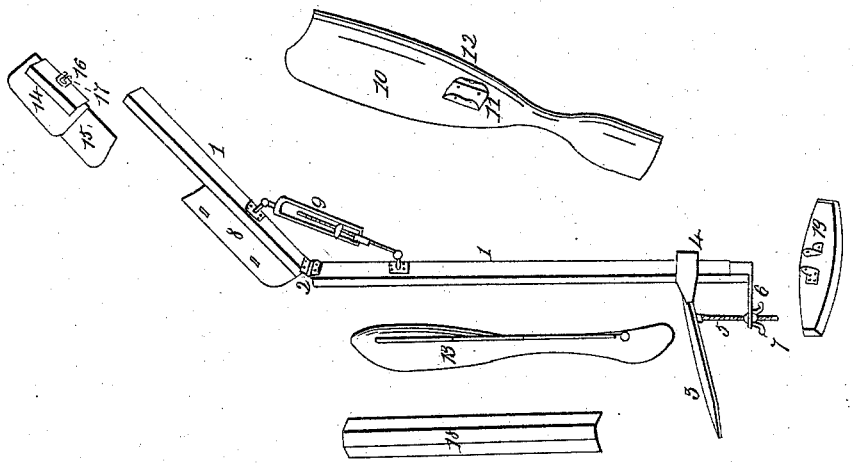
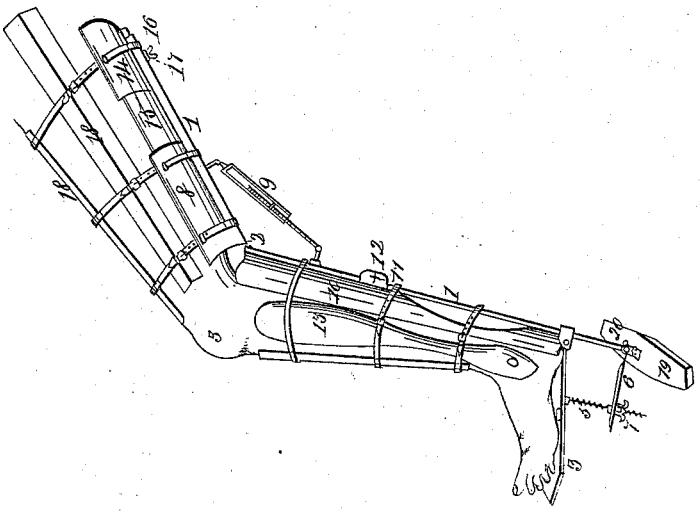
L. Roe,

Fracture Apparatus.

No. 3,810. Patented Nov. 6, 1844.





UNITED STATES PATENT OFFICE.

LIVINGSTON ROE, OF WHITE PLAINS, NEW YORK.

APPARATUS FOR FRACTURES.

Specification of Letters Patent No. 3,810, dated November 6, 1844; Antedated May 6, 1844.

To all whom it may concern:

Be it known that I, LIVINGSTON ROE, of the town of White Plains, in the county of Westchester and State of New York, physician, have invented a new Apparatus for the Treatment of Fractures of the Thigh, Leg, Arm, and Forearm; and I do hereby declare that the following is a full and exact description thereof.

The frame work of the said apparatus is constructed as follows, namely, two bars (Figs. 1, 1,) are made of light and strong wood being each an inch and a quarter in width and three quarters of an inch in thickness. One of them is about twenty two inches, and the other about fifteen in length. These are united by a hinge as seen in the drawings (Fig. 2). Upon the longer bar is placed a foot board (Fig. 3) mortised at the bottom and sliding on the said bar to which it is secured by a metallic plate (Fig. 4) in such manner as to slide freely up and down the bar without moving in any other direction. This foot board inclines downward and forms an angle of degree with the said bar to correspond with the natural inclination of the foot. This foot-board at a point corresponding to the center of the hollow of the foot, being also in a line with the axis of the leg, is perforated by a screw (Fig. 5) which is immovably fixed to it. This screw is of metal and about seven inches in length and about three eighths in diameter and passes through a plate of metal (Fig. 6) permanently fastened to the lower end of the longer bar so that the screw is parallel with the bar. Upon this screw, outside of the said plate, is a thumb nut, (Fig. 7) the object of which is to extend the leg to the natural or required length by drawing down the foot board to which the foot is secured by a bandage or gaiter. In the foot board are made two mortises lengthwise of the said board for the bandages of the foot to pass through and which fasten or tie directly above and below the said screw on the back part of the footboard. On the shorter or thigh bar or frame and on the upper side of it is fastened a permanent splint by means of screws, being a piece of wood (Fig. 8,) shaped so as to receive and fit the lower part of the thigh being concave on the upper and convex on the lower side and about seven inches in length and five in width, and having near to each of its four corners a mortise lengthwise thereof, through which straps pass for securing thighs of a smaller size. On the under side of these bars is fastened a swivel screw (Fig. 9) one end of which is fastened to each bar at equal distances from the hinge. The object of this is to change the angle or relative position of the thigh and leg at pleasure.

The other parts of the said apparatus which may be and are detached from the said frame work are described as follows: Three troughs or movable splints are made of wood and so shaped as to correspond with the calf of the leg and heel (Fig. 10, 10). The three differ in size only and may be adapted to legs of all sizes. One only is given in the drawing it being thought sufficient. On the lower or convex side of these troughs or splints and at about equal distance from the extremities thereof is fastened a plate of metal (Fig. 11) with flanges on each side of it. These flanges are at such a distance from each other as to fit the bar when the splints are placed upon it, and the design of them is to secure the said movable splints when sliding on the bar to which it is further secured by a key passing from one flange to the other (Fig. 12). The object of this movable splint thus constructed so as to slide upon the bar or frame is to enable the surgeon by removing one and substituting another to employ which of the movable splints he pleases according to the size of the leg, &c., and also to enable the surgeon to adapt and treat with one trough only a greater variety of legs than can be done with any known apparatus, it not being necessary or important that the upper end of the trough when in use for it to extend as far up as the end of the bar on which it slides, and for the simple reason that the intermediate space over the frame corresponds to a point of the leg where little or no support is actually demanded, or, if demanded, may be made by pasteboard and cotton.

(Figs. 13, 13) are splints adapted to the outer and inner surfaces of the leg and ankle. These are also of different sizes and have on the outside leather studs through which the straps binding them to the leg are passed.

(Fig. 14) is a movable thigh piece or splint about 5 inches in length and constructed as follows: A piece of strong and light wood is shaped to correspond in width and form to the permanent thigh piece (Fig. 8) before

described. Attached to the concave surface of it is a thin plate of metal (Fig. 15) about the same form and size which extends about four inches beyond the part made of wood. To the convex side of the part made of wood is fastened a slide (Fig. 16) made of metal and to fit the bar on which it is to slide when in use. The object of constructing this so as to slide on the bar or frame is to adapt it to thighs of different lengths, and to secure this movable thigh piece at the desired point it is fastened by a thumb screw (Fig. 17) passing through the brass slide into the bar.

(Fig. 18) are three splints lined with leather for the upper and lateral surfaces of the thigh of two or more different sizes, three of which are used at a time as seen in the drawing.

The several splints above described are secured to the limb by means of straps, &c. (Fig. 19) is a support on which to rest the frame or foot end of the bar when the patient wishes to keep the leg, &c., on a line with the body as seen in the drawing, the frame being secured to it by a bolt, &c., as seen at (Fig. 20). But when the patient wishes to move about on crutches which he may during the progress of the cure Fig. 19 may be thrown aside.

These improvements by changing the shape, form, and size of the several parts are used also for the arm and fore-arm.

I do not claim the mode described of flexing and extending the frame work, nor do I claim the mode of extending or shortening the splints as described; but

What I do claim is—

The combination of the splints (whether adjustable or not) with the hinged bar or frame work, said bar being flexed and extended in substantially the manner described, and said splints being independent of the bar, and so constructed as to be readily attached or detached at pleasure, for the purpose herein described, the whole construction being substantially as herein set forth. I have applied the same principle of construction to the upper extremities, the modifications being only in form to suit the shape and motions of the upper limbs.

LIVINGSTON ROE.

Witnesses:

I. H. GODDARD,

RICHD. BUTT.