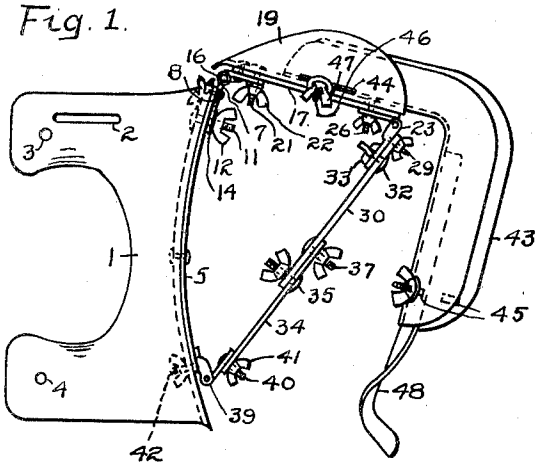
May 29, 1934. J. J. ETTINGER 1,961,118

SURGICAL SPLINT

Filed July 12, 1930

Fig. 1.



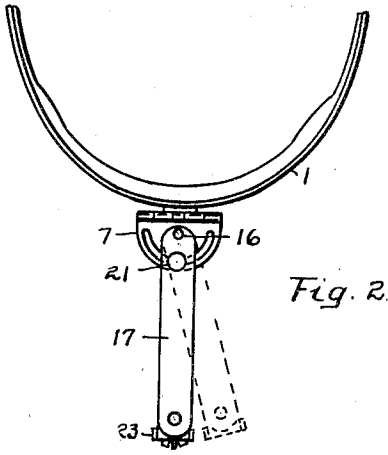


Fig. 2.

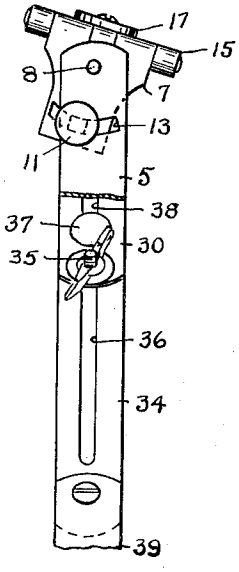


Fig. 3.

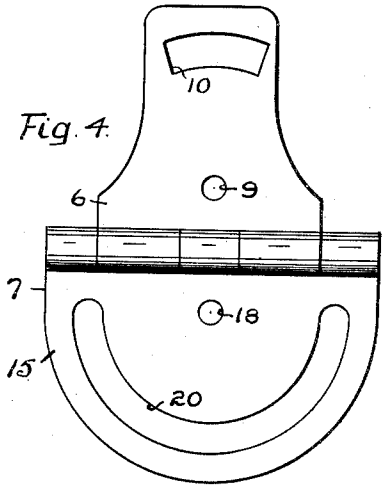


Fig. 4.

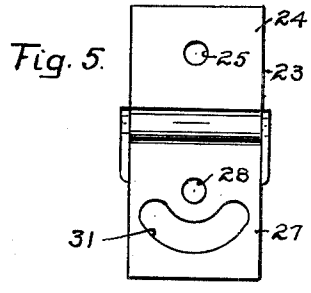


Fig. 5.

INVENTOR.

J. J. Ettinger

BY Elmer M. Hulse

ATTORNEY.

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UNITED STATES PATENT OFFICE

1,961,118

SURGICAL SPLINT

Joe J. Ettinger, Warsaw, Ind., assignor to Zimmer Manufacturing Company, Warsaw, Ind., a corporation

Application July 12, 1930, Serial No. 467,463

1 Claim. (Cl. 128—88)

The invention relates to surgical splints and particularly to splints adapted for use in the reduction of fractures of the humerus.

Heretofore the arm supporting members of splints for fractures of the humerus have been capable of adjustment in a vertical and lateral direction on the base or body engaging member of the splint. Frequently it is necessary to support the humerus in a rotated position but no provision for such support has been provided. The object of my present invention is to provide a splint with means whereby the humerus support is not only adjustable in a vertical and lateral direction on its supporting base but it is also rotatable thereon.

The invention consists in the novel combination and arrangement of parts illustrated in the accompanying drawing and hereinafter described and claimed.

In the drawing Figure 1 is a side elevational view of a splint embodying the invention; Fig. 2 a plan view of the same with the arm receiving supports removed; Fig. 3 an elevational view of the unit of adjustable members; Fig. 4 a plan view of the upper rear hinge in extended condition; Fig. 5 a plan view of the upper outer hinge in extended condition.

Referring to the illustrative embodiment of the invention, the base 1 of the splint is adapted to be secured on the side of the patient's body by straps suitably attached to the opposite ends of the base at the openings 2, 3, 4, the straps at openings 3, 4 being led around the body and the strap at openings 2 being led over the opposite shoulder. The base is form-fitting and in practice is lined with a suitable pad.

A bar 5 is secured to the outer face of the base, preferably intermediate the opposite ends thereof. The leaf 6 of a hinge 7 is attached to the upper end of the bar 5 by the bolt or rivet 8 that passes through the opening 9 in the leaf 6 and corresponding openings in the bar 5 and the base 1. A transverse slot 10 is also formed in the leaf 6 to receive a bolt 11 having a wing nut 12 thereon, the latter bolt also extending through a transverse slot 13 in the bar and through a corresponding slot in the base. The leaf pivots on the bolt 8 and may be swung to the right or left thereon and held in adjustable position by the nut 12, a washer 14 being disposed between the nut and the leaf 6. The other leaf 15 of the hinge 7 is pivoted at 16 to a bar 17, the pivot extending through the aperture 18 in the leaf 14 and through the bar 17 and through the arm support 19. A transverse slot 20 is also formed in the leaf 15 and receives a bolt 21 which also extends through the bar and the arm rest. A wing nut 22 serves to hold the bar and leaf firmly together in adjusted position. Since the leaf 6 may be swung on its pivot 8, the hinge 7 and the bar 17 may be rotated so that the bar will incline transversely relatively to the base or it may be horizontal with respect to the base. The hinge permits bodily movement of the bar 17 thereon in a vertical direction.

A hinge 23 is adjustably attached to the forward end of the bar 17. The leaf 24 of this hinge is apertured at 25 to receive a bolt 26 that is extended through alined openings in the bar 17 and the support 19. The other leaf 27 of this hinge is apertured at 28 to receive a bolt or pivot 29 that is extended through an opening formed in a longitudinally slotted bar 30. Each bolt 26, 29 carries a wing nut. The leaf 27 is also transversely slotted at 31 to receive a bolt 32 that extends through an opening formed in the bar 30. The hinge 23 may be swung on its pivot 29 similarly to the hinge 7 and thereby accommodate the inclination of the bar 17. A wing nut 33 on the bolt 32 serves to clamp the leaf 27 to the bar 30 in any adjusted position of the same thereon.

The bar 30 overlies a similarly longitudinally slotted bar 34. A bolt 35 extends through an aperture in the lower end of the bar 30 and through the longitudinal slot 36 in the bar 34 and a bolt 37 extends through an aperture in the upper end of the bar 34 and through the longitudinal slot 38 in the bar 30, each bolt 35, 37 having a wing nut thereon. The lower end of the bar 34 is attached to one leaf of a hinge 39 by the bolt 40 upon which is a wing nut 41, the other leaf of the hinge being attached to the lower end of the bar 5 by a bolt 42 having a wing nut thereon. The inclination of the bar 17 in a vertical plane is accomplished by longitudinally adjusting the bar 30 on the bar 34. The lateral angularity of the bar 17 is accomplished upon loosening the nuts on the bolts 26, 29, 35, 37 and 40. The bar may then be swung to the right or left the relative movement of the extensible bars 30, 34 permitting the outer end of the bar 17 to swing and cause the hinge 23 to swing on its pivot. If necessary, the nut on the bolt 42 may be loosened so that the hinge 39 may also turn on its pivot to accommodate the angularity of the bars 30, 34. Upon tightening the several nuts the parts are thereupon firmly held in the adjusted position.

The angularity of the support 19 may thus be

varied horizontally and vertically and it may be rotated to any transverse inclination.

In practice an arm rest 43 is adjustably attached to the support 19, the support being longitudinally slotted on opposite sides, one such slot 44 being shown. The arm rest 43 is transversely slotted at each end as shown at 45, and a bolt 46 is inserted through each pair of aligned slots 44, 45 and fixed in place by a wing nut 47. The rest 43 is reversible, end for end, so that it may be used for either arm. A hand support 48 may also be attached to the arm rest 43.

It is now seen that I may secure a very refined adjustment of the support 19 and of the arm rest carried thereby so that the splint will accommodate practically any position in which it is desirable to hold the fractured humerus.

What I claim is:

A surgical splint comprising a base, adapted to engage the human body, a hinge having one leaf pivoted to the base for lateral swinging movement thereon, a bar pivoted at one end to the other leaf of the hinge for lateral swinging movement thereon, a second hinge having one leaf pivoted to the opposite end of the bar, a longitudinally slotted bar pivoted to the other leaf of the second hinge for lateral movement thereon, a second longitudinally slotted bar underlapping the first slotted bar and adjustably connected thereto, a hinge having one leaf adjustably connected to the lower end of the second slotted bar and the other leaf thereof being pivoted to the lower end of the base, a support secured to the first named bar and a combined upper and forearm rest longitudinally adjustably secured to the support.

JOE J. ETTINGER.