

Aug. 8, 1933.

J. J. ETTINGER

1,921,987

SURGICAL SPLINT

Original Filed May 14, 1930

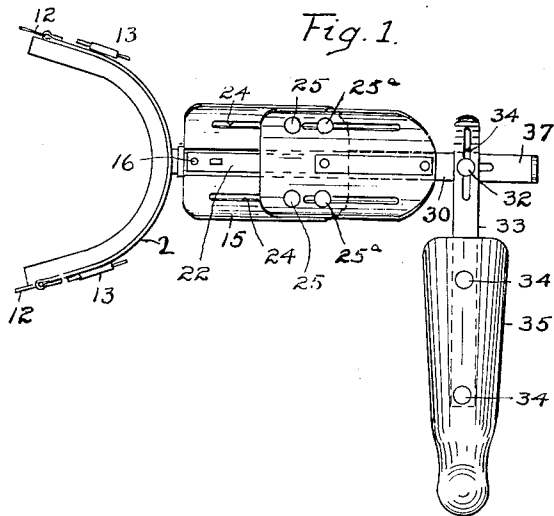


Fig. 1.

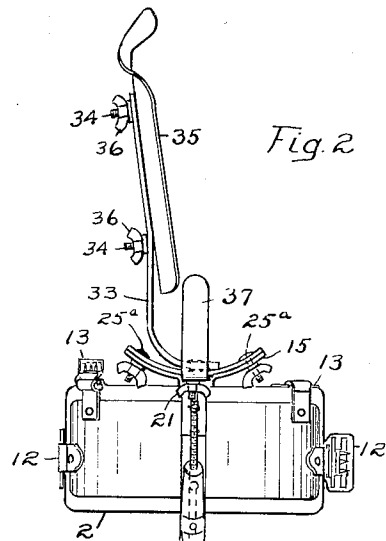


Fig. 2.

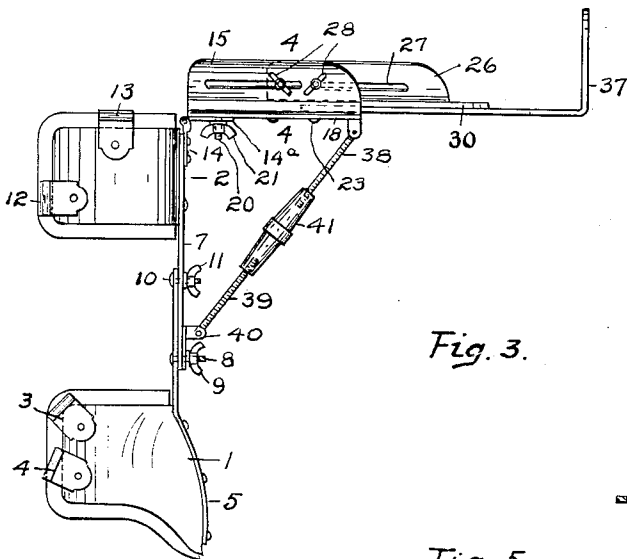


Fig. 3.

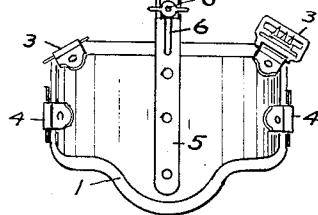


Fig. 4.

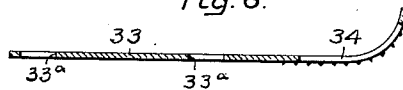


Fig. 5.

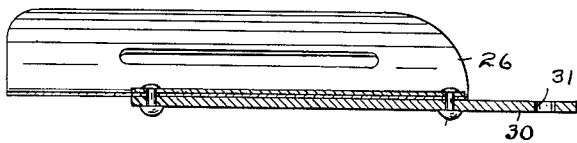


Fig. 6.

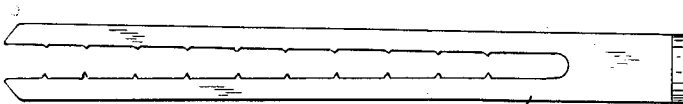


Fig. 7.

BY

INVENTOR.
J. J. Ettinger
Elwin M. Hulke
ATTORNEY.

UNITED STATES PATENT OFFICE

1,921,987

SURGICAL SPLINT

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

Application May 14, 1930. Serial No. 452,474
Renewed May 26, 1933

5 Claims. (Cl. 128—88)

The invention relates to surgical splints and it is particularly directed to appliances commonly referred to as "aeroplane" splints and adapted for use in connection with fractures of the shoulder. In such splint it is advantageous to provide means by which fixation of the upper extremity of the arm may be accomplished in abduction in from sixty to one hundred degrees and in neutral or externally rotated position at the shoulder with or without traction on the arm and it is also desirable to be able to support the forearm in the position of mid-pronation and the hand in dorsi-flexion, the several positions being elective.

The object of the present invention is to provide a splint of novel and efficient construction in having the above recited advantages and the invention consists in the novel combination and arrangement of parts hereinafter described and illustrated in the drawing, in which drawing

Figure 1 is a plan view of the splint; Fig. 2 a front elevational view of the same; Fig. 3 a side view of the splint, the forearm support being omitted; Fig. 4 a cross-section on line 4—4 of Fig. 3; Fig. 5 a longitudinal cross-section of the forearm bar; Fig. 6 a longitudinal cross-section of the adjustable upper arm support and Fig. 7 a plan view of the traction bar.

In the illustrative embodiment of the invention the base is in two parts,—the pelvic section 1 and the chest section 2. The pelvic section is formed to rest on and snugly fit the side of the pelvis and thereby aids in retaining the appliance in position and supporting the same at the lower end thereof. This feature adds greatly to the comfort of the patient. Two buckles 3, 4 are attached to the rear upper corner and rear edge of each end of the section 1 and a strap or belt is attached to both buckles 3 and extends substantially horizontally around the pelvis. Another strap or belt is attached to the buckles 4 and extends over the opposite shoulder.

The section 1 is secured to a bar 5 having a longitudinal slot 6 therein. This bar underlaps a longitudinally slotted bar 7 that is secured to the chest section 2 of the base. A bolt 8 extends through the slot 6 and through a hole in the bar 7, a wing nut 9 being carried by the bolt, and a bolt 10 extends through the slot in the bar 7 and through a hole in the bar 5 and carries a wing nut 11. The two sections are therefore adjustable toward and from each other to vary the length of the appliance in order to accommodate variations in the sizes of patients.

The section 2 is of proper width to provide the necessary bearing surface on the chest without covering an excessive area thereof and it is secured to the body by straps secured to the buckles 12 and 13 respectively, one strap extending around the body and the other extending over the shoulder.

One leaf of a hinge 14 is secured to the upper end of the bar 7 and the other leaf 14^a of the hinge is pivoted at 16 to a transversely concaved arm rest 15 that is secured to a bar 18. The pivot 16 extends through the bar 18 and the bottom of a channel 19 formed in the arm rest. A bolt 20 also extends through the bottom of the channel and through a transverse slot in the leaf 14^a and carries a nut wing 21 by which to lock the arm rest to the leaf 14^a in laterally swung or adjusted position on the leaf. This pivotal and hinged connection of the arm rest to the base provides a limited mobility of the arm in antero-posterior position. A reinforcing plate 22 is secured to the upper side of the bottom of the channel 19 by the pivot 16 and the rivets 23.

Longitudinal slots 24 are formed in the arm rest 15 and receive the bolts 25 which extend through openings in a second arm rest 26 having the longitudinal slots 27 therein. Bolts 25^a extend through the slots 27 and through openings in the arm rest 15. Each bolt 25, 25^a carries a wing nut 28 by which the arm rests 15 and 26 are clamped together in longitudinally adjusted position.

The arm rest 26 is secured by the rivets 29 to a bar 30, the bar being disposed in the channel 19 with the lower heads 29^a of the rivets adapted to extend into the channel. The bar 30 projects from the forward end of the arm rest 26 and an aperture 31 is formed therein to receive a bolt 32 by which the forearm bar 33 is secured to the bar 30 in adjusted position. The attachable end of the bar 33 is curved upwardly and slotted at 34 to receive the bolt 32. The curved end of the bar 33 permits a wide variation in angularity of the bar 33 with respect to the bar 30. The bar 33 is also slotted at 33^a to receive the bolts 34 which bolts 34 carry wing nuts 36 by which the piece 35 is locked to the bar 33 in longitudinally adjusted position thereon. The face of the bar 33 that contacts with the bar 30 is roughened or otherwise formed so that the bar 33 will remain in position when adjusted, and the wing nut on the bolt 32 is tightened.

A traction bar 37 having one end turned upwardly is split or cut out longitudinally for a

large portion of its length, the bifurcations having more or less spring. This bar is inserted in the channel 19 beneath the bar 30, and frictionally engages the walls thereof so that after it is adjusted the traction producing instrumentalities that are attached to the patient's arm and to the bar 37 will not cause longitudinal movement of the bar.

A threaded rod 38 is pivoted to the bar 18 and a threaded rod 39 is pivoted to a bracket 40 that is adjustably held on the overlapped bars 5 and 7 by the bolt 8 and the wing nut thereon. The rods are connected by the right and left screw sleeve 41 by turning which the angularity of the bar 18 with respect to the bar 7 is adjusted. This turnbuckle supports the arm rest in adduction and since its lower end is adjustable on the base the range of abduction of the arm is materially increased.

What I claim is:

1. A surgical splint comprising a base, an upper arm support mounted on the base, a forearm support and a member on the latter support and projecting rearwardly therefrom, the projecting end of the member being curved upwardly and slidable longitudinally of the curve on the upper arm support whereby to secure any longitudinal inclination of the forearm support with respect to the upper arm support.

2. A surgical splint comprising a base, an upper arm support mounted on the base, a forearm support, a bar secured to the latter support and projecting rearwardly therefrom, the projecting end of the bar being curved upwardly and having a longitudinal slot therein and means extended through the slot and the

upper arm support to adjustably attach the bar to the upper arm support in any angle of inclination thereto.

3. In a surgical splint, an upper arm support, a forearm support engaging the outer end portion of the upper arm support and having an arcuate end portion held tangentially to the upper arm support, said arcuate portion being movable to bring a selected portion into engagement with the upper arm support to thereby tilt the forearm support, and means to secure the forearm support in adjusted position.

4. A surgical splint comprising a base, an upper arm support mounted on the base and having a longitudinal slot in its outer portion, a forearm support including an arcuate end portion engaging the upper arm support at the slotted portion, said arcuate end portion being longitudinally slotted, and a clamping bolt extending through said slots to hold the forearm support in adjusted position relative to the upper arm support.

5. In a surgical splint, an anchor member having rests secured thereto applicable to the body of a patient including means for securing same in place thereon, a supporting member hingedly secured to said anchor member including means for securing same in adjusted positions and having an humerus rest secured thereon, and a fore-arm rest having a slotted arcuate bar adjustably secured on said supporting member and provided with a securing bolt applied so that said slotted bar has tilting and longitudinal adjustment on said supporting member.

JOE J. ETTINGER.

40

115

45

120

50

125

55

130

60

135

65

140

70

145

75

150