

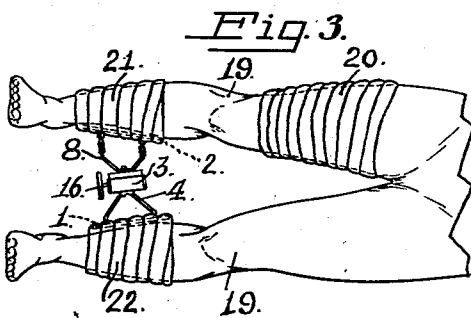
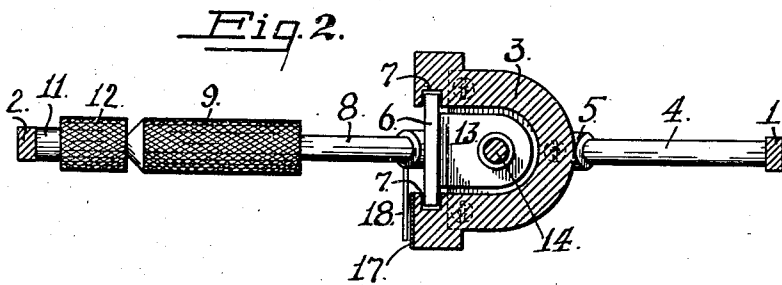
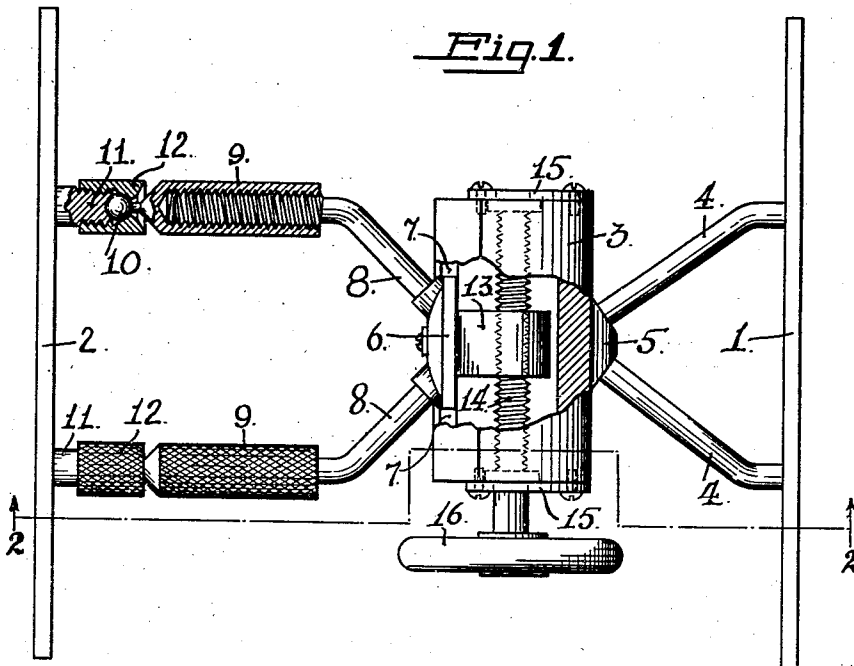
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C. P. JONES ET AL

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REDUCING FRACTURES

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UNITED STATES PATENT OFFICE

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REDUCING FRACTURES

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Our invention relates to surgical treatment as applied to fractures. It has especial reference to cases of fracture of the hip or long bones of the limbs which require a relatively long period of tension applied in the line of the bone axis in order to hold the fractured ends in alignment after being set, and until they knit; such tension, for example, as is commonly given by a suspended weight.

The object of our invention is to provide a comfortable method of treatment by means of a simple and effective apparatus; and to this end it consists primarily in means for reciprocally stressing the fractured limb and its companion sound limb in such wise that the latter offers compression resistance to tension applied to the injured limb; and secondarily, in means anchored to both limbs, together with means for varying the relative positions of said anchoring means adapted to place the injured limb under axial tension.

In the accompanying drawings, we have shown our apparatus in its preferred form, though it is to be understood that changes in form and arrangement may be made therein without departing from the spirit of our invention as defined by the claims hereunto appended.

In the drawings, Fig. 1 is a plan view, partly broken, of our apparatus.

Fig. 2 is a side view, partly in section, taken on the line 2—2 of Fig. 1.

Fig. 3 is a plan view showing the application of the apparatus to the limbs.

1 and 2 are bars or strips, which form the anchors for the device. 3 is a member for carrying the adjusting mechanism. The anchor 1 is connected with one side of the member 3, by the rods 4, which are preferably removably fitted to a lug 5 of said member.

Within the member 3 at the opposite side is a slide 6 mounted in grooves 7. To this slide are fitted, preferably removably, the rods 8, the ends of which carry the screw sleeves 9, the outer surface of which is chased for convenient adjustment. The outer ends of the sleeves 9 are formed with balls 10 for universal movement in seating lugs 11, secured to the anchor bar 2. A tightening fer-

rule 12 covers and is adapted to fix the universal joint wherever set.

The slide 6 has a nut 13 through which is threaded a screw 14 journaled in end plates 15 of the member 3, and provided with a handle 16, preferably removable.

17 in Fig. 2 indicates a scale on the face of the member 3, and 18 is an associated pointer carried by the slide 6, whereby the amount of angular adjustment may be observed.

Referring now to Fig. 3, 19 are the limbs of a patient. At 20 is indicated the cast on the injured leg covering and holding the reduced fracture against lateral displacement. Upon this limb below the knee is the cast 21 in which is incorporated one of the anchor bars of the apparatus; and upon the sound limb in corresponding position is the cast 22 in which the other anchor bar is incorporated. By operation of the screw 14, the relative position of the two sides of the apparatus is varied, resulting in reciprocal stress which will place the injured limb under such axial tension as may be determined upon. By means of the sleeves 9 and the ferrules 12, such adjustments may be made as will give comparative comfort to the patient while insuring proper fixation.

We claim:—

1. An apparatus for reducing fractured limbs comprising a pair of anchor bars; casts for rigidly connecting said bars one with the injured and the other with the sound limb; and intermediate means for adjusting the relative positions of the two bars to apply reciprocal axial tension and compression to said limbs, respectively.

2. An apparatus for reducing fractured limbs comprising a pair of anchor bars adapted for connection one with the injured and the other with the sound limb; and intermediate means for adjusting the relative positions of the two bars to apply tension linearly of the fractured bones, consisting of a carrying member; a connection between said member and one of said bars; a slide carried by said member; means for moving the slide; and a connection between said slide and the other of said bars.

3. An apparatus for reducing fractured

limbs comprising a pair of anchor bars adapted for connection one with the injured and the other with the sound limb; and intermediate means for adjusting the relative positions of the two bars to apply tension linearly of the fractured bones, consisting of a carrying member; a connection between said member and one of said bars; a slide carried by said member; a nut and screw for moving the slide; and a connection between said slide and the other of said bars.

4. An apparatus for reducing fractured limbs comprising a pair of anchor bars adapted for connection one with the injured and the other with the sound limb; and intermediate means for adjusting the relative positions of the two bars to apply tension linearly of the fractured bones, consisting of a carrying member; a connection between said member and one of said bars; a slide carried by said member; means for moving the slide; and a connection between said slide and the other of said bars, said last named connection having an adjustable universal joint.

5. An apparatus for reducing fractured limbs comprising a pair of anchor bars adapted for connection one with the injured and the other with the sound limb; and intermediate means for adjusting the relative positions of the two bars to apply tension linearly of the fractured bones, consisting of a carrying member; a connection between said member and one of said bars; a slide carried by said member; means for moving the slide; and a connection between said slide and the other of said bars, said last named connection having an adjustable universal joint comprising a screw sleeve with a ball bearing and a setting ferrule associated with said bearing.

In testimony whereof we have signed our names to this specification.

CARL P. JONES.

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