

March 13, 1928.

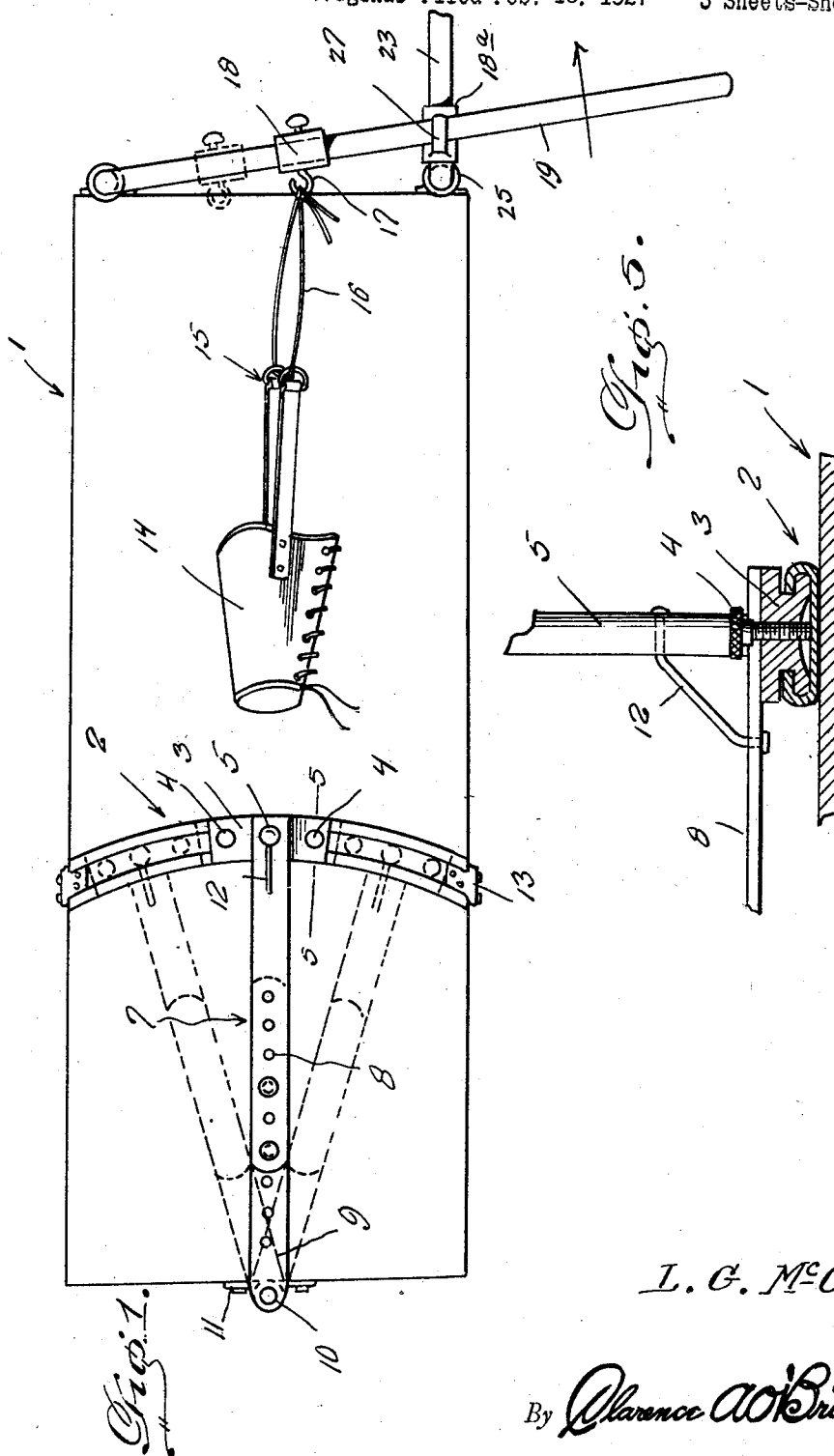
L. G. McCUTCHEN

1,662,464

FRACTURE DEVICE

Original Filed Feb. 15, 1927

3 Sheets-Sheet 1



Inventor
L. G. McCutchen

By Clarence A. O'Brien
Attorney

March 13, 1928.

L. G. McCUTCHEN

1,662,464

FRACTURE DEVICE

Original Filed Feb. 15, 1927

3 Sheets-Sheet 2

Fig. 4.

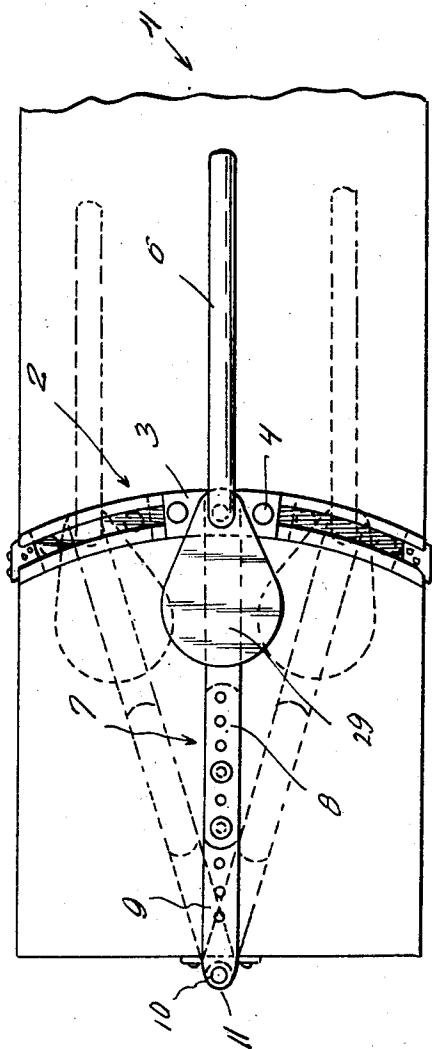


Fig. 5.

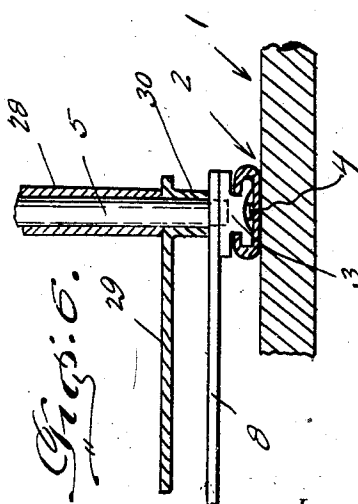


Fig. 6.

Inventor

L. G. McCutchen,

By *Alonzo A. Brien*
Attorney

March 13, 1928.

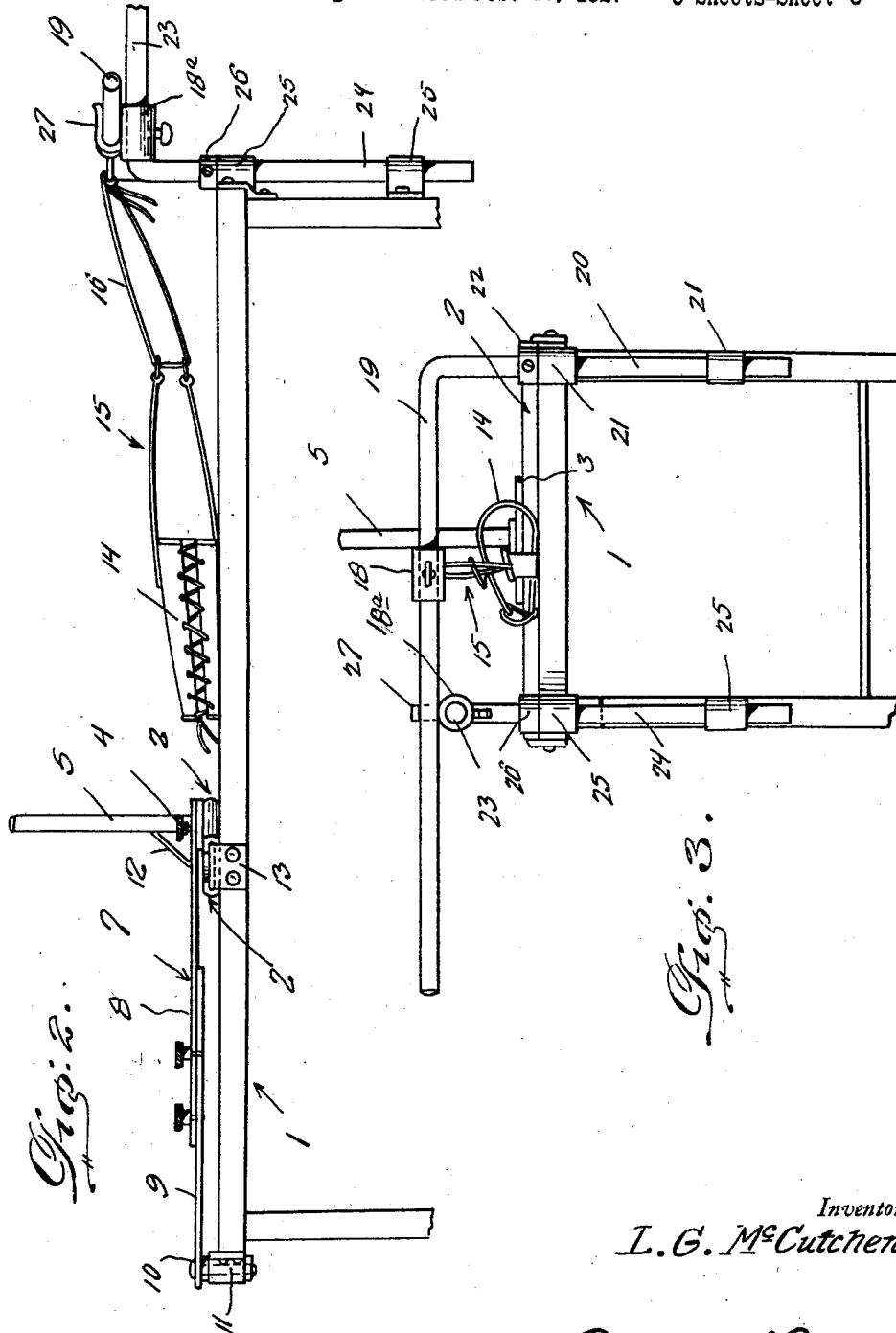
L. G. McCUTCHEN

1,662,464

FRACTURE DEVICE

Original Filed Feb. 15, 1927

3 Sheets-Sheet 3



Inventor
L. G. McCutchen,

By Clarence A. O'Brien
Attorney

UNITED STATES PATENT OFFICE.

LEX GLIN McCUTCHEN, OF ST. LOUIS, MISSOURI.

FRACTURE DEVICE.

Application filed February 15, 1927, Serial No. 168,342. Renewed January 5, 1928.

This invention relates to a structure which may be referred to, in its entirety, as a fracture device; that is, a device for setting fractured bones in human limbs.

At the outset, I shall mention that the device is of a portable nature and is employed in conjunction with a regular X-ray table and an ordinary fluoroscope, thus enabling the fragments of broken bones to be visualized as they are pulled in the apposition by the improved extension device.

I aim to produce a structure which is characterized by simplicity of construction, convenience and arrangement, ready adaptability for the particular case at hand, and one which is otherwise practical and efficient in operation, and use.

The various structural features and advantages which accompany the same will become apparent from the following description and drawings.

In the accompanying drawings:—

Figure 1 is a top plan view showing the complete structure as associated with an X-ray table.

Fig. 2 is a side elevation of the same.

Fig. 3 is an end elevation looking in a direction from right to left in Fig. 2.

Fig. 4 is a fragmentary top plan showing the method of adjustment, of the buttock seat.

Fig. 5 is an enlarged cross section on the line 5—5 of Fig. 1.

Fig. 6 is a similar view showing a slightly modified embodiment of the invention.

Fig. 7 is a perspective view of the buttock seat, per se.

Referring to the drawings in detail, it will be seen that the reference character 1 designates a regular X-ray table, the top of which is of general rectangular elongated configuration. Extending transversely across the table at a point between the center and one end is an arcuate metal track 2. As shown better in Figs. 5 and 6, this track is provided with marginal guide channels, and a sliding shoe 3 is mounted for movement therein.

The shoe is constructed for engagement with the guide channels. Also, it is provided with suitable set screws 4, for maintaining it in various adjusted positions. In this connection, it will be noticed that I have shown the shoe adjusted in dotted line position, particularly in Figs. 1 and 4.

Rising from the central portion of the shoe, is a rigid vertical standard 5. Incidentally, this standard may be of the construction shown in Figs. 1 and 2. In the latter instance, the horizontal section 6 forms a handle.

Connected with, and extending at right angles from the adjustable shoe, is an extensible arm 7 composed of overlapping sections 8 and 9. The outer section 9 is provided with a pivot pin 10 which is rotatably mounted in the bearing bracket 11 secured to one end of the table as shown. If desired, a brace 12 (see Fig. 5) may be provided between the standards 5 and the section 8 of the extensible arm.

I would direct attention at this time, to the fact that suitable angular end brackets 13 are connected with the ends of the arcuate tracks and are provided with set screws whereby they may be detachably connected with the longitudinal edges of the tables. This allows the tracks to be removed together with the shoe, standard, and extensible arm as a single unit.

In using the device, I employ a suitably constructed adjustable cuff 14 of appropriate material, and this is provided with attaching means 15 including a cord 16 which is intended to be connected with a hook on a sliding sleeve 18. The sleeve 18 is mounted on the horizontal portion 19 of a swingably mounted lever. The vertical portion 20 of this lever is rotatably mounted in brackets 21 on the end of the table. A suitable shoulder forming collar 22, is employed for maintaining the lever in proper position with respect to the bearing brackets.

Cooperating with this lever is a support and retaining member of somewhat similar construction in that it includes a horizontal arm 23 on the upper end of a vertical leg 24 rotatably mounted in bearings brackets 25 on the table-end. Here again, the shoulder 26 is employed.

Moreover, a sleeve 18^a is slidably mounted on the arm 23 and this is provided with a keeper hook 27, with which the portion 19 of the lever is connected as shown plainly in Figs. 1 and 2.

By directing attention to Figs. 4 to 7, it will be noticed that the aforesaid handle 6 may be of tubular form and may include a depending portion 28 to fit down in telescoping position over the standard 5. Hence,

it will be seen that the standard 5 may be in itself of right angular form or a right angular tubular member may be employed for detachable connection therewith in the manner just described.

Disposed between the lower end of this portion 28 and the extensible arm 7 is an appropriately designed buttock seat 29 having a retaining neck 30, which rotatably surrounds the standard.

The operation of the device is as follows:—

To begin with, it will be observed that the swingably mounted extensible arm 7 is adapted to serve as a support for the patient. In the form of the invention represented in Fig. 1, a suitable seat (not shown) is placed upon the arms, and the patient is seated thereon with his legs straddling the standard. In the form represented in Figs. 4 to 7, inclusive, the patient is seated upon the special buttock seat 29. The limb is placed in the cuff 14. Then the string or cord 16 is attached to the hook 17 on the sliding sleeve 18. The shoe 3 is adjusted to the most desirable position for the case at hand, in order that the leg may be disposed in alinement with the cuff. Double adjustment is provided; that is, the shoe and seat may be adjusted transversely of the table about the pivot 10, and secured in place by the set screws and also the anchoring sleeve 18 may be adjusted along the horizontal portion 19 of the swingable lever. Then when the device is properly adjusted, the lever is swung in the direction of the arrow and the follower sleeve 18 is moved along on the swingable arm 23 to hold the lever in the position to which it has been moved.

For reduction of fracture of the upper extremity, the standard and its accessory 6 is placed under the arm or axilla, with the cuff attached at the wrist, and the pull is made by the aforesaid lever. The standard can be moved along the arc of the track to either side of the table, depending on the arm which is fractured. For the lower extremities, the standard is placed in the middle of the arc and in the crotch of the patient. The cuff is then attached to the ankle and then to the lever, with which the extension is made. The standard and its accessories together with the seat, serve to provide a comfortable means for seating the patient, and enabling the patient to be held in position while the extension is being pulled by proper manipulation of the lever.

From the foregoing description and drawings it will be seen that I have evolved and produced an exceptionally simple and inexpensive contrivance in the form of a portable attachment for an X-ray table which allows fractures in arms and legs to be treated with facility and efficiency. It is thought that the construction, of the parts as well as their

relative association and cooperation is quite clear. Therefore, a more lengthy description is thought unnecessary.

Minor changes coming within the field of the invention claimed may be resorted to if desired.

Having thus described my invention, what I claim as new is:—

1. In a fracture device of the class described, in combination, a table, a transverse arcuate track attached to said table, a swingably mounted support for the patient having one end adjustably connected with said track, a swingably mounted lever, a retaining device therefor, and means whereby the fractured part may be detachably connected with said lever.

2. In a fracture device of the class described, in combination, a table, an arm pivotally connected to one end of the table and extending in parallelism with the top of the table, an arcuate track extending transversely across the table adjacent the center of the table, a shoe slidably and adjustably connected with the track and with the inner end of said arm, a swingably mounted lever mounted on a vertical axis at the opposite end of said table, retaining means therefor, and means whereby the fractured part may be connected with said lever.

3. In a structure of the class described, a table, an extensible arm pivotally connected to one end of said table, an arcuate track fastened transversely across the table adjacent the opposite end of said arm, a shoe, said arm being connected with said shoe, said shoe being slidably and adjustably mounted in said track, a standard rising from said arm, a swingably mounted lever at the opposite end of the table, and means whereby the fractured part is connected with said lever.

4. In a structure of the class described, in combination a table, a swingably mounted support for the patient at one end of the table, a right angular lever at the opposite end, the vertical portion of the lever being mounted for swinging about a vertical axis at the last named end of the table, a sleeve carried by the horizontal portion of the lever, a hook carried by said sleeve, and adjustable retaining means for the horizontal lever.

5. In a structure of the class described, in combination a table, a swingably mounted support for the patient at one end of the table, a right angular lever at the opposite end, the vertical portion of the lever being mounted for swinging about a vertical axis at the last named end of the table, a sleeve carried by the horizontal portion of the lever, a hook carried by said sleeve, adjustable retaining means for the horizontal lever, said adjustable retaining means comprising a member of right angular form having a vertical leg for swinging about a vertical

axis of the last named end of the table and including a horizontal arm, there being an additional sleeve slidably mounted on said arm, and said last sleeve being provided with a keeper hook with which the horizontal portion of said lever is detachably connected.

6. In a structure of the class described, a table, an extension, an extensible arm mounted for pivotal swinging at one end of the table, an arcuate guide track at the inner

end of the arm, a shoe slidably mounted in said track, said arm being connected with said shoe, a standard rising from said shoe and arm, and a buttock seat rotatably mounted on said standard, together with extension producing means at the opposite end of said table.

In testimony whereof I affix my signature.

LEX GLIN McCUTCHEN.