

W. EMGE.
SURGICAL APPARATUS FOR SETTING FRACTURED LEGS.
APPLICATION FILED JAN. 6, 1910.

1,064,464.

Patented June 10, 1913.

2 SHEETS-SHEET 1.

Fig. 1.

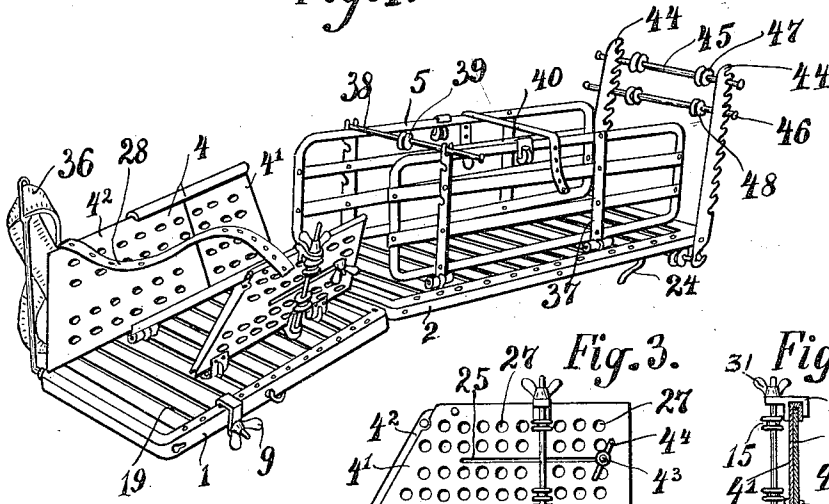


Fig. 3.

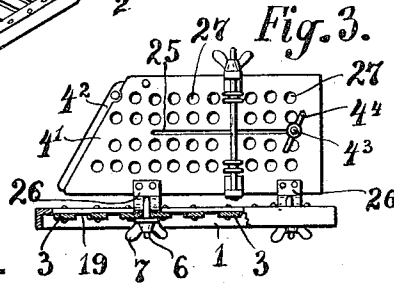


Fig. 4.

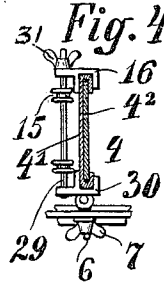


Fig. 5.

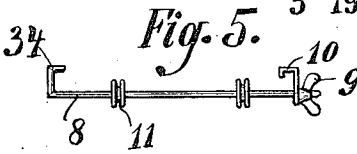
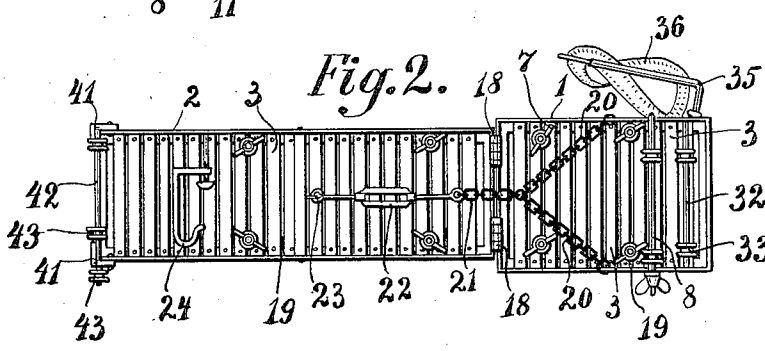


Fig. 2.



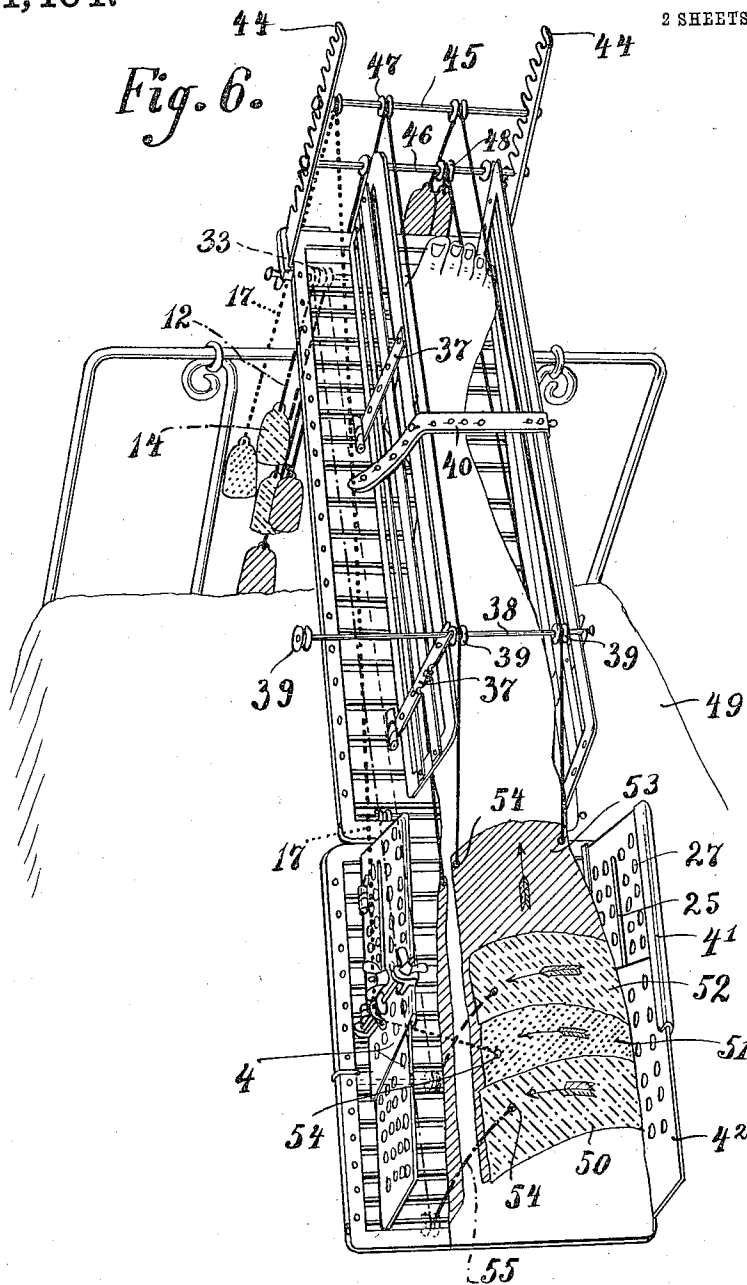
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2 SHEETS—SHEET 2.



Attest
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UNITED STATES PATENT OFFICE.

WENDELIN EMGE, OF HOHENTENGEN, GERMANY.

SURGICAL APPARATUS FOR SETTING FRACTURED LEGS.

1,064,464.

Specification of Letters Patent.

Patented June 10, 1913.

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To all whom it may concern:

Be it known that I, WENDELIN EMGE, a subject of the King of Wurttemberg, residing at Hohentengen, Kingdom of Wurttemberg, in the Empire of Germany, have invented a new and useful Surgical Apparatus for Setting Fractured Legs, of which the following is a specification.

The invention relates to a surgical apparatus for reducing fractures before the application of the permanent plaster-of-Paris or bandages, and consists of improvements which are fully set forth hereafter.

In the drawings, Figure 1 is a perspective view of the apparatus; Fig. 2 is an inverted plan view of the same; Fig. 3 is a side view, partly in vertical section and partly in elevation of the upper part of the supporting grate; Fig. 4 is a vertical cross section through the extensible side wall shown in Fig. 3 with the adjustable guide carrying rod in elevation; Fig. 5 is an elevation of one of the guide carrying rods; and Fig. 6 is a perspective view of the apparatus illustrating its use.

The supporting grate consists of two parts 1 and 2 hinged together by any suitable means, so that they can assume an angular position to one another. Each of the parts 1 and 2 consists of a frame and cross bars 3 forming intermediate slots 19. Any suitable means may be employed for causing the two parts of the grate to assume the desired angular position. For example, a chain 20 (Fig. 2) may be fastened to one end of the part 1 and connected by a chain 21 with an extensible link 22, the eye 23 of which is fastened to a cross bar on the part 2. If desired a turn-table support 24 may be provided on the underside of the part 2, this support being adapted to rest on the bed or some part of the bedstead. Two adjustable and extensible side-walls 4 are carried by the part 1 and are constructed as follows: Each wall 4 consists of two parts 4' and 4², of which the part 4² is longitudinally movable within the part 4' and can be adjusted by means of a screw 4³ and nut 4⁴ (Fig. 3), the screw 4³ engaging in a longitudinal slot 25 on the part 4'. The outer part 4' is pro-

vided with hinges 26, the outer members of which are threaded and pass through slots 19 on the grate-part 1 so that the hinges can be secured by means of nuts 7. When the nuts 7 are loosened the side-wall may be adjusted as required. The hinges 26 have such faces adapted to bear on the cross bars 3 of the grate-part 1 that by screwing home the winged nuts 7 the side wall 4 will be raised into a vertical position. The parts 4' and 4² of the side-wall 4 are provided with holes 27 which are so arranged that the holes in the overlapping portions of the two parts will remain in register with one another when the two parts of the wall are adjusted with respect to one another. If desired a strap 28 may be connected to the two walls for the purpose of bracing them.

One or each of the two side-walls 4 is provided with an adjustable rod 29 (Fig. 4). As shown the lower end of the rod 29 is provided with a fork 30 adapted to grip the lower edge of the outer part 4' and slide thereon. A loose fork 16 on the other end of the rod engages the upper edge of the part 4', and the nut 31 secures the parts together in adjusted position. When the nut is loosened the rod may be shifted upon the side-wall into any position desired. Two guide rollers 15 are shown on the rod 29, and these can be shifted longitudinally and are preferably loose and free to rotate.

The grate-part 1 is provided at its outer end with a cross-rod 32 having rotatable guide rollers 33 which may be adjusted longitudinally. An adjustable rod 8, such as is shown in Fig. 5, is also arranged on the underside of the grate-part 1, and this is shown provided on one end with a hook 34 adapted to grip one side of the frame, and on the other end with a loose hook 10 adapted to grip the other side of the frame, and with a nut 9 on the threaded end of the rod by which the loose hook 10 may be clamped to secure the rod in adjusted position. The rod is provided with two rollers 11. The part 1 is shown provided with a movable support 35 with a strap 36.

Two adjustable open side-walls 5 are arranged on the grate-part 2. As shown each

side-wall consists of an open frame having cross bars 37 which are hinged at their lower ends to the grate frame 2 by hinges similar to the hinges 26 previously described, so that the side-walls 5 may be adjusted and raised in a manner similar to the side-walls 4. Opposite cross bars 37 may be notched as shown in Fig. 1 to carry rods provided with loose guide-rollers 39. A strap 40 similar to the strap 28 may be employed for bracing together the side-walls 5.

The outer end of the grate-part 2 is provided with suitable lugs 41, in which is supported a rod 42 provided with loose rollers 43. If desired, an adjustable rod similar to the rod 8 in Fig. 4, may also be employed on the bottom of the grate-part 2. 44 are racks attached to the outer end of the grate-part 2 and are adapted to receive rods 45 and 46 having guide-rollers 47, 48. If desired the racks 44 may be made in one piece with the lugs 41.

When in use the device may be placed upon a bed 49, as shown in Fig. 6, with the side-walls 4 and 5 turned down and the two parts 1 and 2 adjusted to the proper angle to support the leg. The walls 4 and 5 are then adjusted in position and elevated to inclose the leg, as shown.

Assuming that the fracture is in the thigh and that the various adhesive plasters 50, 51, 52 and 53 are applied, as shown in Fig. 6, the surgeon by means of tension cords connected with these plasters by hooks 54, or other suitable means, may apply tension to the fractured portion of the limb, and the arrangement permits tension to be applied in any direction that may be desired. In Fig. 6 two tension cords are shown applied to the plaster 53, and these run over the guides 39 on the rod 38 to the guides 47 on the rack 44 at the end of the apparatus, and the usual weights 14 are secured to the ends of the cords. The tension cords from the plasters 50 and 52 are shown running down through the grate-part 1 and then over the guides on the lower part of the grate and over the guides 33 at the end of the apparatus. The tension cord from the plaster 51 passes laterally through the opening in the wall 4 and then over the guides 15 through a guide on the rod on the rack at the end. These arrangements of the cords may of course be varied to suit the character of the fracture and the nature of the tension required. The adjustability of the rods 8 and 29 enables the guides to be moved into proper longitudinal position, while further adjustment of the guide rollers on the rods enables them to assume the proper position transversely to apply the tension in any direction that may be desired.

What I claim is as follows:

1. In apparatus for the purposes de-

scribed, the combination with the hinged grate and side-walls carried thereby, of an adjustable rod or guide-support on the underside of the grate provided with guides for a tension cord and adjustable longitudinally with reference to the grate.

2. In apparatus for the purposes described, the combination with the hinged grate and side-walls carried thereby, of a rod or guide-support carried thereby and arranged transversely on one of the side-walls and adjustable longitudinally with reference to the grate, and guides for a tension cord carried by said rod or guide-support.

3. In apparatus for the purposes described, the combination with the hinged grate and side-walls carried thereby, of a rod or guide-support carried by the underside of the grate and adjustable longitudinally with reference thereto, and guides for a tension cord carried by said adjustable rod and adjustable transversely with respect thereto.

4. In apparatus for the purposes described, the combination with the hinged grate and side-walls carried thereby, of a rod or guide-support carried on one of the side-walls and arranged transversely and adjustable thereon longitudinally with respect to the grate, and guides for a tension cord carried by said rod and adjustable transversely thereto.

5. In apparatus for the purposes described, the combination with the hinged grate adapted to support the limb, of guides arranged on the outer end of said grate, and longitudinally adjustable guides on the underside of said grate said guides being adapted to guide the tension cords attached to the fractured limb.

6. In apparatus for the purposes described, the combination of the hinged grate adapted to support the limb, of guides arranged on the outer end of said grate, and longitudinally and transversely adjustable guides on the underside of said grate, said guides being adapted to guide the tension cords attached to the fractured limb.

7. In apparatus for the purposes described, the combination with the hinged grate adapted to support the limb and provided with side-walls, of guides on the outer end of said grate, and longitudinally adjustable guides on the outside of a side-wall, said guides being adapted to guide the tension cord attached to the fractured limb.

8. In apparatus for the purposes described, the combination with the hinged grate adapted to support the limb and provided with side walls, of guides on the outer end of said grate, and transversely and longitudinally adjustable guides on the outside of a side-wall, said guides being adapt-

ed to guide the tension cords attached to the fractured limb.

nut for securing said movable hook, and guide rollers carried by said rod.

WENDELIN EMGE.

Witnesses:

LAMBERT STADER,
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9. The combination with the frame of the grate or side wall, of an adjustable guide
5 carrying rod provided at its ends with hooks adapted to engage the edges of the frame one of said hooks being movable, a clamp

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
