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Patented Oct. 11, 1910.

2 SHEETS—SHEET 1.

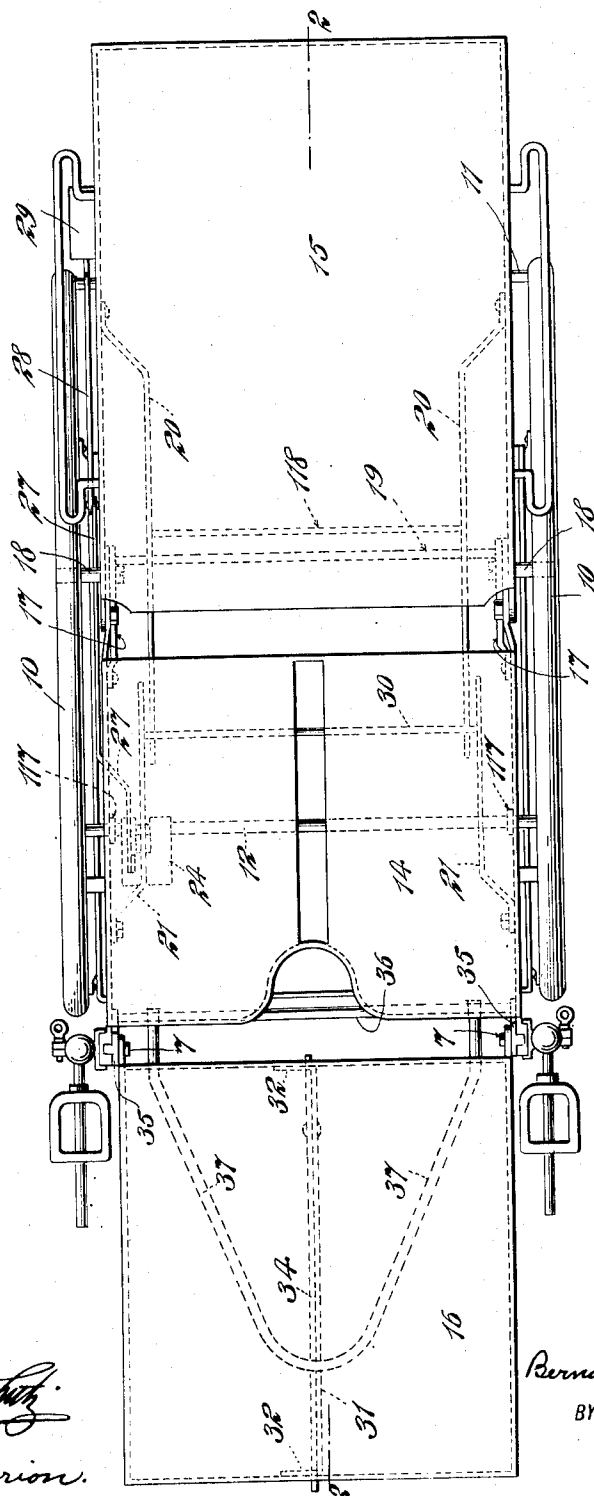


Fig. 1.

WITNESSES:  
*Julius H. [Signature]*  
*Arthur Marion.*

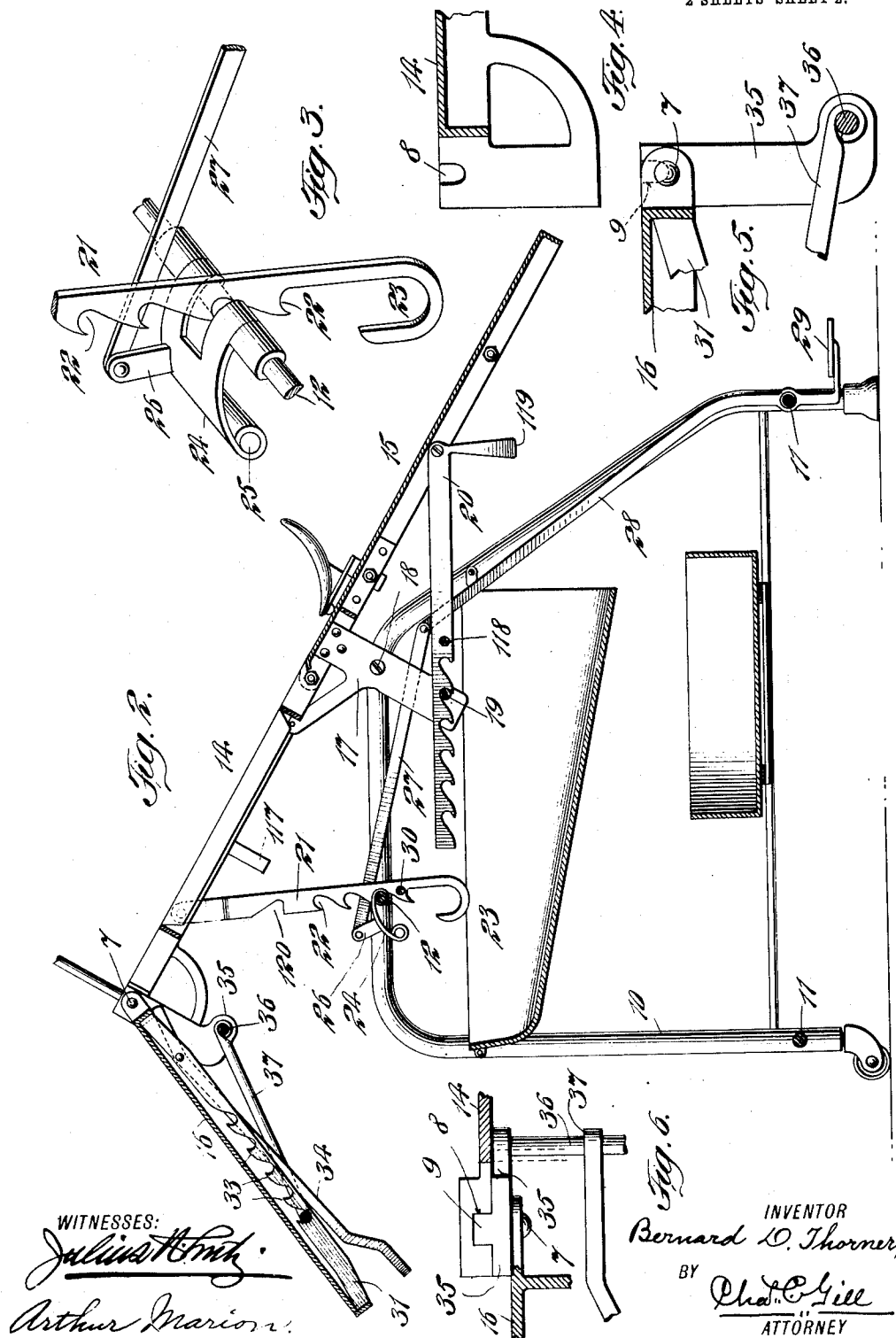
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*Julius H. Smith*  
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# UNITED STATES PATENT OFFICE.

BERNARD D. THORNER, OF NEW YORK, N. Y., ASSIGNOR TO THE HOSPITAL SUPPLY COMPANY, OF NEW YORK, N. Y., A FIRM.

OPERATING-TABLE FOR THE USE OF PHYSICIANS AND SURGEONS.

972,414.

Specification of Letters Patent.

Patented Oct. 11, 1910.

Application filed November 8, 1909. Serial No. 526,726.

*To all whom it may concern:*

Be it known that I, BERNARD D. THORNER, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Operating-Tables for the Use of Physicians and Surgeons, of which the following is a specification.

The invention relates to improvements in operating tables, and it consists in the novel features and structure hereinafter described, and particularly pointed out in the claims.

The object of the invention is to provide a more convenient and effective operating table for the use of physicians and surgeons, and said invention pertains more particularly to the novel means I provide having to do with the adjustment of the sections of the table top to their various positions determined by the nature of the operation and the condition of the patient.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is a top view of an operating table constructed in accordance with and embodying my invention, the several sections of the table-top being shown as extended horizontally in line with one another; Fig. 2 is a central, vertical, longitudinal section of the same on the dotted line 2-2 of Fig. 1, the sections of the table-top being shown as adjusted to one well known operating-position; Fig. 3 is a detached perspective view, on an enlarged scale, of a portion of the adjusting mechanism for the middle section of the table-top; Fig. 4 is an enlarged detached view, partly in section, of the inner face of one side of the front end portion of the middle section of the table-top; Fig. 5 is an enlarged detached vertical longitudinal section through a portion of the inner end of the foot-section of the table-top, and Fig. 6 is a top view, partly in section, of the same, with a portion of the middle section to which said foot-section is applied.

In the drawings, 10 designates suitable supporting side-frames for the table, and these frames are suitably connected and braced by transverse rods 11, 12, and equipped at their lower leg ends with casters, as usual.

The top of the table comprises three main sections 14, 15, 16, the section 14 being the main or middle section, that numbered 15 a hinged head-frame and the section 16 a pivoted or hinged foot-frame, which in the construction presented, is shown as detachably applied to the front end of the middle section 14 by means of vertical lugs 9 on the outer faces of pivoted bracket-arms 35 on the foot-section and grooves or recesses 8 provided on the inner facing sides of the forward end of the middle section to receive said lugs. The foot-section 16 may be applied to the middle section by merely dropping the lugs 9 into the grooves 8, and when so applied the interlocking lugs 9 and grooves 8 hold the bracket-arms 35 rigid but permit the body of the foot section to have a hinged movement on the rivets 7 which connect the bracket-arms to the foot-section.

The middle-section 14 of the table-top has secured to its opposite edges near its rear end bracket-plates 17 which are pivotally secured by bolts 18 to the side-frames 10 and connected at their lower ends by a transverse rod 19. The forward portion of the section 14 is provided at opposite sides with short legs 117 adapted when said section is in a horizontal position to rest on the ends of the cross-rod 12. The entire table-top may be adjusted by tilting the middle section 14 upwardly or downwardly on its pivotal supports 18, and, as usual, the head and foot-sections 15, 16 are capable of independent adjustment.

The head-frame 15 has rack-bars 20 pivotally secured to it, and these rack-bars in the various adjustments of the said frame engage the rod 19 which connects the brackets 17. The bars 20 permit the head-section 15 to be adjusted independently of the middle-section 14, but since said bars are in engagement with the transverse rod 19 carried by the brackets 17, the relation of the head-section 15 to the middle-section 14 may be maintained during any raising or lowering of said middle section. The bars 20 are connected together by a cross-rod 118 and one of said bars is provided with a handle 119.

The middle-section 14 of the table-top has pivoted to it the rack-bars 21, having deeply cut recesses 22 to engage the transverse rod 12 connecting the side-frames 10 when it is desired to support the table-top in an ele-

vated or inclined position, as shown in Fig. 2. The bars 21 are provided at their lower ends with hooks 23 which, in the event of any possible accident causing the head-end of the table-top to descend without restraint, will catch upon the rod 12 and arrest the movement of the table-top. The recesses 22 are deeply cut, so as to be concave at their inner ends and fit partly around the rod 12, the purpose being to have the rod snugly and effectually received within the recesses in such manner as to prevent the slippage of the bars 21 from off the rod, except when that result is specially desired. The toothed projections between the recesses 22 incline forwardly and downwardly, and hence during the upward movement of the front end of the table-section 14, the bars 21 may slide against the rod 12 without catching upon the same, but on any downward movement of said end of the table section 14, the rod 12 will be caught within the recesses of the bars 21 and arrest said section 14. When the table-section 14 is in an elevated position it is at its forward end supported by the rack-bars 21 and rod 12, while at its rear end it is supported on the bolts 18. When the table-section 14 is in an elevated position, such as represented in Fig. 2, and it is desired to adjust the same downwardly, the bars 21 must be relieved from the rod 12 and kept from reengaging said rod until the table top has reached its desired adjustment, whereupon the bars 21 are permitted to again engage the rod 12.

In accordance with my invention I provide means for holding the bars 21 released from the rod 12 during the downward movement of the table-top section 14, and these means comprise a curved plate or guard 24 swiveled at its rear end upon the rod 12 and having its forward end, which turns downwardly, weighted, as at 25, for causing said forward end to naturally hang downwardly. The guard 24, preferably made of sheet-metal, has a split or slotted rear end forming strips which are wrapped around the rod 12 at opposite sides of the path of the rack-bar 21, and said guard at its forward end is rolled into cylindrical form around a weight 25, which may be of lead. The guard 24 has, at the front of the rod 12, secured to it a bracket-arm 26, to the upper end of which is pivotally connected a link 27, which extends rearwardly and downwardly and at its rear end is pivotally connected with a rod or lever 28, which extends downwardly and near its lower end is pivotally mounted on the rear transverse rod 11 of the supporting frame. The lower end of the rod 28 is formed or provided with a foot-treadle 29.

When pressure is applied on the foot-treadle 29 tending to press the lower end of the rod 28 forwardly, the upper end of said

rod will move rearwardly and through the link 27 and bracket-arm 26 lift the curved guard 24 upwardly and rearwardly against the rack-bar 21, and if the bar 21 is then freely suspended due to downward pressure on the rear end of the table-top and the recesses 22 thereof are free of the rod 12, the guard 24 will turn the bar 21 on its pivot in a direction from the rod 12, but will not on any accidental pressure, however great, applied to the treadle 29, be able to release the bar 21 from the rod 12 when the rod is in one of the recesses 22 and the table top section is resting with its weight on the bars 21. I provide only one guard 24, but connect the bars 21 by a rod 30, so that they may have simultaneous movement. The guard 24 is, therefore, not to initially release the bars 21 from the rod 12 but to swing the bars 21 rearwardly when the rod 12 is out of the recesses 22, so that the table top section may be lowered without danger of the rod being caught in any of the recesses until the table top has reached its desired position. Assuming therefore that it is desired to lower the elevated table top section 14, the attendant will first press downwardly on the rear end of the table so as to elevate the front portion of the same sufficiently to carry the recesses 22 engaging the rod 12 slightly above said rod, and thereupon he will press with his foot on the treadle 29 and cause the front portion of the guard 24 to turn upwardly against the adjacent bar 21 and swing said bar (and through the rod 30 the other bar 21) rearwardly, whereupon, the pressure on the treadle 29 being continued, the table-top section 14 may be lowered without the teeth of the bars 21 catching on the rod 12 but sliding downwardly against the curved top of the guard 24.

When the table top section has reached its desired position of adjustment, the foot will be relieved from the treadle 29 and the guard 24 owing to its weighted forward end, will turn downwardly from the adjacent bar 21 and allow the latter, by gravity, to swing against and engage the rod 12. With the use of the guard 24 and connections for operating it from the rear end of the table, one attendant may quickly and without noise or jar, adjust the table-top section with entire convenience. The rack-bars 21 and rod 12 are also utilized to lock the table-top in a horizontal position, and to this end I provide each of the bars 21 with a notch or recess 120 adapted when the table-top is lowered and the bars 21 slide along the rod 12 and gradually assume their substantially horizontal position, to pass into engagement with said rod and prevent the table-top from being tilted upwardly except after the bars 21 have been tilted upwardly from said rod. When it is desired to incline the table-top, I press on the foot-treadle 29 and thereby

cause the guard 24 to turn upwardly against and lift the bars 21 from the rod 12, thus freeing the recesses 120 from said rod, and thereupon press downwardly on the rear end of the table-top to cause the front end thereof to turn upwardly. After the table-top has reached the desired inclined position, the bars 21 will be allowed to engage the rod 12, as hereinbefore explained, to support the forward portion of the same.

The foot-section 16 while movable with the table-top section 14 is also capable of independent adjustment, so that it may be inclined with respect to said section 14, and the means I have provided for adjusting the foot-section 16 have been designed with the view of simplifying and rendering more certain and effective the mechanisms heretofore employed for adjusting the foot-section in its inclined positions. I secure a bar 31 centrally lengthwise of and underneath the foot-section 16, said bar being of wrought metal and having its ends bent at right angles, as indicated at 32 in Fig. 1, so as to be conveniently secured in a very durable manner to the front and rear flanges of the section 16. The bar 31 has a toothed upper edge, especially about its middle portion, and at its toothed part is bent downwardly, so as to leave a space between the teeth 33 and the lower surface of the section 16. To one side of the bar 31 is pivotally secured a bar 34 which lies close alongside of the bar 31, as shown by dotted lines in Fig. 1, and is intended for hand operation. The bar 34 is pivoted near its rear end, so that its front end may, by gravity, hang downwardly somewhat below the bar 31. The rear end of the bar 34 will, when the front portion of said bar hangs downwardly, engage the rear edge of the foot section 16 and acts as a stop to prevent undue downward movement of the front portion of said bar. At the front end of the table section 14 are the depending bracket-arms 35 hereinbefore referred to which are connected by a rod 36 on which are pivotally secured the rear ends of the rod 37, which is bent approximately into the form of the letter V and at its middle portion is confined between the bar 31 and the lower surface of the foot section 16. The weight of the middle or bent portion of the rod 37 will cause the same, by gravity, to rest on the bar 31 and enter the recesses between the teeth thereof. The bar 34 at its front portion extends below the forward bent portion of the rod 37, and its purpose is to enable the attendant by pressing upwardly on the front end of the rod 34 to lift the middle portion of the rod 37 from the teeth 33 of the bar 31. If, for illustration, the foot-section 16 should be in straight line with the middle section 14 and it should be desired to incline the same downwardly from such position, the attendant would first

press upwardly on the front end of the bar 34 to free the rod 37 from the bar 31 and then lower the front end of the foot section, the bent portion of the rod 37 during this movement of the foot-section being held above the teeth 33 by the bar 34 and riding along said bar. Upon the foot-section 16 attaining its desired position, the bar 34 will be released to lower from the rod 37 and the bent portion of said rod will, by gravity, enter the recess of the bar 31 then presented to it. By having the teeth of the bar 31 project upwardly and the bent portion of the rod 37 confined between the bar 31 and the lower surface of the foot-section 16, I present a very durable, compact and safe means for adjusting the foot-section and holding it in its adjusted positions, and the presence of the bar 34 enables me to conveniently free the rod 37 from the rack bar 31 when it is desired to lower or turn downwardly the foot-section 16 from an elevated position. The bar 34 may be used for holding the rod 37 free from the rack-bar 31, either when it is desired to elevate or lower the foot-section 16, but is of special importance when it is desired to lower the section 16, because when turning the section 16 downwardly from an elevated inclination, the rod 37 must be held upwardly free of the teeth 33. When the bar 34 is used for holding the rod 37 free from the rack-bar 31, said rod slides noiselessly over the bar 34, and this is a convenience both when raising or lowering the foot-section.

What I claim as my invention and desire to secure by Letters Patent, is:

1. An operating table comprising supporting frames, a sectional hinged table to be inclined as occasion may require, a rack-bar (21) pivoted to the main table-section and a rod (12) to be engaged by said rack-bar for supporting the table in its inclined position, combined with a hinged guard to be turned against said rack-bar for holding the same free of said rod during the lowering of the table, and a foot-treadle and means connecting the same with said guard for operating the latter from said treadle; substantially as set forth.

2. An operating table comprising supporting frames, a sectional hinged table to be inclined as occasion may require, a rack-bar (21) pivoted to the main table-section and a rod (12) to be engaged by said rack-bar for supporting the table in its inclined position, the recesses in said rack-bar being deep to encompass the upper side of said rod and resist any lateral pressure against the bar tending to displace the same from said rod, combined with a curved guard hinged on said rod to be turned upwardly against the teeth of said rack-bar after the release of the latter from said rod for holding the bar free of said rod during the lowering of the table,

and a foot-treadle and means connecting the same with said guard for operating the latter from said treadle, said guard having a weighted free end to turn it from said bar when pressure on the treadle is released; substantially as set forth.

3. An operating table comprising supporting frames, a sectional hinged table, a rack-bar 21 pivoted to the main table-section and a rod 12 to be engaged by said rack-bar for supporting the table in its inclined position, combined with a hinged guard to be turned against said rack-bar for holding the

same free of said rod during the lowering of said table, and means for manually moving said guard against said bar, said guard having a weighted free end to turn it from said bar when said guard is released by the operator; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 5th day of November A. D. 1909.

BERNARD D. THORNER.

Witnesses:

CHAS. C. GILL,  
ARTHUR MARION.