

No. 870,324.

PATENTED NOV. 5, 1907.

B. D. THORNER.  
OPERATING TABLE.  
APPLICATION FILED FEB. 6, 1907.

4 SHEETS—SHEET 1.

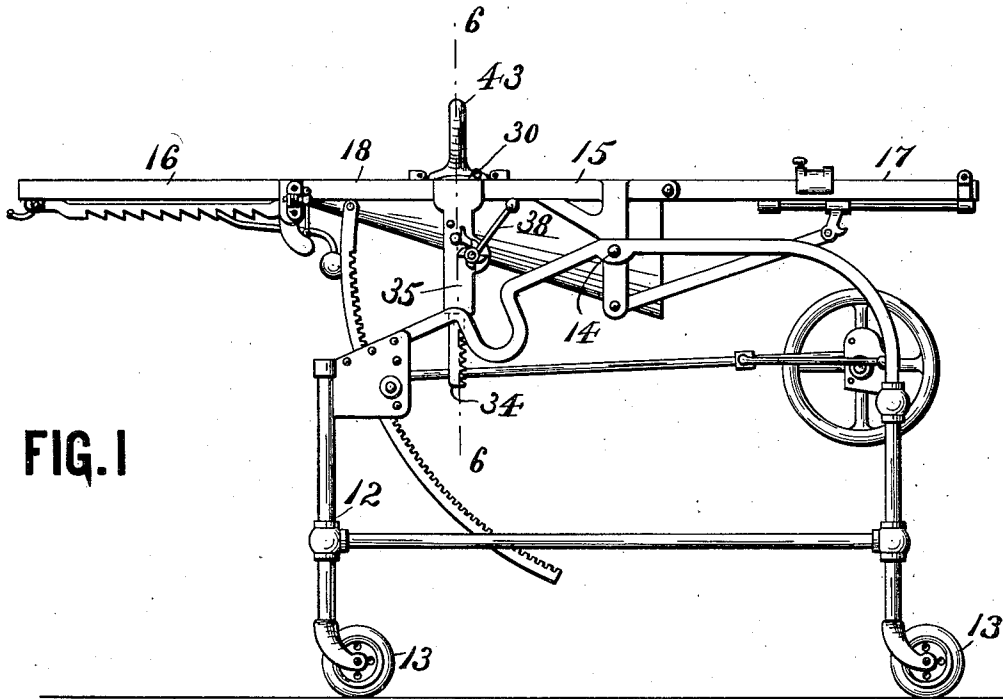


FIG. 1

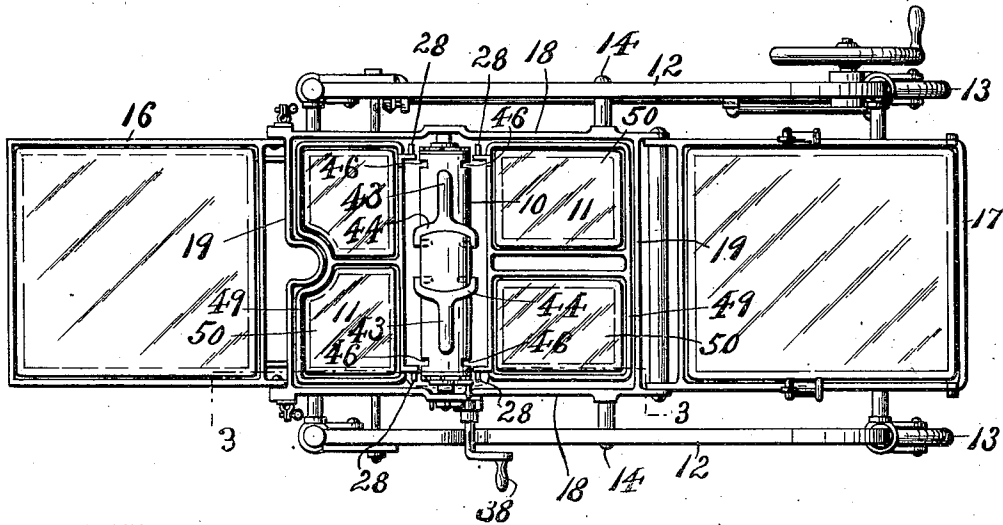


FIG. 2

WITNESSES:  
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*F. W. Hauptzel*

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ATTORNEY

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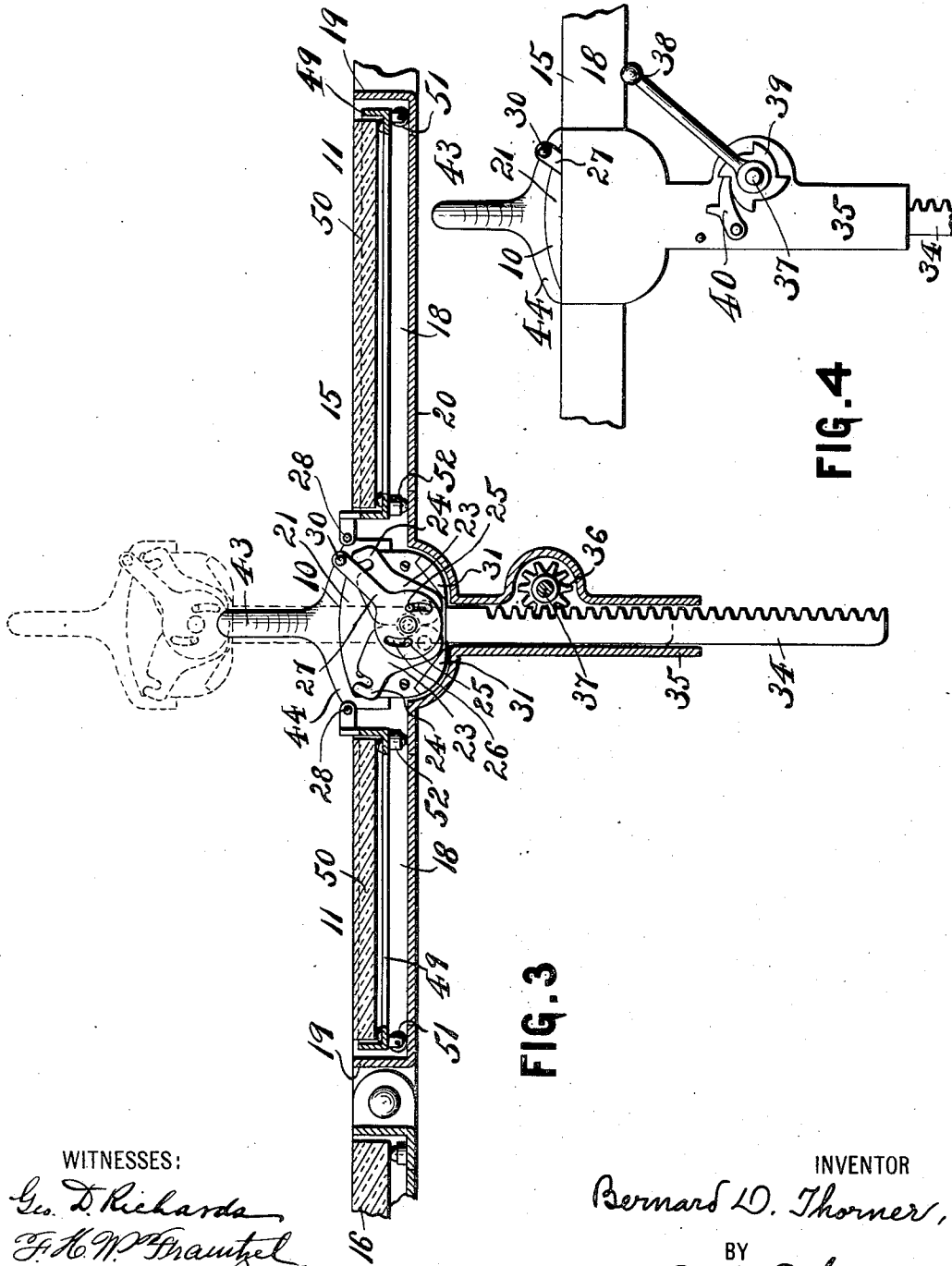


FIG. 3

FIG. 4

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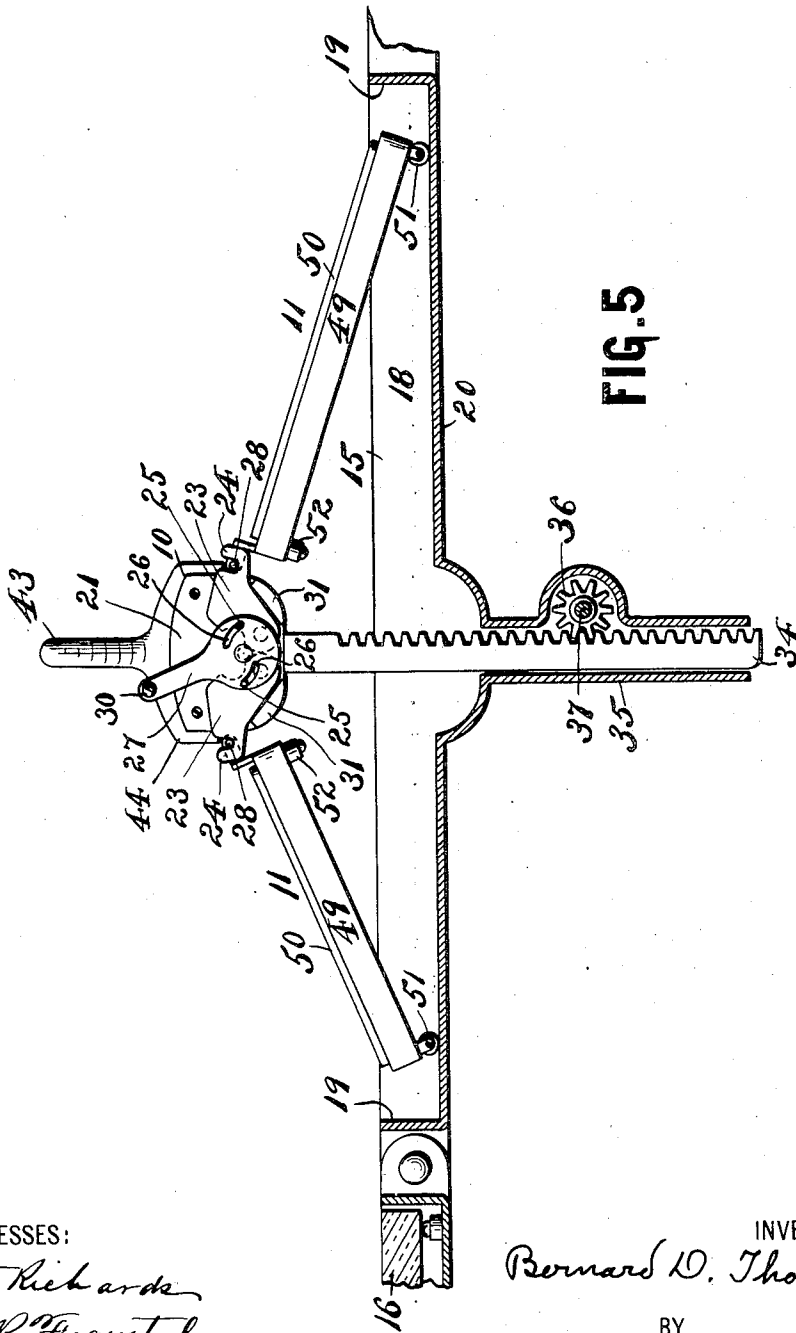
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4 SHEETS—SHEET 3.



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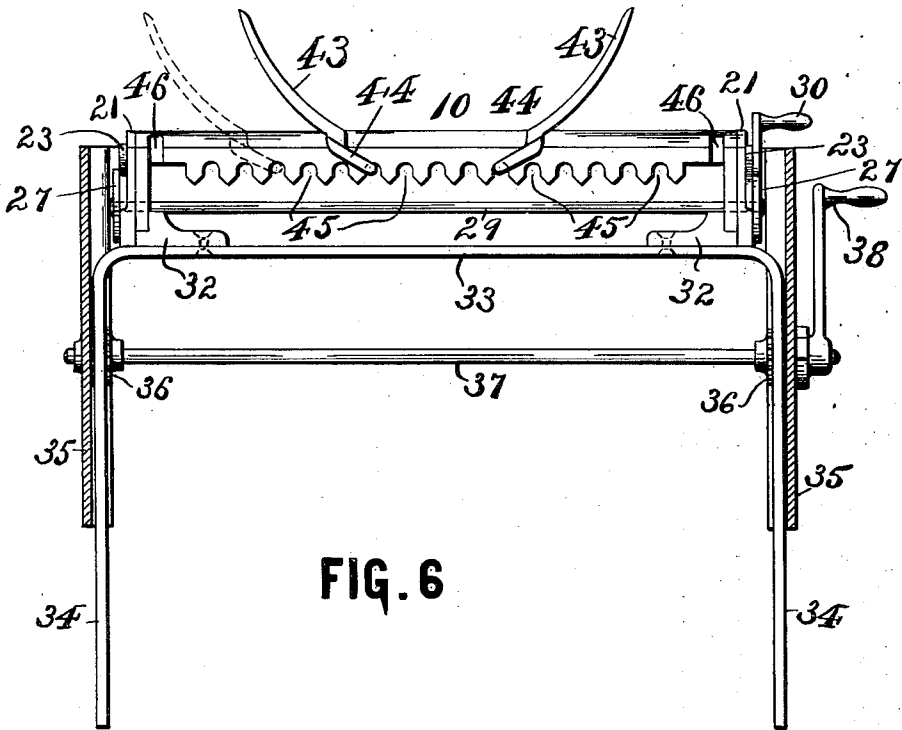


FIG. 6

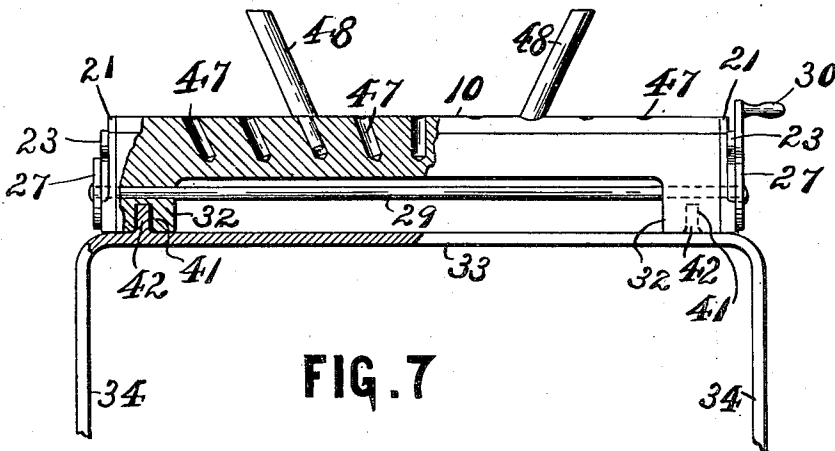


FIG. 7

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# UNITED STATES PATENT OFFICE.

BERNARD D. THORNER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO DAVID FRANK, OF BROOKLYN, NEW YORK, AND ONE-HALF TO JOHN TROUNSTINE, OF NEW YORK, N. Y.

## OPERATING-TABLE.

No. 870,324.

Specification of Letters Patent.

Patented Nov. 5, 1907.

Application filed February 6, 1907. Serial No. 355,999.

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, of which the following is a specification.

The invention relates to improvements in operating tables for the use of surgeons, and it consists in the novel features, arrangements and combinations of parts hereinafter described, and more particularly pointed out in the claims.

The object of the invention is to provide an operating table on which a patient may be more effectually and conveniently given a correct position for abdominal operations and bandaging, and to this end the table of my invention is provided at about its transverse center, with a vertically movable support adapted to be raised and lowered at will. The table is also provided with leaf sections disposed one on each side of the transverse support and adapted at their facing ends to be engaged with said support, so that upon the elevating of the support said leaf sections may form a double incline extending downwardly from opposite edges of said support.

The table of my invention also comprises various details of construction and equipment, all of which will be understood from the description hereinafter presented.

Referring to the accompanying drawings, Figure 1 is a side elevation of an operating table constructed in accordance with and embodying the invention; Fig. 2 is a top view of same; Fig. 3 is an enlarged vertical longitudinal section, partly broken away, through the table on the dotted line 3-3 of Fig. 2, the central support being indicated in its lower position by solid lines and in an upper position by dotted lines; Fig. 4 is an enlarged detached side elevation of a portion of the middle part of the table, this figure being presented to more fully illustrate the means for locking the central support in its upper position; Fig. 5 is an enlarged vertical longitudinal section through a portion of the table and corresponds substantially with Fig. 3, Fig. 5 however showing the central support by solid lines in its upper position and the leaf sections in edge view and as having been carried upwardly at their inner ends with said support so as to form a double incline extending downwardly at opposite sides of said support; Fig. 6 is a vertical transverse section through the table on the dotted line 6-6 of Fig. 1, the central support being illustrated in its lower position; and Fig. 7 is a like view of the same but illustrating a modification of a portion of the invention and the central support being shown partly in section.

In the drawings I illustrate an operating table em-

bodying my invention but utilizing certain features of usual and known construction. The features constituting my invention pertain to the vertically movable support 10 at the transverse center of the table, the movable leaf sections 11, 11 adapted at their inner ends to be elevated by said support, means for connecting said leaf sections with said support, when desired, and means for raising and lowering said support and locking the same in its elevated position.

The usual side frames of the table are designated by the numeral 12, and these frames are mounted upon rollers 13, and at 14 pivotally support the table top composed of a central section 15, a head frame 16 hinged thereto and a foot frame 17 hinged to said central section. The main table top may be given various positions by the adjustment of the head and foot frames and also by adjusting the entire top upon its pivotal supports in a well-understood manner and not necessary of description.

The present invention is confined to the table top comprising the hinged head and foot frames 16, 17 and transverse middle section 15, and this section comprises an exterior encompassing frame composed of sides 18, ends 19 and bottom 20, and within which are normally located the vertically movable support 10 and leaf sections 11. The center support 10 is in the form of a transverse bar or frame preferably convex on its upper surface and wider at its top than at its lower portions. The support 10 while narrow is sufficiently wide to enable it to be used in properly supporting a patient in correct position for abdominal operations and the like, and the upper surface of said support is made convex so that it may be as comfortable as possible to the patient and locally place the part of the patient in the most correct position and condition for facilitating the operation.

The support 10 has fastened to its opposite ends plates 21 upon which are pivotally secured the pairs of plates 23 (Figs. 3 and 5) which are formed at their outer ends with hooks 24 and at their inner portions are provided with pins 25 disposed within segmental slots 26 formed in the cam-plates 27 which are secured upon a pivot-rod 29 and lie close against the plates 23 and one of which has a handle by which said plates 27 may be operated or turned from the position indicated in Figs. 3 and 4 to the position shown in Fig. 5 and back to their initial position. The cam-plates 27 when turned to the right, as shown in Fig. 3, operate through the slots 26 and pins 25 to draw the plates 23 inwardly within the outline of the end-plates 21, and when said cam-plates are turned to the left they operate through the slots 26 and pins 25, as shown in Fig. 5, to project the hook-ends 24 of said plates outwardly below pins 28 carried at the inner corners of the leaf-sections 11, this being for the purpose of causing the central support 10

when elevated to, by means of the hooks 24, engage the said pins 28 and carry the inner ends of the leaf-sections 11 upwardly to the position denoted in Fig. 5. When it is desired to elevate the central support 10 without inclining the leaf-sections 11, the cam-plates 27 will be turned to the right, so as to carry the hooks 24 of the plates 23 inwardly, as shown in Fig. 3, beyond the plane of the pins 28, under which condition the support 10 may be moved upwardly without said hooks passing into engagement with said pins. The cam-plate 27 at one side of the table is fastened upon one end of the aforesaid rod 29 which extends across to the other side of the table and there carries the other plate 27, and hence when the attendant by means of the handle on one plate 27 operates said plate to set the plates 23 at that side of the table the corresponding plates 23 at the opposite side of the table will be correspondingly actuated. It is therefore only necessary that one of the plates 27 be provided with a handle, which I designate 30. The entire purpose of the plates 23 and cam-plates 27 at the ends of the support 10, is to enable said support when moving upwardly to, when desired, carry with it the inner ends of the leaf-sections 11, and in order that said leaf-sections when carried upwardly may be adequately supported, I form the end plates 21 with shoulders 31 against which the lower edges of the plates 23 when the latter are spread outwardly may rest and be maintained in rigid position in opposition to any downward strains which may be exerted against them.

The central support 10 is formed with end-feet 32 (Figs. 6 and 7) which are secured, preferably detachably, upon a transverse bar 33 which is preferably integral with vertical side rack-bars 34. The bar 33 and rack-bars 34 are vertically movable and carry the central support 10. The rack-bars 34 extend vertically through housings 35 secured to the sides of the middle table-section 15 and are engaged by gear-wheels 36 secured upon the end portions of a transverse shaft 37 mounted in said housings and having on one end a crank-arm 38 by which said shaft and the gear wheels 36 carried by it may be operated to raise or lower the rack-bars 34 and support 10. Upon the shaft 37 adjacent to the operating-crank 38, is secured a ratchet 39 (Fig. 4) adapted to be engaged by a pawl 40, the latter dropping over the teeth of the ratchet 39 during the raising of the support 10 but securely engaging said teeth to prevent reverse rotation of the wheel. The purpose of the ratchet 39 and pawl 40 is to lock the support 10 in any position to which it may be raised. When it is desired to lower the support 10 the dog 40 will be turned entirely from the ratchet 39 and then the attendant may readily impart through the crank handle 38 a reverse motion to the shaft 37 and gear wheels 36 for lowering the racks 34 and the said support carried thereby.

The feet 32 of the central support 10 may be riveted to the transverse bar 33, but preferably the said feet will have formed in them vertical sockets 41 (Fig. 7) to engage vertical pins 42 carried by the bar 33, the sockets 41 being adapted to fit closely upon the pins 42 and with said pins detachably secure the support 10 upon the bar 33. When the feet 32 are rigidly secured to the bar 33 the support 10 may only be removed from the table by elevating the same until the rack bars 34

pass upwardly beyond the housings 35, but when the said support is detachably secured to the bar 33 it may be elevated directly from said bar without disturbing the latter, and I prefer to detachably secure the support 10 to the bar 33 so that said support may be there- by the more conveniently removed and cleaned, as occasion may require.

The support 10 should be provided with means for confining the patient at his opposite sides, and these means should be adjustable along the support 10 so that they may be adapted to the conditions to be met. In the drawings I illustrate, in Figs. 1 to 6 inclusive, adjustable braces 43 carrying at their lower portions yokes 44 to encompass the top and sides of the support 10 and at their inner ends engage recesses 45 formed in the lower part of said support. When the braces 43 are turned into a vertical position they may be freely slid along the support 10 to any position desired, and when said braces are released to assume their normal inclined position, the inner ends of the yokes 44 will engage recesses 45, as shown in Fig. 6, and the lower end of the braces will bear against the upper surface of the support 10, whereby said braces become rigidly maintained in position. When braces 43 of the character shown in Fig. 6 are made use of, I provide the ends of the body 10 with vertical grooves 46, as a means for permitting the entire removal of the braces when desired. When the braces 43 are turned into a vertical position, they may be freely slid to the ends of the support 10 and then moved vertically upward from said support, the inner ends of the yokes 44 passing upwardly through the grooves 46, the width of the support 10 through the grooves 46 being less than the width of the lower portion of the support in which the recesses 45 are formed. The braces 43, when turned into a vertical position, may be slid freely along the support 10 because when said braces are in such position the inner ends of the yokes 44 are just below those portions of the support in which said recesses are formed.

I do not wish to limit my invention to the employment of the braces 43 of the character shown in Figs. 1 to 6 inclusive, because it is entirely convenient to form the upper portion of the support 10, at the opposite sides of its center, with oppositely inclined holes or sockets 47 (Fig. 7) to receive the lower ends of brace rods 48. The sockets 47 correspond with one another, and hence the rods 48 may be placed at any desired point along the support 10, thereby varying the relation of said rods to one another or the space between them in accordance with the requirements of the patient.

The braces 43 and brace rods 48 perform like functions, and I illustrate the two forms of my invention to indicate that this application is not confined, in every instance, to any special braces for the support 10 or to any special means for permitting the adjustment of said braces.

The leaf sections 11 comprise, by preference, metal encompassing frames 49 and glass slabs 50 seated thereon, said frames 49 being mounted at their outer ends upon rollers 51 carried by them and at their inner ends upon studs or short legs 52. The leaf sections 11 sit within the encompassing frame for the middle table section 15 and are disposed one at each side of the support 10. The rollers 51 and legs 52 of the leaf sections 11 rest upon the bottom 20 of the middle table section

15, as shown in Figs. 3 and 5. At the inner ends of the sections 11 the frames 49 thereof are provided with inwardly extending short arms carrying the transverse pins 28 hereinbefore referred to. The leaf sections 11 may be moved upwardly to the inclined position shown in Fig. 5 during the raising of the central support 10, or may be allowed to remain in their lower position while the said support is raised alone.

The method of employing the table will largely be understood from the foregoing description. The central support 10 may be raised and lowered at will by means of the crank handle 38, gear wheels 36, rack bars 34 and transverse supporting bar 33, and said support may be locked in its upper position by means of the ratchet 39 and pawl 40. When it is desired that the leaf sections 11 shall be inclined upwardly, the attendant, before elevating the support 10, will throw the cam-plates 27 in a direction to force the hook-plates 23 outwardly below the vertical plane of the pins 28 on said leaf sections 11, and thereupon the inner ends of said sections will be elevated during any upward movement of the support 11. When it is desired to elevate the support 10 without the leaf sections 11, the hook-plates 23 will be permitted to remain at their inner position, shown in Fig. 3, or if at the time they should be in their outer position, they will be forced inwardly by the attendant who will impart a reverse movement to the cam-plates 27. If it should be so desired the support 10 may be elevated without the leaf sections 11, and thereafter the attendant may manually elevate the inner ends of said sections and drop the pins 28 into the hooks 24, thereby obtaining the same result that is accomplished with the use of the cam-plates 27 and pivoted plates 23, but in a less convenient manner. During the elevation of the support 10 with the leaf sections 11, the outer ends of the latter approach each other and travel upon the rollers 51.

It is to be observed that the bar or center support 10 is vertically movable without disturbing the main table-top and constitutes an independent feature disposed between the leaf-sections 11, which may also be raised and lowered without disturbing said top.

I do not limit my invention to the specific hook-plates 23 and pins 28 for hinging the inner ends of the leaf-sections 11 to the central support 10. The central support 10 is employed in connection with the head-frame 16 and foot-frame 17 which respectively support the head and foot portions of the patient while his abdominal parts are held by the support 10 and upon proper occasions by the leaf sections 11 also. The entire table top may be given an inclined position when occasion renders the same desirable, and the head and foot frames being hinged may be independently inclined as the conditions may render necessary.

My invention affords very convenient means, in an operating table, for elevating or raising the abdominal part of a patient to facilitate abdominal operations and bandaging.

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

1. In an operating-table for the use of surgeons, a table-top comprising head and foot frames, a middle section

between said frames, a transverse bar interposed in said middle section, and braces on said bar at each side of its center to confine the abdominal parts of a patient thereon, combined with means for supporting said bar, and means for raising and lowering the same, said bar being adapted, when raised, to the support of the abdominal parts of a patient; substantially as set forth. 65

2. In an operating-table, a table-top, a transverse bar interposed therein to afford a center-support, and adjustable braces on said support at each side of the center thereof, said support having a series of recesses along its length to receive and afford a lock for the lower portions of said braces, combined with means supporting said bar, and means for raising and lowering the same; substantially as set forth. 70 75

3. In an operating-table for the use of surgeons, a table-top comprising head and foot frames, a middle section between said frames, and a transverse bar interposed in said middle section, said middle section comprising leaf-sections at opposite sides of said bar free to slide at their outer ends and having at their inner ends means of connection with said bar, combined with means for supporting said bar, and means for raising and lowering the same, said bar being adapted, when raised, to the support of the abdominal parts of a patient; substantially as set forth. 80 85

4. In an operating-table for the use of surgeons, a table-top comprising head and foot frames, a middle section between said frames, and a transverse bar interposed in said middle section, said middle section comprising leaf-sections at opposite sides of said bar free to slide at their outer ends, combined with separable means for hinging the inner ends of said leaf-sections to said bar, means for supporting said bar, and means for raising and lowering the same, said bar being adapted, when raised, to the support of the abdominal parts of a patient; substantially as set forth. 90 95

5. In an operating-table for the use of surgeons, a table-top comprising head and foot frames, a middle section between said frames, and a transverse bar interposed in said middle section, said middle section comprising leaf-sections at opposite sides of said bar free to slide at their outer ends and having at their inner ends means of connection with said bar, combined with means pivotally mounting said table top as a whole, means for supporting said bar, and means for raising and lowering the same, said bar being adapted, when raised, to the support of the abdominal parts of a patient; substantially as set forth. 100 105 110

6. In an operating-table, a table-top, a transverse bar interposed therein to afford a center support, means for raising and lowering said support, leaf-sections mounted in said top at opposite sides of said support and free to slide at their outer ends, movable plates on the ends of said support to engage the inner ends of said sections, and means for throwing said plates into and out of operative position, whereby said support may be raised alone or be compelled to carry the inner ends of said sections with it; substantially as set forth. 115 120

7. In an operating-table, a table-top, a transverse bar interposed therein to afford a center support, means for raising and lowering said support, leaf-sections mounted in said top at opposite sides of said support and free to slide at their outer ends, hook-plates 23 pivotally secured in pairs on the ends of said support, and cam-plates 27 carried at the ends of said support for moving said plates 23 inwardly clear of or outwardly to engage the inner ends of said sections, said sections having pins to be engaged by said hook-plates when the latter are in their outer operative position; substantially as set forth. 125 130

Signed at New York city, in the county of New York and State of New York, this 5th day of February A. D. 1907.

BERNARD D. THORNER.

Witnesses:  
ARTHUR MARION,  
CHAS. C. GILL.