No. 812,240. PATENTED FEB. 13, 1906.

J. SCHOETTL, C. JAEGER & P. WALSLEBEN.

OPERATING TABLE.

APPLICATION FILED MAR. 10, 1903.

3 SHEETS—SHEET 1.

Fig. 1.

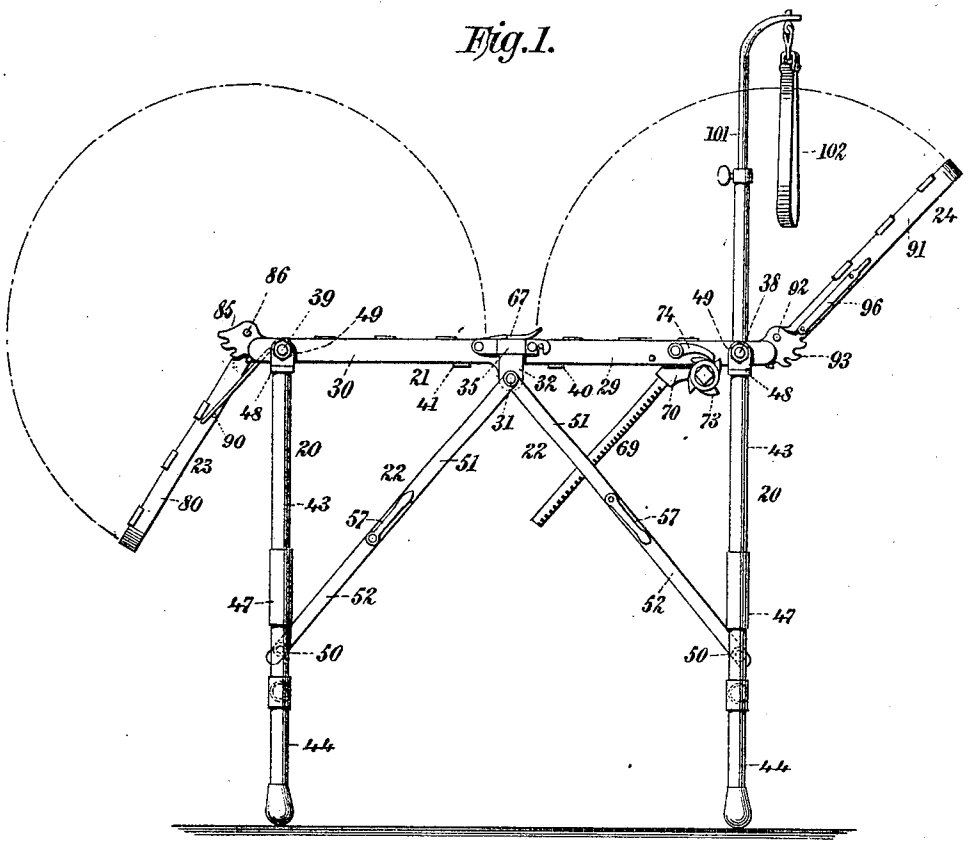
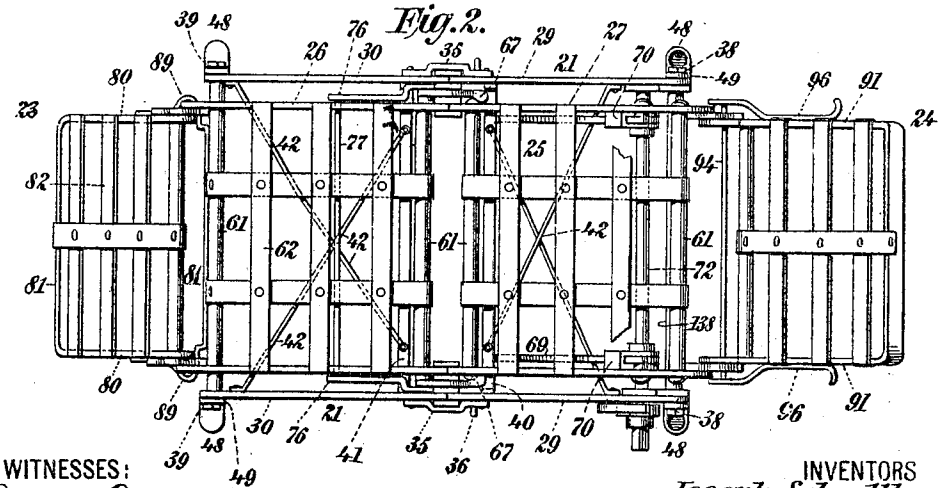


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 5.

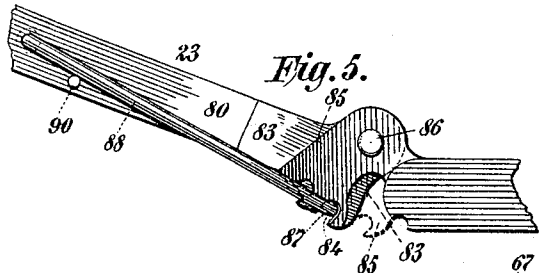


Fig. 3.

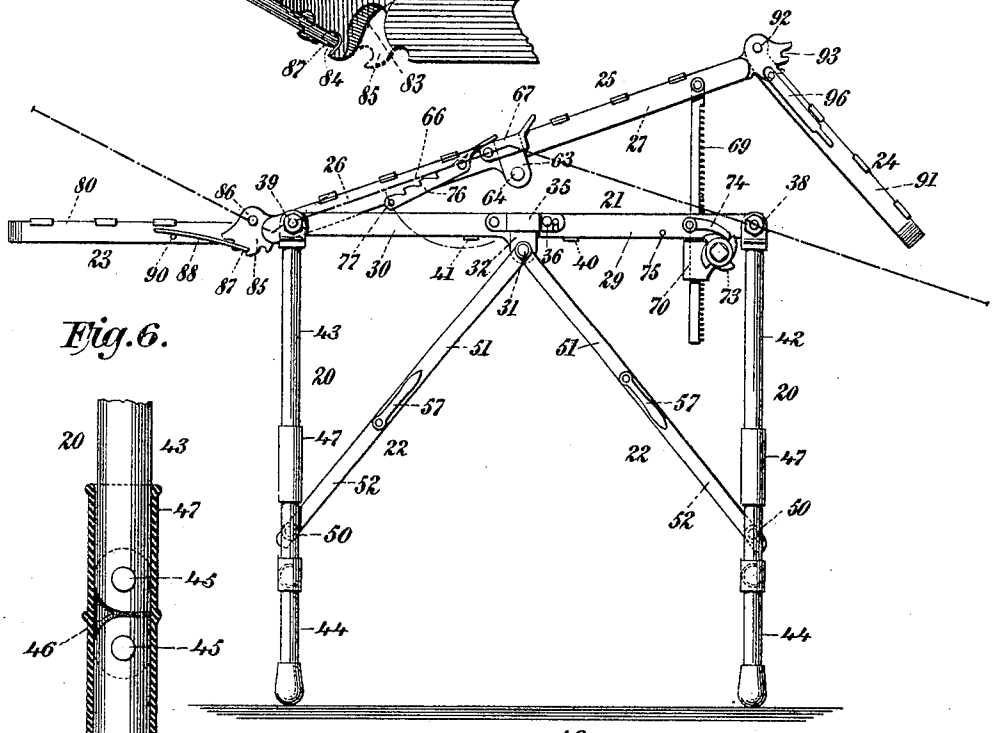
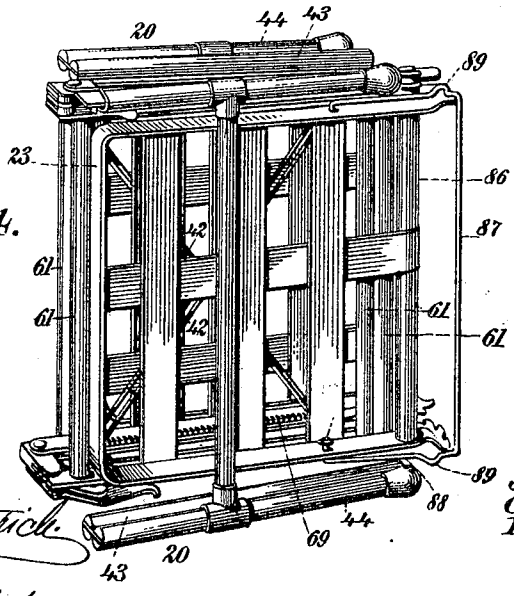


Fig. 6.

Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 7.

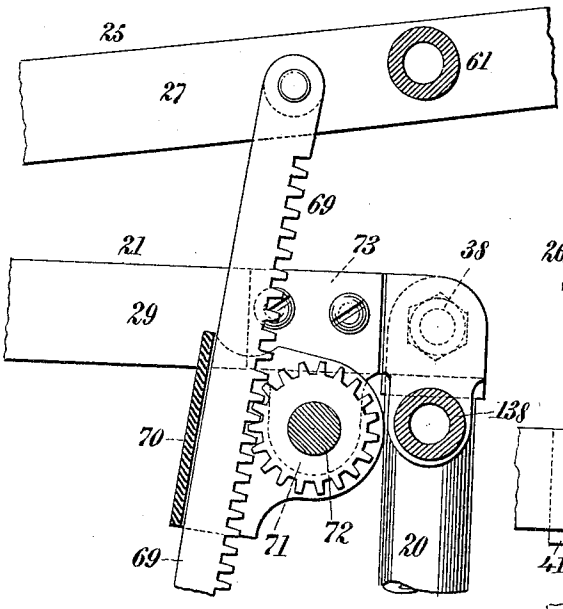


Fig. 9.

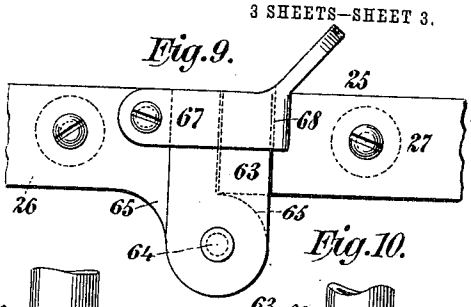


Fig. 10.

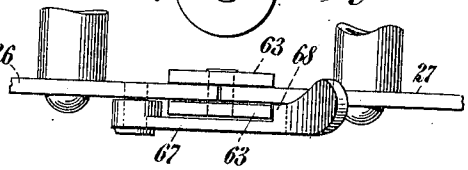


Fig. 11.

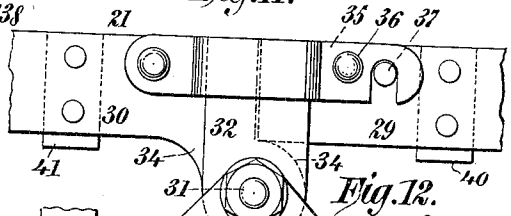


Fig. 12.

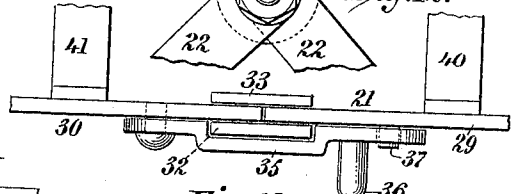


Fig. 8.

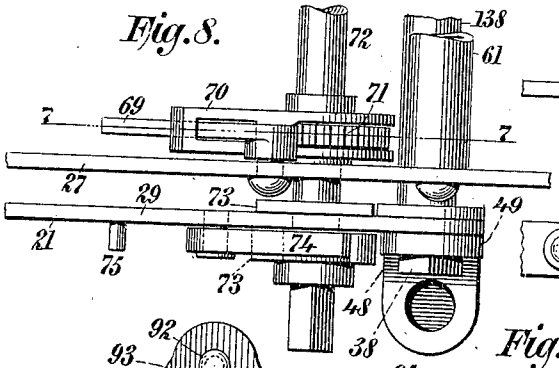


Fig. 15.

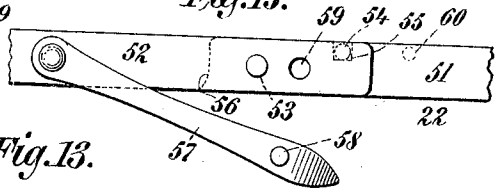


Fig. 13.

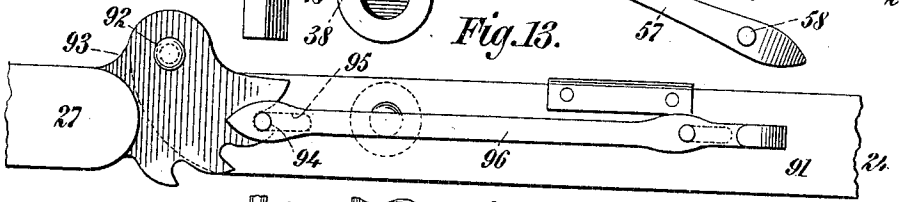


Fig. 14.

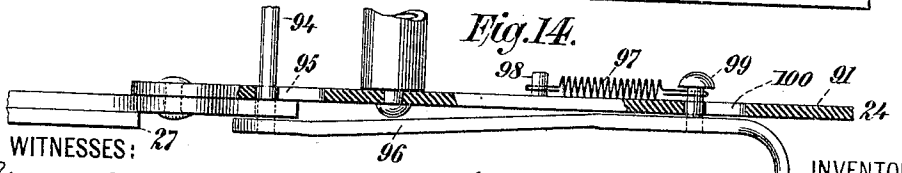
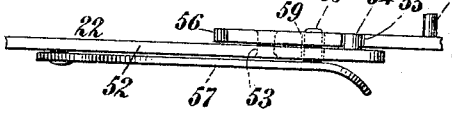


Fig. 16.



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OPERATING-TABLE.

No. 812,240. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed March 10, 1903. Serial No. 147,045.

To all whom it may concern:

Be it known that we, JOSEPH SCHOETTL, CHRISTIAN JAEGER, and PAUL WALSLEBEN, citizens of the United States, and residents of Brooklyn, in the county of Kings 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.

One object of the invention is to provide a portable operating-table which shall be strong and light and capable of being folded into compact form, so as to be readily carried or transported from one place to another, so that a surgeon when performing operative work in a private dwelling may be conveniently equipped with satisfactory means for carrying on the work. The operating-table of our invention is formed of hinged sections, which may be folded one upon another and the whole compactly arranged within a small compass.

A further object of the invention is to produce an operating-table on which the patient may be more effectually and conveniently given the various positions required, according to the nature of the case, the parts of the table being adjustable in their relation to one another and the whole capable of being easily and conveniently manipulated while the patient is on the table without discomfort to the patient or the exercise of any great exertion on the part of the surgeon or attendant.

The nature and objects of the invention will more fully appear hereinafter, and the said invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of an operating-table constructed in accordance with and embodying the invention. Fig. 2 is a top view, partly broken away, of same. Fig. 3 is a side elevation of same, the supporting part of the table being illustrated in position for securing the Trendelenburg posture; and Fig. 3 denotes by the heavy dotted line a further position which may be given to the supporting part of the table, this latter position being of especial importance in operations pertaining to kidney and abdominal troubles. Fig. 4 is a perspective view of the entire table in its folded form ready to be placed in a satchel or box for transportation from, for illustration, the office of a surgeon to the home of a patient. Fig. 5 is an enlarged detached side elevation of a portion of the table and illustrates more particularly the means for enabling the adjustment of the headboard of the table. Fig. 6 is an enlarged detached side elevation, partly in section, of one of the legs of the table, these legs being formed of hinged sections and having a slidable sleeve, shown in section in Fig. 6, for locking the sections of the legs in rigid alinement with each other when the table is to be put into use. Fig. 7 is a vertical section on the dotted line 7 7 of Fig 8 of a portion of the table, shown on an enlarged scale, and is presented to illustrate more particularly the means for raising and lowering the foot end of the table. Fig. 8 is a top view of same. Fig. 9 is an enlarged side elevation of a portion of the central part of the table-top and is presented to illustrate more particularly the joint between the two sections of the table-top and the locking means for holding said sections in rigid relation on the same plane. Fig. 10 is a top view of same. Fig. 11 is an enlarged side elevation of the middle portion of one of the side bars of the table-supporting frame and is presented to illustrate more particularly the joint between the two sections of said side bar and the means for locking said sections in their end-to-end relation on the same horizontal plane. Fig. 12 is a top view of same. Fig. 13 is an enlarged side elevation of a portion of the foot board or frame and adjoining edge of the main body of the table and is presented to illustrate more particularly the means for securing said foot board or frame in its several positions. Fig .14 is a top view, partly in section, of same. Fig. 15 is an enlarged side elevation of the middle portion of one of the inclined braces for the table-legs and is presented to illustrate more clearly the joint between the sections of said braces and the means for locking said sections in their alined end-to-end relation, and Fig. 16 is a top edge view of same.

In the drawings, 20 denotes the legs of the

table; 21, the top side frames or bars thereof; 22, the braces extending from the central portion of said side frames or bars outwardly and downwardly to said legs; 23, the adjustable head board or frame; 24, the adjustable foot board or frame, and 25 the main body of the table extending intermediate the said head-frame and foot board or frame and composed of two substantially centrally pivoted sections numbered 26 27, respectively, which may remain on the same plane, as illustrated by full lines in Figs. 1 and 3, or be moved upwardly at their adjoining ends to convert the table into the position in which it is represented by the dotted lines in Fig. 3, as hereinafter explained.

The top side frames or bars of the table (there being two in number) are each formed of the sections 29 30, whose meeting ends when the table is erected may abut against each other, as more clearly illustrated in Fig. 11, and are pivotally connected together by means of short bolts 31, which pass through plates 32 33, Figs. 11 and 12, secured to the sections 29 and overlapping the adjoining ends of the sections 30, said sections 30 being provided with depending lugs 34, which extend downwardly between the lower portions of the plates 32 33 to hinge upon the said bolts 31. The side frames or bars 21 of the table are thus each formed of two hinged sections connected together at about the transverse center of the table by the bolts 31, and this is to enable the convenient folding up of the table into compact space, as hereinafter described. When the table is erected, as shown in Figs. 1 and 3, the adjoining ends of the sections 29 30 of the side bars or frames 21 come together, as shown in Figs. 11 and 12, between the plates 32 33, which afford a very secure joint to keep the said side bars or frames 21 entirely rigid, and the said sections 29 30 may be secured in their alined position by means of the pivoted latches 35, (more clearly shown in Figs. 11 and 12,) which are pivoted to the sections 30 and have a handle 36 and are adapted to pass over the plates 32 and engage at their free ends the latch-pins 37, secured to the sections 29. When it is desired to fold up the table, the latches 35 are turned upwardly from the pins 37 and moved to a position along the face of the sides of the sections 30. The bolts 31 are also utilized to pivotally receive the upper adjoining ends of the leg-braces 22, which will be hereinafter more fully described.

The outer ends of the side bars or frames 21 are connected by the rods 38 138, which extend transversely across the table, and the sections 29 30 of said side bars or frames 21 are rigidly maintained in their lateral relation to each other by means of the transverse bars 40 41 and diagonal braces 42, the bar 40 connecting the two sections 29 and the bar 41 connecting the two sections 30, while the braces 42 cross each other, as shown in Fig. 2, and connect the sections 29 together and the sections 30 together.

The legs 20 are each in two sections numbered 43 44, respectively, hinged together by pivot-pins 45, Fig. 6, and an interposed plate 46 set into the adjoining ends of said sections 43 44, the purpose of the plate 46 and pivot-pins 45 being to enable the sections 43 44 to be folded against each other, as illustrated in Fig. 4. For the purpose of rendering the joint between the sections 43 44 of the legs 20 rigid we provide upon each leg a movable sleeve 47, which may be moved upwardly from over the joint between the sections 43 44 when it is desired to fold up the table. The sleeves 47 when in their lower position (shown in Figs. 3 and 6) also perform a further duty in connection with the braces 22, as hereinafter explained.

The upper ends of the legs 20 are provided with the angle-plates 48, Figs. 2 and 8, which are rigid with said legs and form upwardly-extending ears 49, through which the ends of the rod 38 and bolts 39 pass and by which in connection with said means the legs 20 are pivotally secured to the ends of the side bars or frames 21.

The braces 22 correspond with each other and there is a pair of these braces 22 at each side of the table, said braces 22 at their upper meeting ends being secured upon the bolts 31 and at their lower ends being recessed to slip upon pins 50, extending inwardly from the inner sides of the lower sections 44 of the legs 20, whereby the lower ends of the braces 22 become detachably connected with said legs. The braces 22 are each formed in two sections 51 52, pivotally connected together by a pin 53, Fig. 15, which enables the lower section 52 of the brace to be folded against the face of the upper section 51 thereof. The section 52 is provided with a pin 54, Fig. 16, which when the sections 51 52 are turned into line with each other will enter a recess 55, formed in the section 51, as shown in Fig. 15, and thereby prevent any further turning in one direction of the section 52 on the section 51. When the sections 51 52 are folded together, the pin 54, carried by the section 52, will leave the recess 55 of the section 51 and finally engage the shoulder 56, Figs. 15 and 16, on the end of the section 51 and arrest the section 52 when it is parallel with said section 51. The pin 54 and recess 55 serve as a stop to arrest the section 52 when said section is turned outwardly from its folded position alongside of the section 51, and the pin 54 and shoulder 56 operate as a stop for the section 52 when the latter is turned into its folded position alongside of the section 51. For the purpose of conveniently locking the sections 51 52 in their elongated or operative position shown in Fig. 1, we provide a spring-latch plate 57, Figs. 15 and 16, carrying the pin 58, adapted

to spring into apertures 59 in the sections 51 52, said apertures passing into line with each other when the sections 51 52 are in their end-to-end relation. When it is desired to fold up the braces 22, the attendant will, by pressing outwardly on the handle end of the latch 57, withdraw the pin 58 from the apertures 59 and turn the latch 57 outwardly against the edge of the section 52, giving it an opposite position to that shown in Fig. 16. It has been described above that the lower end of the braces 22 are recessed to simply hook upon the pins 50, carried by the legs 20, and as a means for preventing any accidental displacement of the lower ends of said braces from said pins 50 we so dispose said pins that after the braces have been hooked thereon and the sleeves 47 are moved downwardly on the legs 20 into their operative position the lower edges of said sleeves 47 will come into close relation to the upper edges of the lower ends of the braces 20 and prevent said braces at their lower ends from moving upwardly from the pins 50. When it is desired to fold the table, the sleeves 47 are moved upwardly, so that the sections of the legs 20 may be folded against each other, and hence when the sleeves 47 are in their upper position the attendant will be free to unhook the lower ends of the braces 22 from the pins 50. The braces 22 will also be provided with inwardly-projecting pins 60, Figs. 15 and 16, to contact with the lower edges of the side bars or frames 21 when the sections of said braces are folded together and turned upwardly against said side bars or frames. In Figs. 15 and 16 we illustrate, on an enlarged scale, a portion of the left-hand brace 22, (shown in position in Fig. 1,) and it will be observed that the upper section 51 of this left-hand brace has its lower end at the inner side of the upper end of the lower section 52 thereof. In the arrangement of the right-hand brace 22, Fig. 1, the lower end of the upper section 51 is at the outer side of the upper end of the lower section 52, this being a reversal of the order of arrangement of the sections of the left-hand brace, and this is for the purpose of enabling the compact and convenient folding up of the said braces and is due to the fact that the right-hand brace at its upper end is, at the bolt 31, at the outer side of the upper end of the left-hand brace 22. Due to the reversal of the meeting ends of the sections of the braces 22 the spring-latch 57 of the right-hand brace is pivotally secured to the upper section 51 thereof instead of to the lower section 52, as shown in Fig. 15, with respect to the left-hand brace, the spring-latch 57 thus in both instances being enabled to lie flat against a continuous surface of one section of the brace.

The main body of the table-top 25 comprises, as hereinbefore stated, the two sections 26 27, corresponding substantially in size with each other and pivotally connected at their meeting ends at about the transverse center of the table, and the said table-top 25 is free at its right-hand or foot end, Fig. 3, to be raised and lowered at will, while at its left-hand or head end the said table-top is secured in a hinged manner upon the transverse rod 39, connecting the upper ends of the left-hand pair of legs 20. Each section 26 27 of the table-top comprises parallel side bars, end bars 61, and crossing thin steel straps 62, Fig. 2, secured at their ends to the said side bars and end bars.

The manner of forming the joint at the meeting ends of the side bars of the table-top 25 is illustrated more clearly in Figs. 9 and 10 and corresponds substantially with the manner of forming the joint at the meeting ends of the sections 29 30 of the top side frames or bars 21 of the table. Upon the inner end of the side bars of the section 27 of the table-top is secured the corresponding plates 63, Figs. 9 and 10, which depend downwardly to form ears for receiving the pivot-pin 64 and are adapted to overlap the joint between the sections 26 27 when the table-top 25 is on a given plane with said sections in end-to-end relation, as shown in Fig. 9. The side bars of the section 26 have at their inner ends depending lug portions 65, which are between the lower ends of the plates 63 and pivotally secured upon the pins 64, whereby the sections 26 27 become hinged together. When the sections 26 27 are in direct line with each other, the meeting ends of the side bars of said sections come together, as denoted in Figs. 9 and 10, and thus a very rigid table-top resisting downward pressure is secured, while at the same time the said table-top may at its center be folded upwardly, as denoted by the heavy dotted line 66 in Fig. 3, this folding of the table-top being desired both for securing a desirable posture for the patient and also to enable the compact folding up of the table when desired. When the table-top 25 is in its lower flat position, it will lie between the top side bars 21 of the table-frame and the pivot-pin 64, for the sections of the table-top will then be in line with the pivot-bolts 31 for the sections of the top side bars 21, and thus when it is desired to fold the table into compact form the sections of the table-top and the sections of the side bars 21 may both be folded upwardly upon a given center, the sections of the table-top 25 remaining between the sections of the side bars 21 and the whole being folded as one integral structure. For the purpose of locking the sections 26 27 of the table-top 25 against having any folding movement we provide the pivoted latches 67, which are pivotally secured to the sections 26 and at their free ends have shoulders 68, Fig. 10, adapted to engage the right-hand edges of the outer plates 63, these latches 67

serving to lock the sections 26 27 in their end-to-end relation, preventing the sections 26 27 from being folded upwardly and aiding them in resisting downward pressure. The latches 67 are provided with thumb-pieces, as shown in Figs. 9 and 10, whereby they may be conveniently turned upwardly from the outer plates 63 when it is desired that the table-top shall be folded upwardly at its central portions.

The means we provide for raising and lowering the right-hand or foot end of the table-top 25 are shown on an enlarged scale in Figs. 7 and 8 and comprise the rack-bars 69, pivotally secured at their upper ends to the side bars of the section 27 of the table-top, and thence extending downwardly through swiveled loops 70, within which they are retained in mesh with the gear-wheels 71, the latter being rigid upon a transverse shaft 72, supported slightly below the lower edges of the side bars 21 in bearing-apertures formed in the depending plates 73, secured to said side bars 21. Adjacent to each end of the shaft 72, intermediate the side bars 21, there is a gear-wheel 71 and a swiveled loop 70, and to each side bar of the section 27 of the table-top 25 is secured a rack-bar 69, the rack-bars 69 passing downwardly through the loops 70 and engaging the gear-wheels 71. The outer extremity of the transverse shaft 72 at the front of the table carries a ratchet-wheel 73 and is of polygonal form in cross-section to receive an ordinary crank or key by which the shaft 72 may be rotated for effecting through the gear-wheels 71, rigid thereon, and the rack-bars 69 the raising and lowering of the table-top 25. Upon the side bar 21 of the table-frame is pivoted a pawl 74 to engage the ratchet 73 and prevent reverse motion in the shaft 72 and gear-wheels 71 during the upward movement of the table-top 25. After the table-top 25 has been elevated and it may be desired to lower the same the attendant will turn the pawl 74 from the ratchet-wheel 73 and then under the control of the operating-crank to be placed on the shaft 72 lower the right-hand or foot end of said table-top, whereupon he will again restore the pawl 74 to the ratchet 73. We provide a pin 75 on the side bars 21 to support the free end of the pawl 74 when the latter is turned from the ratchet 73. During the raising and lowering of the table-top 25 the rack-bars 29 will naturally have a pivotal movement, said rack-bars when the table-top is in its lower position assuming the position in which they are shown in Fig. 1, and then as the table-top is elevated gradually moving from that position to the positions in which said rack-bars are illustrated in Figs. 7 and 3, and it is for this reason that we swivel the loops 70, which guide the bars 69 and retain them in firm mesh with the gear-wheels 71. The loops 70 are apertured in their opposite sides to freely pass upon the transverse shaft 72, and hence said loops may turn upon said shaft under the movement imparted to them by the rack-bars 69, and at the same time the loops 70 do not interfere with the rotation of said shaft 72.

When the table-top 25 is to be used with its sections 26 27 in direct line with each other, the latches 67 will be left in their locking position, (shown in Figs. 3 and 9;) but when the said table-top is to be used in the position represented by the dotted line 66 in Fig. 3 the latches 67 will be turned from engagement with the outer plates 63, and the pivoted rack-bars 76, Fig. 3, will be turned downwardly in the direction indicated by the dotted lines leading from their lower end, so that the head end 26 of the table-top 25 may, by means of the said rack-bars 26, be independently supported in an upwardly-inclined position, the said rack-bars 76 being caused to engage the cross-bar 41, secured to the side bars 21 of the table-frame, the right-hand edge of said bar 41 serving as a pawl to engage the teeth of the rack-bars 76. There are two rack-bars 76, one at each side of the section 26 of the table-top, and their lower ends are connected by a rod 77. The rack-bars 76 are only used when the table-top is to be converted into the kidney or abdominal posture represented by the dotted line 66 in Fig. 3, and when they are not in use they are simply folded up against the sides of the section 26 of the table-top, as shown by full lines in Fig. 3, said rack-bars fitting sufficiently tight against the sides of said section 26 to maintain their folded position shown. When it is desired to convert the table-top from the Trendelenburg posture shown by full lines in Fig. 3 to the position represented by the dotted line 66 in Fig. 3, the latches 67 are unlocked and the shaft 72 turned to raise the right-hand end of the table-top 25 to a sufficiently greater extent to enable the attendant to turn down the rack-bars 76, so that upon the lowering of the table-top 25 the teeth of said rack-bars may engage the transverse bar 41 and serve as props to independently support the head end or left-hand end of the table-top during the subsequent reverse motion of the shaft 72 to lower the foot end of the table-top. After the rack-bars 76 have passed into firm engagement with the transverse bar 41 the attendant will reverse the motion of the shaft 72 until the foot end of the table-top has moved downwardly to its lower position, the table-top then assuming the form of a double inclined plane upon which the patient lies on his side for operations about the kidney. This position may be secured by reason of the fact that the main body of the table-top 25 may be folded upwardly at about its center, and

in the manner described this position is secured without the necessity of lifting the patient from the table, which is an important consideration, the patient being placed upon the table, the table-top then being given the inclined position shown by full lines in Fig. 3, and then converted to the position represented by the dotted line 66. After the table has been given the position shown by the dotted line 66 and the work of the surgeon has been completed, the right-hand end of the table-top 25 may be restored to its elevated position in line with the left-hand end of said top, the rack-bars 76 folded upwardly against the table-top, as shown in Fig. 3, and the entire table-top then by the reverse motion of the shaft 72 lowered to the flat horizontal position represented in Figs. 1 and 2, whereupon the patient may be conveniently removed from the table.

The head frame or board 23 corresponds with the general structure of the sections of the table-top 25, being formed of side bars 80, end bars 81, and thin steel connecting bars or straps 82. Upon the inner ends of the side bars 80 of the head board or frame are secured plates 83, having a recess 84, and upon the left-hand ends of the side bars of the section 26 of the table-top are secured ratchet-plates 85, and the head board or frame 23 is pivotally secured to the left-hand end of the table-top 25 by pins 86, which pass through the plates 83 and ratchet-plates 85, the purpose being to so hinge the said head board or frame 23 that it may turn flat upon the section 26 of the table-top for folding the table up, and from that position be turned on the line of a circle, as represented by the dotted line in Fig. 1, and given any desired position at the left-hand or head end of the table. For the purpose of coöperating with the recessed plates 83 and ratchet-plates 85 we provide a rod 87, whose middle portion extends transversely across the head frame or board, as shown in Fig. 2, and whose end portions 88 extend along the outer sides of the side bars 80 and thence turn inwardly through free apertures in said side bars 80, as shown in Fig. 5, and are headed at their extreme ends, so that they cannot slip outwardly from said apertures. The end portions 88 of the rod 87 are bent outwardly near the inner end of the headboard, as represented at 89, Fig. 2, to form thumb-pieces for the use of the attendant, and at the extreme ends of the transverse or middle portion of the rod 87 the latter normally lies within the recesses 84 of the plates 83 and is adapted to engage at the same time any one of the ratchet-teeth of the plates 85. The end portions 88 of the rod 87 pass along the upper edges of pins 90, Fig. 5, carried by the side bars 80 of the headboard, and these pins operate as stops to prevent the rod 87 from swinging downwardly from the plates 83 and ratchet-plates 85; but the pins 90 are so disposed that they allow the attendant by pressing on the thumb-pieces 89 to spring the transverse or middle portion of the rod 87 downwardly to place the same into engagement with any one of the teeth of the ratchet-plates 85 in accordance with the special position it is desired the head board or frame 23 shall have. The downward movement of the head board or frame 23 will always necessitate the attendant pressing downwardly upon the thumb-pieces 89 of the rod 87, so that said rod may pass the teeth of the plates 85; but during the upward movement of said headboard the spring in the rod 87 will permit the latter to slip over the inclined surfaces of the teeth of said plates. The rod 87 constitutes, in effect, a spring pawl to engage the ratchet-plates 85 for holding the headboard 23 in any of its desired adjustments, and one desirable feature of this part of the construction is that when the ends of the middle or transverse portion of the rod 87 are engaging the teeth of the plates 85 the opposite walls of the recesses 84 in the plates 83 will also engage the rod 87 at points adjacent to the faces of the ratchet-plates 85, and this has the effect of enabling a reasonably light rod 87 to very firmly and securely maintain the head board or frame 23 in its adjusted positions. Whenever desired, the rod 87 may be caused to hang down loosely from its inturned outer ends, so that the middle or transverse portion of said rod may be entirely free of the ratchet-plates 85 and the headboard 23 turned downwardly between the right-hand legs 20 of the table, and this result may be accomplished by simply pressing outwardly upon the inturned headed outer ends of the rod 87 until the side portions 88 of said rods spring outwardly beyond the outer ends of the pins 90, said pins 90 then having no effect to retain the rod 87 in its operative position (shown in Fig. 5) and leaving said rod free to swing downwardly in an unrestrained manner.

The foot board or frame 24 corresponds in general construction with the head frame or board 23, as Fig. 2 sufficiently indicates. The side bars 91 of the foot board or frame 24 are secured by pivot-pins 92 to ratchet-plates 93, rigidly fastened to the right-hand ends of the side bars of the section 27 of the table-top 25, the foot board or frame 24 being thus secured in a hinged manner and being capable of being folded flat upon the table-top and thence turned upwardly and outwardly therefrom, as indicated by the dotted line at the right-hand side of Fig. 1, it being desired that the said foot frame or board 24 may be moved to various adjustments suiting the requirements, three of these positions being represented in Figs. 1 and 3 and another in Fig. 13. The foot board or frame 25 carries a slidable

pawl-rod 94 to engage the teeth of the ratchet-plates 93, and the ends of this rod 94 project through slots 95 in the side bars 91, Figs. 13 and 14, and have secured to their extreme outer ends the finger-pieces 96, which lie along the sides of the bar 91 and are given a spring tension in a direction toward the ratchet-plates 93 by means of the coiled springs 97, which lie at the inner side of the bars 91 and are at one end connected, through a pin 98, therewith and at the other end with a pin 99, extending from the finger-pieces 96 through a guiding-slot 100, formed in the said side bars 91. The rod 94 and finger-pieces 96 constitute a pawl-frame which is given a tension toward the ratchet-plates 93 by means of the springs 97, and it is to be observed on reference to Figs. 13 and 14 that the edges of the ratchet-plates 93 are close against the side bars 91 and that the ends of the rod 94 rather closely fit the slots 95 in the said side bars. When it is desired to adjust the head board or frame downwardly from, say, the position in which it is shown in Fig. 1, the attendant will pull outwardly on the finger-pieces 96, so as to withdraw the rod 94 from contact with the ratchet-plates 93, and then when the foot board or frame is in its desired position the attendant will release the finger-pieces 96 and allow the rod 94 to enter the teeth of the ratchet-plates 93, the engagement of said rod 94 with said ratchet-plates serving to maintain the foot board or frame 24 in position. During the upward movement of the foot board or frame 24 the rod 94 will be enabled to slide over the inclined edges of the teeth of the ratchet-plates 93. The fact that the ends of the rod 94 are within the slots 95 and that the end bars 91 are close to the face of the ratchet-plates 93 enables the use of a reasonably slight bar 94 for engaging the ratchet-plates 93 without danger, because the ends of the bar 94 obtain support from the walls of the slots 95, as well as from the opposite walls of the ratchet-teeth in the plates 93.

The upper ends of the legs 20 at the right-hand end or the foot of the table are left open, so as to constitute sockets for vertical telescopic posts 101, to which straps 102 are secured for supporting the legs of a patient when necessary, these posts 101 being removable at will and by means of their telescopic character vertically extensible at will.

The operation of the several parts of the table has been sufficiently described hereinbefore, and from what has been said and an inspection of the drawings it will be apparent that the head and foot boards 23 24, respectively, may be adjusted at will and that the main body of the table-top 25 may be employed when its sections are in a straight end-to-end relation, as shown by full lines in Fig. 3, or be folded upwardly at its center, so as to form a double inclined plane, as indicated by the dotted lines 66 in Fig. 3, for use in operations about the kidney, and it will be apparent that the entire table-top from head to foot may be tilted so as to invert the patient in the event of sudden collapse.

Aside from the important features of adjustment, whereby the efficiency of the table is increased, a further feature of the table is its capability of being folded into small space for transportation. The weight of the table shown in the drawings is twenty-eight and one-half pounds, and with the leg-holder and its case ready for transportation it weighs thirty-six pounds. The entire table when folded, as shown in Fig. 4, is capable of being placed within a case eight inches wide, twenty-one and one-half inches deep, and twenty-one and one-half inches long, and the said table, when erected, as illustrated in Figs. 1 and 3, is six feet long, eighteen and one-half inches wide, and thirty-three inches high, these dimensions and weights being referred to not as limiting features, but as indicating the capability of the table of being compactly folded and conveniently transported from place to place for use in surgical operations. When the table is to be folded in the condition in which it is illustrated in Fig. 4, the rack-bars 69 will be withdrawn from the loops 70 and turned upwardly along the inner side of the side bars of the section 27 of the table-top 25, and said table-top will be moved to its horizontal position between the side bars 21 of the table-frame. The latches 35 and 67 will be turned from their locking position, and the head and foot frames 23 24 will be turned toward each other and rest flat upon the table-top 25. The locking-sleeves 47 will then be moved upwardly upon the legs 20, and the leg-braces 22 will be unhooked from the pins 50 and have their sections folded together and then folded upwardly until their stop-pins 60 strike the lower edges of the side bars 21 of the table-frame. The table will then be laid upon its side upon the floor, and the sections of the table-legs 20 will be folded against each other, as illustrated in Fig. 4, and the double sections of said legs turned around against the then outer sides of the head and foot frames, and thereupon the table-top and side bars 21 will on their central joints be brought together, the under side of the sections 29 30 of said side bars and the under side of the sections 26 27 of the table-top folding toward each other and leaving the sections of one pair of the legs 20 at one side of the then folded structure and the sections of the other pair of said legs at the other side of the then folded structure, the whole being then in the condition shown in Fig. 4 and adapted to be introduced into a suitable satchel or case for receiving the same. The posts 101 for re-

ceiving the straps 102 constitute simply an attachment for the table, and they may be used or not, as may be desired. If they should happen to be on the table at the time it is desired to fold the same, they of course will be removed before the table is folded.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The operating-table comprising the legs, side bars, table-top hinged at one end, and rack-and-pinion mechanism operable by a crank for raising and lowering said top from its other end, said top being normally set in between said side bars, and said side bars and top being independently composed of hinged sections in end-to-end relation with the pintles of the hinges in line with each other and about on a line with the transverse center of the table so that they may be together folded downwardly and also so that said top may be independently given the position of a double incline for certain operations, combined with foldable means adjacent to the center of the table for, after the table-top has been raised to an inclined position, firmly supporting the hinged end section of said top in its inclined position while the other section of said top is being lowered at its outer end by said rack-and-pinion mechanism to create the double incline, the foldable head and foot frames at the ends of the table and one of which is carried by the free end of said top, and means for adjusting the inclination of said frames; substantially as set forth.

2. The operating-table comprising the legs, side bars, table-top hinged at one end, and rack-and-pinion mechanism operable by a crank for raising and lowering said top from its other end, said side bars and top being independently composed of hinged sections in end-to-end relation with the pintles of the hinges about on a line with the transverse center of the table so that they may be together folded downwardly and also so that said top may be independently given the position of a double incline for certain operations, combined with foldable means adjacent to the center of the table for, after the table-top has been raised to an inclined position, firmly supporting the hinged end section of said top in its inclined position while the other section of said top is being lowered at its outer end by said rack-and-pinion mechanism to create the double incline, the foldable head and foot frames at the ends of the table and one of which is carried by the free end of said top, and means for adjusting the inclination of said frames; substantially as set forth.

3. The operating-table comprising the side bars, the hinged legs composed of hinged foldable sections, the foldable leg-braces hinged at their upper ends at about the center of said side bars and adapted at their lower ends to be detachably connected to said legs, the table-top hinged at one end, and means for raising and lowering said top from its other end, said side bars and top each being independently composed of sections hinged together at about the transverse center of the table so that they may be together folded downwardly and also so that said top may be independently given the position of a double incline for certain operations, combined with means adjacent to the center of the table for supporting the hinged end section of said top in an upwardly-inclined position while the other section of said top is inclined downwardly, the hinged head and foot frames at the ends of the table and adapted to be folded down upon said top, and means for securing said head and foot frames in the desired adjustments; substantially as set forth.

4. The operating-table comprising the legs, side bars, table-top hinged at one end, and means for raising and lowering said top from its other end, said side bars and top each being independently composed of sections hinged together at about the transverse center of the table so that they may be together folded downwardly and also so that said top may be independently given the position of a double incline for certain operations, combined with means adjacent to the center of the table for supporting the hinged end section of said top in an upwardly-inclined position while the other section of said top is inclined downwardly, means connected with said side bars for locking their sections together at their joint in horizontal extended position, means connected with the hinged table-top sections for locking them together at their joint in their horizontal extended position, and the head and foot frames at the ends of the table; substantially as set forth.

5. The operating-table comprising the side bars, the hinged legs composed of hinged foldable sections, the movable sleeves on said legs to pass over the joint between said sections, and the hinged sectional foldable leg-braces adapted at their lower ends to be detachably connected to said legs and to be locked thereto by the lower edge of said sleeves, combined with the table-top hinged at one end, and means for raising and lowering said top from its other end, said side bars and top being composed of sections hinged together at about the transverse center of the table so that they may be folded; substantially as set forth.

6. The operating-table comprising the side bars, legs, hinged table-top, and means for raising and lowering said top from its free end, combined with the frame hinged at the end of said table-top, and the pawl-and-ratchet mechanism for securing said frame in its desired positions, said mechanism com-

prising the ratchet-plates 85, the plates 83 constituting a part of said frame and having the recesses 84, the rod 87 whose transverse portions engage said recesses and said ratchet-plates and whose end portions 88 extend along the sides of said frame and then turn inwardly through apertures in said frame, and the pins 90 which afford supports for said end portions 88; substantially as set forth.

Signed at Brooklyn, in the county of Kings and State of New York, this 7th day of March, A. D. 1903.

JOSEPH SCHOETTL.
CHRISTIAN JAEGER.
PAUL WALSLEBEN.

Witnesses:
JAMES ALBERTSEN, Jr.,
EDWIN L. REED.