

Sept. 25, 1956

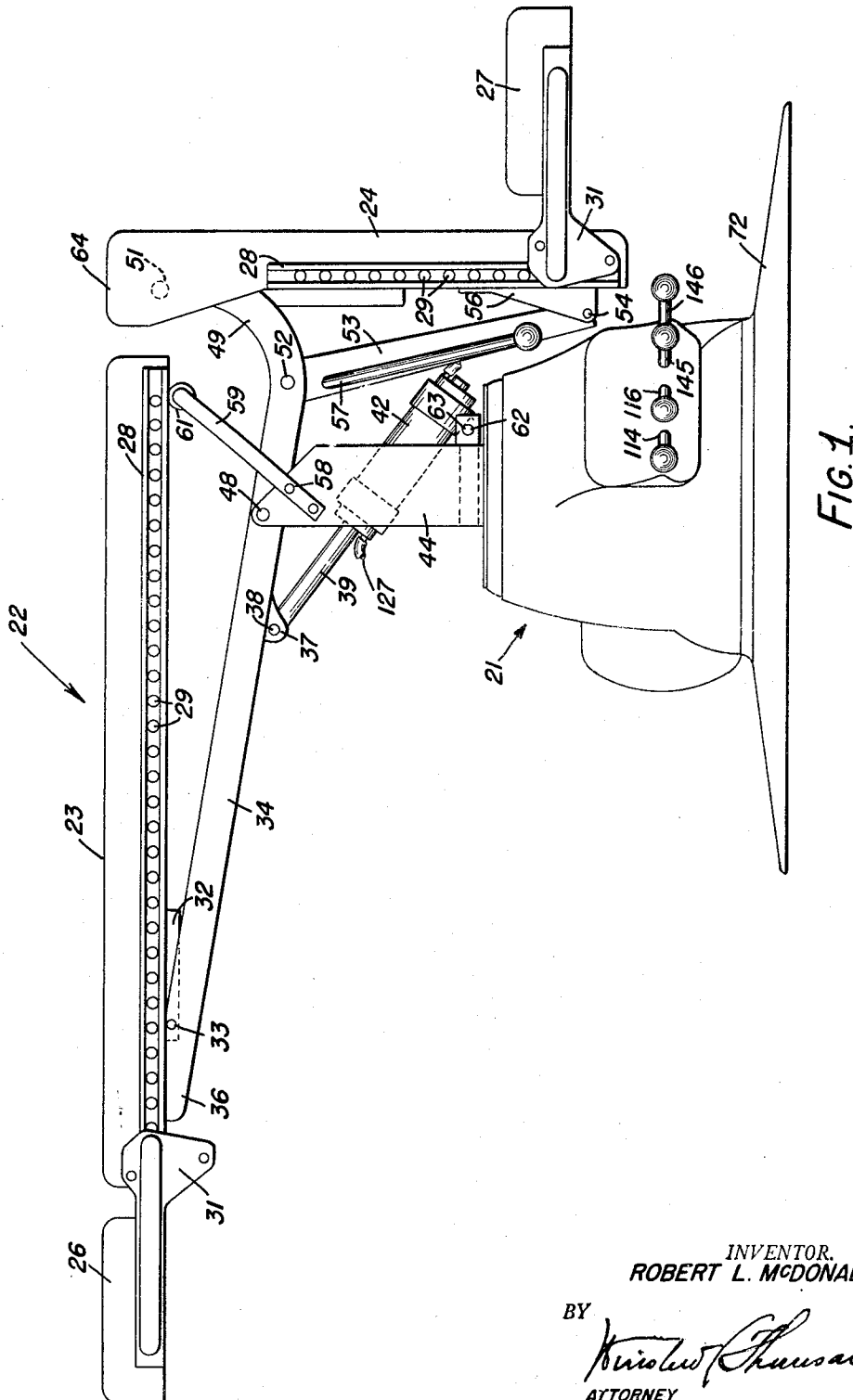
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2,764,459

HYDRAULIC TIP TYPE MEDICAL EXAMINATION AND OPERATING TABLES

Filed Jan. 19, 1953

6 Sheets-Sheet 1



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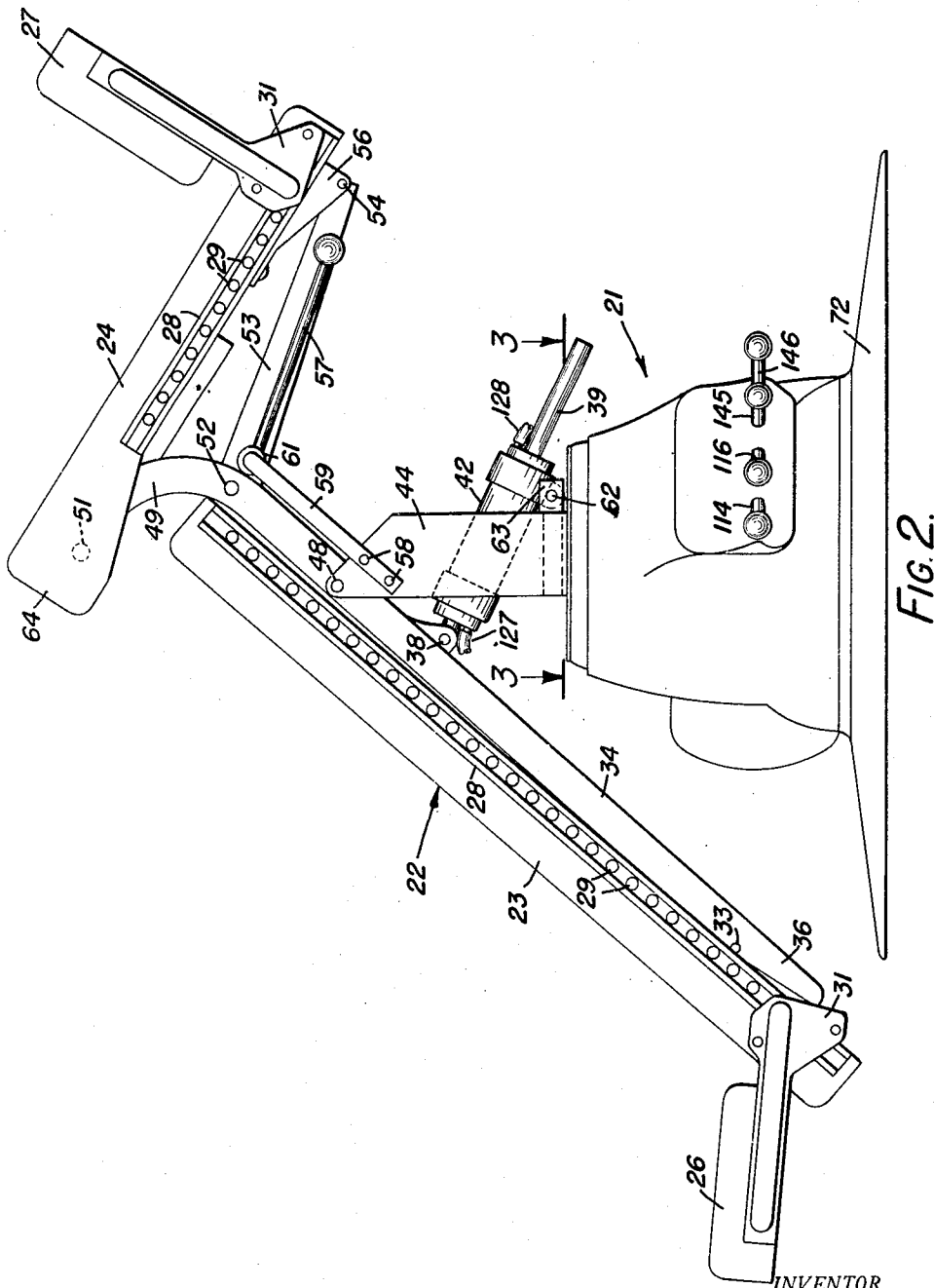
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HYDRAULIC TIP TYPE MEDICAL EXAMINATION AND OPERATING TABLES

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6 Sheets-Sheet 2



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HYDRAULIC TIP TYPE MEDICAL EXAMINATION AND OPERATING TABLES

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6 Sheets-Sheet 3

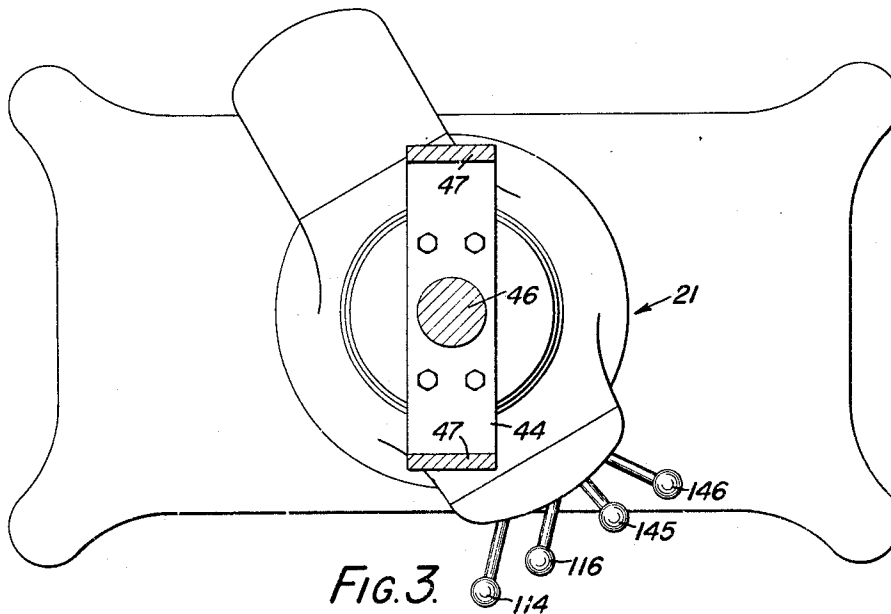


FIG. 3.

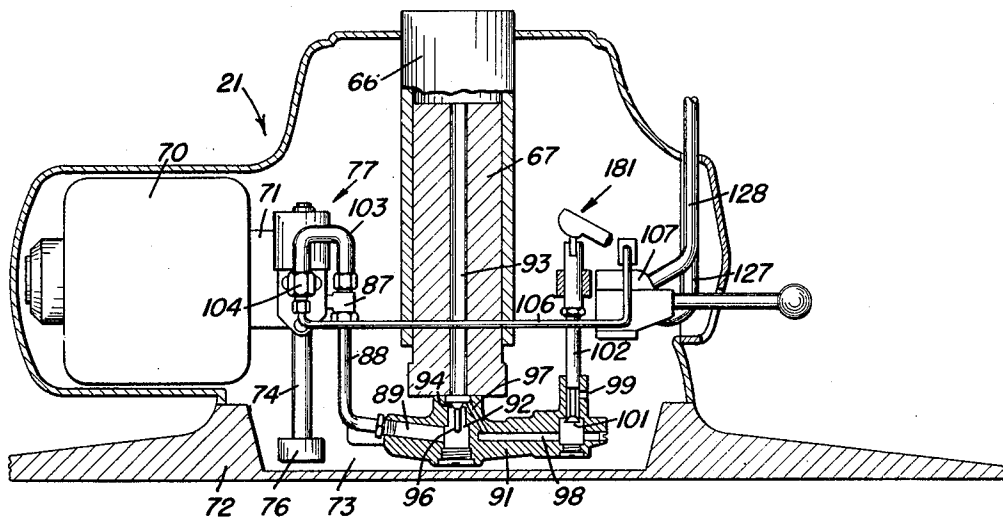


FIG. 4.

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6 Sheets-Sheet 4

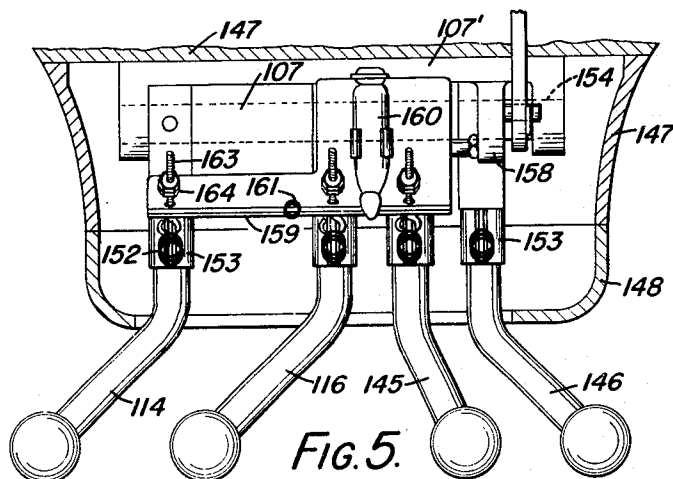


FIG. 5.

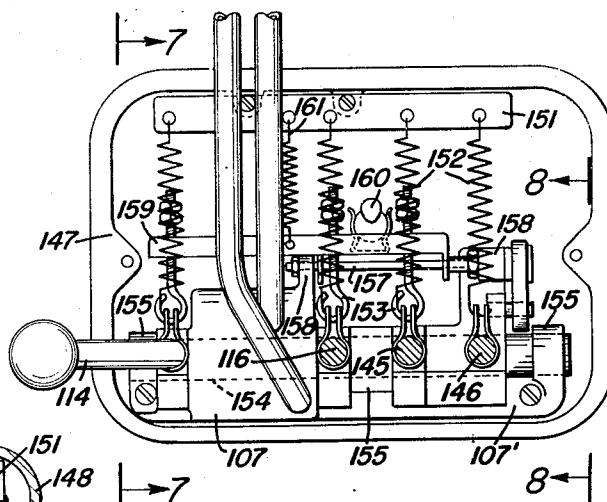


FIG. 6.

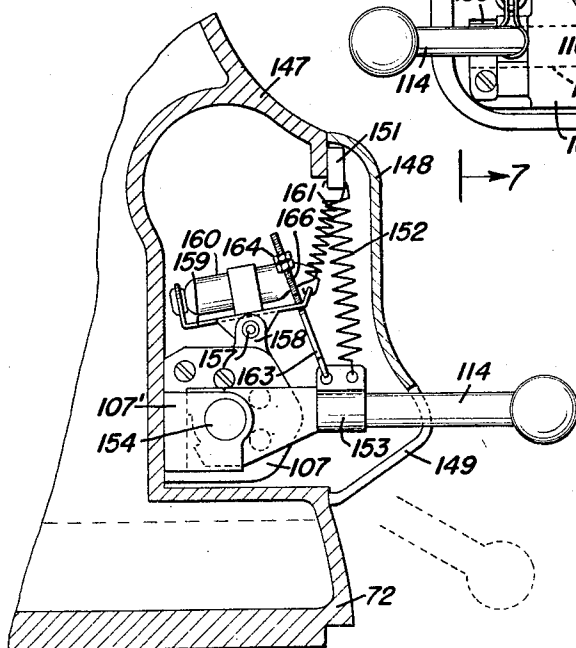


FIG. 7.

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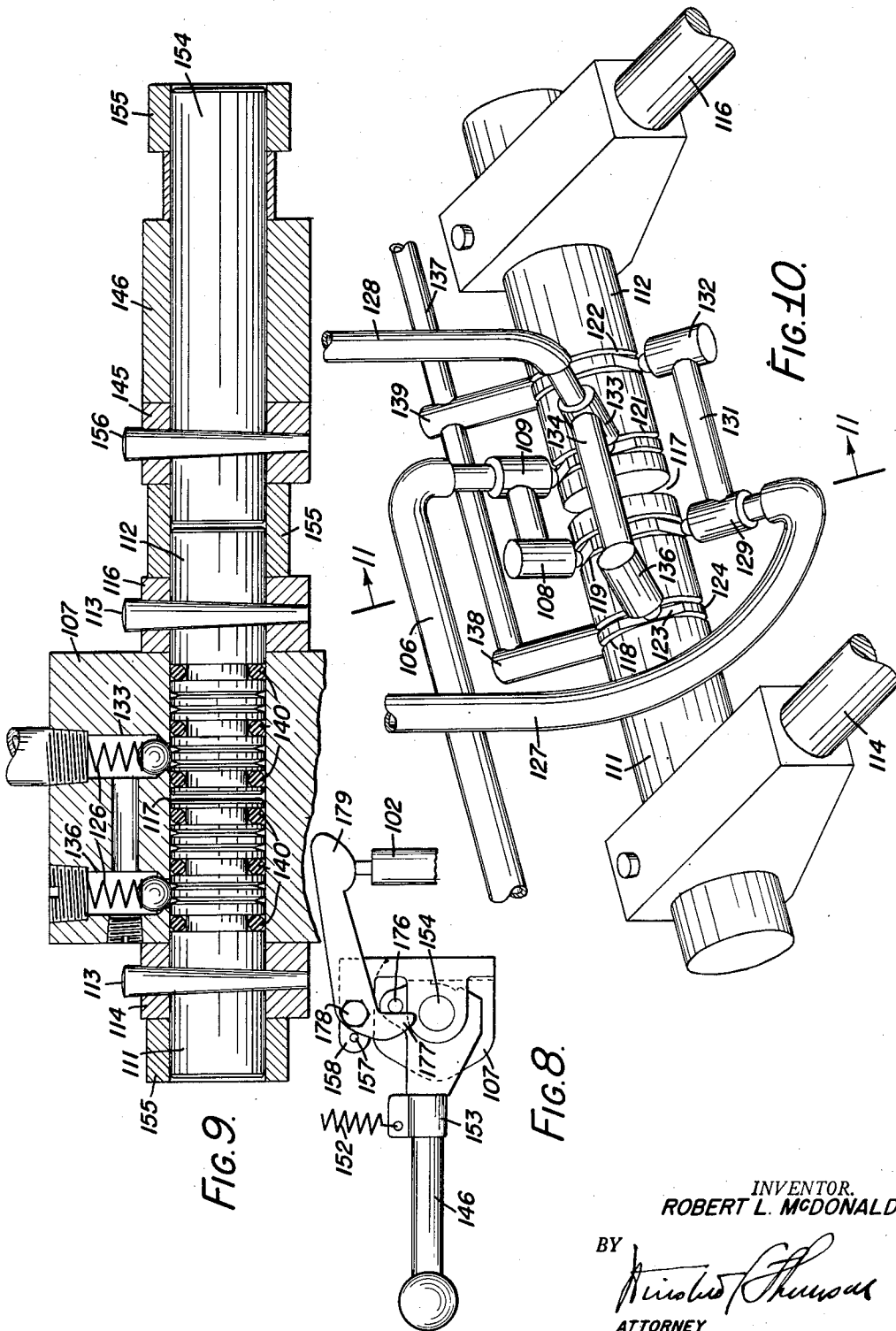
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HYDRAULIC TIP TYPE MEDICAL EXAMINATION AND OPERATING TABLES

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6 Sheets-Sheet 5



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HYDRAULIC TIP TYPE MEDICAL EXAMINATION AND OPERATING TABLES

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6 Sheets-Sheet 6

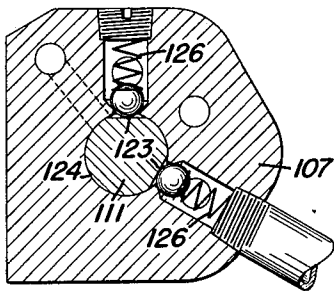


FIG. 11.

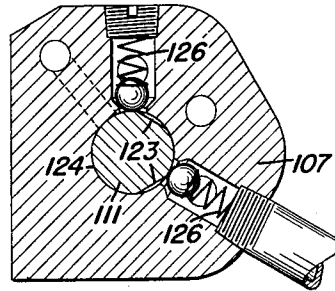


FIG. 12.

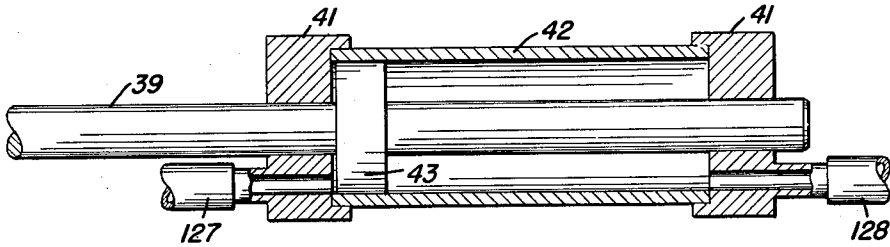


FIG. 13.

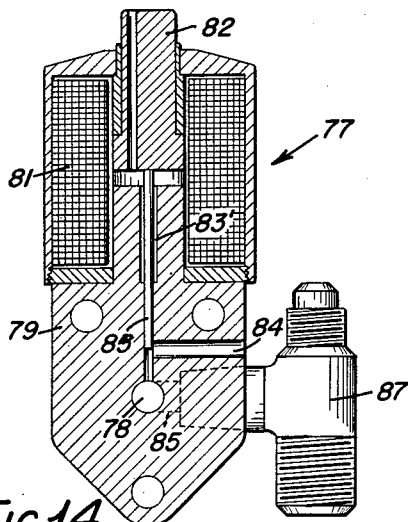


FIG. 14.

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HYDRAULIC TIP TYPE MEDICAL EXAMINATION AND OPERATING TABLES

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Application January 19, 1953, Serial No. 331,771

11 Claims. (Cl. 311—7)

My invention relates to medical examination and operating tables and more specifically to that type of operating table employed for the most part by proctologists. However, the principles of my invention may be employed in any type of table wherein it is desirable that the table surface be capable of being raised and lowered or tilted with the least amount of physical effort.

An object of my invention is to provide a medical examination and operating table which is hydraulically controlled to either raise and lower the table or tilt it longitudinally about a horizontal transverse axis.

Another object of my invention is to provide a hydraulically controlled medical examination and operating table which is of simplified construction and which removes the physical effort required to adjust the table and position the patient as desired by a physician for the purpose of a diagnostic examination or operation.

A further object of my invention is to provide a table structure, particularly adapted for use by proctologists, in which the table sections are arranged and articulated so that what may be termed the back section of the table may be positioned horizontally and what may be termed the leg section may be positioned in any angular position of adjustment with respect to the back section, said two sections further being arranged and tiltably supported whereby when the leg section is in a perpendicular relation to the back section both sections may be tilted longitudinally about a horizontal transverse axis whereby the edge of the leg section which is adjacent the back section may be raised above the plane of the back section and both sections tilted simultaneously to position the patient properly for rectal examination.

My invention further contemplates the provision of hydraulic cylinders and controls therefor which facilitate the raising and lowering of the entire table as a unit or the tilting of the table longitudinally about a horizontal transverse axis with little physical effort being required by the physician, the hydraulic controls being arranged so that the number of valves required is reduced to a minimum and the proportions of the hydraulic cylinders being such that the table-lifting cylinder requires a higher pressure for its operation than the tilting cylinder whereby when the tilting controls are actuated tilting movements of the table are performed without affecting the raising and lowering of the table notwithstanding the fact that the table-lifting cylinder is at all times in communication with the pump which constitutes the source of supply of hydraulic pressure.

Other objects and advantages of my invention will be set forth in the claims and will be apparent from the following description, when taken in connection with the accompanying drawings, in which:

Fig. 1 is a side elevation of a medical examination and operating table in which the features of my invention have been incorporated, the leg section being shown in a perpendicular relation to the back section, one of its possible positions of adjustment;

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Fig. 2 is a view similar to Fig. 1 showing the table in one of its adjusted, tilted positions;

Fig. 3 is a sectional view taken substantially on the line 3—3 of Fig. 2;

Fig. 4 is a vertical sectional view, somewhat diagrammatic, taken through the housing which encloses the motor, pump and part of the controls and hydraulic circuits for the examination and operating table of my invention;

Fig. 5 is a horizontal view partly in section showing part of the foot pedal control housing and the foot pedals for controlling the hydraulic circuits;

Fig. 6 is a vertical view of the foot pedal control housing partly in section with the cover of the foot pedal control housing removed;

Fig. 7 is a sectional view taken substantially on the line 7—7 of Fig. 6;

Fig. 8 is a view taken substantially on the line 8—8 of Fig. 6;

Fig. 9 is a sectional view taken through the valve block;

Fig. 10 is a perspective view showing the control shafts for performing tilt operations on the table and illustrating part of the hydraulic circuits and how the valves are opened and closed upon actuation of the tilt foot pedals to rotate the tilt control shafts;

Fig. 11 is a sectional view taken substantially on the line 11—11 of Fig. 10 showing the position of the control shaft when the valves are closed;

Fig. 12 is a view similar to Fig. 11 with the control shaft rotated and the valves open;

Fig. 13 is a sectional view through the hydraulic tilt cylinder; and

Fig. 14 is a sectional view taken through the solenoid valve assembly.

While I have incorporated the principles of my invention in a medical examination and operating table particularly of the type suitable for use by proctologists, it will be obvious as this description proceeds that the invention may be incorporated in any medical examination or operating table. Moreover, the principles of my invention may be applied to other types of structures such, for example, as dental chairs in which it is desired to either raise or lower the level of the chair or tilt the chair for the purpose of facilitating an examination or operation upon a patient.

The table of my invention comprises a hydraulic system mounted in a housing, generally indicated by the numeral 21, and a table generally indicated by the numeral 22. In Fig. 1 I have shown the table sections in a position which they may occupy for certain diagnostic observations. The table comprises a number of sections which are articulated with respect to each other and which for convenience of designation may be termed a main table section or back section 23 and an auxiliary or leg rest section 24. The table further includes a head rest 26 and a knee rest 27.

The main table section 23 and the auxiliary table section 24 are provided with guides or ways 28 which have spaced apertures 29 therein which by suitable means not shown but indicated at 31, the head rest 26 and the knee rest 27 may be shifted to any desired relationship with respect to the main table section 23 and the auxiliary table section 24 respectively. The particular mechanism by which this is accomplished has not been shown in detail since it does not constitute part of my present invention. However, by way of example, in Fig. 1 I have shown the knee rest 27 positioned normal to the plane of the auxiliary table section 24. If desired the knee rest may be shifted along the ways 28 to accommodate a shorter person kneeling on the knee rest. Further, when the auxiliary table section 24 is shifted to a horizontal position by means which will presently appear,

the knee rest 27 may be shifted so that it lies in a plane with the auxiliary table section 24 and the main table section 23 to correspond to the position of the head rest 26 as shown in Fig. 1. The head rest 26 may be similarly positioned at an angular relationship to the main table section.

Suitable means, as indicated at 32, are rigidly secured to the under side of the main table section 23 for the reception of pivot means indicated at 33. The pivot means 33 is adapted to receive a pair of pivot arms 34, one on each side of the table. The arms 34 constitute part of a cradle for supporting the table and articulating the main table section and auxiliary table section with respect to each other. The arms 34 are extended beyond the pivot means 33 to provide tail pieces 36 which serve as stops for aiding in supporting the main table section in a horizontal position. The function of the tail pieces 36 will be apparent from a comparison of Figs. 1 and 2.

A member 37 extends transversely of the cradle and is rigidly secured to the arm 34 on the other side of the table. The member 37 carries pivot means 38 to the end of which a piston rod 39 is pivoted. The piston rod extends through end walls 41 forming part of a hydraulic cylinder 42 (see Fig. 13). A piston 43 is rigidly secured to the piston rod and is movable longitudinally of the cylinder in accordance with the hydraulic pressure existent on opposite sides thereof, the hydraulic fluid being supplied to the cylinder in a manner which will presently appear.

A support 44 (Fig. 1) is rigidly secured to the upper end of a piston 46 (Fig. 3) and has upwardly extending arms 47 to the upper ends of which the arms 34 of the table cradle are pivoted as shown at 48. The cradle extends toward the leg rest section 24 and the arms thereof are curved as shown at 49. The ends of the arms 34 are partly enclosed by the leg rest section 24 and pivoted thereto as indicated at 51.

Secured between the arms or cradle members 34 is a pivot rod 52. A bar (not shown) is pivoted on the rod 52 and is telescopically movable into and out of a housing 53. A locking device is provided within the housing 53 to lock the bar in a desired adjusted position. Housing 53 is pivoted at 54 to a bracket 56 carried on the under side of the leg rest table section 24. By means of a suitable hand lever 57, upon release of the locking device 55, the auxiliary or leg rest table section 24 may be swung about the pivots so that the auxiliary table section 24 lies in a plane with the main table section 23. The particular means by which the auxiliary table section 24 is moved into a horizontal plane with the main table section 23 and the means by which it is locked in position constitute no part of my present invention and these parts have therefore not been particularly shown and described.

Carried by each of the arms 47 (Fig. 3) of the support 44 and rigidly secured thereto as shown at 58 (Figs. 1 and 2) is a support arm 59 on the end of which a roller 61 is mounted. The support arms 59 are adapted to support the rearward end of the main table section 23 in a horizontal position when the parts are in the position shown in Fig. 1.

The tilt cylinder 42 is pivoted as shown at 62 to a part 63 by the support member 44. With the parts in the position shown in Fig. 1, when hydraulic fluid is admitted to the cylinder 42 at the left side of the piston 43 as the parts are shown in Fig. 13, the piston is moved to the right, pulling the cradle 34 downward and pivoting the cradle about the pivot 48. This action causes the main table section 23 to ride on the rollers 61 so that the angle between section 23 and frame or cradle members 34 as shown in Fig. 1 is gradually reduced. Finally, in extreme table tilt position Fig. 2, the cushion 23 is no longer supported by rollers 61 but is permitted to completely collapse against and be supported by the cradle members 34. By allowing the cushion surface of the

main section 23 to drop down against the cradle members 34, the cushion surface acquires a position several inches below the flush line of a leg rest cushion shelf 64. Thus with the parts in the position shown in Fig. 1 and with knee rest 27 properly adjusted to accommodate the height of the patient, a patient may kneel on the knee rest 27 and bend himself at the waist so that his trunk and shoulders lie on the surfaces 64 and 23, and his head and arms may rest on 26 as it is brought upward and forward to be locked on metal guides 29 at proper position to suit size of patient. Then as the table is tilted by means of hydraulic cylinder 42 to the maximum position as shown in Fig. 2, the drop-out action of the main section 23 operates automatically as a function of table tilt to form a recess thus relieving pressure against patient's abdomen and permitting the main portion of the patient's weight to be supported by his legs and thighs against leg rest cushion surfaces 24 and 64. Manipulation of the patient to this position is much to be desired by the physician practicing proctology. The combination of patient's head-low inverted kneeling position along with cushion drop-out which relieves pressure against patient's abdomen results in a natural and gentle pull of gravity against the patient's internal organs so as to ease discomfort and facilitate straight line insertion of sigmoidoscope or similar medical instrument inserted rectally for examination, treatment, and surgery. By proper actuation of the hydraulic controls 114 and 116 the operator or physician may arrest the movement of the parts, as will presently appear, secure the amount of tilting action desired, and obtain this automatic center section drop-out as a function of table tilt without further manipulation of secondary controls.

The hydraulic system for raising and lowering the table is for the most part enclosed within the housing 21 (Fig. 4) and includes a hydraulic lift cylinder 66 which to a large extent has been diagrammatically illustrated. However, it will be understood that the lift cylinder 66 is connected to the member 44 (Fig. 1) to raise and lower this member and thus raise and lower the entire table unit. The hydraulic lifting mechanism has been only diagrammatically illustrated as such mechanisms are well known in the art. In the drawings I have illustrated a stationary piston 67 and a movable cylinder 66. If desired, a combination movable cylinder and telescoping piston may be employed to increase the amplitude of movement of the table while maintaining the over-all height of the table at a minimum when the table is in its lower most position.

Mounted in the housing 21 in any suitable manner is a motor 70 (Fig. 4) which drives a hydraulic pump 71 which may be of any suitable type, for example, a hydraulic positive displacement gear pump. The housing 21 is supported on a base 72 in which a sump or reservoir 73 is provided. A connection 74 extends into the sump and has a filter 76 mounted on the lower end thereof, the connection or pipe 74 conveying oil to the suction (not shown) of the pump 71 when the pump is operating to create a suction in the pipe.

A solenoid valve 77 (Fig. 14) is in the hydraulic circuit from the discharge of the pump, the pump discharge connecting to an opening 78 in the solenoid valve body 79. The solenoid includes a field 81 and a core 82 which has a valve stem or rod 83 positioned directly below which operates in a bore 83'. In accordance with the movements of the valve stem 83 as will presently appear, a port 84 is opened and closed.

A passage 85 in the valve body 79 connects with the discharge 78 from the pump and this passage 85 connects with a T 87. The lower end of the T 87 is connected by a hose 88 to a passage 89 in a casting 91. A passage 92 in the casting connects with a passage 93 formed in a part integral with the stationary piston 67. The casting 91 has a seat 94 upon which a check valve 96 seats. A passage 97 is provided in the casting 91 which connects

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to a point above the check valve 96 and communicates with a passage 98 which connects with a port 99. A valve 101 actuated by a valve stem 102 opens and closes communication between the passage 98 and the port 99 for a purpose which will later appear.

The upper end of the T 87 connects with a hose 103 which extends into a rigidly secured fitting 104 adapted to receive tubing 106. The tubing 106 is adapted to carry oil under high pressure from the pump to a valve block 107 (see Figs. 5, 6 and 7) formed in a valve block casting 107'.

Referring now to Fig. 10, for the purpose of simplifying the understanding of my invention I have made a perspective diagrammatic view of the hydraulic controls and their operation. In Fig. 10 the valve block has been omitted but it will be understood that the hydraulic connections shown in Fig. 10 extend through the valve block in the manner illustrated in Figs. 9, 11 and 12. In Fig. 10 the high pressure connection from the pump has been indicated as 106 which high pressure connection carries oil to each of two valve assemblies 108 and 109.

The valve block has oscillatably mounted therein two shafts 111 and 112 each of which is rigidly connected as indicated at 113 to a foot pedal. Suitable bearings for these shafts are provided in the valve block 107 and the valve block casting 107'. These foot pedals are designated 114 and 116 and constitute the means for controlling the flow of oil to the tilt cylinder 42 (Fig. 13). It will be noted that while the shafts 111 and 112 are in alignment with each other, they are separated by an intervening space 117 so that they are separately controlled respectively by the foot pedals 114 and 116. Each of the shafts 111 and 112 is provided with two sectors which constitute flow passages around the shaft. These sector flow passages are numbered 118, 119, 121 and 122. In each sector a cam is provided which includes flat spots 123 and high spots 124 adapted to open and close spring pressed valves such as those indicated at 126 in Figs. 9, 11 and 12.

A conduit 127 (Fig. 13) is connected to one side end of the cylinder 42 and a conduit 128 is connected to the other end of the cylinder. The conduit 127 extends to a fitting 129 (as diagrammatically shown in Fig. 10) which has a spring pressed valve at the end thereof. The conduit connects also with a cross-over passage 131 which connects to a fitting 132 which also has a spring pressed valve therein. These valves are adapted to cooperate respectively with the cams located in the sectors 119 and 122. The conduit 128 is connected to a fitting 133 which has a valve at the end thereof, the fitting being also connected to a cross-over passage 134 which connects with a fitting 136 which has a valve at the end thereof. These valves are opened and closed by the cams located respectively in the sectors 118 and 121.

A conduit 137 is connected to the sump or reservoir 73 (Fig. 4) and is connected to each of two passages 138 and 139.

When it is desired to tilt the table from the position shown in Fig. 1 to that shown in Fig. 2, oil is admitted to the cylinder 42 (Fig. 13) at the left hand side of the piston 43. This is accomplished by pressing the foot pedal 114 to rotate the shaft 111. Upon rotation of the shaft 111, the cam in the sector 119 is rotated to place a high spot of that cam in contact with the spring pressed ball valve in the fitting 108. Oil is then admitted to the sector 119 and flows around that sector. Rotation of the cam in the sector 119 has also placed the valve in the fitting 129 in open communication with the sector 119 allowing high pressure oil to flow through the conduit 127 to the left hand side of the piston 43 (Fig. 13).

Rotation of the shaft 111 also places the valve in the fittings 136 in registry with the high point of the cam in the sector 18 allowing oil to flow out of the cylinder 42 from the right hand side of the piston 43 through the conduit 128, through fitting 136, around sector 118 to the fitting 138 and back to the sump through the conduit

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137. As long as the operator maintains his foot on the foot pedal 114, the oil flow above described will occur until the piston 43 reaches the end of its stroke. However, the operator may discontinue the flow of oil at any time by releasing the foot pedal 114 which permits a spring to act on the foot pedal, as will presently appear, to restore the shaft 111 to its normal position rotating the cams in the sectors 118 and 119 and closing all the spring pressed valves just described. The table will then remain in the tilted position desired by the operator thereof, the oil on opposite sides of the piston being locked in the cylinder by the closing of the valves.

When it is desired to restore the table to a horizontal position, the foot pedal 116 is depressed. This action connects the high pressure line 106 with the line 128 causing a flow of high pressure oil to the cylinder 42 (Fig. 13) at the right hand side of the piston 43. This action also rotates the shaft 112 to connect the conduit 127 with the conduit 137 through the sector 122 thus allowing oil to escape from the left hand side of the piston 43 back to the sump.

As in the case of tilting movements, the operator may arrest the restoring action of the table to a horizontal position at any point by lifting his foot from the foot pedal 116 which allows a spring to rotate the shaft 112, as will presently appear, to close the valves at any point prior to the table reaching the horizontal position shown in Fig. 1.

In Fig. 11, I have indicated the position of the parts with the balls of the spring pressed ball valves in engagement with the low points 123 of the cam in the sector 119. In this position of the parts the valves are closed. Fig. 12 is a view with the shaft 111 rotated and the spring pressed valves in engagement with high points 124 of the cam in the sector 119. In this position of the parts the valves are open and high pressure oil is flowing from the high pressure line 106 through the valve associated therewith around the sector through the valve associated with the line 127 and through that line to the left hand side of the piston 43 operating in the cylinder 42. It will be understood that sectional views through other sectors of shafts 111 and 112 would be similar to Figs. 11 and 12. As shown in Fig. 9, the various sectors are hydraulically separated from each other and leakage along the shafts is avoided by hydraulic seals 140 located in grooves provided in the shafts 111 and 112.

Referring now to Figs. 5 to 8 inclusive, in addition to the foot pedals 114 and 116, foot pedals 145 and 146 are provided. These foot pedals extend into a control housing 147 provided with a cover plate 148. The cover plate is provided with an elongated opening or separate slots 149 in which the foot pedals may operate (Fig. 7).

Mounted adjacent the top of the control housing is a bracket 151 in apertures in which the ends of springs 152 are secured. Each of these springs is extended to a member 153 mounted on the inner end of each of the foot pedals 114, 116, 145 and 146. These springs restore the foot pedals to their normal position shown in solid lines in Fig. 7 when foot pressure is released. The valve block casting 107' extends to the right, as viewed in Fig. 6, from the valve block 107 and suitable bearings are provided in the casting for the reception of a shaft 154. The arms from the valve block casting which carry the bearing supports for the shafts 111, 112 and 154 are shown at 155 (Figs. 6 and 9).

The inner end of the foot pedal 145 is pinned to the shaft 154 as indicated at 156 while the inner end of the foot pedal 146 is loose on the shaft 154.

Referring now to Fig. 6, mounted in suitable spaced bosses 158 formed in the valve block casting is an elongated pivot pin 157. A cradle 159 pivots on the pivot pin 157 and supports a mercury switch 160. In the position of the mercury switch 160 shown in Fig. 7, the switch is open, the cradle being normally held in this position by a spring 161 which extends between the

cradle 159 and the bracket 151. The members 153 of each of the foot pedals 114, 116 and 145 has an actuating rod 163 secured in an aperture thereof. Each of the rods is threaded to receive a nut 164 and each of the rods passes through the cradle 159. A lost motion provision, indicated at 166, is made so that some movement of the foot pedals is necessary before the nut 164 engages the cradle 159 to tilt the mercury switch 160.

The mercury switch 160 is in circuit with the motor 70 and the field of the solenoid so that when the mercury switch 160 is tilted about the axis of the pivot rod 157, the motor is started to supply hydraulic fluid under pressure to the system and the solenoid is energized so that the valve stem 83 moves down to close the escape port 84. Hydraulic fluid is then supplied to one side or the other of the cylinder 42 (Fig. 13) or to the hydraulic cylinder 66 depending upon which of the three foot pedals 114, 116 or 145 is depressed. When the depressed foot pedal is released, the corresponding spring 152 (Fig. 6) restores the foot pedal to normal position, the mercury switch is shifted to the position shown in Fig. 7, and the motor 70 and the solenoid 77 are deenergized.

When the solenoid 77 is deenergized, the hydraulic pressure beneath valve stem 83 moves the valve stem and the core of the solenoid to the position shown in Fig. 14, thereby opening the port 84. The opening of the bleed port 84 prevents any building up of excessive pressure particularly when the lift cylinder reaches the end of its upward movement or any movement of the table beyond the position desired which might result from inertia of the motor. At the same time hydraulic fluid cannot escape from the hydraulic lift cylinder 66 due to the fact that the check valve 96 closes and, with respect to the hydraulic cylinder 42, release of either the foot pedal 114 or the foot pedal 116, as the case may be, rotates the shaft 111 or the shaft 112 to close the valves associated therewith as previously described to prevent the escape of hydraulic fluid from the cylinder 42.

Referring now to Fig. 8, as previously mentioned, the foot pedal 146 is loose on the shaft 154. Carried by a boss on the inner end of the foot pedal 146 is a pin 176 which engages one arm 177 of a bell crank. The bell crank is pivoted at 178 on a part of the valve block casting and the other arm 179 engages the upper end of the valve stem 102 as shown at 181 (Fig. 4). Upon depressing the foot pedal 146, the pin 176 pivots the bell crank about the pivot 178 in a clockwise direction, as viewed in Fig. 8, to depress the valve stem and open valve 101. Opening of the valve 101 permits oil in the hydraulic cylinder 66 to escape through the port 97, passage 98, and port 99 back to the sump or reservoir 73. The release of pressure in the hydraulic cylinder permits the weight of the table to force the oil out of the hydraulic cylinder 66 to allow the table to descend. The operator may interrupt the descent of the table merely by release of pressure on the foot pedal 146. Release of the foot pedal allows the spring 152 to restore the parts to the normal position and the pressure of oil below the valve 101 will close the valve so as to retain oil in the hydraulic cylinder 66 and stop descent of the table.

One of the important aspects of my invention is the fact that whenever the pump is in operation, hydraulic fluid under pressure is available to the hydraulic lift cylinder 66. It will be noted that the passage 78, 88, 89 is free of valves and the check valve opens in an upward direction so that when the pump starts pressure is available to the hydraulic lift cylinder. Since the pump starts whenever any one of the foot pedals 114, 116 or 145 is depressed, the ratio of the cross-sectional area of the hydraulic lift cylinder 66 with respect to the cross-sectional area of the tilt cylinder 42 is made such that, taking into consideration the weight of the table, the hydraulic pressure required to tilt the table is less than that required to lift the table. Thus when either the foot pedal

114 or the foot pedal 116 is depressed, a tilting operation will occur depending upon which foot pedal is depressed and no hydraulic fluid will be fed to the hydraulic lift cylinder until the piston 43 in the cylinder 42 has completed its movement and the table has been shifted to its extreme tilt position or the extreme horizontal position, depending upon whether the foot pedal 114 or the foot pedal 116 is depressed. Since the operator releases the foot pedal either prior to or when the table reaches these extreme positions, no undesired action of lifting of the table will occur. However, if a tilting action is desired in combination with a lifting action, the operator may hold his foot on the pedal 114 until the piston 43 has completed its movement, whereupon the continued supply of hydraulic fluid to the system supplies fluid to the lift cylinder 66 to raise the table to the desired height.

The advantage of the particular arrangement above described is that it simplifies the valving of the hydraulic system. No valve is required in the line leading from the pump to the hydraulic lift cylinder except of course the check valve 96. Moreover, no overload valving or limit switch controls are required at the end of piston strokes to prevent bursting of oil lines or mechanical overload damage. The elimination of such valves minimizes sources of trouble and greatly decreases the cost of production of the hydraulic system and its controls.

While I have shown and described the preferred form of my invention, it will be apparent that various changes may be made, particularly in the form and relation of parts, without departing from the spirit of my invention as set forth in the appended claims.

I claim:

1. A medical examination table comprising, in combination, a main table section, a leg rest table section, a vertically movable support, a cradle pivoted to the support between its ends, pivoted adjacent one end to the leg rest section and pivoted adjacent its other end to the main table section at a point remote from the leg rest section, means extending between said support and the end of the main table section adjacent said leg rest section for supporting said end of the main table section, means for positioning the main table section substantially horizontal and the leg rest section substantially at right angles thereto, and means including a hydraulic cylinder connected between said support and said cradle for swinging the cradle about its pivot on the support to simultaneously shift the main table section into an inclined position and the leg rest section to a position such that its edge adjacent the main table section lies above the plane of the main table section while maintaining the essentially right angle relation of the table sections.

2. A medical examination table in accordance with claim 1 in which hydraulic means are provided for raising the level of both table sections simultaneously.

3. A medical examination table comprising, in combination, a main table section and a leg rest section arranged substantially at right angles to each other, said main table section having an end adjacent the leg rest section and an end remote therefrom and said leg rest section having an edge adjacent the adjacent end of the main table section and unconnected thereto, a vertically extending support, a cradle pivoted to said support, pivoted adjacent the remote end of the main table section and pivoted to the leg rest section adjacent said edge, an arm fixed to said support at its lower end and having its upper end supporting said adjacent end of the main table section but said adjacent end being free to shift with respect thereto, and means including hydraulic means pivoted to said support and pivoted to said cradle for shifting the remote end of the main table section downward, the adjacent end upward and simultaneously as part of the same movement shifting the leg rest section to a position such that said edge lies above the plane of the main table section while maintaining the essentially right angle relation of the table sections.

4. A medical examination table in accordance with claim 3 in which a kneeling section is provided which may be positioned substantially at right angles to the leg rest section and means are provided for adjusting the kneeling section longitudinally of the leg rest section whereby a patient may kneel on the kneeling section, bend himself at the waist, have his lower trunk resting on said edge, his upper trunk on the main table and his abdomen relaxed and unsupported by either table section.

5. A medical examination table comprising, in combination, a main table section and a leg rest section arranged substantially at right angles to each other, said main table section having an end adjacent the leg rest section and an end remote therefrom and said leg rest section having an edge adjacent the adjacent end of the main table section, a vertically extending support, means pivoted to said support and to said table sections for supporting the table sections for swinging movement about said support, means including hydraulic means connected between said last mentioned means and said support for simultaneously shifting the remote end of the main table section downward, the adjacent end upward and the leg rest section to a position such that said edge lies above the plane of the main table section while maintaining the essentially right angle relation of the table sections, a kneeling section positionable at right angles to the leg rest section and means for adjusting the kneeling section longitudinally of the leg rest section to accommodate the leg rest section to persons of various heights whereby a patient may kneel on the kneeling section, bend himself at the waist with his lower trunk resting on said edge, his upper trunk on the main table section and his abdomen relaxed and unsupported by either table section.

6. A medical examination table in accordance with claim 5 in which hydraulic means are provided for raising and lowering said vertically movable support to adjust the level of both table sections simultaneously.

7. A medical examination table comprising, in combination, a main table section and a leg rest section arranged substantially at right angles to each other, said main table section having an end adjacent the leg rest section and an end remote therefrom and said leg rest section having an edge adjacent the adjacent end of the main table section, said adjacent edge and said adjacent end being non-pivotally connected to enable said edge and end to shift with respect to each other so that said edge lies above said end, a vertically extending support, means pivoted to said support and to said table sections for supporting the table sections for swinging movement about said support, means including hydraulic means connected between said last mentioned means and said support for simultaneously shifting the remote end of the main table section downward, the adjacent end upward and the leg rest section to a position such that said edge lies above the plane of the main table section while maintaining the essentially right angle relation of the table sections.

8. A medical examination table in accordance with claim 7 in which a kneeling section is provided which may be positioned substantially at right angles to the leg rest section and means are provided for adjusting the kneeling section longitudinally of the leg rest section to accommodate patients of various heights whereby a patient may kneel on the kneeling section, bend himself at the waist with his lower trunk resting on said edge, his upper trunk on the main table section and his abdomen relaxed and unsupported by either table section.

9. A medical examination table comprising, in combination, a main table section and a leg rest section arranged substantially at right angles to each other, said main table section having an end adjacent the leg rest section and an end remote therefrom and said leg rest section having an edge adjacent the adjacent end of

the main table section, said adjacent edge and said adjacent end being non-pivotally connected to enable said edge and end to shift with respect to each other so that said edge lies above said end, a vertically extending support, means pivoted to said support and to said table sections for supporting the table sections for swinging movement about said support, means including hydraulic means connected between said last mentioned means and said support for simultaneously shifting the remote end of the main table section downward, the adjacent end upward and the leg rest section to a position such that said edge lies above the plane of the main table section while maintaining the essentially right angle relation of the table sections, and means pivoted to said first mentioned means and to said leg rest section enabling said leg rest section to be swung into co-planar relation with said main table section.

10. A medical examination table in accordance with claim 9 in which a kneeling section is provided which may be positioned substantially at right angles to the leg rest section and means are provided for adjusting the kneeling section longitudinally of the leg rest section to accommodate patients of various heights whereby a patient may kneel on the kneeling section, bend himself at the waist with his lower trunk resting on said edge, his upper trunk on the main table section and his abdomen relaxed and unsupported by either table section.

11. A medical examination table comprising, in combination, a support, a main table section and a leg rest section arranged in co-planar relation, said main table section having an end adjacent the leg rest section and an end remote therefrom and said leg rest section having an edge adjacent the adjacent end of the main table section, means pivoted to said support and to said table sections for supporting the table sections for swinging movement about said support, an arm fixed to said support at its lower end and having its upper end supporting the adjacent end of the main table section but said adjacent end being free to shift with respect thereto and bodily with respect to said edge, means pivoted to said first mentioned means and to said leg rest section remote from said edge enabling said leg rest section to be swung into substantially right angle relation with said main table section, means including said first mentioned means connected thereto and to said support for simultaneously shifting the remote end of the main table section downward, the adjacent end upward and the leg rest section to a position such that said edge lies above the plane of the main table section while maintaining the essentially right angle relation of the table sections, a kneeling section, means for positioning said kneeling section in co-planar or right angle relation to said leg rest section, and means for adjusting the kneeling section longitudinally of the leg rest section so that patients of various heights may kneel on the kneeling section, bend himself at the waist, have his lower trunk resting on said edge with his upper trunk on the main table section and his abdomen relaxed and unsupported by either table section, when the leg rest section is in substantially right angle relation to the main table section.

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