

Feb. 4, 1930.

J. FITTING, JR

1,746,035

OPERATING TABLE

Filed June 4, 1928

3 Sheets-Sheet 1

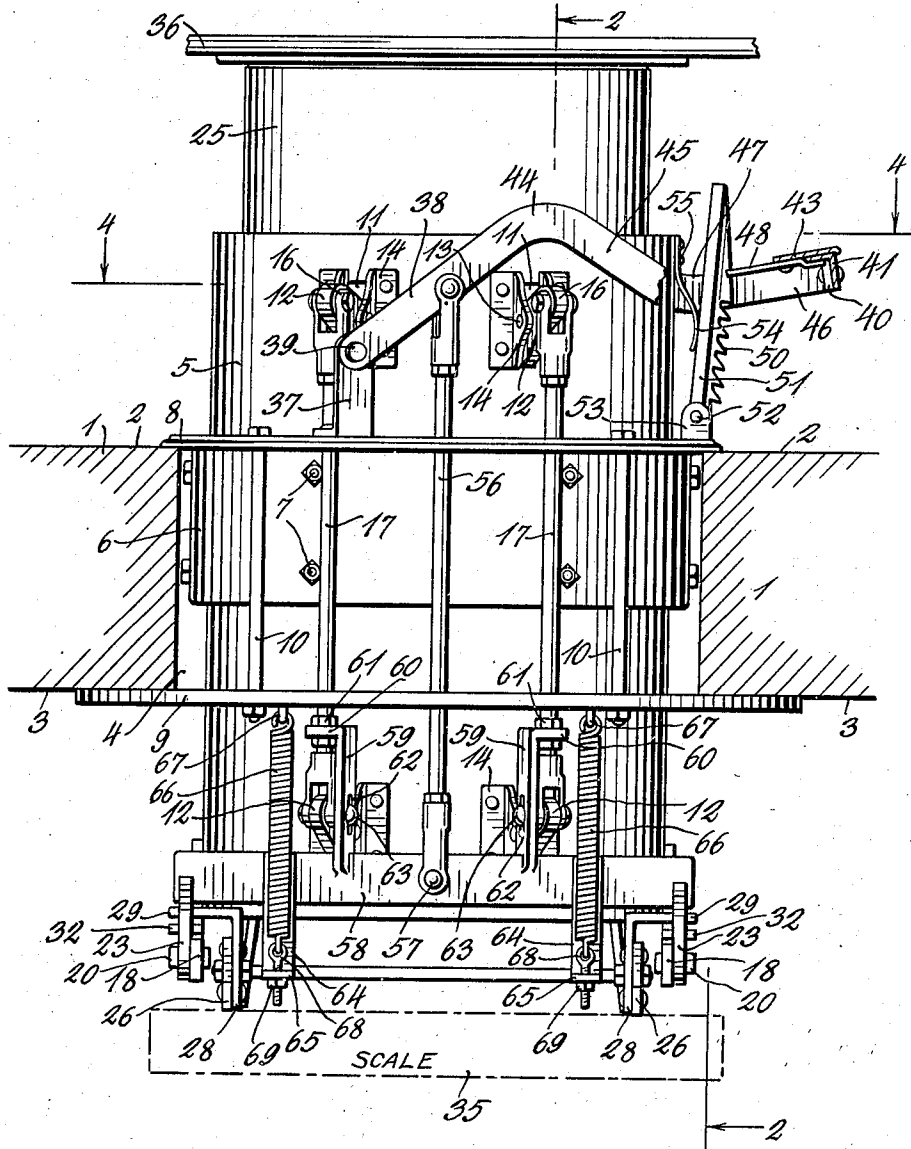


Fig. 1.

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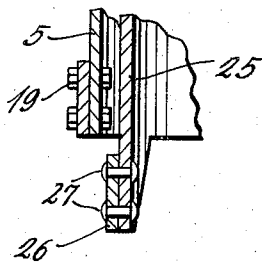
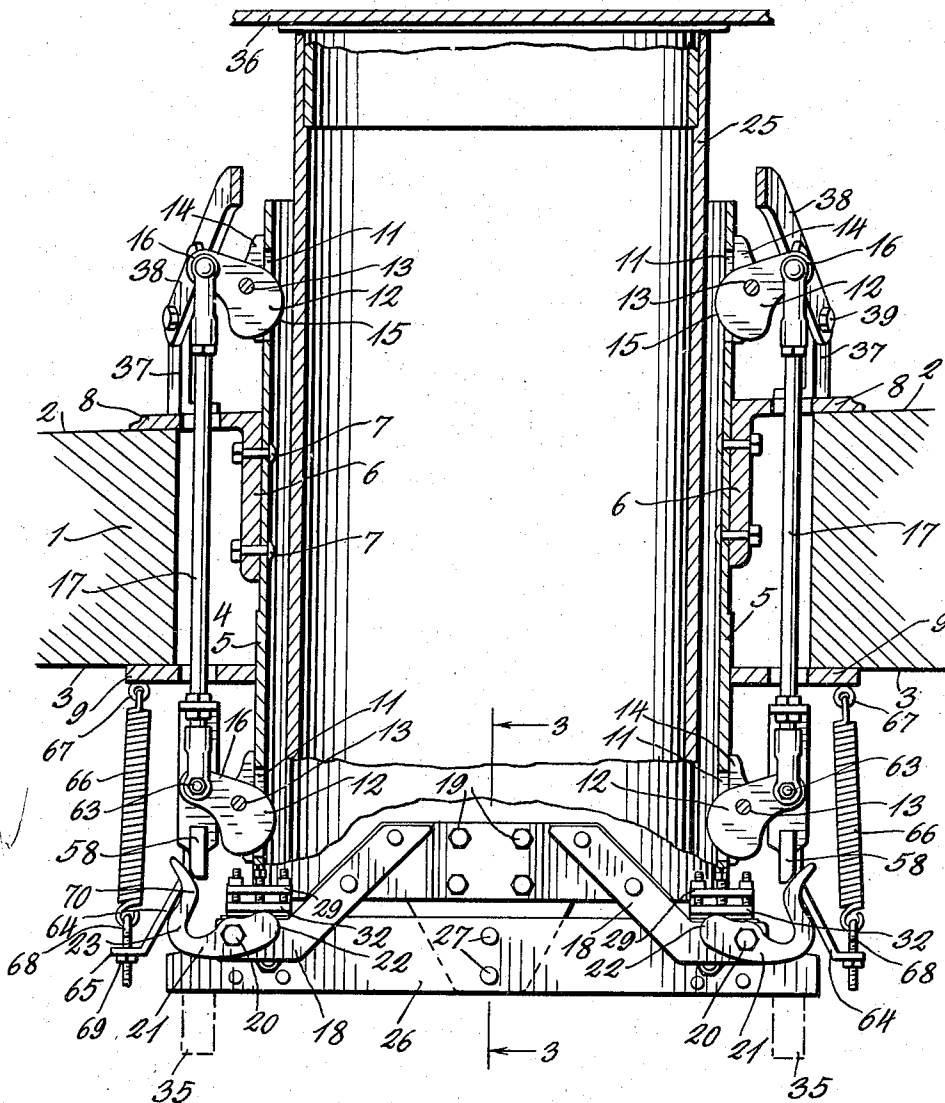
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OPERATING TABLE

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3 Sheets-Sheet 2



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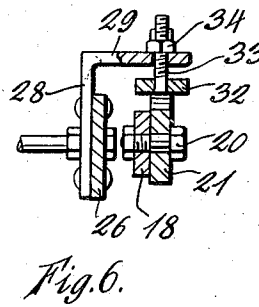
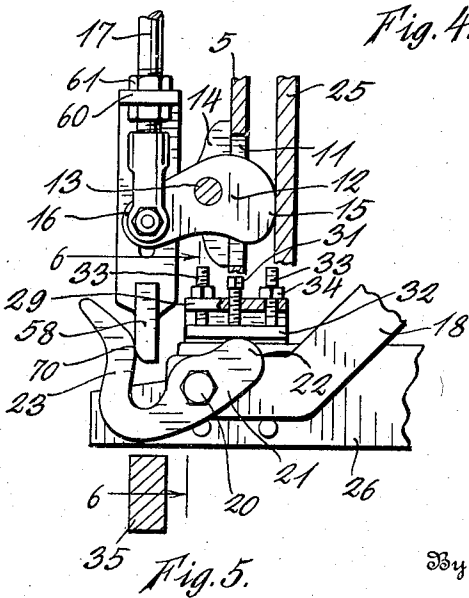
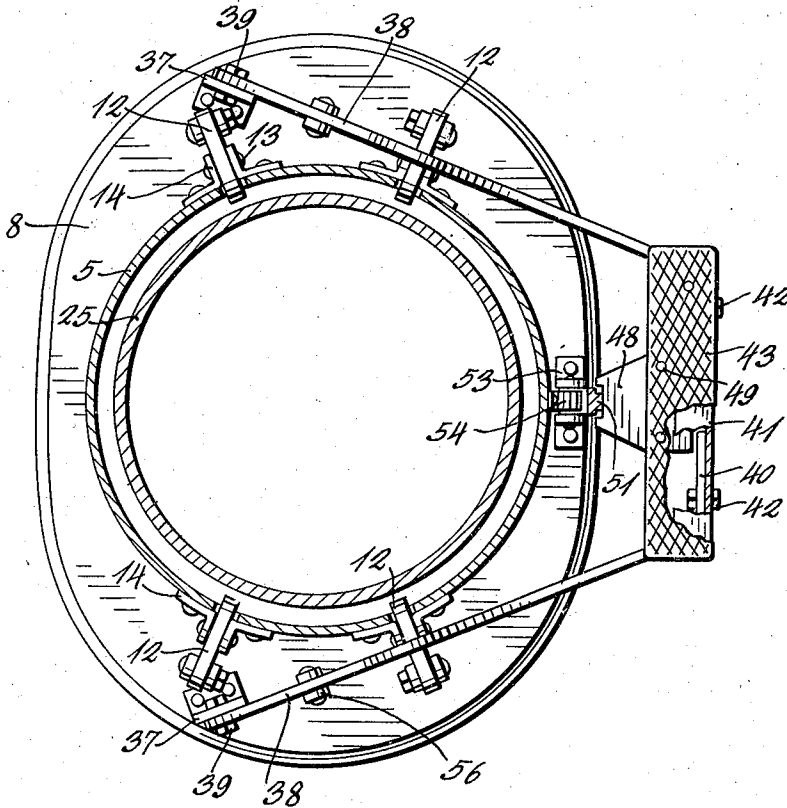
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OPERATING TABLE

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3 Sheets-Sheet 3



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OPERATING TABLE

Application filed June 4, 1928. Serial No. 282,549.

This invention relates to improvements in supporting devices for operating and dissecting tables.

In morgues, hospitals, undertaking establishments and other places where operations or dissection takes place, it is desirable to have a table on which the subject is supported and which can be readily adjusted in a vertical direction and clamped rigidly in place. It is also desirable to be able to weigh carefully the subject while in place on the table as this is frequently necessary.

It is the object of this invention to produce a supporting device that is intended more particularly for use in connection with dissecting tables and which shall be so constructed that it can be readily placed into contact with a scale and supported entirely from this scale so that the exact weight of the subject can be quickly and easily determined and which shall be provided with means for conveniently raising the weight of the table from the scale and for securely clamping it in position so as to hold it rigid during the time the work is performed on the subject.

The above and other objects which may become apparent as the description proceeds are attained by means of a construction and an arrangement of parts that will now be described in detail and reference for this purpose will be had to the accompanying drawings in which the preferred embodiment of this invention has been illustrated and in which:

Fig. 1 is a side elevation of the supporting device showing it in position in an opening in a floor;

Fig. 2 is a vertical section taken on line 2—2, Fig. 1;

Fig. 3 is a section taken on line 3—3, Fig. 2;

Fig. 4 is a transverse section taken on line 4—4, Fig. 1;

Fig. 5 is a detail showing the lifting cams and clamping cams in operative position; and

Fig. 6 is a section taken on line 6—6, Fig. 5, and shows an adjusting means.

In the drawings numeral 1 represents a

floor construction; numeral 2 the floor surface and numeral 3 the ceiling. An opening 4 has been provided in the floor for the reception of the supporting device which forms the subject of this invention. The supporting device consists of a hollow cylindrical supporting member 5, to the outer surface of which a ring 6 has been secured by means of bolts 7. This ring has an outwardly extending flange 8 that is adapted to extend over onto the floor surface and serve as a support. Another ring which has been indicated by numeral 9 encircles the support 5 and is of sufficient width to extend over onto the ceiling 3. Ring 9 is secured to flange 8 by means of a number of bolts 10 by means of which the flange and ring are clamped against the floor and ceiling so as to hold the parts in adjusted position. The supporting member 5 is provided at each end with four openings 11 through which the cams 12 project. These cams are connected by means of pivot pins 13 to brackets 14 that are located on opposite sides of the openings 11. These cams are each provided with an eccentric cam surface 15 and have outwardly projecting arms 16. The correspondingly located cams at the top and at the bottom of member 5 are connected by means of connecting rods 17 so that they will rotate in unison. In the illustration shown there are two pair of cams at the top and two pair of cams at the bottom arranged diametrically in the manner shown in Figure 4.

Secured to the lower end of supporting member 5 are two pair of supporting brackets which have been indicated by numeral 18. These brackets are secured to member 5 by means of bolts or screws 19 and are provided at their outer ends with pivots 20 on which are mounted the lifting cams 21. These lifting cams are provided at one end with cam surfaces 22 and have their other ends provided with upwardly extending curved portions 23, which are adapted to be engaged by a bar 24 which serves to rotate them about their pivots in a manner to be presently described. Located within the supporting member 5 is a hollow cylindrical pedestal 25. This pedestal is of such size that its outside diameter is

somewhat less than the inside diameter of the supporting member 5 so that it can be moved longitudinally within the latter without coming in contact therewith. Pedestal 25 extends down below the lower end of supporting member 5 and has secured to its lower end two parallel bars 26 which are located on opposite sides and are held in place by means of rivets 27. Secured to the outer ends of bars 26 are right angular brackets 28, whose upper ends 29 extend horizontally and are provided with three openings 30 arranged in a line. The center one of these openings is threaded and has threadedly connected therewith an adjusting screw 31. A plate 32 is provided at each end with a bolt 33 which extends upwardly through the outside openings 30 and are provided with clamping nuts 34. The distance between the horizontal portion 29 of the bracket and the plates 32 is determined by the screw 31 and the plate is held in place by means of the bolts 33. Plates 32 are located directly above the cam surfaces 22 and when cams 21 are rotated the surfaces 22 will engage the inner side of the plates 32 and lift the pedestal.

Located directly beneath the transverse bars 26 are bars 35 which form part of a scale. This scale has not been shown in detail, but has merely been indicated, as its exact construction is immaterial to the invention described herein. It is, however, considered to be an important part of the combination and will be included as an element in the claims. The bars 35 are so located that when the cams 21 are in the position shown in Figure 2, the entire weight of the pedestal will rest on the scale beams 35 so that the weight of the pedestal and of the table 36 that is attached to its upper end can be readily determined. When the cams 21 are moved to the position shown in Figure 5, however, the pedestal and the parts attached to it will be raised a short distance above the scale beams 35 and the weight of the pedestal will then obviously be supported by cams 21 and by the brackets 18 that are attached to the supporting member 5. When the pedestal is in raised position, the cams 12 are rotated in such a way as to engage its outer surface and to hold it rigid with respect to the supporting member. The position of cams 12, when the pedestal is in raised position, has been indicated in Figure 5.

For the purpose of operating the cams so as to raise and lower the pedestal to lock it in raised position and to release it before it is lowered onto the scale, the following operating mechanism has been provided.

Secured to the upper surface of flange 8 are two brackets 37. Levers 38 have one end pivotally connected to the brackets 37 by means of bolts 39. The other ends of levers 38 are bent inwardly towards each other in the manner indicated by numeral 40 and are attached

to a connecting angle 41 by means of bolts 42. A foot plate 43 is secured to the angle 41 in the manner shown in Figures 1 and 4.

Referring now more particularly to Figure 1, it will be seen that the levers 38 have a straight portion extending from the pivot pin 39 to point 44 where they are curved and are then provided with a downwardly extending straight portion 45, which is connected with a straight portion 46 by means of a curved part 47. This gives the levers the shape shown in Figure 1 which enables them to clear the supporting brackets 14 over which they pass and brings the foot plate 43 in a position in which it can be conveniently engaged by the foot of the operator. A plate 48 is attached to the foot plate 43 by means of rivets 49 and the inner edge of these plates is adapted to engage the ratchet teeth 50 which are formed in the latching member 51 which is pivoted at 52 to a bracket 53 that is secured to the flange 8. A spring 54 is secured to the supporting member 5 by means of rivets 55 and engages the latching member 51 and exerts thereon a force which tends to move this member against the inner edge of plate 48. It is now apparent that when levers 38 are moved downwardly, the plate 48 will engage the teeth 50 and latch the levers in adjusted position.

Pivotally connected to the straight portion 38 of each lever is the upper end of the connecting rod 56. The lower end of this connecting rod is pivotally attached at 57 to a bar 58 which extends transversely in the manner shown in Figure 1. Secured to each bar 58 are two upwardly extending brackets 59 whose upper ends 60 are bent at right angles and are provided with openings for the reception of the rods 17. Nuts 61 that are threadedly connected with rods 17 engage the upper and lower surfaces of part 60 and thereby clamps the brackets 59 to the rods 17 so that the bars 58 will be rigidly connected with rods 17 and therefore these rods and this bar will move as a unit. Brackets 59 are provided with slots 62 for the reception of the pivots 63. Secured to each bar 58 are two spaced brackets 64 whose lower ends 65 are bent outwardly at right angles. Springs 66 have their upper ends connected with the ring 9 by means of eyelets 67 and have their lower ends connected to eye bolts 68 that extend through openings in the outwardly extending part 65 of the bracket 64 and are secured to the brackets by means of nuts 69. The springs 66 are under tension and exert a force which tends to move the bars 58 together with the connecting bars 17 and the connecting rod 56 upwardly. These springs are given such a tension that when the latching bar 51 is moved out of engagement with the plate 48, the levers 38 together with the parts attached thereto, will be moved upwardly into the position shown in Figure 1

in which position the lifting cams and the clamping cams will occupy the position shown in Figure 2 which will be hereinafter referred to as the inoperative position of the cams and in which position the entire weight of the pedestal and the table is supported by the scale beams 35. For the purpose of making it possible to independently adjust each of the cams 21 with respect to the pedestal so as to secure a uniform movement of the pedestal when the cams are operated, the adjusting means shown in Figures 5 and 6 has been provided.

Let us now assume that the parts are in the position shown in Figure 2 in which position the bars 24 are out of contact with the upwardly extending portions 23 of the cams 21 and in which position therefore the pedestal and table are supported entirely by the scale.

Let us now assume that the operator puts his foot on the foot plate 43 and exerts a sufficient downward force thereon to move the levers 38 about their pivots 39. This will cause the connecting rods 56 to move downwardly and bars 58 will therefore be moved downwardly so as to come into engagement with the convex portions 70 of the upwardly curved parts 23 of cams 21. As bars 58 move downwardly, they rotate the cams 21 about their pivots thereby raising the pedestal away from the scale beams into the position shown in Figure 5. After the bars 58 have passed the convex point 70, they will produce no further rotary movement of cams 21 but are still free to move downwardly a considerable distance. During the downward movement after the lifting cams have been moved into operative position, the clamping cams 12 will be moved into engagement with the outer surface of the pedestal in the manner shown in Figure 5 and will clamp the pedestal rigidly so as to hold it against relative movement with respect to the supporting member 5. In this position therefore the pedestal and table will be firmly held against relative movement so as to be absolutely steady during the time that work is performed.

When it is again desired to weigh the pedestal and table with its contents, the operator merely releases the latching member 51 and lets the levers 38 move upwardly in response to the action of the springs 66. As the bars 58 are withdrawn to a position above the convex portion 70, the lifting cams will be permitted to rotate in response to the weight of the pedestal and table and will gradually lower the parts into contact with the scale beams 35 by which they will be supported. The further upward movement of bars 58 and connecting rods 17 rotates the cams 12 into the position shown in Figure 2 in which position they are entirely out of contact with the pedestal and the latter therefore rests en-

tirely on the scale beams so that the exact weight can be determined from the scale readings.

From the above description it will be apparent that I have produced a very simple but substantial mechanism by means of which an operating table can be quickly and conveniently moved into and out of contact with a scale so that the contents of the operating table can be weighed and which will positively and rigidly hold the parts against movement at such times as work is being performed on the subject supported by the table.

Having described the invention what is claimed as new is:

1. An operating table support comprising, in combination, a scale, a pedestal, a stationary support, means for clamping the pedestal to the support and means for releasing the pedestal and for placing it in contact with the scale.

2. An operating table supporting device, comprising, in combination, a stationary supporting member, a scale located beneath the supporting member, a table, a pedestal connected at its upper end with the under surface of a table, said pedestal being normally supported on the scale, and means for raising the pedestal from the scale and for rigidly connecting it with the stationary support.

3. An operating table supporting device, comprising, in combination, a tubular supporting member adapted to extend through an opening in a floor, means for rigidly securing the same to the floor, a scale located below the lower end of the tubular supporting member, a tubular pedestal extending through the interior of the supporting member, the outside diameter of the pedestal being smaller than the inside diameter of the supporting member whereby it may move axially without coming in contact with the supporting member, a scale located below the lower end of the supporting member, the lower end of the pedestal normally resting on the scale, a table connected with the upper end of the pedestal and means for raising the pedestal from the scale and for clamping it against relative movement with respect to the supporting member.

4. An operating table supporting device, comprising, in combination, a tubular supporting member adapted to extend through an opening in a floor, means for rigidly securing the same to the floor, a scale located below the lower end of the tubular supporting member, a tubular pedestal extending through the interior of the supporting member, the outside diameter of the pedestal being smaller than the inside diameter of the supporting member whereby it may move axially without coming in contact with the supporting member, a scale located below the lower end of the supporting member, the lower end of the ped-

estal normally resting on the scale, a table connected with the upper end of the pedestal, means for raising the pedestal from the scale, said means comprising cams secured to the supporting member and means operatively connected with the raising means for clamping the pedestal against relative movement with respect to the supporting member.

5 5. An operating table supporting device comprising, in combination, a hollow cylindrical supporting member adapted to extend through an opening in a floor, means for securing the supporting member to a floor structure in a vertical position, a tubular pedestal located within the supporting member, a plurality of supporting cams carried by the supporting member for lifting the pedestal and moving it longitudinally, means carried by the supporting member for operating the lifting cams, means comprising a plurality of cams carried by the supporting member for clamping the pedestal, means operated by the lifting cam operating means for operating the clamping cams, and a scale located below the lower end of the supporting member in position for supporting the pedestal and attached parts.

6. An operating table supporting device comprising, in combination, a hollow cylindrical supporting member adapted to extend through an opening in a floor, means for securing the supporting member to a floor structure in a vertical position, a tubular pedestal located within the supporting member, a plurality of lifting cams carried by the supporting member for lifting the pedestal and moving it longitudinally, a plurality of clamping cams carried by the supporting member, means carried by the supporting member for first moving the lifting cams so as to raise the pedestal and then moving the clamping cams so as to hold the pedestal against relative movement with respect to the supporting member, and a scale located below the pedestal in position to serve as a support for the latter when the lifting cams are in inoperative position.

7. An operating table supporting device comprising, in combination, a hollow cylindrical supporting member adapted to extend through an opening in a floor, means for securing the supporting member to a floor structure in a vertical position, a tubular pedestal located within the supporting member, a plurality of lifting cams carried by the supporting member for lifting the pedestal and moving it longitudinally, a plurality of clamping cams carried by the supporting member, means carried by the supporting member for first moving the lifting cams so as to raise the pedestal and then moving the clamping cams so as to hold the pedestal against relative movement with respect to the supporting member, means comprising springs for producing a force tending to

move the cam operating means to pedestal lowering and releasing position, and a scale located beneath the pedestal in position to support the latter when it is lowered.

8. An operating table supporting device comprising, in combination, a hollow cylindrical supporting member, a flanged ring secured to the outside thereof, a tubular cylindrical pedestal located within the supporting member, the outside diameter of the pedestal being slightly smaller than the inside diameter of the supporting member so that it may move longitudinally therein without coming in contact therewith, two pair of opposed cams secured to each end of the supporting member, means for interconnecting the similarly positioned cams at the top and at the bottom, two pair of lifting cams pivotally connected with the supporting member, means carried by the pedestal for engaging the upper surface of the lifting cams whereby the pedestal will be moved vertically when the lifting cams are operated, means for simultaneously operating all of the lifting cams and for simultaneously operating the clamping cams, and a scale associated with the parts for supporting the weight of the pedestal when it is in its lowermost position.

9. An operating table supporting device comprising, in combination, a hollow cylindrical supporting member, a flanged ring secured to the outside thereof, a tubular cylindrical pedestal located within the supporting member, the outside diameter of the pedestal being slightly smaller than the inside diameter of the supporting member so that it may move longitudinally therein without coming in contact therewith, two pair of opposed cams secured to each end of the supporting member, means for interconnecting the similarly positioned cams at the top and at the bottom, two pair of lifting cams pivotally connected with the supporting member, means carried by the pedestal for engaging the upper surface of the lifting cams whereby the pedestal will be moved vertically when the lifting cams are operated, means for simultaneously operating all of the lifting cams and for simultaneously operating the clamping cams, the lifting cams raising the pedestal to its maximum height before the clamping cams become effective for clamping the pedestal, and a scale located in the path of the pedestal for supporting the latter when it is released.

10. An operating table supporting device comprising, in combination, a hollow cylindrical supporting member, a flanged ring secured to the outside thereof, a tubular cylindrical pedestal located within the supporting member, the outside diameter of the pedestal being slightly smaller than the inside diameter of the supporting member so that it may move longitudinally therein without

coming in contact therewith, two pair of opposed cams secured to each end of the supporting member, means for interconnecting the similarly positioned cams at the top and at the bottom, two pair of lifting cams pivotally connected with the supporting member, means carried by the pedestal for engaging the upper surface of the lifting cams whereby the pedestal will be moved vertically when the lifting cams are operated, means for simultaneously operating all of the lifting cams and for simultaneously operating the clamping cams, means comprising a plurality of springs for normally holding the clamping cams in inoperative position, and a scale located in the path of the pedestal and adapted to support the latter when in its lowermost position.

11. An operating table supporting device comprising, in combination, a hollow cylindrical supporting member adapted to extend through an opening in a floor, a ring provided with an outwardly extending flange secured to the outer surface of the supporting member, said flange being adapted to rest upon the upper surface of a floor, a wide flat ring surrounding the supporting member below the ring, a plurality of bolts connecting the ring with the flange, a pedestal located within the supporting member and normally out of contact therewith, a plurality of clamping cams secured to each end of the supporting member, means for interconnecting the top cams on one side of a diametrical plane with the bottom cams on the same side of the plane, two pair of lifting cams connected with the supporting member, means secured to the pedestal for engaging the upper surface of the lifting cams whereby the lifting cams will support the pedestal, means for simultaneously moving the lifting cams so as to raise the pedestal and for moving the clamping cams towards the pedestal, and a scale located underneath the pedestal for supporting the latter when the lifting cams are in inoperative position.

12. An operating table supporting device comprising, in combination, a hollow cylindrical supporting member adapted to extend through an opening in a floor, a ring provided with an outwardly extending flange secured to the outer surface of the supporting member, said flange being adapted to rest upon the upper surface of a floor, a wide flat ring surrounding the supporting member below the ring, a plurality of bolts connecting the ring with the flange, a pedestal located within the supporting member and normally out of contact therewith, a plurality of clamping cams secured to each end of the supporting member, means for interconnecting the top cams on one side of a diametrical plane with the bottom cams on the same side of the plane, two pair of lifting cams connected with the supporting member, means

secured to the pedestal for engaging the upper surface of the lifting cams whereby the lifting cams will support the pedestal, means for simultaneously moving the lifting cam so as to raise the pedestal and for moving the clamping cams towards the pedestal, means for adjusting each of the lifting cam engaging means independently, a scale located underneath the pedestal in position to support the weight of the latter when the lifting cams are inoperative.

13. An operating table support comprising a hollow cylindrical supporting member adapted to be secured to and to extend through a floor, a scale located adjacent said supporting member, a table supporting pedestal located inside of the cylindrical supporting member and spaced therefrom, the pedestal being normally supported on the scale, and means for raising the pedestal from the scale and then clamping it against relative movement with respect to the cylindrical supporting member.

14. An operating table support comprising a hollow cylindrical supporting member adapted to be secured to and to extend through a floor, a scale located adjacent said supporting member, a table supporting pedestal located inside of the cylindrical supporting member and spaced therefrom, the pedestal being normally supported on the scale, means comprising a plurality of lifting cams secured to the cylindrical supporting member for raising and lowering the pedestal, means comprising a plurality of pairs of cams for engaging the sides of the pedestal to hold it against movement with respect to the supporting member and means for simultaneously moving the cams.

In testimony whereof I affix my signature.
JACOB FITTING, JR.

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