July 12, 1927. 1,635,588

G. C. TAPLIN

OPERATING TABLE

Filed June 26, 1925

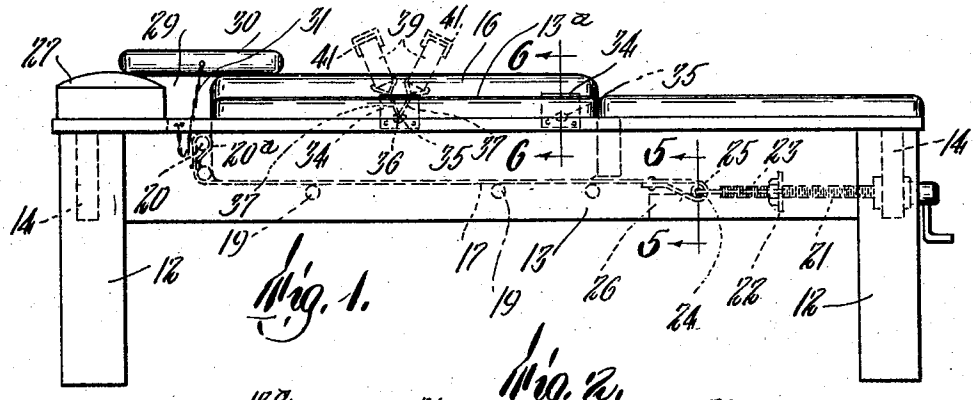


Fig. 1.

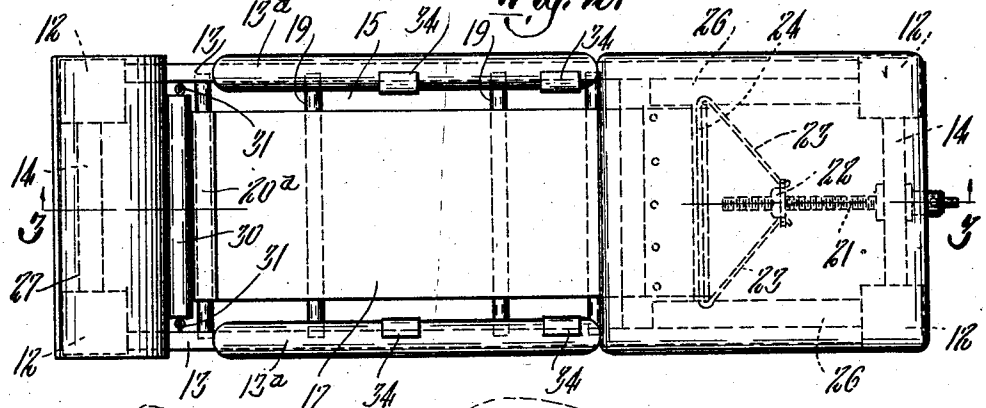


Fig. 2.

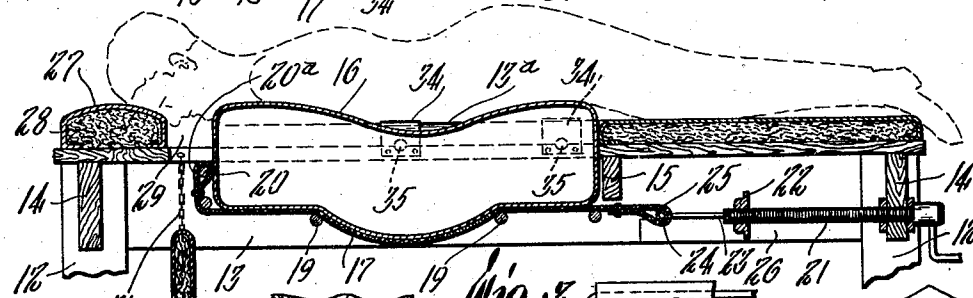


Fig. 3.

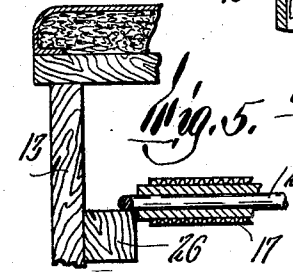


Fig. 5.



Fig. 7.

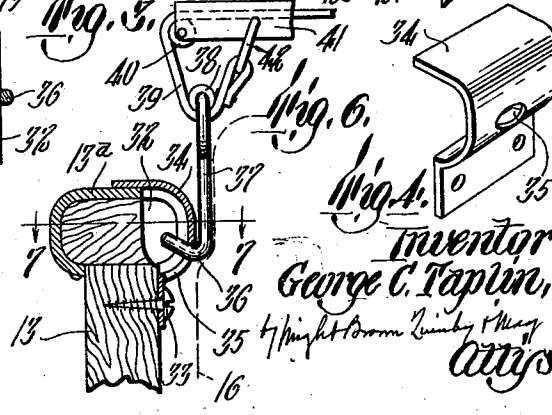


Fig. 6.

Fig. 4.

Inventor:
George C. Taplin,
by Wright Brown Quinby & May
Attys.

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UNITED STATES PATENT OFFICE.

GEORGE C. TAPLIN, OF BOSTON, MASSACHUSETTS.

OPERATING TABLE.

Application filed June 26, 1925. Serial No. 39,851.

This invention relates to operating tables used by osteopaths and other practitioners who exert pressure in various directions on the recumbent body of the patient, the body usually lying on a cushioned horizontal operating table.

The present invention is an improvement on the structures disclosed by my Patents, No. 1,399,034, dated December 6th, 1921, and No. 1,457,093, dated May 29th, 1923, each of these structures including an operating table having an opening in its top a supporting bottom within the opening and below the top and a pneumatic mattress bearing on the bottom, and a pressure-applying attachment or adjunct enabling the operator to exert pressure in the various directions required upon the body of the patient.

One object of the invention is to provide an improved mattress-supporting structure adapted to support the mattress within the opening in such manner that the mattress may be maintained normally substantially flat, and may be allowed to sag locally when the body is in certain positions, said supporting structure being permanently connected with the table and involving no parts or elements requiring separation from the table.

Another object of the invention is to provide improved means for anchoring the terminal portion of the pressure-applying attachment or adjunct, disclosed in Patent No. 1,457,093, to the table.

Another object is to provide an improved and simplified means for supporting the patient's head in the various positions required.

I attain the above mentioned and other related objects by the improved construction hereinafter described and claimed.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a side elevation of an operating table embodying my improvements, the movable pillow hereinafter described, being shown in its operative position.

Figure 2 is a top plan view showing the pillow in an inoperative position.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a perspective view of one of the reinforcing members shown by the preceding figures and hereinafter described.

Figure 5 is a fragmentary section on line 5—5 of Figure 1.

Figure 6 is a fragmentary section on line 6—6 of Figure 1.

Figure 7 is a section on line 7—7 of Figure 6.

The same reference characters indicate the same parts in all of the figures.

My improved operating table includes a frame comprising legs 12, side bars 13, and transverse end bars 14, said frame having an opening 15, and a flexible pneumatic mattress 16 supported in said opening by the improved supporting structure hereinafter described.

Said structure is permanently connected with the table and is arranged to support the mattress in the opening with its top surface projecting above the general level of the table top. Said structure includes a flexible bottom 17, which is preferably an elongated sheet of canvas or other suitably strong and practically inextensible material, a fixed grid supporting the bottom, and means for tensioning and relaxing the bottom, the arrangement being such that when the bottom is tensioned, it supports the mattress substantially flat as indicated by Figure 1, and when the bottom is relaxed, portions of the bottom and mattress are permitted to sag as shown by Figure 3.

The bottom supporting structure is preferably composed of two spaced apart grid bars 19 fixed at their ends to the side members 13 of the frame, the bottom 17 bearing on said bars, fixed anchoring means rigidly connecting one end portion of the bottom with the table, said means being preferably embodied in a fixed cross bar 20 extending through a loop 20^a formed on one end of the bottom 17, and movable means connecting the opposite end of the bottom with the table, said means being adjustable to tension and relax the bottom.

I prefer to embody the said movable means in a manually rotatable screw threaded shaft 21 journalled to rotate without endwise movement in a bearing in one of the frame members 14, a nut 22 engaged with said shaft, and a yoke including arms 23 fixed to and diverging from the nut 22 and a cross bar 24 connecting the arms 23 as indicated by dotted lines in Figure 2, said cross bar extending through a loop 25 formed on the end of the bottom 15 opposite that having the loop 20^a.

When the shaft 21 is rotated in one direction, the yoke is moved to tension the bot-

tom and cause it to support the mattress substantially flat as in Figure 1. Rotation of the shaft in the opposite direction relaxes the bottom and permits a portion thereof and a portion of the mattress to sag as shown in Figure 3.

To support the yoke in a horizontal position, I provide two fixed tracks 26 fixed to the side members 13 and supporting the end portions of the yoke against downward displacement, the yoke being slidable on the tracks.

Supported by one of the transverse members 14 is a fixed head rest preferably composed of a leather casing 27 and a compressible filling 28 of curled hair. The end of the mattress 16 adjacent to the head rest is spaced from the latter by means preferably provided by the cross bar 20 as shown by Figure 3. A breathing space 29 is thus provided between the head rest and the mattress, so that a patient lying face downward, as indicated by Figure 3, may breathe freely.

30 designates a relatively thin movable pillow formed to pass through the space 29 and connected by flexible tethers 31 with the side members 13. The pillow is adapted to bridge the space 29, as shown by Figure 1, when it is in use. The dimensions of the pillow are such that it may be passed through the space 29 and depend from the frame, as indicated by Figures 2 and 3, when its use is not required.

To enable a pressure applicator, such as that disclosed by my Patent No. 1,457,093, to be conveniently engaged with various portions of the frame, I provide each side bar or member 13 with a plurality of spaced apart recesses 32 in an edge portion thereof. Secured to the side members 13 by screws 33 are metallic reinforcing members 34, each having an orifice 35 communicating with a recess 32 as shown by Figure 6. The members 34 are formed to constitute portions of the external surfaces of the side bars 13. The orifice 35 of each reinforcing member is adapted to engage a hook 36 on an arm 37 constituting an element of said pressure-applying adjunct or attachment, the arm 37 being provided with a roller 38 located in the bight of a strap 39, which passes over a roller 40 on one end of a tubular arm 41, one end of the strap 39 being connected with the bar by a link 42. I do not show the pressure-applying adjunct in its entirety as the same does not differ essentially from that shown by my above mentioned Patent No. 1,457,093.

The margin of the orifice 35 in each reinforcing member 34 permits the hook 36 to turn freely in contact with said margin so that the arm 37 is adapted to swing freely edgewise, as indicated by dotted lines in Figure 1, so that the operator may locate the pressure applicator forming a part of the adjunct in contact with various portions of the patient's body. Each side bar 13 is preferably provided with two reinforcing members 34, as indicated by Figures 1, 2 and 3. When the adjunct is to be used on an upper portion of the body, the arm 37 is engaged with one of the reinforcing members shown at the left, and when the applicator is to be applied to a lower portion of the body, the arm 37 is engaged with a reinforcing member at the right.

The wall of the orifice 35 in each reinforcing member 34, and the wall of the recess 32 which communicates with the orifice, constitute a socket in the side bar 13, in which socket the hook 36 is freely movable to various positions. The sockets thus provided do not involve any objectionable protuberances on the side bars and are entirely within the external surface of the latter. The upper portions of the side bars 13 are preferably provided with coverings 13^a of leather as shown by Figures 6 and 7, constituting somewhat yielding surface portions. The sockets may be otherwise constructed if desired.

I claim:

1. An operating table having an opening, a flexible mattress in said opening, and a mattress-supporting structure permanently connected with the table and supporting the mattress in the opening, said structure including spaced apart grid bars extending across the opening, a flexible bottom bearing on the grid bars, an anchoring cross bar fixed to the table and engaged with one end of the bottom, and bottom-tensioning and relaxing means embodied in a manually rotatable screw threaded shaft journalled to rotate without endwise movement in a bearing on the table, a nut engaged with said shaft, and a yoke fixed to the nut and including a cross bar engaged with the opposite end of the bottom, the arrangement being such that rotation of the shaft in one direction tensions the bottom and causes it to support the mattress substantially flat, while rotation of the shaft in the opposite direction relaxes the bottom and permits a portion thereof and a portion of the mattress to sag.

2. An operating table as specified by claim 1, comprising also tracks fixed to the table and supporting the end portions of said yoke against downward displacement, the yoke being slidable on the tracks.

3. An operating table including longitudinal side bars forming opposite sides of an opening in the table, each side bar having spaced apart recesses in an edge portion thereof, and metallic reinforcing members fixed to the side bars and having orifices communicating with said recesses, said members constituting portions of the surfaces of the side bars, and a flexible mattress sup-

ported in said opening and confined between said side bars, the orifice of each reinforcing member being adapted to engage a hook on an arm constituting an element of a pressure-applying adjunct of the table, the bar recess which communicates with said orifice receiving a portion of the hook, so that the walls of the recess and orifice form a socket in which the hook is freely movable, the arm being anchored by the reinforcing member and adapted to swing edgewise to various positions.

In testimony whereof I have affixed my signature.

GEORGE C. TAPLIN.