

- [54] PATIENT HANDLING TABLE
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- [51] Int. Cl. A61g 7/10
- [58] Field of Search 5/63, 81, 86; 108/137,
108/143, 147; 269/323

[56] **References Cited**
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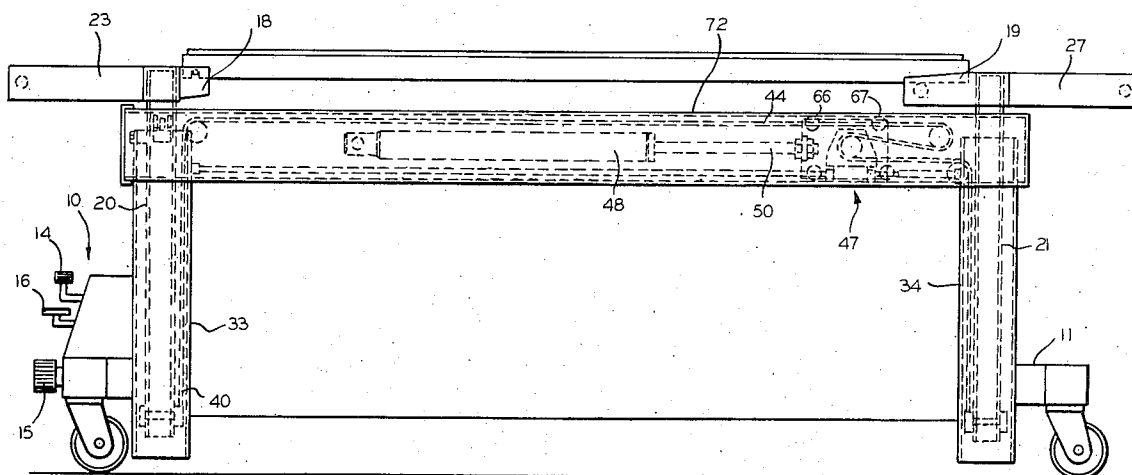
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Primary Examiner—Casmir A. Nunberg
Attorney, Agent, or Firm—Ralph G. Hohenfeldt; Fred Wiviott

[57] **ABSTRACT**

A table top is supported in cantilever fashion from two spaced apart vertically movable posts which are guided in upright columns. A cross guide extends between the columns and it supports a carriage for bidirectional longitudinal movements. Opposite ends of a chain engage the posts and the chain runs over guide sprockets one of which is carried by the carriage. The carriage sprocket is selectively lockable and releasable so that when the carriage is translated by suitable power means the table elevates. Release of the carriage sprocket permits the table to be inclined longitudinally in either direction by pressing or lifting on either end thereof.

14 Claims, 16 Drawing Figures



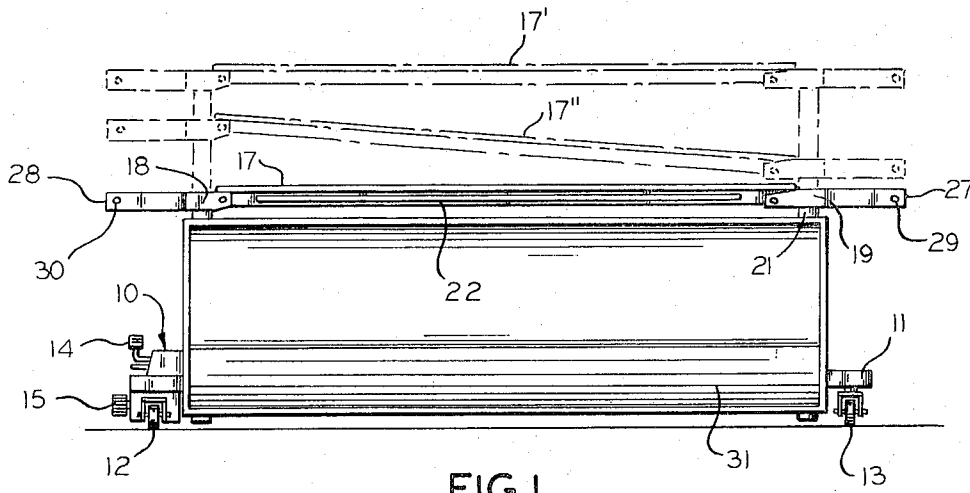


FIG. 1

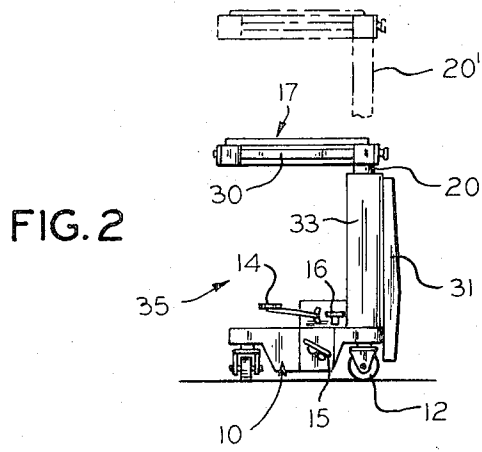


FIG. 2

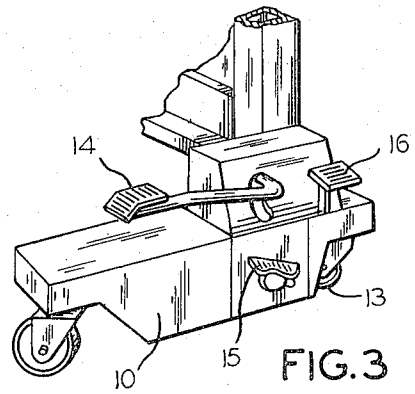


FIG. 3

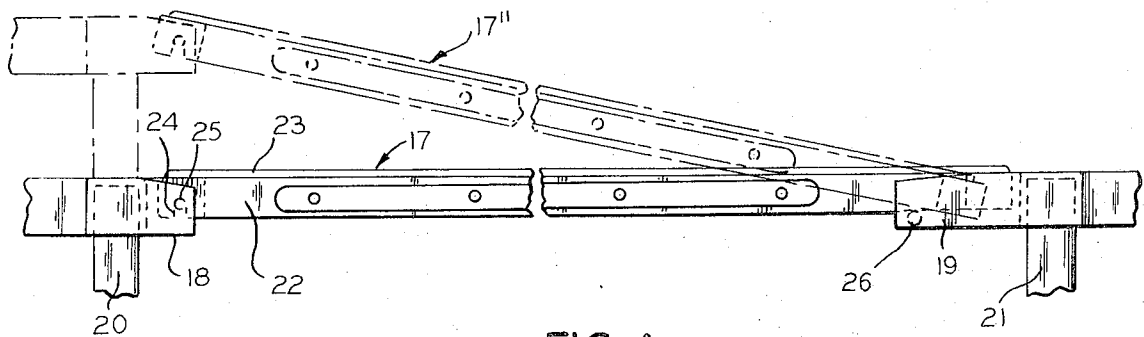


FIG. 4

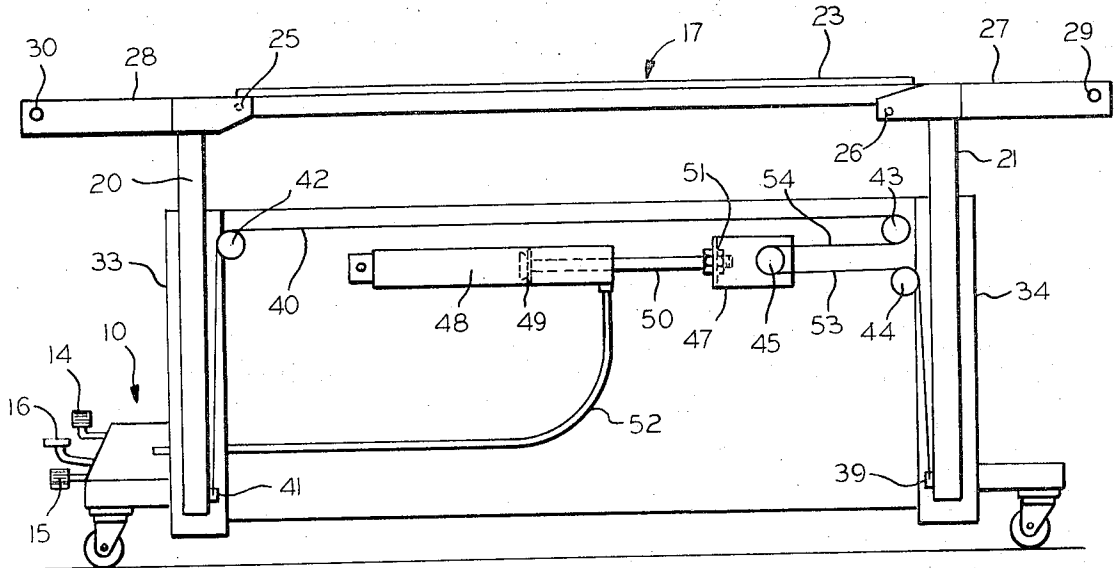


FIG. 5

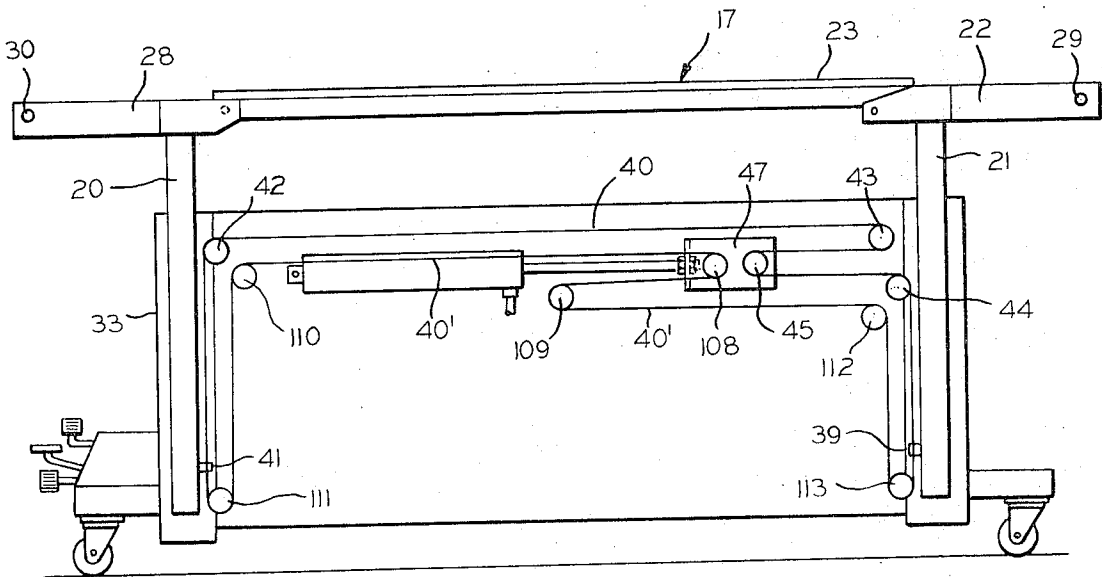


FIG. 6

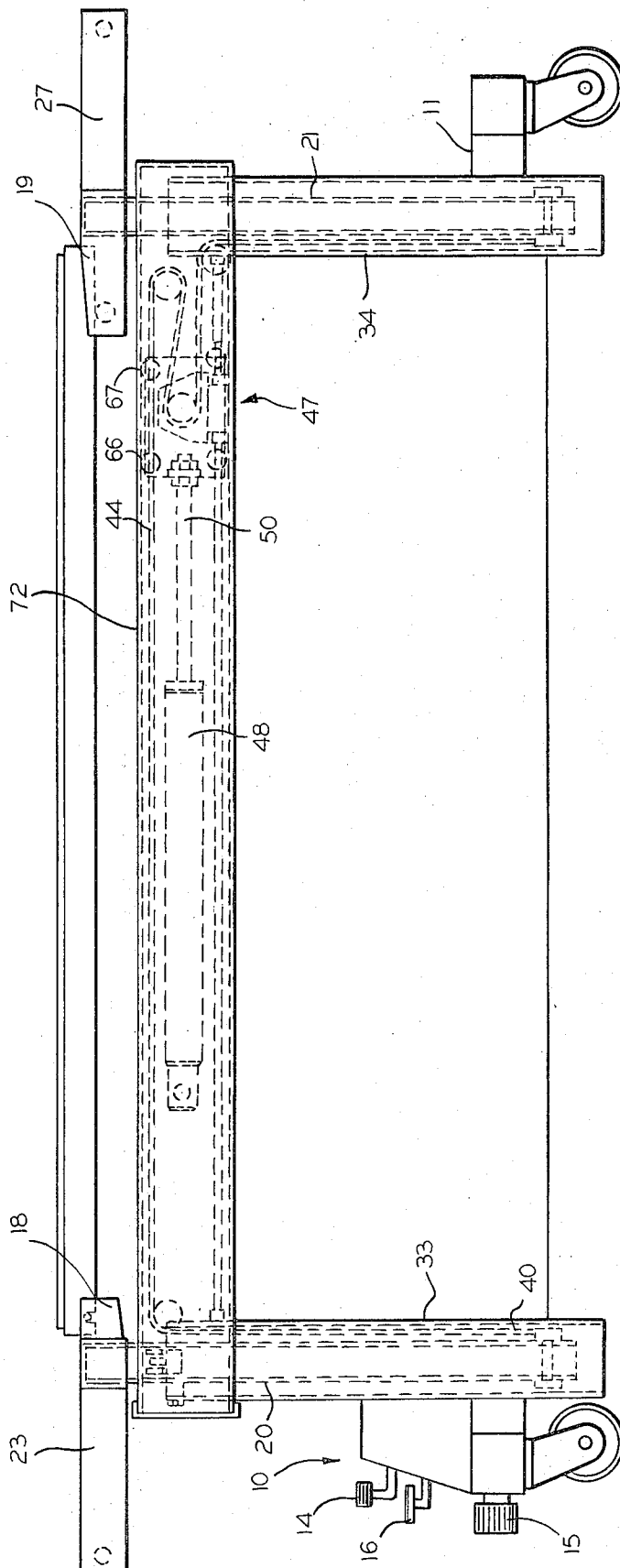


FIG. 7

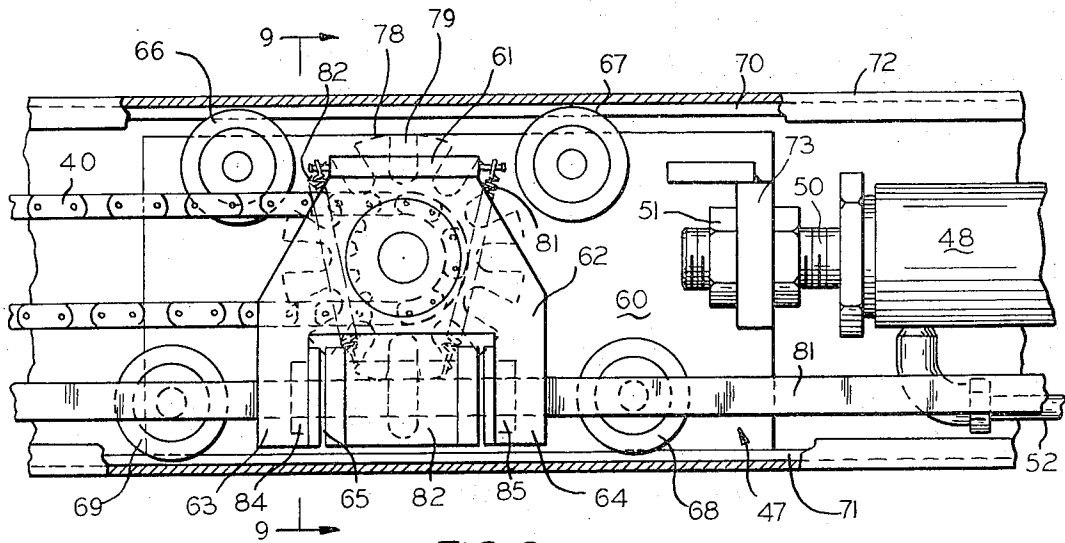


FIG. 8

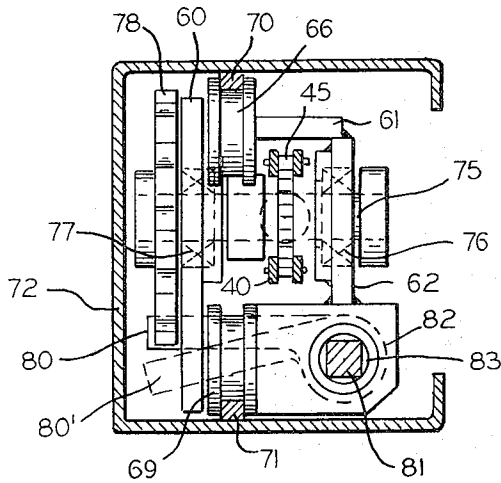


FIG. 9

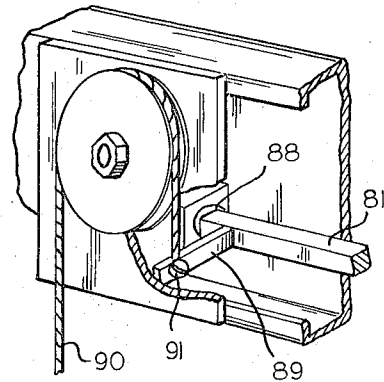
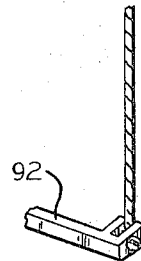


FIG. 10



92

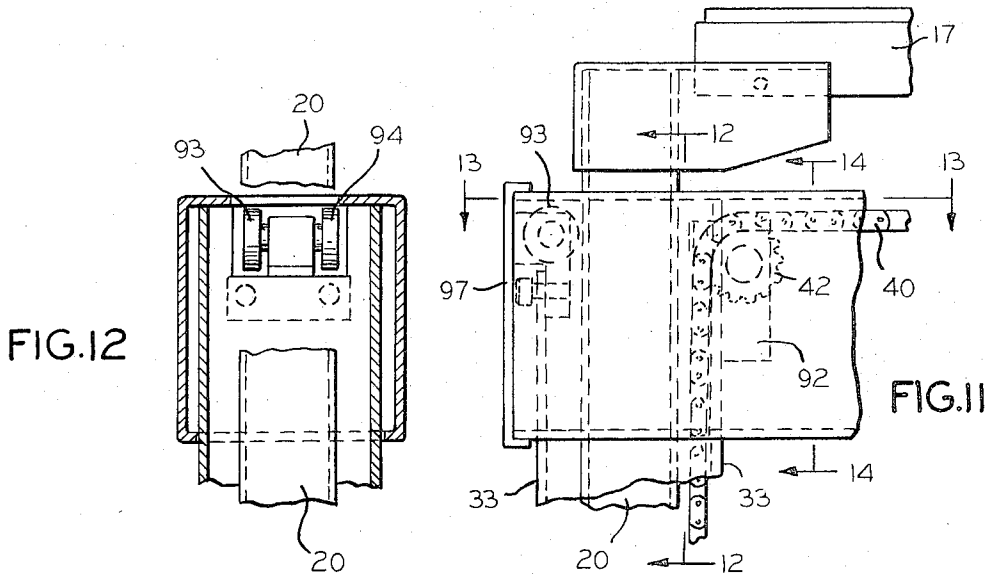


FIG. 12

FIG. 11

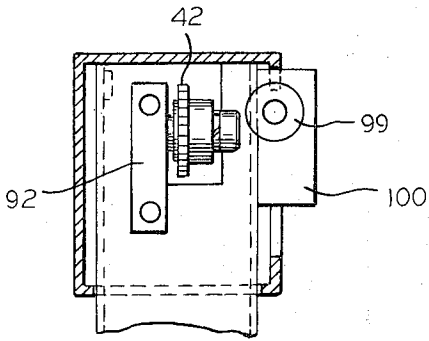


FIG. 14

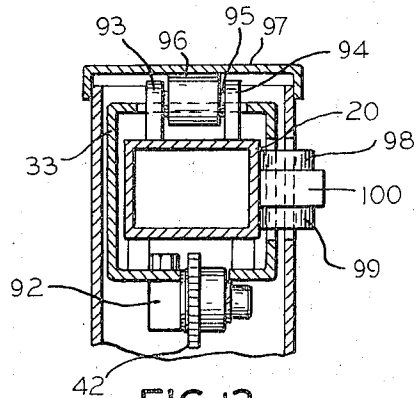


FIG. 13

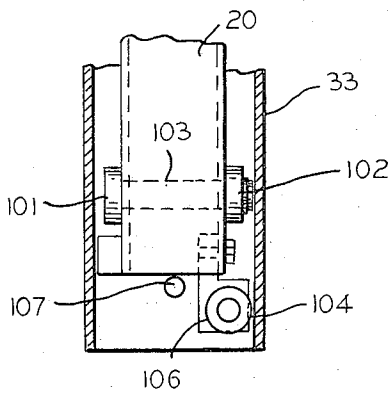


FIG. 15

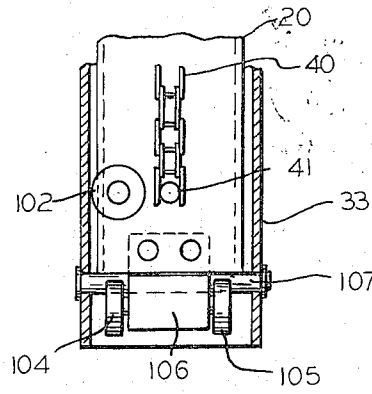


FIG. 16

PATIENT HANDLING TABLE

BACKGROUND OF THE INVENTION

This invention relates to a table for handling medical patients. Tables of the type to be described herein are sometimes called mobile trauma carts, since they are often used for handling, diagnosing and treating a patient under emergency conditions before the patient is assigned to a hospital bed. The table is also used for transporting the patient from a bed to another site of diagnosis or treatment such as to a place where diagnostic x-ray apparatus is located.

SUMMARY OF THE INVENTION

The new table comprises a pair of end trucks which have casters so that the table may be pushed manually. The end trucks support spaced apart hollow vertical columns which serve as guides for posts which are vertically movable in the respective columns. Arms extend in cantilever fashion from the posts and these arms support a table top between them. The table top pivotally engages one arm and slidably engages the other to compensate for the distance change between its points of support when one post is elevated more or less than the other. In other words, the table top may be raised in a truly horizontal attitude if desired, or after so raising, one or the other ends of the top may be depressed to raise or lower the foot or head end of the patient as required. The table top may also be raised and lowered when it is angulated.

In one embodiment the posts are moved simultaneously by a chain whose opposite ends are fastened to the posts and which runs over suitable sprockets one of which is journaled on a carriage that is adapted to translate on a suitable guide member extending between the columns. Means are provided to lock the sprocket on the carriage so that if the carriage is translated both posts will rise at the same rate. Release of the locking means and the sprocket on the carriage after the table is elevated horizontally somewhat permits independent vertical movement of the support posts and enables tilting the table longitudinally so that the foot end is higher than the head end or vice versa. The table top overhangs its supporting structure laterally so as to provide a space for disposing an X-ray tube on one side of the table top and an image intensifier or other fluoroscopic device on the other side for the purpose of making a preliminary diagnosis or, for example, to set a fractured bone.

A general object of this invention is to provide a mobile patient handling table or trauma cart which affords maximum versatility and convenience in respect to handling, transporting, diagnosing and treating a patient.

A further object of this invention is to provide a patient handling table which permits angulating a patient longitudinally on the table top with minimum effort and with an assurance that the top will remain in the desired or set angulated position.

Another object is to provide means affiliated with the supporting posts on which items needed by medical attendants may be deposited and which means do not change their attitude in a manner that would cause the items to fall off even though the table top itself is angulated.

A further object is to provide a table which permits quick angulation of a patient thereon so as to relieve congested breathing passages or, when the patient is faint, to return blood to the cranial region.

Still further objects of the invention are to provide a patient handling table that is simple in construction, is rigid but light so that it can be moved easily manually, permits facile transfer of a patient to or from a support such as a bed or an x-ray table, which is easy to operate and which is so constructed that it can be used as an x-ray table in conjunction with an x-ray tube and an x-ray visualizing device.

How the foregoing and other more specific objects of the invention are achieved will appear in the more detailed description of a preferred embodiment of the new table which will be set forth shortly hereinafter in reference to the drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevation view of the mobile table in which the table top is shown in solid lines in its lowermost position and in phantom lines in its angulated and uppermost horizontal positions;

FIG. 2 is an elevation view taken from the left end of FIG. 1 with the post supported table top being shown in its elevated position in phantom lines;

FIG. 3 is a fragmentary perspective view of one of the trucks on which the table is supported;

FIG. 4 is a side view of the table top and its supporting arms showing how the top may pivot and slide on said arms when the top is angulated;

FIG. 5 is a schematic representation of the table to facilitate explanation of the means for elevating the table top and for angulating it manually;

FIG. 6 is an alternative embodiment of table angulating and elevating means;

FIG. 7 is a front elevation view of the table and showing the general arrangement of the parts;

FIG. 8 is a rear elevation view of a carriage, a fragment of a longitudinally extending support beam therefor, and a fragment of a hydraulic cylinder for translating the carriage;

FIG. 9 is a vertical section of the carriage and its support means taken on a plane corresponding with 9—9 in FIG. 8;

FIG. 10 is a fragmentary perspective view of some of the parts which are used to effect release and engagement of a sprocket which is carried on the carriage;

FIG. 11 is a fragmentary rear view of the manner in which one of the table supporting post cooperates with its guide column;

FIG. 12 is a vertical section taken on the plane 12—12 in FIG. 11 and showing particularly how the table supporting posts are guided in their columns;

FIG. 13 is a top view of the components shown in FIG. 11 which view is partially in section and taken in a direction of the plane 13—13 in FIG. 11;

FIG. 14 is a view taken in the direction of the plane 14—14 in FIG. 11 with parts in section and with the chain omitted from the sprocket;

FIG. 15 is a fragmentary partial section view of the manner in which the lower end of a table supporting post cooperates with its hollow vertical guide column; and

FIG. 16 is a vertical section taken from the right side of FIG. 15 and showing how the support posts are fur-

ther guided in the columns and how the lifting chain is attached to the support posts.

DESCRIPTION OF A PREFERRED EMBODIMENT

Refer to FIGS. 1—3 for a general description of the new mobile table. The table comprises end trucks 10 and 11 which have casters such as 12 and 13 to facilitate moving the table on the floor. Supported in one of the end trucks is a manually operable hydraulic pump, not shown, which may be pumped with a foot treadle 14 to raise the table when required as will be explained. Also provided is a hydraulic pressure release valve, not shown, which allows the table to be lowered under the influence of gravity when a spring-return treadle 15 is actuated by the operator's foot. There is another treadle 16 which may be depressed by the operator's foot when it is desired to incline the top of the table longitudinally as will be explained.

In FIG. 1 one may see that the table comprises a flat top 17 which is supported in cantilever fashion on short arms 18 and 19 which project toward each other. The arms are supported on posts 20 and 21 which are adapted to move vertically both jointly and independently. This enables the top to be raised horizontally as suggested by its phantom representation 17' in FIG. 1 and it also permits either of the supporting posts 20 or 21 to be forced downwardly so that the table top may be inclined in either longitudinal direction as suggested by the phantom line representation 17'' in FIG. 1.

As can be seen in FIGS. 1 and 4, the table top 17 is provided with laterally spaced apart side members such as 22 which are part of a table top frame. The top is provided with a patient supporting panel 23 which is preferably x-ray transparent. Corresponding ends of the side frame members 22 are provided with notches 24 which rest on a transverse pin 25 that extends laterally from the front supporting arm 18 to its counterpart at the rear. This allows the top 17 to pivot on pin 25 when post 20 is raised to impart inclination to the top as illustrated by its phantom representation 17'' in FIG. 4. The table top inclines in the opposite direction when post 21 is raised higher than post 20.

The other ends of side frame members 22 rest on a shaft 26 which is preferably provided with rollers. The sliding action between the side frame members 22 and the rollers on shaft 26 precludes the table top supporting posts 20 and 21 from being drawn toward each other when the table top is inclined longitudinally. The pin and hook support at one end of the table top and the freely slidable support at the other end also facilitates removal of the table top from its support.

Note in FIGS. 1 and 2 that there are arms 27 and 28 extending longitudinally outwardly in opposite directions from their associated inwardly extending cantilever support arms 18 and 19, respectively. The arms 27 and 28 have cross rods 29 and 30, respectively, which serve as handles for pushing the table on its casters and for engaging it for the purpose of angulating the top 17 longitudinally. The arms 27 and 28 are adapted for supporting trays on which items may be stored that are required for treating or otherwise attending a patient on the table top and, for example, the arms may support intravenous feeding apparatus, not shown. An important feature of this arrangement is that the arms 27 and 28 always remain horizontal and do not angulate even though the table top 17 is angulated. Thus, articles sup-

ported on arms 27 and 28 are not disposed to fall off or change their angularity when the table top is changed from a horizontal to an angulated attitude.

In FIGS. 1 and 2, particularly, one may see that the front of the table is provided with an x-ray impervious, preferably metal shield 31 which is attached to stationary columns such as 33 and its counterpart 34 as may be seen in FIG. 7. The table supporting posts 20 and 21 are adapted to move vertically in columns 33 and 34, respectively, as will be explained in detail hereafter. In FIG. 2 one may see that the table top 17 overhangs the end trucks 10 and 11 so as to define a space 35. This space permits introduction of an x-ray tube, not shown, and an x-ray image intensifier or fluoroscopic device, not shown, respectively above or below the table top to facilitate x-ray diagnosis without moving the patient to a conventional diagnostic x-ray table. Because the table top overhangs the floor trucks, the top may be positioned over a bed or the like at substantially the height of the bed to enable transferring a patient to or from a bed with minimum discomfort.

The manner in which the table top 17 is raised, lowered and angulated will now be described in general terms in reference to the FIG. 5 schematic representation of the table. As explained earlier, there are two supporting posts 20 and 21 for the table top 17. Post 20 is movable vertically in a stationary column 33 and post 21 is vertically movable in a similar longitudinally spaced apart column 34. The posts 20 and 21 may be elevated with a chain 40 or other suitable flexible member. One end of the chain 40 is fastened at 41 near the bottom end of post 20. The other end of the chain is fastened at 39 near the bottom end of post 21. The chain runs over a series of sprockets 42, 43, 44 and 45. The shafts of sprockets 42—44 are fixed so that the sprockets may rotate on them. Sprocket 45, however, is rotatably mounted on a carriage 47 and this sprocket is subject to being selectively locked and released for rotation when it is desired to prevent or permit table top angulation, respectively. Carriage 47 is mounted for being shifted longitudinally and bidirectionally by means of a single acting hydraulic cylinder 48 in this example. The cylinder is mounted stationarily on the table. The cylinder has an internal piston 49 from which a rod 50 extends to engage carriage 47 by means of locking nuts such as 51. Pressurized hydraulic fluid is delivered to cylinder 48 by means of a tube 52 which leads to a hydraulic pump, not shown, which pump is foot operated by means of treadle 14. When cylinder 48 is pressurized, piston 49 moves to the left as viewed in FIG. 5 and carriage 47 moves with it, assuming that sprocket 45 on the carriage is locked against rotation. Movement of carriage 47 to the left puts chain sections 53 and 54 and the rest of the chain is substantially equal tension so that the posts 20 and 21 are raised uniformly, thus maintaining the table top in a level attitude. The posts 20 and 21 and the table top 17 may be raised until they reach safety stops, not shown, after which a relief valve, not shown, on the foot operated hydraulic pump is opened to preclude excess pressurization of the hydraulic cylinder 48. The table top and its supporting posts 20 and 21 may be allowed to descend under the influence of gravity by opening a bleeder valve, not shown, associated with the hydraulic pump and operable by foot treadle 15. Throttling of the bleeder valve permits lowering the table at a controlled rate. Of course, when post 20 and 21 descend while

carriage sprocket 45 is locked and the hydraulic bleeder valve is open, the vertical force of the posts puts the chain 40 in tension and causes carriage 47 to be restored to its initial position as shown in FIG. 5. It will be understood by those skilled in the art that hydraulic cylinder 48 could be replaced by any suitable carriage drive means such as a lead screw engaging a threaded member, not shown, on the carriage or a driven drum on which there is a cable, not shown, that is attached to carriage 47 could be used. A brake might also be required with the latter arrangement.

The table top 17 may be inclined longitudinally through opposite angles of inclination after the posts 20 and 21 are raised some distance. The preferable mode of operation is to raise the table top horizontally as just described and then to release carriage sprocket 45 for rotation. Merely releasing the carriage sprocket will not cause the table to descend since the sections of the chain extending from the sprocket 45 to their respective points of attachment on the posts, remain in equal tension. After releasing sprocket 45 for rotation by means which will be described, the table top may be angulated longitudinally in either direction by manually pushing down or pulling up on the handles 29 or 30 at opposite ends of the table. Assuming that a downward manual force is applied to handle 29 when the posts 20 and 21 are elevated and sprocket 45 is unlocked, post 21 will descend and cause tension on chain 40 as a result of the attachment of the chain to post 21 at point 39. Resulting rotation of sprocket 45 puts tension on the section of the chain starting at 54 and leading to point 41 where the chain is attached to post 20. This causes post 20 to be lifted by an amount equal to that through which post 21 descended and the table top 17 inclines as if there were a laterally extending axis of rotation through the center of the table top 17. From the description of this one mode of operation, those skilled in the art will appreciate that the table is adapted for being tilted longitudinally by pressing on either handle 29 or 30 and that the action of the chain will be similar. The carriage 47 does not tend to translate when the table is being tilted because the hydraulic bleeder valve is allowed to remain closed at this time so as to preclude piston 49 from moving. When the table top is tilted or angulated to the desired angle, carriage sprocket 45 is locked automatically when foot pressure on treadle 16 is relieved and the top will remain in its set angular position. The table top can be raised or lowered even though it is angulated. The locking and release mechanism will be described hereafter.

The details of the carriage 47 as viewed from the rear of the table in an actual embodiment will now be discussed in reference to FIGS. 8 and 9, primarily. The carriage 47 comprises a plate member 60 from which a member 61 extends laterally. Attached to the lateral member 61 by welding or other suitable means is a vertically extending member 62 which has spaced apart legs 63 and 64 defining an opening 65 between them. The carriage is equipped with wheels 66-69. These wheels run on upper and lower tracks 70 and 71, respectively, which are fastened to a beam member 72 which extends longitudinally of the table substantially between stationary post guide columns 33 and 34. The threaded rod 50 of hydraulic cylinder 48 engages carriage 47 by means of a lug 73 which forms part of the carriage. A laterally extending shaft 75 is journaled by means of bearings 76 and 77 which latter are supported

respectively in carriage members 60 and 62. Selectively lockable sprocket 45 is fixed on shaft 75 in the space between members 60 and 62. At the left of member 60 in FIG. 9, shaft 75 has a rotatable latchable element which in this embodiment is a notched disk 78 fixed on it so that disk 78, shaft 75 and sprocket 45 will either rotate or stop together. Disk 78 is provided with several equally circumferentially spaced radial notches 79. The disk is prevented from rotating by a latching element which in this embodiment is a pivotal lever 80 which is shown engaged with a notch 79 in solid lines in FIG. 9 and is designated 80' where it is shown in phantom lines and rotated to a position where it does not engage any notch in disk 78. Lever 80 is biased toward engagement in a notch 79 by means of a pair of springs 81 and 82 which have one of their corresponding ends attached to member 61 and their other corresponding ends attached to locking lever 80.

The disk locking lever 80 is disengaged from the disk notches by a torsional force applied to the square portion of a rod 81 which extends longitudinally of the table for a distance at least as great as the maximum travel of the carriage 47. Locking arm 80 extends from a cylinder 82 in which there are bronze bushings 83 that have a central square hole so that when rod 81 is rotated, locking lever 80 will be driven downwardly as depicted in FIG. 9 and will be released from the notch 79 in which it is engaged. Rod 81 is further journaled for rotation in bearings 84 and 85 which are supported in the downwardly depending legs 63 and 64 of carriage member 62. The arrangement allows arm 80 to translate or slide along square rod 81 with carriage 47. Thus, locking lever arm 80 may be rotated to a disengaged position by a torsional force on rod 81 regardless of the longitudinal position of carriage 47. As explained earlier, carriage sprocket 45, which is under control of the notched disk 78, is selectively releasable to permit longitudinal angulation of the table top. Springs 81 and 82, of course, automatically restore lever 80 to a locking position when torsional force is removed from rod 81 by virtue of foot operated treadle 16 being released. The manner in which the treadle operates rod 81 will now be described.

There are preferably foot treadles such as 16 at each end of the table so that rod 81 may be turned from either end to release the carriage for tilting the table top 17. The sprocket release operating mechanism is shown in FIG. 10. One may see that rod 81 extends into a bearing structure 88 to permit rotation of the rod. Extending from rod 81 is a lever arm 89 which has a cable 90 fastened to it by any suitable fastening means such as an eye and screw 91. One end of cable 90 is also fastened to the end of lever 92, which is shown fragmentarily in FIG. 10 and which lever is rocked by stepping on foot treadle 16 that is fastened to it. A downward pull on cable 90 by lever 92 causes rotation of rod 81 and release of the locking arm 80 from slotted disk 78 in carriage 47, thereby releasing sprocket 45 for rotation. When the operator's foot is removed from the treadle, as explained earlier, springs 81 and 82 cause restoration of locking arm 80 in the slotted disk 78 automatically. This prevents inadvertent changing of the table top's angular position since the chain is then unable to yield in either direction.

The relationship of certain parts of the table may be seen best in an actual embodiment depicted in FIG. 7. Here one may see that the support columns 33 and 34

are attached respectively to the end trucks 10 and 11. The front panel 31 is removed from this view for clarity. The manner in which post 20 is guided in column 33 is similar to the manner in which post 21 is guided in column 34 so only the former will be described in reference to FIGS. 11-16, primarily. One may see that the chain sprocket 42 in FIG. 11 is journaled on a block 92 that is in turn fastened on the outside of column 33. The column is slotted so that chain 40 may pass into it and down the side of the column to the place where the end of the chain 40 is fastened at 41 near the lower end of post 20 as can be seen particularly well in FIG. 16. There are various rollers installed in column 33 for guiding and holding post 20 in proper alignment. For instance, there are upper rollers 93 and 94, see FIGS. 11 and 13, which are rotatable on a shaft 95 mounted in a block 96 which is fastened to column 33. End cap 97 conceals the mechanism. There are also side rollers 98 and 99 supported on a block 100 near the top of column 33. Nylon strips, not shown, may also be interposed between post 20 and column 33 for guiding the post within the column. Any suitable anti-friction guide means will serve the purpose as long as the guide means keep the posts 20 and 21 parallel at all times.

As can be seen in FIGS. 15 and 16 there are also lower guide rollers 101 and 102 mounted on a fixed shaft 103 near the lower end of post 20. Further guidance is obtained by rollers 104 and 105 which are carried on a shaft mounted in a block 106 that is bolted onto post 20. Each of the posts 33 and 34 have a stop pin such as 107 extending across them to establish the lower limit of travel of the table supporting posts, see FIGS. 15 and 16.

FIG. 6 shows a schematic diagram of a table similar to the one which has been described but modified insofar as the table driving chain and carriage is concerned. In FIG. 6, parts that are the same as those in the previously described embodiment are given the same reference numeral. The FIG. 6 arrangement of chain 40 is such that the support posts 20 and 21 are prevented from being pulled up and out if an operator is inclined to lift up on the posts when sprocket 45 is locked.

The FIG. 6 embodiment is provided with some additional sprockets 108-113 and an additional section of chain 40'. The opposite ends of chain 40' are attached at 41 and 39 to posts 20 and 21, respectively, similarly to the manner in which the upper chain 40 is attached. In the previous embodiment, if an operator lifted up post 20, for example, the section of chain 40 extending upwardly from attachment point 41 would flex or lose its tension and the other post 21 would not raise but post 20 could drop down to restore chain tension. In the FIG. 6 arrangement, if post 20 is lifted alone and if sprocket 45 is locked, a force is transmitted from the attachment point 41 through added chain 40' to attachment point 39 on post 21 attempting to pull it downward. However, this motion is prevented since chain section 54 is not free to move because sprocket 45 is locked. Therefore, vertical motion can be given to post 20 or 21 only if sprocket 45 is released. If the table top 17 is elevated to a horizontal position and it is desired to angulate it, sprocket 45 is again released and the table may be angulated by pressing down or lifting either of its ends by grasping either handle 29 or 30.

In the FIG. 6 embodiment, the carriage 47 may be driven with a hydraulic cylinder such as 48 as in the previously described embodiment but it will be under-

stood that in this case again other motor means may be used for translating carriage 47 in selectively opposite directions to raise the table top while it is horizontally disposed or angulated as the case may be.

Those skilled in the mechanical arts will now appreciate that in either of the embodiments a cable system could be used in place of a chain to elevate and lower the table supporting posts by moving the carriage. Other wheel means, such as pulleys instead of sprockets, would be employed to guide the cable. Moreover, means might have to be used for clamping the cable to the carriage sprocket to avoid possible slippage when the carriage pulley is locked. By a suitable arrangement of the pulleys or sprockets the carriage could be permitted to move in something other than a horizontal direction as in the illustrative embodiments. A spring biased pawl on the carriage could also be used as a latching element instead of a lever to engage or lock the latchable element such as the notched disk. The pawl could be operated remotely with a cord.

Although a preferred embodiment of the new table has been described in considerable detail, such description is to be considered illustrative rather than limiting, for the invention may be variously embodied and is to be limited only by interpretation of the claims which follow.

I claim:

1. A patient handling table comprising:

- a. spaced apart first generally vertically and bidirectionally movable means and a table top supported thereby,
- b. means for guiding said vertically movable means, respectively, to follow generally vertical paths of movement,
- c. second bidirectionally movable means,
- d. drive means operatively connected with said second means to permit forcing said second means in at least one direction,
- e. an elongated flexible element attached at different spaced apart places to said first means, respectively,
- f. a plurality of rotatable wheel means for guiding and directing said flexible element, at least one of said wheel means being supported on said second means and cooperating with said flexible element,

g. means for selectively locking and releasing for rotation said wheel means, movement of said second means in one direction when said last named wheel means is locked allowing simultaneous vertical movements of said first means and release of said wheel means for rotation allowing at least one one of said first means to move vertically to enable angulating said table top longitudinally.

2. The table set forth in claim 1 wherein:

- a. said elongated flexible element is a chain and said wheel means which is supported on said second means is a sprocket with which said element is engaged,
- b. said locking and releasing means including a lockable element coupled with said sprocket for rotation therewith,
- c. a locking element that is selectively engageable and disengageable with respect to said lockable element to prevent and permit, respectively, rotation of said sprocket, and

- d. means for operating said locking element from a position remote from said second means.
3. The table set forth in claim 1 wherein:
- a. said second means is a carriage means and said drive means therefor comprises a hydraulic cylinder means and means for supporting said cylinder adjacent said carriage means,
- b. said hydraulic cylinder means including a piston rod engaged with said carriage means.
4. The table set forth in claim 2 wherein:
- a. said lockable element has a plurality of circumferentially spaced slot means defined therein,
- b. said locking element is a lever engageable in said slot means,
- c. means for biasing said locking lever toward engagement with said slot means in said lockable element, said remote operating means being constructed and arranged to operate said locking lever.
5. The table set forth in claim 2 wherein:
- a. said locking element operating means comprises rod means extending along the path of travel of said second means, said locking element being translatable with said second means along said rod means and said locking element being rotatable by rotation of said rod means to effect disengagement of said element from said lockable element.
6. The table set forth in claim 1 including:
- a. means supporting said table top near one of its ends for pivotal and releaseable engagement with one of said first means, and
- b. means supporting said table top near the other end of its ends for sliding and releaseable engagement with the other of said first means.
7. The table set forth in claim 1 wherein:
- a. said locking and releasing means comprises disk means having a plurality of circumferentially spaced radially opening slots, said disk means being coupled to said first means supported wheel means for joint rotation therewith,
- b. said supported wheel means being a sprocket,
- c. said flexible element being a chain engaged with said sprocket,
- d. said locking and releasing means including a lever means translatable with said carriage means.
- e. rod means on which said lever means is slidable during movement of said first means, said rod means being engageable with said lever means to turn the same into and out of engagement with said slotted disk means, and
- f. manually operable treadle means mounted on said table and operatively coupled with said rod means for turning the rod means to release said lever means from said disk means.
8. The table set forth in claim 1 including:
- a. an additional free-turning wheel means journaled on said first means,
- b. a second flexible element running on said additional wheel means and being attached at spaced apart points to the respective first means, said flexible elements acting oppositely of each other to prevent upward movement of said posts when at least one of them is subjected to a lifting force while said wheel means is locked.
9. A patient handling table comprising:
- a. truck means,
- b. a pair of longitudinally spaced apart vertically movable post means supported on said truck means

- and a table top supported on and spanning between said post means,
- c. a support member extending in the longitudinal direction of said table and supported from said truck means,
- d. carriage means mounted for bidirectional movement on said support member,
- e. a sprocket journaled for rotation on said carriage means,
- f. a plurality of free-turning fixedly mounted sprockets,
- g. a chain engaged with said carriage supported sprocket and extending therefrom over said free-turning points of attachment on the respective post means,
- h. means for selectively locking and releasing said carriage mounted sprocket against and for rotation, respectively, whereupon when said last named sprocket is locked against rotation movement of said carriage means in one direction will lift both of said post means uniformly and when said sprocket is released one of said posts may be lowered to cause the other of said posts to rise under the influence of said chain to thereby angulate said table top.
10. The table set forth in claim 9 including:
- a. a hydraulic cylinder means operatively connected to said carriage means, said cylinder means being adapted for being pressurized to move said carriage means in one direction for lifting said post means and for being relieved of pressure to lower said post means.
11. The table set forth in claim 9 wherein:
- a. said carriage mounted sprocket locking and releasing means comprises a lockable element coupled with said last named sprocket for joint rotation therewith,
- b. locking means mounted on said carriage means and biased for engagement with lockable element, and
- c. means for overcoming said bias and thereby releasing said locking means from engagement with said lockable element, whereby to permit angulation of said table top.
12. The table set forth in claim 11 including:
- a. rod means extending along the line of carriage travel,
- b. said locking element being slidably engaged with said rod means and being rotatable in response to rotation of said rod means, whereby turning said rod means will release said locking element from said lockable element.
13. The invention set forth in claim 9 wherein:
- a. said locking and releasing means comprises a disk means having circumferentially spaced apart radially open slots, said disk means being coupled for joint rotation with said carriage mounted sprocket,
- b. an axially rotatable elongated element extending along the path of carriage movement,
- c. a lever biased toward engagement in a slot of said disk means and associated with said carriage means and engaging said elongated element slidably but non-rotationally, whereby axial rotation of said elongated element will effect rotation of said lever and release of said carriage mounted sprocket

11

means in any operable position of said carriage means.

14. A patient handling table comprising:

- a. spaced apart means,
- b. first means which are vertically movable on said support means, respectively, 5
- c. a table top supported between said vertically movable first means,
- d. a translatable element and wheel means journaled for rotation thereon, 10
- e. means for selectively locking said wheel means against rotating or releasing said wheel means for rotation,
- f. an elongated flexible element which is attached at 15

12

spaced apart points to each of said first means, respectively, a portion of said flexible means intermediate said points of attachment running on said wheel means whereupon translation of said element when said wheel means is locked will result in each of said first means being raised or lowered equally to thereby maintain said table top in a constant attitude, and whereupon when said wheel means is released for rotation said flexible element may run thereon to enable one of said first means to assume a different position on its associated support element than the other to thereby enable angulation of said table top.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,820,176 Dated June 28, 1974

Inventor(s) Orrin G. Feiertag

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Claim 1, column 8, paragraph (g), line 53 delete "one",
second occurrence.

Claim 14, column 11, paragraph (a), line 4 after "apart"
insert ---support---

Signed and sealed this 12th day of November 1974.

(SEAL)

Attest:

McCOY M. GIBSON JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents