

[54] **TILTABLE AND TRANSLATABLE TOP MEDICAL TABLE ASSEMBLY**

[72] Inventors: William E. M. Jones, Pittsburgh; James A. Richard, Monroeville, both of Pa.

[73] Assignee: CGR Medical Corporation, Cheverly, Md.

[22] Filed: Oct. 1, 1970

[21] Appl. No.: 77,094

[52] U.S. Cl. 108/5, 108/137, 108/143, 248/377, 248/396, 248/397, 269/323

[51] Int. Cl. A17F 5/12

[58] Field of Search 108/2, 5, 136, 137, 138, 143; 248/372, 376, 377, 393, 394, 396, 397, 429, 430, 412; 269/323

2,568,236 9/1951 Kizaur 269/323
2,658,777 11/1953 Rauglas 248/412 X

Primary Examiner—James C. Mitchell
Attorney—F. H. Henson, D. F. Straitiff and E. P. Klipfel

[57] **ABSTRACT**

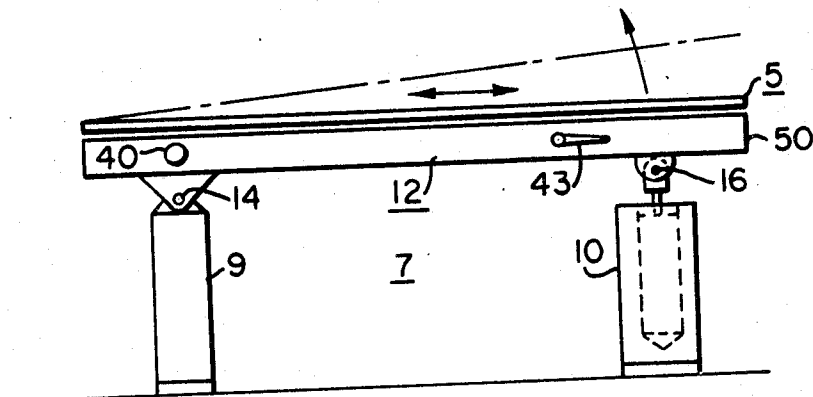
Disclosed is a medical table assembly including a normally horizontal patient support table top translatable and tiltable longitudinally relative to a transversely extending horizontal axis, one way acting roller wedge lock means biased by an operating spring to lock such top automatically against translational movement downwardly when such top is tilted, and release means operable to unlock such roller wedge lock means against action of such operating spring.

[56] **References Cited**

5 Claims, 3 Drawing Figures

UNITED STATES PATENTS

2,051,490 8/1936 Lightfoot 108/5 X



TILTABLE AND TRANSLATABLE TOP MEDICAL TABLE ASSEMBLY

BACKGROUND OF THE INVENTION

1. Field of the Invention

Translational and tiltable top medical examination and/or treatment tables.

2. Description of the Prior Art

When the normally horizontal patient supporting top of a medical table is manually translatable longitudinally while also being tiltable in the same direction, it becomes necessary to lock such top against gravity induced downward translational movement when it is tilted. Various lockable top assemblies have been employed that can be characterized as being unduly complex, structurally or operationally, and/or by lack of translational movement freedom in tilted attitudes of the top.

SUMMARY OF THE INVENTION

The present invention, in providing a manually movable patient support top with a spring-actuated one-way-acting roller wedge lock means that operates automatically to prevent downward translational movement of such top when tilted, affords maximum safety with respect to unintentional gravity induced translational top travel and trouble free simplicity of construction. At the same time, such one-way-acting lock means inherently affords freedom for return translational movement of the top at all times, and, by virtue of inclusion of a lock release means operable by manual effort acting in opposition to the operating spring for the lock means, affords opportunity for unlocking when desired, while assuring automatic relocking upon cessation of such manual effort.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 is a front elevation outline view of an exemplification of a medical table embodying the self-locking translationally and tiltably movable patient support top assembly of the present invention;

FIG. 2 is a partial front elevation view of the top assembly of FIG. 1, substantially in cross section, showing details of an illustrative construction of the spring-biased roller wedge locking means and release means therefor, embodied in such assembly; and

FIG. 3 is a section view taken along the line III—III of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, a translationally and tiltably movable top assembly 5 is shown affiliated with a medical table 7 of an exemplified type having two fixed vertical pedestal legs 9 and 10 at its opposite ends that supports from beneath a frame means 12 for the top assembly 5. Connection of the frame means 12 at its one end to the top of pedestal leg 9 at a fixed pivot joint 14 and connection of the opposite end to a vertically-movable hydraulic cylinder-actuated pivot joint 16 exemplifies a manner in which the top assembly 5 may be tilted longitudinally about a transversely extending horizontal axis, as defined by pivot joint 14, other well-known modes of table tilting being suitable insofar as the present invention is concerned.

Providing for longitudinal translational movement of the top assembly 5 in the illustrative construction set forth herein, the frame means 12 includes a pair of channel members 18, one of which is shown in FIG. 3, that extend longitudinally along opposite sides of the frame means 12 and open outwardly from such sides. Complementary inwardly opening channel members 20 at the underside of top assembly 5 extend along and beneath its opposite side edges as a part thereof in nested relationship with top flange portions of the frame channel members 18, respectively, to slidably guide movement of such top assembly along the frame means. Roller bearings 22 carried by the frame channel members 18 and in

support of the bottoms of the top assembly channel members 20 facilitate translational movement of the top assembly 5 along the frame means 12.

To provide for the automatic locking the top assembly 5 against downward movement along the normally horizontal frame means 12 when tilted, a roller wedge locking means 24 is provided which includes an upwardly facing ramp member 26, FIGS. 2 and 3, affixed to the top of the bottom flange portion of the front frame channel member 18 and at least one roller 27 biased by a helical compression spring 28 to urge such roller into frictional engagement with such ramp 26 beneath and the underside of the front top assembly channel member 20 above, to impart a one-way-acting self-energizing wedging constraint to relative translational movement between the roller engaged members at top and bottom. The ramp 26 tapers upwardly in the direction of downward tiltability of the top assembly 5, at an inclination angle of 12° to 18° to provide the proper wedge lock action while facilitating releasability of the roller 27.

As exemplified by the showings in FIGS. 2 and 3, the roller 27 is mounted on a shaft 30 which is coupled to the operating spring 28 via a clevis 32 against which such spring abuts at its one end. The opposite end of the spring 28 seats against an abutment 34 affixed to the frame member 18 and formed in integral attachment to the ramp member 26. A rigid rod 36 encircled by spring 28 and affixed to the clevis 32 extends therefrom with clearance through an opening 38 in the abutment 34 to provide for confinement of such spring, initial confinement of the roller 27 prior to and during installation of the assembly, and for pulling the roller 27, against spring opposition to a release position.

The roller wedge lock means 24 is self-releasing in the direction of relative translational movement between top assembly 5 and frame means 12 that tends to roll the roller 27 down the ramp 26, and in a horizontal attitude of the assembly 5, release of such lock means can be effected with relative ease by turning the roller 27 in a direction tending to impart such down ramp rolling. A release knob 40 at the front of the table is secured to shaft 30 for accommodating such release turning of the locking roller 27.

At the same time, release of the locking means from a location at the opposite end of the table may be desirable, and this is accommodated by provision of a crank arm 42, operated by a handle 43 at the front of the table, connected via a flexible tension member 44 to the projecting end of rod 36, whereby such rod may be pulled against the bias of spring 28 by exertion of manual effort on handle 43, to pull the roller 27 to a release position. A light tension spring 46 acting on crank arm 42 provides for maintaining the flexible tension member 44 slack free. Side panel members 50 are provided for the frame means 12 to enclose the open sides of the frame channel members 18.

What is claimed as new and desired to be secured by Letters Patent in the United States is:

1. A medical table comprising,
 - a normally horizontal frame means;
 - floor mounted support means tiltably supporting said frame means;
 - a patient support top assembly constrained for translational rectilinear movement along said frame means,
 - roller wedge lock means biased by an operating spring to restrain relative translational movement between said top assembly and said frame means in a direction corresponding to downward tilting, while permitting such movement reversely; and
 - release means operable against opposition of said operating spring to ineffectuate said roller wedge lock means.
2. The table of claim 1, wherein,
 - said roller wedge lock means is mounted on said frame means and includes a ramp member having a sloping cam surface extending along said frame member and upwardly toward an under surface of said top assembly, roller means in rolling engagement with said cam surface, and a

3

4

helical compression spring urging said roller means upwardly along such cam surface into simultaneous engagement with the aforesaid under surface of said top assembly.

3. The table of claim 2, wherein said cam sloping cam surface is in the shape of a plane inclined at an angle of from 12° to 18°.

4. The table of claim 2, wherein, said release means comprises a crank arm mounted on said

frame means at a location remote from said roller wedge lock means, and includes tension transmitting means interposed between said crank arm and the live end of said helical compression spring.

5. The table of claim 2, further comprising a release knob attached to said roller means for turning same to ineffectuate said roller wedge lock means.

* * * * *

10

15

20

25

30

35

40

45

50

55

60

65

70

75