

[54] **OVERBED TABLE**

[75] Inventor: **David Edward Barth**, Bowmansville, N.Y.

[73] Assignee: **Sybron Corporation**, Rochester, N.Y.

[22] Filed: **Oct. 12, 1971**

[21] Appl. No.: **188,390**

[52] U.S. Cl.**108/146, 108/146, 248/412**

[51] Int. Cl.**A47b 9/08**

[58] Field of Search 108/148, 144, 146; 248/412, 248/411

[56] **References Cited**

UNITED STATES PATENTS

909,223 1/1909 Reynolds.....108/148 X

1,101,552	6/1914	Hume.....	248/412
1,103,839	7/1914	Rellay	248/412
3,058,715	10/1962	Porkka	108/146
3,380,405	4/1968	Barecki	108/146 X
3,481,286	12/1969	La Mar.....	108/144

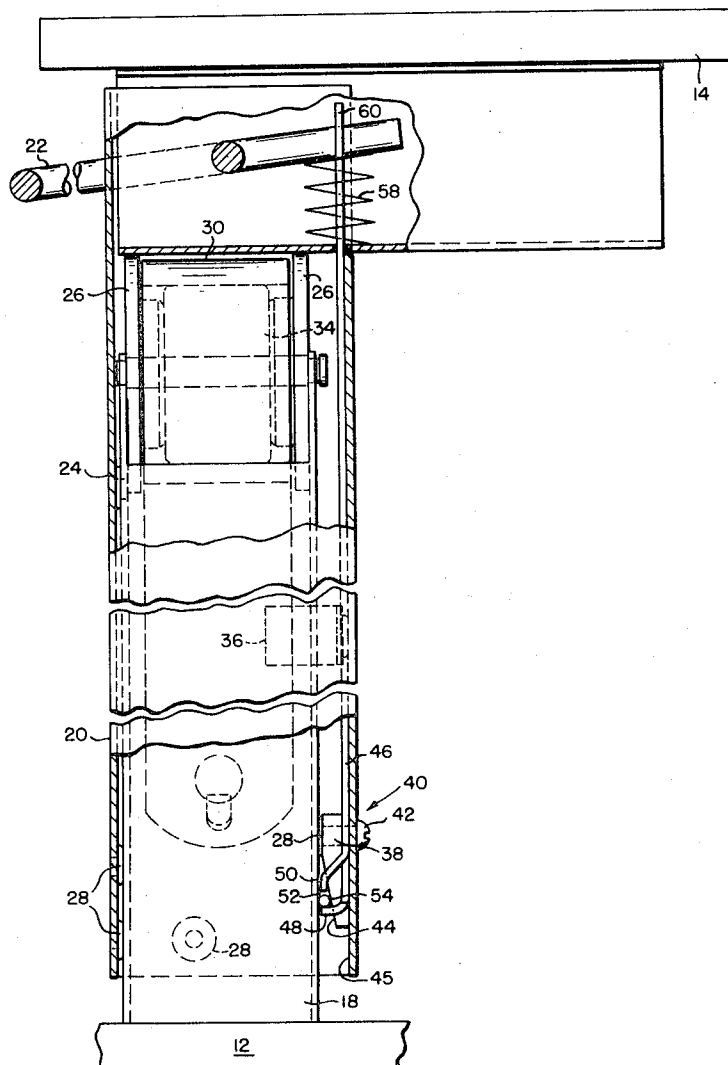
Primary Examiner—Francis K. Zugel

Attorney—Theodore B. Roessel

[57] **ABSTRACT**

Disclosed is an overbed table, having a one-way lock mechanism including a cam member which moves a cylindrical element into a locking position during downward movement of the table top, and which permits movement of the cylinder out of the locking position upon upward movement of the table top.

9 Claims, 3 Drawing Figures



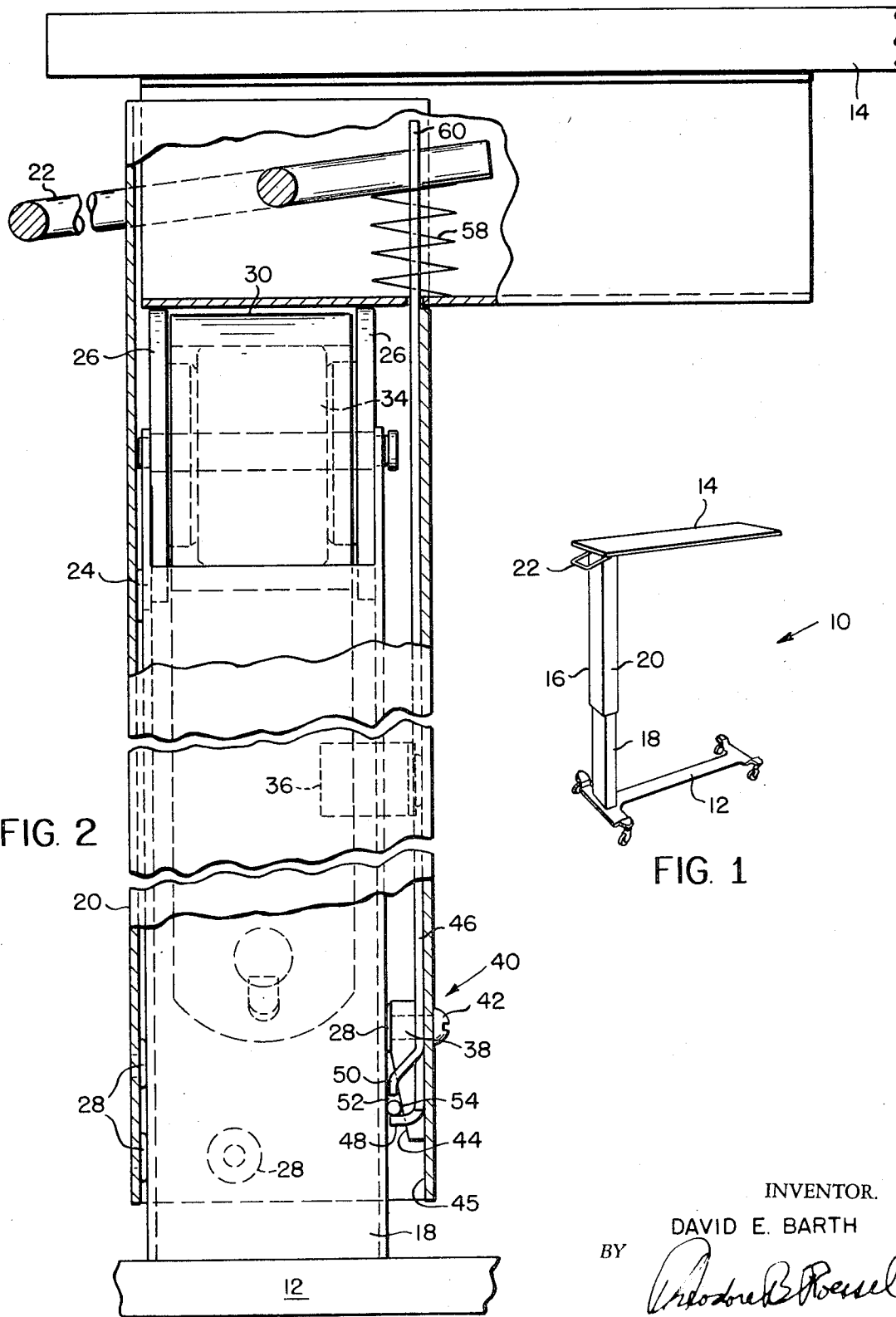


FIG. 2

FIG. 1

INVENTOR.
DAVID E. BARTH
BY *David E. Barth*
ATTORNEY

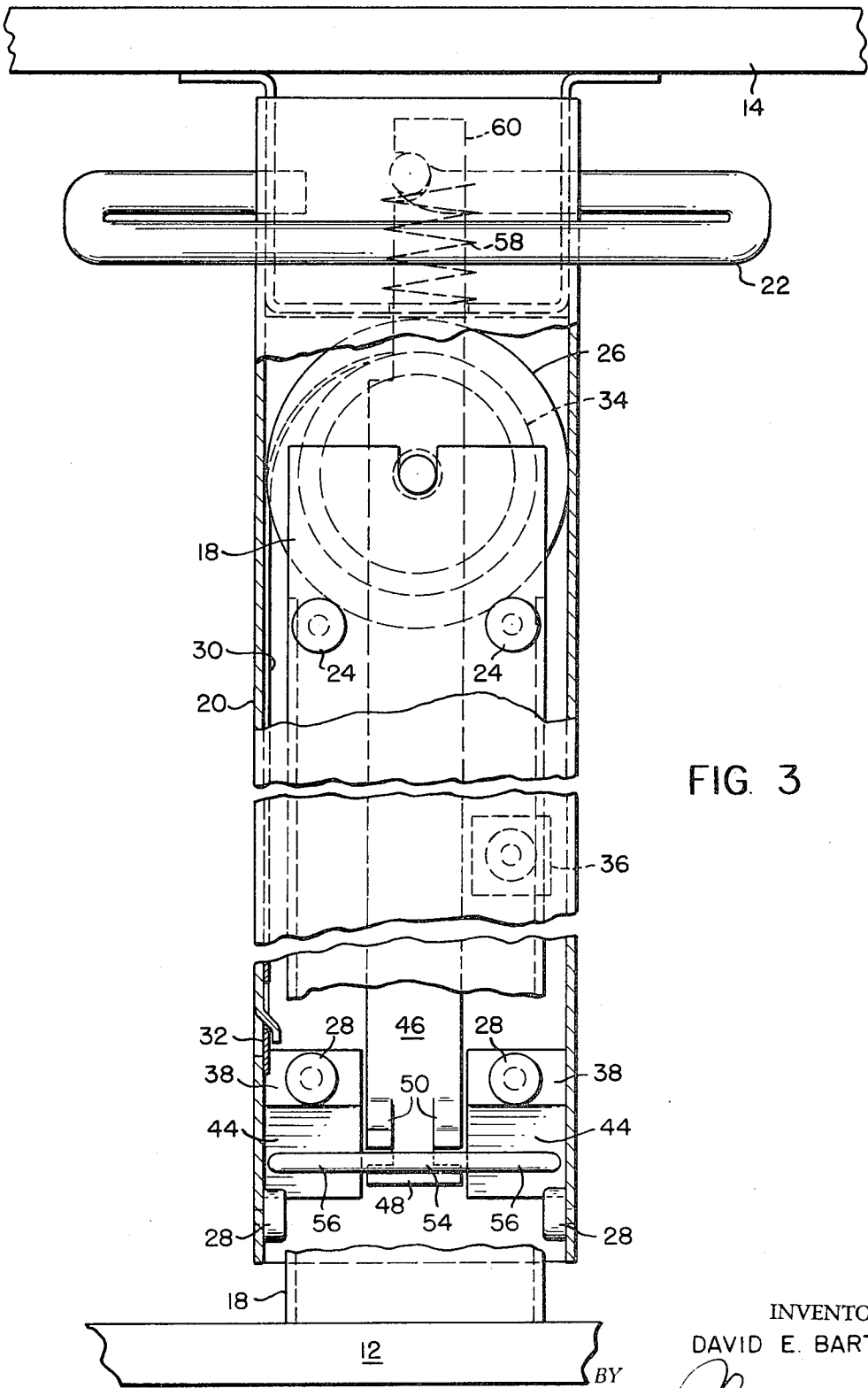


FIG. 3

INVENTOR.
DAVID E. BARTH

Theodore B. Roessel

ATTORNEY

OVERBED TABLE**BACKGROUND OF THE INVENTION**

The present invention relates to overbed tables, as are commonly used in conjunction with hospital beds, and more particularly, to a one-way lock for such tables which moves into a locking position during downward movement of the table top and which moves into an unlocking position upon upward movement of the table top. Such tables are described generally, for example, in U.S. Pat. No. 3,314,384.

Overbed tables, sometimes referred to in the art as cantilever tables, generally comprise a base of substantial length mounted upon castors and a table top generally overlying the base. A column extends vertically between the base and the table top so that the table may be rolled up to the side of the bed with the base extending beneath the bed and the table top extending over the bed.

It is desirable that tables of this type be vertically adjustable to suit the convenience of the user and other variable factors wherein height adjustment is accomplished by telescoping the column on which the table top is mounted. Thus the present invention is primarily concerned with the construction of the adjustable column on which the table top is mounted, and more particularly, to the means for smoothly adjusting the table top and for safely retaining the table top at the desired adjusted height. In this latter respect, it is preferred that the means for locking the table top at various positions be of a type which automatically releases when the table is moved upwardly. This is to ensure that if, through inadvertence, the bed is raised while the table top is in an interfering position over the bed, a patient lying on the bed will not be injured nor the table damaged. It is also desirable that the means for locking the table top in various positions will allow an infinite adjustment throughout the entire range of vertical movement.

SUMMARY OF THE INVENTION

The present invention may be characterized in one aspect thereof by the provision of an overbed table, having a fixed post upstanding from a base; a hollow column depending on the table top and telescoping over the post; lock means operable between the column and the post including a cylindrical member and a cam surface on the interior wall of the hollow column, the cylinder binding between the post and cam surface to lock the column against downward movement, and moving out of the binding engagement when an upward force is applied to the column to free the column for upward movement; and manual release means for moving the cylinder to an unbinding position to permit downward adjustment of the table top.

OBJECTS OF THE INVENTION

One object of the present invention is to provide a lock means for overbed tables which permits an infinite height adjustment of the table top over the entire range of travel.

Another object of the present invention is to provide a lock means for overbed tables which automatically unlocks when an upward force is applied to the table top without the use of release levers, handles or the like.

A further object of the present invention is to provide a lock of the type described having a minimum of parts and which is efficient in operation and inexpensive to manufacture.

These and other objects, advantages and characterizing features of the present invention will become more apparent upon consideration of the following detailed description thereof, when taken in connection with the accompanying drawings depicting the same.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a typical overbed table in a partly raised position;

FIG. 2 is a foreshortened side elevation view of the support column, partly broken away and in section, showing the internal lock mechanism; and

FIG. 3 is a rear view of the support column as shown in FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, FIG. 1 shows a typical overbed table, generally indicated at 10. The table includes a wheeled base 12, a table top 14, generally overlying the base, and a vertical column 16 extending between the base and the table top adjacent a corresponding edge of each. The column is made of two portions, a post 18 which is fixed to and upstands from base 12 and a hollow column member 20, which depends from the table top and telescopes over post 18. The table also includes a lock mechanism (to be described hereinbelow), for locking the telescoping column at any adjusted height and a latch member 22, adjacent the top of the table for unlocking the lock mechanism.

Referring to FIGS. 2 and 3, the axial relationship between post 18 and column member 20 is maintained by guides 24 and rollers 26, attached adjacent the top of post 18 and by guides 28 carried adjacent the lower portion of column member 20.

Any suitable counterbalancing means can be used to assist in the lifting of the table top. For example, FIG. 3 shows a typical counterbalancing system in overbed tables, which consists of a coiled leaf spring 30 which has one end attached adjacent the lower portion of column member 20 as indicated by the reference numeral 32. The other end of spring 30 is coiled about a roller member 34, journaled adjacent the top of post 18.

The telescoping travel of column member 20 is limited at its shortest height by the engagement of rollers 26 against the underside of the table top and the greatest height is limited by the engagement of a stop 36 on the post against the top of a locking block 38 carried adjacent the lower portion of the column member.

Means for locking column 16 at any adjusted height is generally indicated at 40 (FIG. 2). This means includes a pair of spaced locking blocks 38 which are fixed to the interior wall 45 of column member 20 adjacent its lower portion by any suitable means such as screws 42. Each locking block has a vertically oriented cam surface 44 which tapers upwardly, so that the lower portion of the cam surface is closer to the interior wall 45 of the column member than the upper portion of the cam surface. Extending down between the post and column member adjacent interior wall 45, is a release rod 46.

As best seen in FIG. 2, the lower end 48 of the release rod is bent inward toward the post, in an L-shape. Just above end 48 are flanges 50 which together with the bent end define a space 52 therebetween. Located in space 52 and normally resting on the bent end 48 is a horizontally oriented locking rod or cylinder 54.

Release rod 46, as shown in FIG. 3, extends down between the two locking blocks 38 and supports the locking cylinder 54 adjacent the central portion of the cylinder, wherein the ends 56 of the cylinder extend outwardly from each side of the release rod for engagement with the cam surfaces 44.

The upper end 60 (FIG. 2) of the release rod 46 is carried by latch 22 pivoted adjacent the table top. Any suitable means, such as a spring 58, biases latch 22 and therefore maintains a thrust on rod 46 in an upward direction. Thus, the latch is lifted for moving the release rod 46 downwardly against bias of spring 58.

The operation of the lock means of the present invention is best illustrated in FIG. 2. As shown in FIG. 2, the lock is obtained by the locking cylinder 54 becoming wedged between cam surface 44 and the inner post 18. As more weight is placed on the table top, downward movement of the outer column 20 tends to rotate the cylinder clockwise up the cam surface so that downward movement is resisted by the locking cylinder becoming more tightly wedged between cam surface 44 and the post 18. However, when upward pressure is applied to the table top, the upward movement of column member 20 tends to rotate the cylinder counterclockwise as viewed in FIG. 2 to carry the locking cylinder away from cam surface 44. This unwedges the cylinder so that there is no resistance to upward movement of the table top. When downward adjustment of the table top is necessary, latch 22 is operated to drive the release rod 46 downwardly. This causes flanges 50 to engage the locking cylinder 54 and drive it down and out of its wedged position between cam surface 44 and post 18 to the unwedge position. With the locking cylinder released from between cam surface 44 and post 18, the table top may be moved downwardly to any desired position. Releasing latch 22 causes the spring bias to move release rod 46 and locking cylinder 54 upwardly to restore the locking engagement.

Having thus described the invention in detail, it should be appreciated that the present invention accomplishes its intended objects in providing a one-way lock mechanism for an overbed table which has a minimum of moving parts and which effectively locks the table in a downward direction. The cam and locking roller arrangement allows the table to "free lift", that is, to move in an upward direction whenever an upward pressure is applied to the table, without a necessity of having to unlock the locking mechanism.

Having thus described the invention, what is claimed as new is:

1. In an overbed table having a horizontally extending base and a table top generally overlying said base, column means extending vertically between the base and the table top adjacent a corresponding edge of each including a post fixed to and extending upwardly from the base and a hollow column member depending from the table top and telescoping over the post, an improved one-way lock means to resist downward move-

ment and permit free upward movement of the hollow column member with respect to the post, said lock means comprising:

- a. a cylindrical lock member disposed between said post and column member adjacent the lower end of said column member, the axis of said cylinder being substantially horizontal;
- b. a cam fixed to the interior wall of said column member, said cam having its cam surface facing toward said post and aligned normal to the axis of said cylinder;
- c. a rod extending down between said post and hollow column member, said rod having its lower end bent beneath said cylinder for supporting said cylinder between said cam surface and post;
- d. said cylinder being engaged and rotated by said cam surface into binding engagement between said cam surface and said post when downward pressure is applied to said column member to prevent downward movement of said column member and said cylinder being rotated by said cam surface out of binding engagement between said cam surface and post when upward pressure is applied to said column member to free said column member for upward movement; and
- e. means operable for moving said cylinder downwardly out of binding engagement between said cam surface and post to permit downward movement of said column member.

2. An overbed table as set forth in claim 1, wherein said rod is vertically movable and is biased upwardly to maintain said cylinder against said cam surface.

3. An overbed table as set forth in claim 2, wherein said means comprises:

- a. a flange on said rod spaced above said lower end; and
- b. manually operable means, located adjacent said table top, for moving said rod downwardly against said bias to engage said flange against said cylinder and move said cylinder out of engagement with said cam surface.

4. An overbed table as set forth in claim 3, wherein the lower portion of said rod is bent beneath the central portion of said cylinder with the ends of said cylinder extending outwardly from said rod.

5. An overbed table as set forth in claim 4, wherein a pair of cam members is provided, one on each side of said rod.

6. In an overbed table having a horizontally extending base and a table top generally overlying and connected to the base by a telescoping column connected to an adjacent edge of each, wherein the column includes a fixed post upstanding from base and a hollow column depending from the table top and telescoping over the post, an improvement one-way lock for locking the table top against downward movement which automatically unlocks when the table top moves upward, said one-way lock comprising:

- a. a vertically movable rod extending down between said post and hollow column, the lower end of said rod being bent inward toward said post;
- b. a flange on said rod above said lower end;
- c. a horizontally oriented cylinder resting on the bent end of said rod and in the space between said bent end and flange, the ends of said cylinder extending outwardly from each side of said rod;

5

- d. a vertically oriented cam surface on the interior wall of said hollow column adjacent said cylinder, the upper portion of said cam surface extending from the interior wall of said hollow cylinder a greater distance than the lower portion;
- e. said cylinder being moved up off of said bent end and against said post by said cam surface to bind said cylinder therebetween when downward pressure is applied to said column to lock the same against vertical downward movement, and said cylinder dropping onto said bent end when upward pressure is applied to said hollow column to unlock the same; and
- f. means moving said rod downwardly when said cylinder is in a locked position for engaging said

6

flange against said cylinder and driving said cylinder from the locked position to unlock said hollow column and permit downward movement of said column.

- 5 7. An overbed table as set forth in claim 6, wherein said rod is normally biased upwardly and said means moves said rod downwardly against said bias.

- 8. An overbed table as set forth in claim 7, wherein the upper portion of said rod is adjacent said table top and is provided with manually operable means for moving said rod downwardly against said bias.

- 10 9. An overbed table as set forth in claim 6, wherein a pair of cam surfaces is provided, one adapted to engage each outwardly extending end of said cylinder.

* * * * *

20

25

30

35

40

45

50

55

60

65