Dec. 2, 1969 W. F. LA MAR ET AL 3,481,286

OVERBED TABLE

Filed Nov. 24, 1967 2 Sheets-Sheet 1

FIG. 2

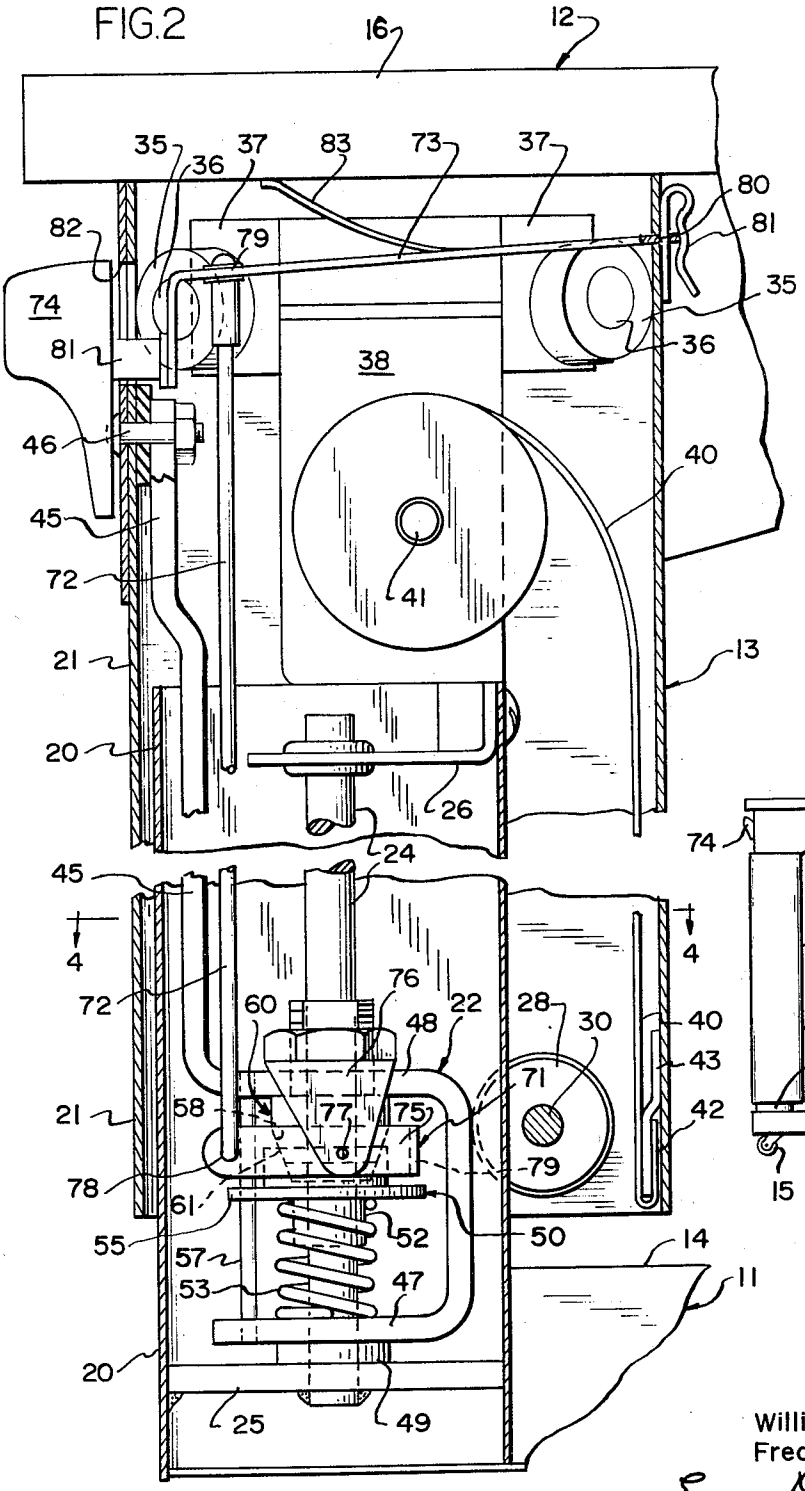
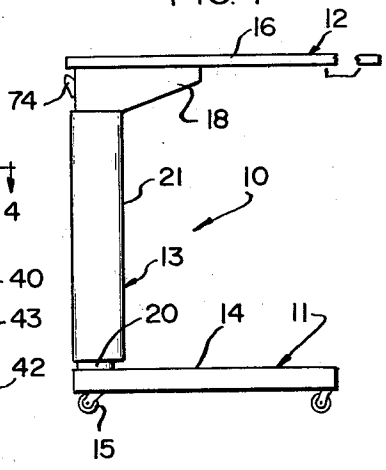


FIG. 1



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Dec. 2, 1969 W. F. LA MAR ET AL 3,481,286

OVERBED TABLE

Filed Nov. 24, 1967 2 Sheets-Sheet 2

FIG.4

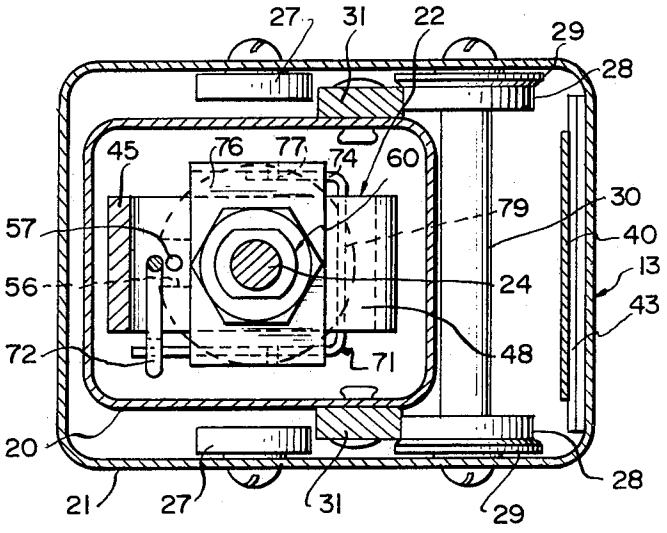


FIG.6

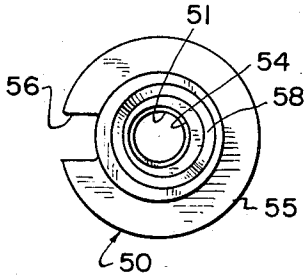


FIG.3

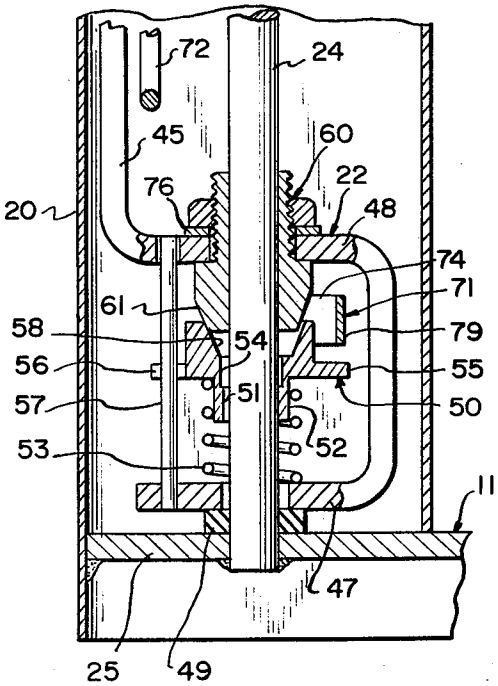
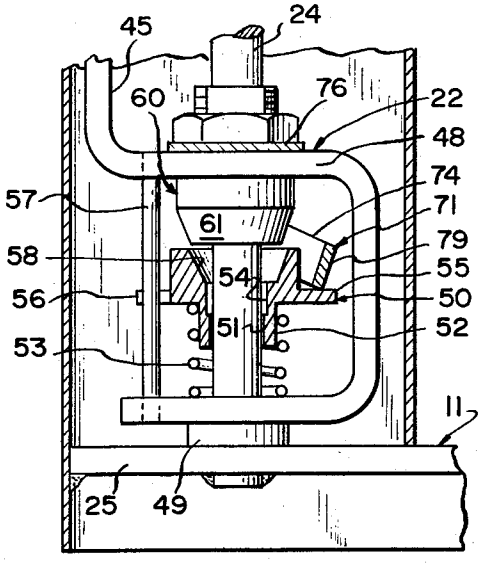


FIG.5



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United States Patent Office 3,481,286 Patented Dec. 2, 1969

3,481,286

OVERBED TABLE

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Filed Nov. 24, 1967, Ser. No. 685,537
Int. Cl. A47b 9/00, 9/02
U.S. Cl. 108—144 3 Claims

ABSTRACT OF THE DISCLOSURE

An overbed table is disclosed herein which has the top thereof spring biased upwardly and which may be adjustably positioned by the simple actuation of a single lever adjacent the top of the table and which is held in the adjusted position by a brake.

SUMMARY OF THE INVENTION

This invention relates to an improved overbed table which is vertically adjustable and is provided with a novel and improved brake which is actuatable by the same lever utilized in raising and lowering the surface of the table. The brake provides a fail-safe means for locking the table in any vertical position, and can be easily released to allow vertical readjustment movement of the table, and yet will allow the surface of the table to support tremendous loads to a much greater extent than heretofore possible with any known type of overbed table brake locking positioning mechanism.

Other advantages and novel aspects of the invention will become apparent upon the following detailed description, in conjunction with the accompanying drawings wherein:

FIG. 1 is an elevation view of the improved overbed table showing the general construction thereof;

FIG. 2 is a partial sectional view of the upper portion of the improved overbed table;

FIG. 3 is a partial sectional view of the bottom portion of the improved overbed table;

FIG. 4 is a sectional view taken along line 4—4 of FIG. 2 showing the telescoping bottom and top portions of the improved overbed table;

FIG. 5 is a partial view of the brake mechanism of the improved overbed table; and

FIG. 6 is a plan view of the brake element of the adjustable brake mechanism.

Referring to the drawings, there is illustrated an improved overbed table structure (FIG. 1) which embodies invention and which is generally designated by the numeral **10**. The overbed table generally includes a base **11**, a top **12**, and an interconnecting column portion generally designated by the numeral **13**. The base **11** includes, among other things, a horizontal member **14** supported by fixed or movable casters **15**. The top **12** includes, among other things, a horizontal surface **16** and a column supporting bracket **18**. The column **13** includes generally two telescoping members and an adjustable brake release **20**, **21** and **22** respectively.

The column **13**, in particular, includes a tubular base extension generally designated by the numeral **20**, which is rigidly secured to the horizontal member **14** (FIGS. 1 and 3), and which extends vertically upward therefrom. The column **13** also includes a tubular top extension **21** secured to the bracket **18** and extending vertically downwardly in spaced-telescopic relation over the tubular base extension **20**. Further, the column **13** includes an adjustment make carriage assembly generally designated by the numeral **22** mainly contained within the tubular base **20** (FIGS. 1–5).

The tubular base extension **20** is provided with a shaft

24 secured to a plate **25** of the base **11** (FIGS. 2, 3 and 5) and a top bracket **26** (FIG. 2) secured to the top thereof which holds the top of the shaft **24** in the position generally in the center of the base extension **20** (FIG 4). Rollers **27** are rotatably secured near the bottom of the top tubular extension **21**. Similarly, a pair of rollers **28**, having a thrust flange **29**, are rotatably mounted on bearings **30** respectively secured to opposite sides of the lower portion of the extension generally adjacent the rollers **28** (FIGS. 2 and 4). A vertical rail **31** is provided on the outer surfaces of the lower tubular extension **20** between each of the rollers **27** and **28**, which is adapted to laterally support the bottom portion of the top tubular extension **21** on the rollers **27** and **28** (FIG. 4). The thrust flanges **29** of the rollers **28** act to laterally support the top tubular extension **20** in the other direction.

The top of the top extension **21** is laterally supported on rollers **35** which are rotatably mounted on bearings **36**. The bearings **36** are secured to angle brackets **37** which in turn are secured to the tubular base extension **20**. The brackets **37** position the rollers **35** such that the rollers will respectively engage the inner corners of the top tubular extension **21** as shown (FIG. 2).

A negator spring **40** is rotatably supported on a shaft **41** (FIG. 2), which is secured at the ends thereof between the bottom tubular members extensions **38**. The negator spring **40** is extended from the top portion of the top tubular member **21** downwardly along the right side (FIGS. 2 and 4) of the tubular top extension **21**, and the bottom thereof is provided with an upwardly extending portion **42** which is retained by a bracket **43** secured to the bottom of the upper tubular extension **21** (FIG. 3). The negator spring **40** thereby extends from the top of the bottom tubular member **20** and the spring bracket **43** of the bottom of the top tubular extension **21**, so as to urge the extension **21** upwardly against the force of gravity on the table top **12**.

The brake adjustment assembly **22** is provided with a brake carriage **45**, which is secured to the upper portion of the top extension **21** by a bolt or similar means **46**, and extends downwardly into the bottom extension **20** (FIGS. 2, 3, and 5,) and terminates in lower and upper brake supporting platforms **47** and **48** generally perpendicular to and surrounding the shaft **24** (FIGS. 2, 3 and 5). When the table top is moved relative to the base, the brake adjustment assembly **22** will move therewith and thus the platform will move relative to the shaft **24** secured to the base **14**. A resilient cushion **49** is provided around the shaft **24** on the member **25** to resiliently support the platform **47** when the table top is lowered to its lowermost position (FIG. 3).

A brake element **50** (FIGS. 2 and 3–6) is provided with a brake surface passage **51** therein through a downwardly extending brake portion **52** thereof and is mounted on the shaft **24** with the shaft **24** positioned in the aperture **51**. The brake element is supported on a spring **53** which is partially positioned around the downwardly extending brake portion **52** and on the platform **47** so as to bias the brake element **50** upwardly. The brake element **50** is further provided with a clearance passage **54** concentric with the brake passage **51**, and is further provided with a radially extending flange **55** having a relieved portion **56** adapted to slidably receive a pin **57** secured between the bottom and top platforms **47** and **48** parallel to the shaft **24** to guide the brake element **50**. A frustoconical surface **58** is provided in the upper portion of the brake element **50** and is eccentric with respect to the shaft **24** and the brake surface **51** of the brake element **50** with the axis thereof displaced away from the axis of the shaft **24** and the relieved portion **56**.

A tapered lock bearing **60** is slidably mounted on the shaft **24** and is rigidly secured to the upper platform **48**.

The bearing **60** is provided with a downwardly extending frusto-conical surface **61**, and is complemental in shape with respect to the frusto-conical surface **58** of the brake element **50**, and is adapted to substantially engage the frusto-conical surface **58** of the brake element **50** as the brake element is normally urged into engagement therewith. Inasmuch as the frusto-conical surface **58** of the brake element **50** is eccentric with respect to the frusto-conical surface **61** of the bearing **60**, the brake element **50** will tend to rotate counterclockwise (FIGS. 3 and 5) when it engages the frusto-conical bearing surface **61** thereby causing the brake surface **51** of the brake element **50** to bind against the surface of the shaft **24** to prevent down movement of the bearing **60**.

However, when the platform **48** is urged upwardly with the carriage **45** by similarly urging the table top **12** upwardly, the bearing **60** will be moved with respect to the brake element **50** thus releasing the binding-braking relationship therebetween as exerted through the element **50** against the shaft **24**. Accordingly, the overbed table **10** of this invention can be adjusted upwardly by merely applying an upward force against the table top **12**, but will be prevented from downward movement by the braking action of a braking element **50** with respect to the shaft **24**.

The brake release mechanism **23** is provided for selectively releasing the brake element **50** from braking engagement with the shaft **24** and includes generally a brake release arm pivot link **71** (FIGS. 2–5), vertical link **72**, horizontal link **73** (FIG. 2) and release knob **74**. The release arm **71** is U-shaped with a short leg **74** and a long leg **75** each pivotally connected to a downwardly extending U-shaped yoke **76** at **77** at the lower ends thereof.

The extremity of the long leg **75** of the release arm **71** is pivotally connected to the bottom of the vertical link **72** at **78** and a portion **79** interconnecting the legs **74** and **75** is positioned over the offset portion **55** on the right (FIGS. 2, 3, 4 and 5) of the brake element **50**. The top of the link **72** is loosely secured to the horizontal link **73** at **79**. The horizontal link **73** is provided with an elongated lateral aperture **80** which is adapted to receive a pin **81** at the right side of the top tubular extension **21** (FIG. 2).

Thus, the right end of the horizontal link **73** is pivotally secured to the right side of the member **21**. The left side of the horizontal link **73** is secured to the knob **74** through a spacer **81** that extends through an opening **82** of the left side of the upper tubular extension **21**. The link **73**, and the knob **74** are urged downwardly by the action of a spring **83** secured to the link **73** and in biased engagement with the bottom of the table top **12**.

It should be noted that the knob **74** may be moved from the position shown (FIG. 2) to an upper position to cause the vertical link **72** to be likewise moved upwardly. When the link **72** is thus moved upwardly, the pivot link **71** will pivot clockwise about pivot **77** causing the interconnecting portion **79** thereof to engage the brake element flange **55** to pivot the brake element **50** counterclockwise, releasing the brake **50** from braking engagement with the shaft **24**. By moving the knob **74** upwardly, the brake element **50** is released and the table top **12** can be lowered by applying a downward force thereon or by allowing the force of gravity to act thereon while the knob is retained in the up position.

The present invention thus provides an improved overbed table **10** whereby the top **12** thereof is adjustable vertically upward by simply applying an upward force to the table top itself, and is provided with a novel frusto-conical camming brake which applies an extremely large actuating force to a braking element which in turn provides a much larger braking force than was heretofore possible with known types of overbed table brakes and yet allow easy release thereof, as well as allow upward movement of the table top by the application of a simple upward force thereon.

It is to be understood that the invention is not to be limited to the specific constructions and arrangements shown and described, as it will be understood to those skilled in the art that changes may be made without departing the principles of the invention.

What is claimed is:

1. An improved vertically adjustable overbed table comprising a base having a vertical tubular extension, a top having a vertical tubular extension telescopically movably mounted over said tubular base extension, means for urging said top upwardly to partially support the weight of said top, a vertical shaft secured to said base and extending upwardly within the base extension and said top extension, a brake carriage secured to said top and extending downwardly into said tubular base extension, said brake carriage terminating in lower and upper brake supporting platforms spaced longitudinally apart on said shaft and adjacent thereto, a lock bearing secured to said upper platform and slidably mounted on said shaft, said lock bearing having a frusto-conical portion extending concentrically along said shaft toward said lower platform, a lock element loosely mounted on said shaft and normally biased into engagement with said lock bearing, said lock element having a frusto-conical surface extending eccentrically along said shaft and adapted to eccentrically engage a portion of said lock bearing frusto-conical surface for causing said lock member to be urged laterally to bind against said shaft to brake downward movement of said brake carriage with respect to said shaft, and brake release means for urging said lock member away from said lock bearing to release said downward braking thereof with respect to said shaft.

2. An improved vertically adjustable overbed table as defined in claim **1** wherein said lock bearing frusto-conical surface is external and said lock element frusto-conical surface is internal.

3. An improved vertically adjustable overbed table as defined in claim **2** wherein said brake release means includes a lever pivotally secured to said upper platform and wherein said lever is adapted to have one end thereof engage and urge said lock element downwardly away from said lock bearing when said lever is pivoted into engagement therewith, and manually operable linkage connected thereto and normally biased to pivot said lever away from engagement with said lock element for manually pivoting said lever into releasing engagement with said lock element.

References Cited

UNITED STATES PATENTS

811,217	1/1906	Corey.	
3,188,986	4/1962	La Vigne.	
3,191,902	1/1965	Goller.	
3,286,663	11/1966	Mann et al.	248—162 X
3,310,008	3/1967	Aleska et al.	
3,314,384	4/1967	Mann et al.	108—136
3,380,405	4/1968	Barecki et al.	108—136

FOREIGN PATENTS

1,086,361	10/1954	France.

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U.S. Cl. X.R.

108—136; 188—67, 82.3; 248—412