

[54] **RETRACTING BED MECHANISM**

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**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 29,899, April 20, 1970, abandoned.

[52] U.S. Cl. .... **5/147**

[51] Int. Cl. .... **A47c 19/06**

[58] Field of Search..... **5/133, 136, 146, 147, 322**

[56] **References Cited**

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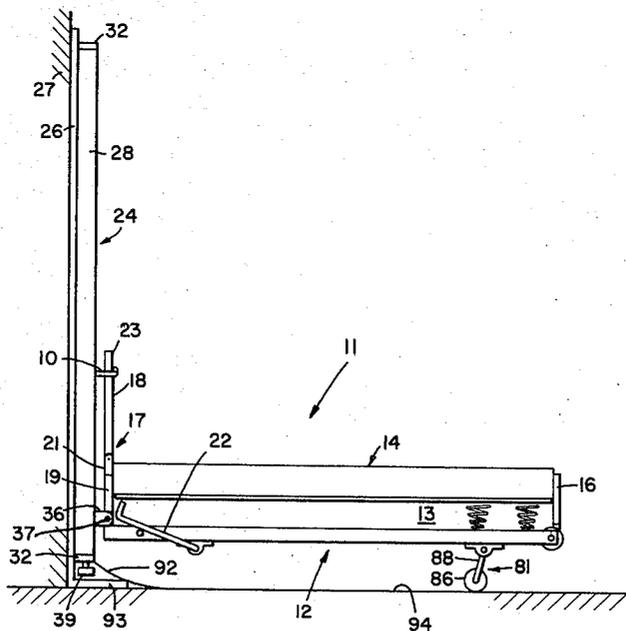
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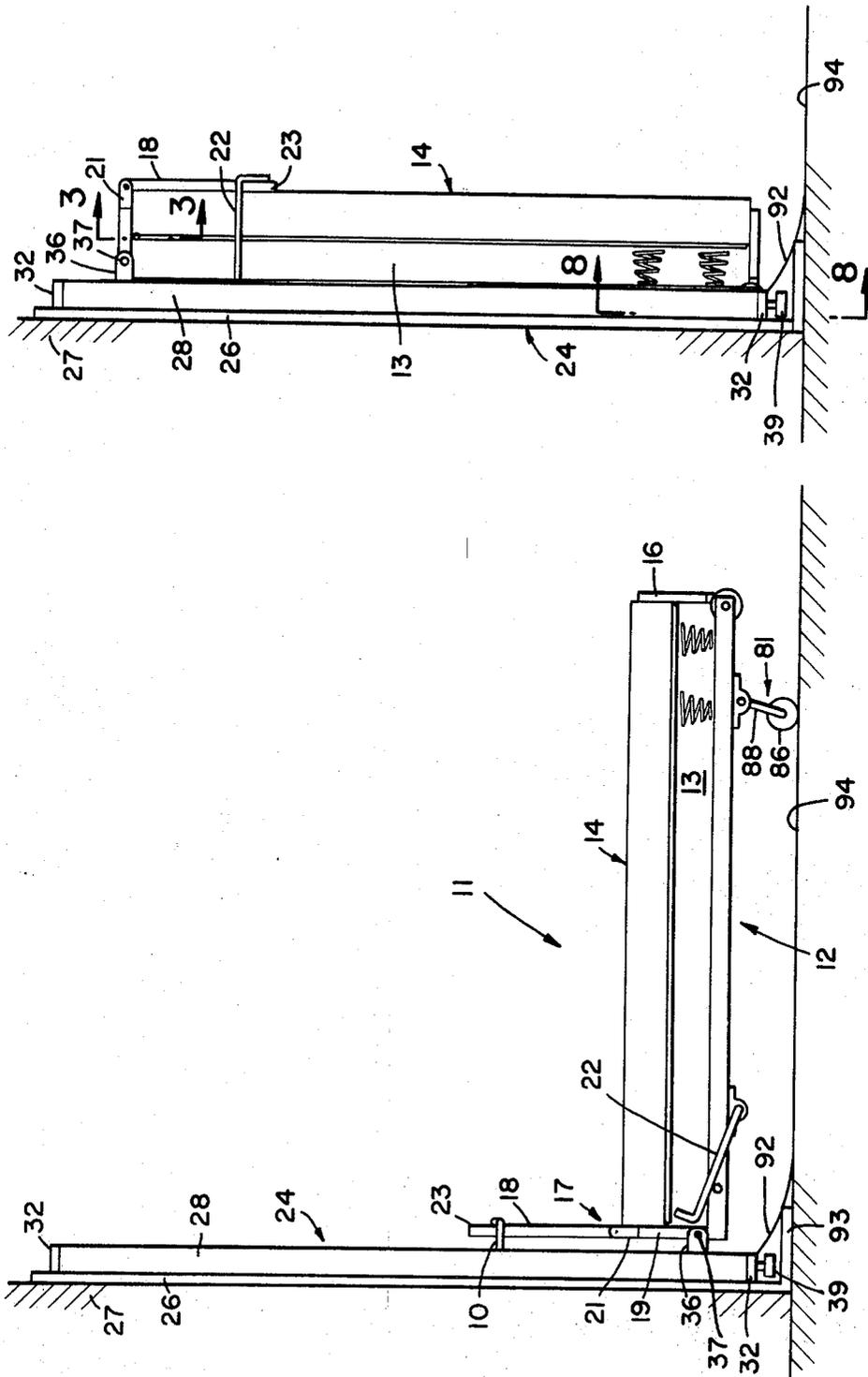
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[57] **ABSTRACT**

Mechanism for shifting a bed between horizontal and upright positions includes a pair of spaced apart vertical lift means coupled to opposite sides of an adjacent end of the bed and means for fastening the mattress to the headboard. Operation of the lift means draws the bed to a fully vertical position with the bed being between the lift means and being flat against a wall. Support structure for the remote end of the bed includes rollers on pivoting legs which swing into alignment with the bed as the vertical position is approached and which swing outward as the bed is lowered. Continued lowering of the bed causes the legs to pivot past a perpendicular position whereby the legs are inclined when the bed is fully lowered and contact a stop to securely support the remote end without requiring any manual manipulations thereat.

**7 Claims, 16 Drawing Figures**





FIG\_2

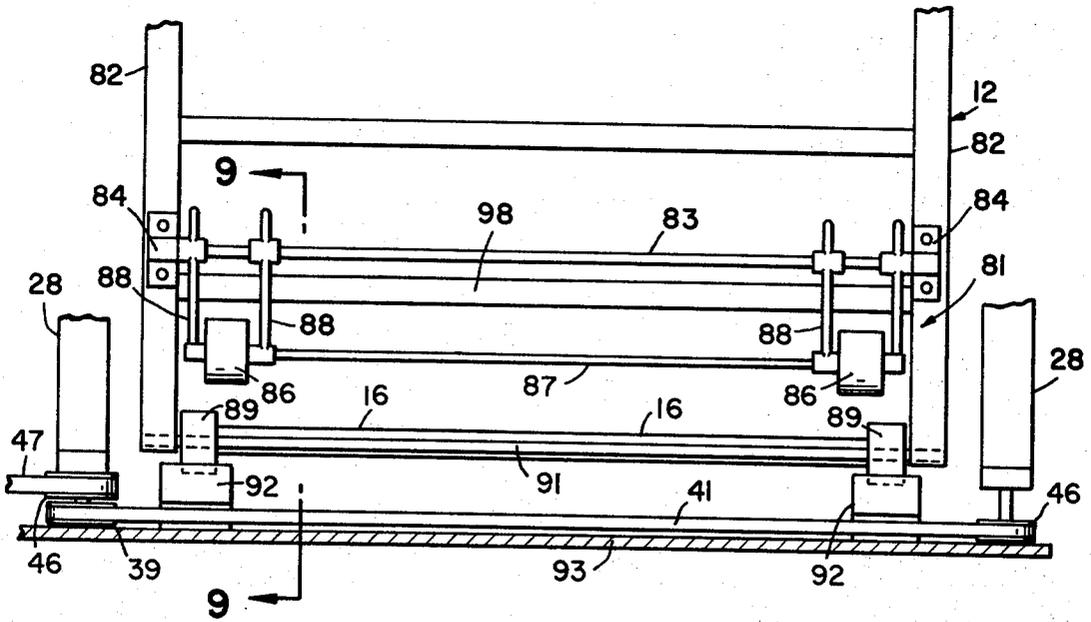
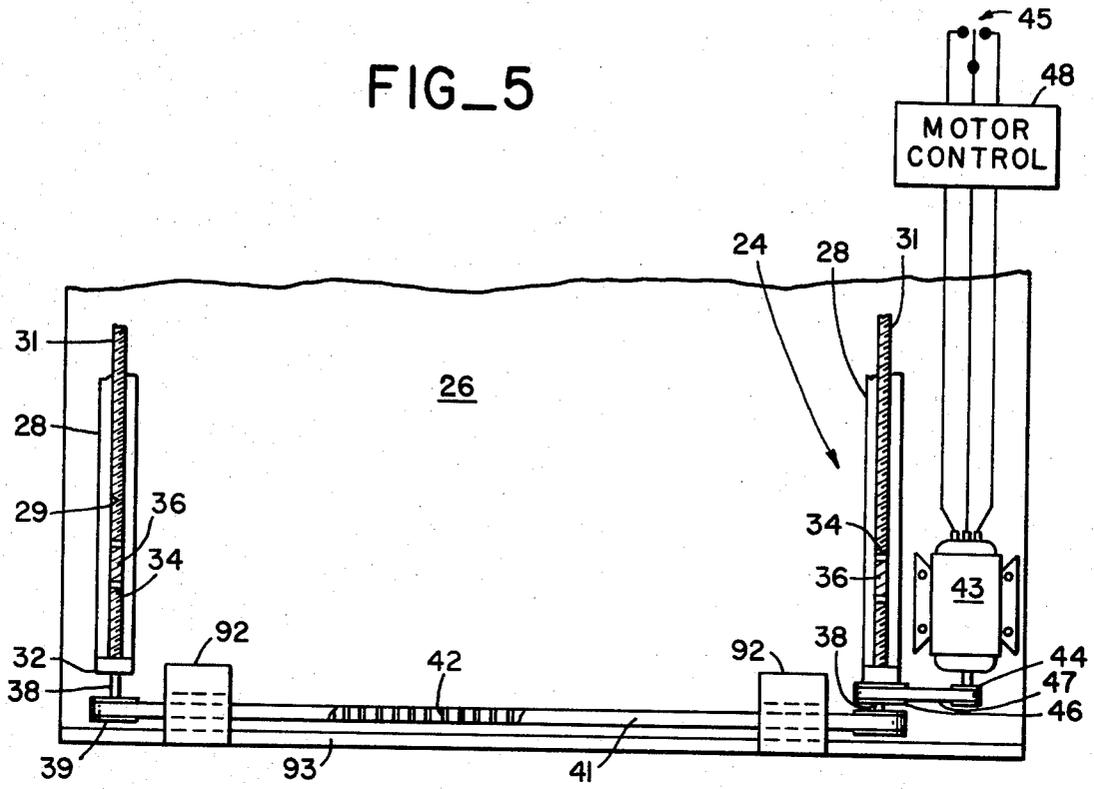
FIG\_1

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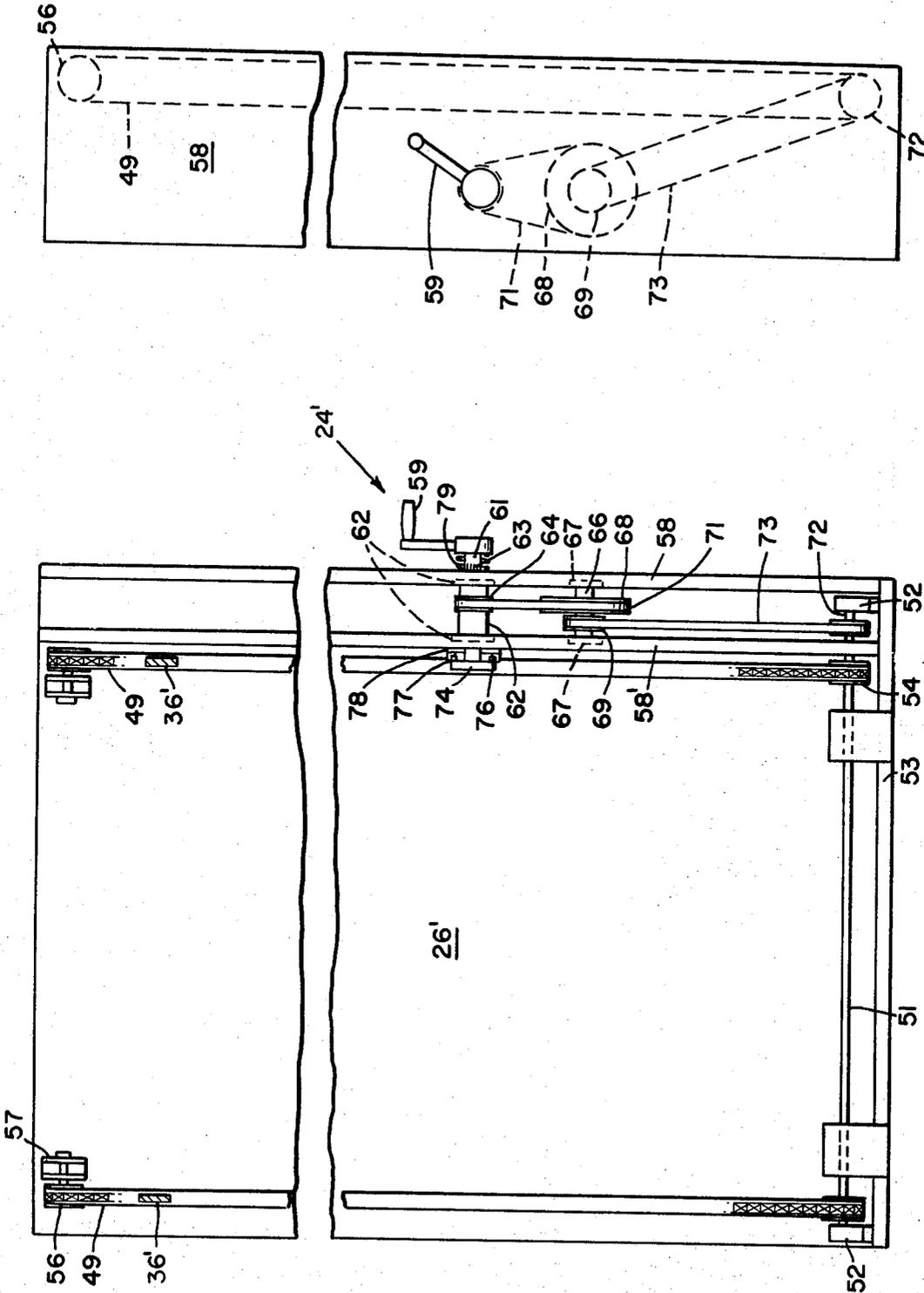


FIG\_5



FIG\_8

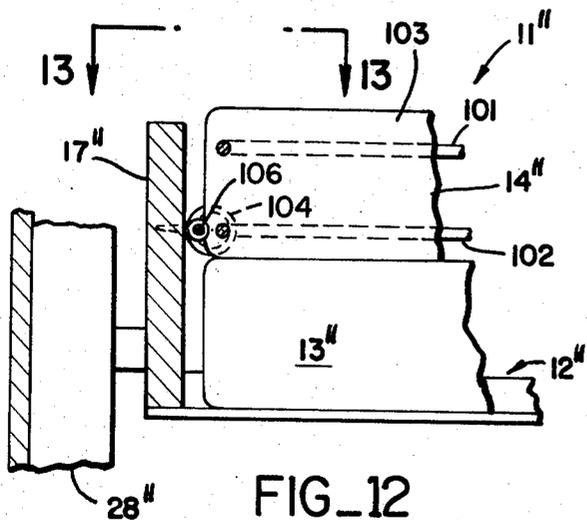
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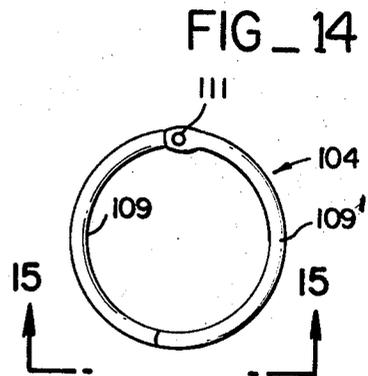
FIG\_7

FIG\_6

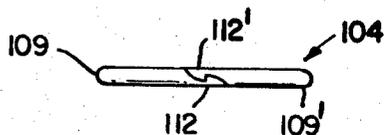
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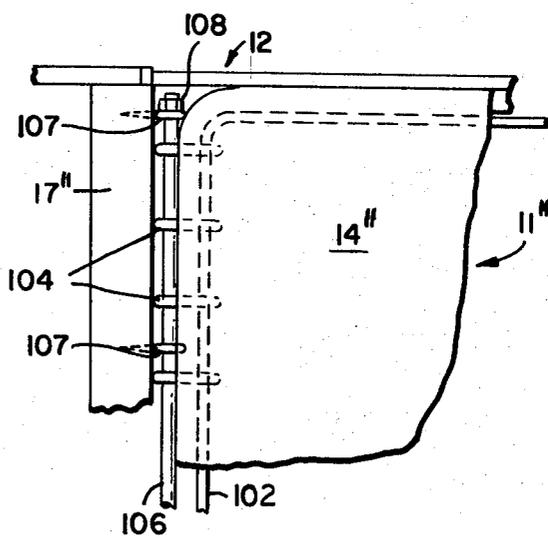
FIG\_12



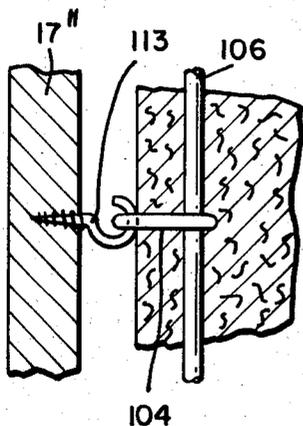
FIG\_14



FIG\_15



FIG\_13



FIG\_16

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**RETRACTING BED MECHANISM****CROSS REFERENCE TO RELATED APPLICATION**

This application is a continuation-in-part of co-pending application Ser. No. 29,899 of Stephen G. Moore filed Apr. 20, 1970 and now abandoned and also entitled **RETRACTING BED MECHANISM**.

**BACKGROUND OF THE INVENTION**

This invention relates to beds and more particularly to mechanism providing for movement of a bed between horizontal and vertical positions.

In small houses, apartments, mobile homes and other dwellings where only limited space may be available, it is advantageous to use beds which may be retracted against a wall when not in use. While a variety of retracting bed configurations have been designed for this purpose, these have in general been bulky, complex and difficult to raise and lower and thus have not been as widely accepted as would otherwise be the case.

U.S. Pat. No. 3,517,397 issued June 30, 1970 to Stephen G. Moore and entitled "Powered Retracting Bed Construction" discloses a motorized retracting bed which avoids these problems by utilizing a simple and economical motor driven mechanism which enables a bed to be shifted between an inclined and a horizontal position by simply operating a switch. Rather than pivoting the remote end of the bed upwardly towards the wall as has heretofore been customary, the mechanism of the co-pending application lifts the adjacent end of the bed thereby drawing the remote end toward the base of the wall.

Most users prefer that the upper surface of a bed be a substantial distance above the floor, heights of 18 to 25 inches being typical. In a retracting bed of the particular construction described above, this generally requires that the foot end of the bed be supported on legs and rollers which are of several inches extent. If such a leg is rigidly fastened to the base of the foot end of a bed which retracts in the particular manner described above, then the bed cannot be drawn extremely close to a wall when in the raised position. The fixed legs hold the foot end of the bed outward from the wall. Further, the presence of lift mechanism between the bed and the wall prevents movement of the bed into very close proximity thereto. This requires floor space which might otherwise be available for other purposes, and is undesirable for aesthetic reasons, when the bed is retracted.

While certain prior retracting beds have used pivotable legs at the foot of the bed, the constructions employed have introduced other undesirable complications. In particular, complex control linkages have been required or it has been necessary to pivot the leg manually and, in addition, to manually operate some form of latch to lock the leg in its extended position. This conflicts with the desirable objective of producing a simple, compact and economical means for shifting of a bed between the raised and lowered positions with a minimum of manual effort.

A bed which is retractable in the manner described above usually requires some means for holding the mattress in place in the upright position. The means heretofore used for this purpose tend to add considerable complexity to the bed construction or require manual

latching of elements in connection with operation of the bed. Such means may be compatible only with mattresses of a particular size and as a practical result it may not always be possible to adapt a standardized retracting mechanism to a purchaser's existing mattress.

**SUMMARY OF THE INVENTION**

This invention is a bed supporting and retracting mechanism, of the form wherein the adjacent end of the bed is raised to draw the remote end towards a wall or the like, which can be retracted to a fully vertical position with the bed in close proximity to the wall. This action is realized in a construction which may have support legs of sizeable extent to maintain the sleeping surface at a desirable height. This is provided for by utilizing parallel upright lift means which are spaced apart sufficiently that the raised bed may be received therebetween and by providing pivoting legs in an arrangement wherein the necessary leg movement and securing of the legs occurs automatically, in response to raising and lowering of the bed, and requires no manual manipulations to position and latch the legs.

In a preferred form, the invention further provides a more convenient and adaptable means for securing the mattress of a bed which undergoes the form of motion described above, such means being compatible with beds of any dimensions without complications.

Accordingly, it is an object of this invention to provide for retracting a bed between a horizontal position and a fully vertical position, which may be in close proximity to a wall or the like, to achieve a very compact disposition of the bed in the retracted position and without necessitating manual manipulation of folding legs or the like. It is a further object to provide simplified mattress securing means which is adaptable to different mattress configurations.

The invention together with further objects and advantages thereof will best be understood by reference to the following description of a preferred embodiment taken in conjunction with the accompanying drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

In the accompanying drawings:

FIG. 1 is a side elevation view of a retracting bed in accordance with the invention wherein the bed is shown in the lowered position;

FIG. 2 is a side elevation view of the bed of FIG. 1 in the elevated or retracted position;

FIG. 3 is a section view taken along line III-III of FIG. 2 showing means for retaining the mattress of the bed in position when the bed is in the elevated state;

FIG. 4 is a fragmentary section view taken along line IV-IV of FIG. 3,

FIG. 5 is an elevation view of a portion of the structure of FIG. 1 with the bed removed to illustrate motor driven mechanism for raising and lowering the bed;

FIG. 6 is an elevation view corresponding generally to FIG. 5 and illustrating an alternate manually operated lift mechanism for raising and lowering the bed;

FIG. 7 is a side elevation view of the lift mechanism of FIG. 6;

FIG. 8 is an elevation section view taken along line VIII—VIII of FIG. 2 illustrating self-operating leg mechanism for supporting the foot end of the bed;

FIG. 9 is an elevation section view taken along line IX—IX of FIG. 8 further illustrating the leg structure for supporting the foot of the bed;

FIG. 10 is a section view at the same plane as FIG. 9 showing the foot end of the bed in the course of lowering from the raised to the horizontal position,

FIG. 11 is a section view at the same plane as FIGS. 9 and 10 and showing the foot end of the bed when the bed reaches the fully lowered position,

FIG. 12 is an elevation section view of a portion of a bed having modified means for securing the mattress to the bed support and retraction mechanism,

FIG. 13 is a plan view of the bed portion shown in FIG. 12,

FIG. 14 is an enlarged view of a ring retainer employed in the mattress securing means of FIGS. 12 and 13,

FIG. 15 is an additional view of the ring retainer of FIG. 14 taken along line 15—15 thereof, and

FIG. 16 illustrates a modification of the mattress securing means of FIGS. 12 to 15.

#### DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to the drawing and more particularly to FIGS. 1 and 2 thereof, a bed 11 has a rigid rectangular frame 12 supporting a box spring assembly 13 and mattress 14 of essentially conventional construction. To aid in retaining spring assembly 13 and mattress 14 in place, a base board 16 extends upward from frame 12 at the foot end of bed 11 and a head board 17 is provided at the head end. Head board 17 includes upper and lower members, 18 and 19 respectively, joined by hinges 21. This articulated construction of head board 17 assists in retaining the spring assembly 13 and mattress 14 in place when the bed is raised from the horizontal position shown in FIG. 1 to the vertical position of FIG. 2 as the upper head board member 18 may be folded flat against the head end of the mattress. Clamping arms 22 pivoted to each side of frame 12 may be swung to overlap extensions 23 at each side of the upper head board member 18 as shown in FIG. 2, to hold the head board in the folded condition. In the lower position of bed 11, spring clips 10 engage the extensions 23 to aid in holding the head board upright.

To further assure that the mattress 14 is retained in place in the vertical position, the head end of the mattress may be fastened to the head board 17 as shown in FIGS. 3 and 4. In particular, the mattress 14 may be encased in a conforming fabric sack 14' having an aligned pair of tubular fabric loops 15 situated along the lower edge adjacent the head board lower member 19. One of a pair of aligned rods 20 extends through each such loop 15 and through apertured eye bolts 25 which are secured to the head board member 19 and situated one at each end of each of the loops. Nuts 30 are threaded onto each end of each rod 20 to secure the rod in position. The loops 15 may be attached directly to the mattress 14 if desired but the above described construction has the advantage of providing a mattress cover as well as support.

Considering now the mechanism for supporting and retracting the bed 11, with reference to FIGS. 1 and 5

in conjunction, vertical lift means 24 are disposed adjacent the head end of the bed 11. Lift means 24 are preferably secured to a rectangular back board 26 which may be secured to a room wall 27 by any suitable means, although the mechanism may be fastened directly to the wall if desired. The particular lift means 24 depicted in FIG. 5 is comprised of a pair of spaced apart parallel vertical guide tracks 28 secured to back board 26, each being hollow and having a linear slot 29 along the surface which faces the bed. Guide tracks 28 are spaced apart a distance slightly greater than the width of bed 11 whereby the bed may be drawn against the back board between the track as will hereinafter be described in more detail.

A rotatable threaded lead screw 31 extends within each guide track 28 and is journaled for rotation therein by bearings 32 at the upper and lower ends of the associated track. Within each track 28 a threaded sleeve 34 is engaged on each lead screw 31 and an arm 36 extends from the sleeve through slot 29. Referring now again to FIG. 1, each such arm 36 extends adjacent a side of lower head board member 19 and an axle pin 37 extends laterally from the head board through the arm to provide a pivotable coupling therebetween. Thus, if the arms 36 are raised along tracks 28, the head end of bed 11 is lifted directly upward and pivots about axle pins 37 in the course of such movement causing the foot end of the bed to be drawn toward the base of the guide tracks.

Referring now again to FIG. 5, upward and downward motion of the arms 36 is effected by rotating the two lead screws 31 in synchronism as the threaded sleeves 34 are thereby caused to ride upward or downward according to the direction of lead screw rotation. This embodiment of the invention provides motorized means for rotating the lead screws so that no appreciable manual effort is required in conjunction with raising and lowering of the bed. For this purpose, each lead screw 31 has a bottom end portion 38 which extends downwardly a small distance below the lowermost bearing 32 and a drive pulley 39 is disposed coaxially thereon. The two drive pulleys 39 are coupled by an endless belt 41 and the pulleys and belt are preferably of the variety having cleats 42 which provide positive assurance of synchronous lead screw rotation and thereby avoid binding. A reversible electric drive motor 43 is mounted on back board 26 adjacent one of the guide tracks 28 and has an output pulley 44. A drive belt 47 couples output pulley 44 to an additional pulley 46 on the adjacent lead screw extension 38. Motor 43 is provided with a manual control switch 45 and control circuit and power supply 48 which may be of the form disclosed in the hereinbefore identified U. S. Pat. No. 3,517,397 which includes limit switches for automatically deactivating the motor when the bed reaches the uppermost and lowermost positions. Thus, by operating motor 43 in one direction, the bed may be raised from the position illustrated in FIG. 1 to that indicated in FIG. 2 and the bed may be lowered by operating the motor in a reverse rotational sense.

Other lift means may be employed to accomplish a similar effect. FIGS. 6 and 7 illustrate a modified lift means 24' which is adapted for manual operation in instances where electric power may not be readily available such as in remote cabins, mobile homes or the like.

In this instance, the back board 26' supports a pair of spaced apart vertically directed endless chains 49 each having one of the bed supporting arms 36' attached thereto for forming the pivotable connection to the head end of the bed in the manner previously described.

To support the chains 49 a drive shaft 51 is journaled in bearings 52 at opposite lower corners of back board 26' which are secured to floor board 53, the drive shaft being horizontal and spaced outwardly from back board 26' a small distance. Spaced apart drive sprockets 54 are mounted on drive shaft 51 and each has the lower end of one of the chains 49 engaged thereon. The upper ends of chains 49 engage idler sprockets 56 rotatably mounted near the top of back board 26' by brackets 57 so that the two chains are parallel and extend vertically and are spaced apart a distance slightly greater than the width of the bed. Accordingly, rotation of drive shaft 51 in one direction will raise the bed as hereinbefore described while rotation of the drive shaft in the opposite direction lowers the bed. While the chain lifts may be driven by motor means, there are instances where manual operation is necessary.

To support means for manually operating the drive shaft 51, a pair of spaced apart vertical panels 58 and 58' are secured to back board 26' and floor board 53 adjacent one of the chains 49. A hand crank 59 is secured to a shaft 61 which transpierces both panels 58 and 58' preferably through bearing plates 62 embedded therein, the shaft being rotatable and also being movable in the axial direction. A sleeve 62 is disposed coaxially on shaft 61 between panels 58 and 58' and is coupled thereto by splines 63 whereby rotation of the crank shaft turns the sleeve but the shaft may be shifted in the axial direction without affecting the sleeve. A drive pulley 64 is secured coaxially to sleeve 62. Below shaft 61 an additional shaft 66 extends between panels 58 and 58', the additional shaft being journaled thereto in bearing plates 67 and having a pair of axial spaced pulleys 68 and 69. Pulley 68 is of greater diameter than pulley 64 of sleeve 62, to provide for a drive reduction in the manually operated system, and is coupled thereto by an endless belt 71 whereby turning of crank 59 turns pulley 68 and thus shaft 66 and pulley 69. Pulley 69 is in turn coupled to an additional pulley 72 on drive shaft 51 by means of an additional belt 73 to transmit the rotary motion of the crank 59 to the drive shaft and thereby raise or lower the bed.

Unlike the previously described lift means, wherein friction and inertia in the motor drive system is sufficient to immobilize the bed when the drive means is inactive, the chain lift system of FIGS. 4 and 5 may require a latching means to hold the bed in position when the crank 59 is released. This is provided for in this example of the invention by a flange 74 on the end of crank shaft 61 which projects through the innermost panel 58', the flange having axially extending teeth 76 which engage with teeth 77 on an annular plate 78 fixed to panel 58' in coaxial relationship to flange 74. Such engagement occurs automatically as the crank shaft 61 is urged toward the latching position by a spring 79 disposed coaxially on the crank shaft between crank 59 and the outer surface of outer panel 58. The teeth 76 and 71 are disengaged by pushing in on crank

59. The crank 59 may then be turned to raise and lower the bed and upon being released shaft 61 returns automatically to the latched position at which the bed is immobilized.

Referring now again to FIGS. 1 and 2 in conjunction a retracting leg assembly 81 supports the foot end of bed 11 in the lowered position and is self operated in response to movement of the bed. Leg assembly 81 folds back against frame 12 as the bed is elevated thereby enabling the bed to be raised to a fully vertical position in close proximity to wall 27. Leg assembly 81 has the further property of returning to a bed supporting position as the bed is lowered and is effectively self-locking in that no manual manipulations at the foot of the bed are needed to latch the mechanism in the extended position.

Referring now to FIGS. 8 and 9 in conjunction the leg assembly 81 is attached to the two longitudinal side members 82 of the bed frame 12 through a rod 83 which extends transversely to the frame and is journaled to side members 82 by suitable bearing brackets 84 whereby the rod is capable of angular motion relative to the bed. Rod 83 is spaced a small distance from the end of the bed for purposes to be hereinafter made apparent.

A pair of bed support rollers 86 are rotatably mounted on an axle shaft 87 which extends parallel to rod 83 in spaced relationship therefrom, the rollers being at opposite ends of the rod and each being in proximity to the inner edge of one of the frame side members 82. Rod 87 is fastened to rod 83 by four legs 88, one of the legs 88 being situated at each side of each of the support rollers 86.

A pair of base rollers 89 are mounted on an axle shaft 91 extending parallel to the bottom edge of base board 16 in close proximity thereto. One of the rollers 89 is disposed at each end of axle 91, adjacent the inner edge of one of the frame side members 82, and each such roller extends slightly below the bed frame 12 and slightly beyond the base board 16. Rollers 89 support the foot end of the bed as the vertical position is approached by riding on floor 94 and then up a curved surface 91 of one of a pair of ramps 92 disposed on base board 93 adjacent back board 26. Surfaces 91 of ramps 92 become progressively steeper as the rollers 89 approach back board 26 whereby the portion of the ramp surface which the roller 89 contacts when the bed is in the fully vertical position is most steeply inclined.

The interaction of rollers 89 and ramps 92 and rollers 86 and pivoting legs 88 in the course of bed movement is illustrated in FIGS. 9, 10 and 11 which show various stages in the course of lowering the bed from a fully vertical retracted position. As shown in FIG. 9 in particular, when the bed 11 is fully retracted leg assembly 81 is in a substantially vertical position folded back against bed frame 12 and may in fact be directed slightly into the frame inasmuch as the associated rollers 86 abut back board 26. Base rollers 89 at this position abut the steeply inclined upper portion of ramp surfaces 91. When the motor is operated to lower the bed as previously described, ramps 92 direct rollers 89 and the foot end of the bed outward as the bed begins to descend. As the downward motion continues, rollers 89 leave the ramps 92 and ride along the surface of the adjacent floor 94. During this initial portion of the

lowering movement, as illustrated in FIG. 10, legs 88 are maintained in a substantially vertical position by gravity and thus in effect are pivoting relative to the bed frame 12 inasmuch as the inclination of the bed frame is being progressively reduced. At a certain point in this travel, rollers 86 contact floor surface 94 and thereafter the foot end of the bed is supported through legs 88 while the base rollers 89 lift away from the floor surface. At the moment of contact of rollers 86 with floor 94 the forces on the top end of legs 88 through bed frame 12 are urging the top end of legs 88 outward from back board 26 while frictional forces at the roller 86 tend to urge the bottom end of the legs in an opposite direction. Accordingly, the legs 88 are rapidly urged over center to assume an inclined position illustrated in FIG. 11 wherein the upper ends of the legs are further from the back board than the lower ends of the legs. Stop means 96 are provided to limit this over center motion of the legs 88 when the legs reach a predetermined degree of inclination typically at about 70°.

Such stop means 96 may comprise an angled extension 97 on each leg 88 extending upward therefrom above the pivot axle 83 and having a stud 95 threaded in the end thereof for abutment against a stop when the legs 88 reach the above described inclination. In this example of the invention, a suitable stop is already present on bed frame 12 in that the legs 88 are positioned where studs 95 will contact a cross member 98 of frame 12 when the legs reach the desired inclination. Small adjustments in this final inclination of the legs 88 and adjustments to assure that all four of the studs 95 contact the cross member 98 simultaneously may be made by rotating the studs in view of the threaded engagement of the studs with the leg extensions 97.

Thus as shown in FIG. 11 in particular, the abutment of studs 95 against frame cross member 98 stops pivoting motion of legs 88 with the legs inclined relative to the bed frame whereby the weight of the bed maintains the leg assembly 81 in position to produce a self-locking action and to securely support the foot end of the bed in use.

When the bed is raised, a reverse sequence of action occurs. During the initial portion of the retracting movement the foot of the bed 11 rides along floor 94 on rollers 86 with the frame 12 becoming progressively more inclined until base rollers 89 contact the floor 94. Following this contact, as shown in FIG. 10, rollers 86 lift from the floor and legs 88 resume a substantially vertical position under the influence of gravity. As shown in FIG. 9, rollers 89 eventually ride up the surfaces 91 of ramps 92 while legs 88 reach and slightly exceed a vertical position. The bed is retracted and in position for a subsequent cycle of operation.

As best illustrated in FIG. 2, the above described bed support and retracting mechanism accomplished a substantial saving of room space and provides a slimmer, more attractive appearance in the retracted position by enabling the bed 11 to be drawn to a fully vertical position in close proximity to a wall 27. This is accomplished with a relatively simple low cost mechanism which does not require any manual manipulation of legs and latches therefor as has heretofore been the case.

The above described embodiments of the invention utilize a mattress sack and folding head board for the purpose of securing the mattress in position when the bed is in the upright orientation. As the mattress sack and folding head board are proportioned to be compatible with mattresses of a particular configuration, any particular unit of the mechanism is normally designed for use with a specific form of mattress. While this is a satisfactory arrangement in many circumstances, particularly where the mattress is sold in conjunction with the other mechanism, there are also circumstances in which a more flexible mattress retaining system is desirable. Such a system may enable a purchaser to make use of his existing mattress. Further, it may be desirable to avoid any need for manipulating and clamping the head board in connection with raising and lowering the bed. FIGS. 12 and 13 in conjunction illustrate a modified mattress retaining means which meets these objectives.

The basic construction of the bed 11' may be similar to that hereinbefore described except as will now be pointed out and thus includes a box spring assembly 13' and mattress 14' carried on a frame 12', the head end of the bed being supported in guide tracks 28'. The head board 17' in this embodiment does not fold and extends upward only to the approximate level of the upper surface of mattress 14'.

Most mattresses 14' as presently manufactured include a pair of upper and lower rectangular frame members 101 and 102 respectively which are covered by the soft padding material 103 of the mattress. To secure the mattress 14' to head board 17', a series of retainer rings 104 may be employed. The rings 104 extend into the soft portions of the mattress to encircle one of the frame members, such as member 101, and also encircle a transverse rod 106 extending along the adjacent surface of head board 17' and secured thereto. Rod 106 may be attached to the head board 17' by being transpierced through a series of spaced eye bolts 107 which are threaded into the head board, nuts 108 being threaded unto the ends of the rod.

Referring now to FIGS. 14 and 15 in conjunction, there is shown a form of retainer ring 104 which is particularly advantageous in the present context in that it is formed of two semi-circular members 109 and 109' which are joined at one end by pivot means 111 and have pointed opposite ends 112 and 112' respectively which engage with a snap action when the two members are pivoted into circular configuration. Rings 104 of this particular type, which are available commercially, are easily pierced into the material of mattress 14' in that the rings may be opened at pivot 111 to facilitate entrance into the mattress. It will be apparent that various other forms of ring may be used for this purpose. The rings 104 may also be engaged when the head board 17' by means other than the rod 106. As shown in FIG. 16, for example, the rings 104 which encircle mattress spring member 106 may be engaged on a series of screw hooks 113 threaded into the head board 17'.

The mattress retaining constructions shown in FIGS. 12 to 16 do not require a mattress sack nor is it necessary that a folding head board be employed with the bed. A particular advantage is that the retaining means is adaptable to a variety of mattress configurations as

the placement of rod 106 or screw hooks 113 on head board 17" may be varied as necessary to accommodate to a particular mattress.

What is claimed is:

1. A retracting bed comprising:

a bed frame,  
upwardly extending lift means adjacent a first end of said frame,

pivotable means coupling said first end of said frame to said lift means whereby said first end may be raised therealong to draw the remote end of said frame along the underlying floor surface and towards the base of said lift means,

support means on said remote end of said frame for supporting said remote end as said frame approaches the raised position and as said frame is being lowered therefrom,

at least one leg means for contacting said floor surface while causing said support means to rise therefrom as said frame approaches the lowered position, said leg means having an upper end pivotably attached to said frame in proximity to said remote end thereof whereby the lower end of said leg means swings toward said frame as said frame is raised and swings outward therefrom as said frame is lowered, and

stop means limiting said outward swinging movement of said leg means after said lower end thereof has passed the position of maximum distance from said frame thereby causing the weight of said bed to hold said leg means in bed supporting position while the bed is at the fully lowered position.

2. The combination defined in claim 1 wherein said lift means comprises a pair of parallel vertical lift mechanisms each being pivotably coupled to a separate side of said first end of said bed frame, said pair of lift mechanism being spaced apart a distance exceeding the width of said frame whereby said frame may be received between said lift mechanisms in the raised position.

3. The combination defined in claim 2 wherein the pivot axis of said pivotable means coupling said first end of said frame to said lift means is above the base of said frame when said frame is in the lowered position whereby the base of said frame swings into the space between said lift means as said frame is elevated.

4. The combination defined in claim 1 wherein said

stop means comprises an extension of said leg means positioned to contact a surface which is fixed relative to said frame and to be held thereagainst by said weight of said bed in the lowered position.

5. The combination defined in claim 4 wherein said surface is a surface of a structural member of said frame.

6. The combination defined in claim 1 wherein at least two of said stop means are provided and at least one thereof is adjustable.

7. In a retracting bed, the combination comprising: a bed frame having a head end and a foot end, a pair of parallel vertical lift mechanisms disposed adjacent said head end of said frame, said lift mechanisms being spaced apart a distance greater than the width of said frame,

means forming a pivotable coupling between said head end of said bed and each of said lift mechanisms, the pivot axis of said coupling means being horizontal and parallel to said head end of said bed,

drive means for operating said lift mechanisms in synchronism to lift said frame to a fully vertical position wherein at least a portion of said frame is situated directly between said lift mechanism in parallel relation thereto,

a pair of legs for supporting said foot end of said bed at the lowered position thereof, said legs being disposed one at each side of said frame and having upper ends which are attached thereto for pivoting movement about an axis transverse to said frame whereby the lower ends of said legs swing towards said frame as frame is lifted and swing away from said frame as said frame is lowered,

roller means mounted at said lower end of each of said legs whereby said roller means engages the floor beneath said bed as said bed is lowered and said upper ends of said legs pivot on said roller means to a position at which said upper ends of said legs are further from said lift mechanisms than said lower ends of said legs whereby said legs are inclined relative to said floor, and

stop means limiting further pivoting movement of said legs when said inclined position thereof is reached thereby causing said legs to be held in bed supporting position by the weight of said bed when said bed is at the lowered position.

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