Sept. 4, 1945. C. R. MARSAN 2,384,325

HOSPITAL BED

Filed Nov. 19, 1943 2 Sheets-Sheet 1

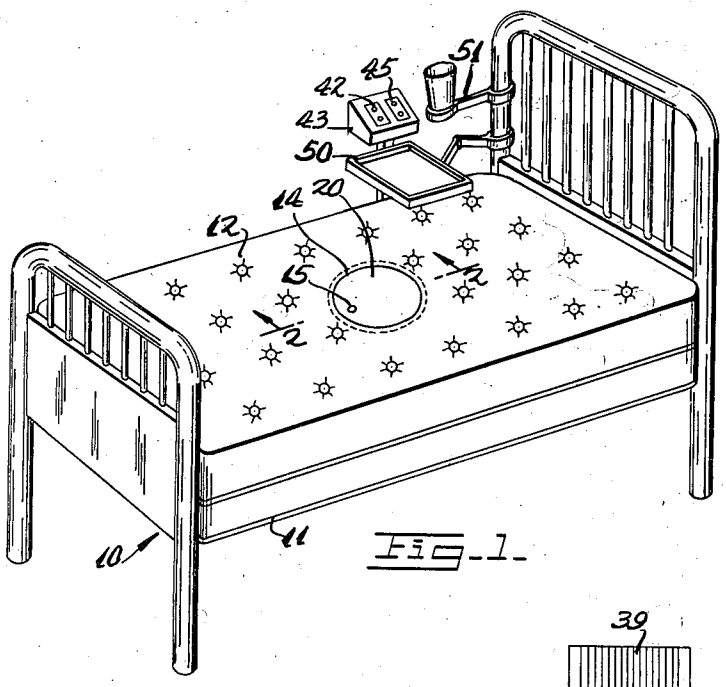


Fig. 1.

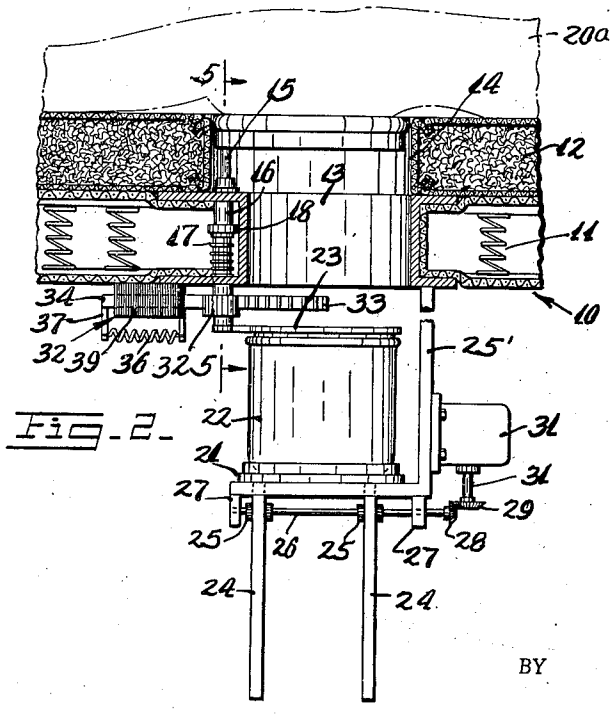


Fig. 2.

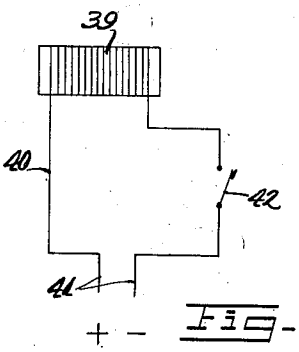


Fig. 6.

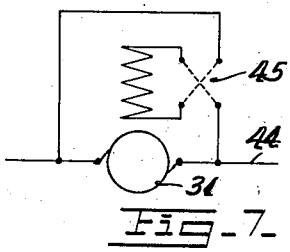


Fig. 7.

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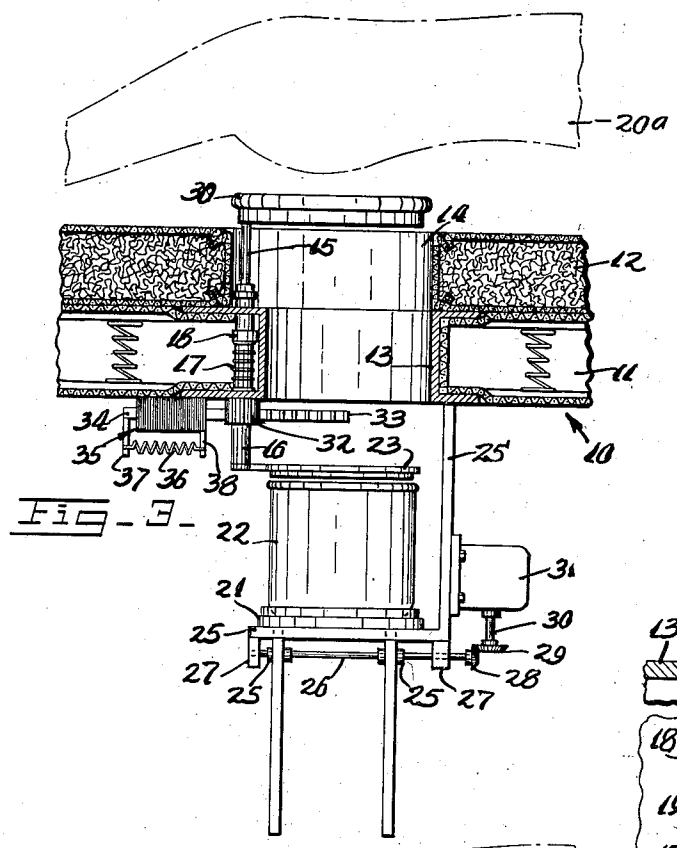


Fig - 3 -

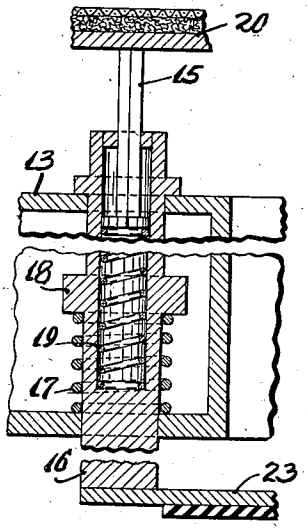


Fig - 5 -

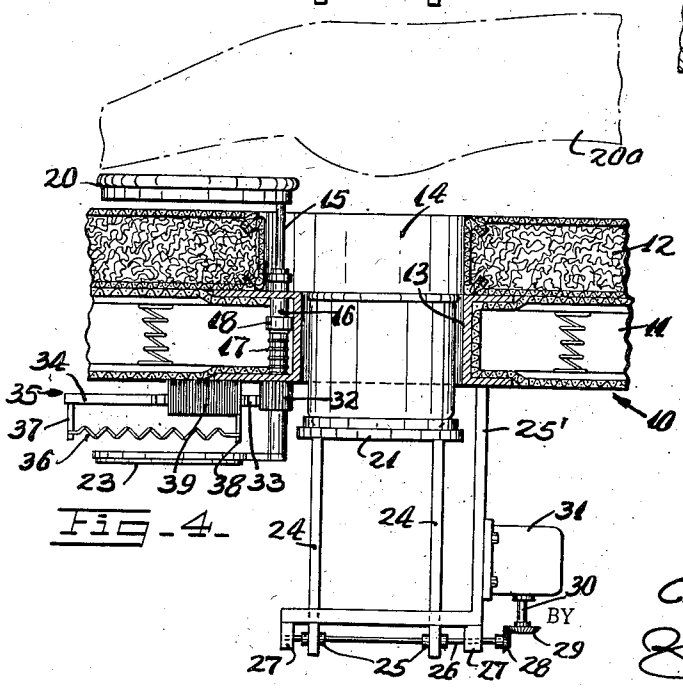


Fig - 4 -

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UNITED STATES PATENT OFFICE

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HOSPITAL BED

Charles R. Marsan, New York, N. Y., assignor of one-half to Sue Lomax, New York, N. Y.

Application November 19, 1943, Serial No. 510,938

4 Claims. (Cl. 5—90)

This invention relates to new and useful improvements in a hospital bed.

More specifically, the invention proposes the construction of a hospital bed arranged in combination with a bed having a box spring with a tubular casing mounted therethrough at an area located substantially centrally of the bed, and provided with a mattress having an opening aligned with the tubular casing of the box spring in a manner to permit a chamber pot to be raised upwards into a position within the openings with its open top disposed immediately below the said central area of the person in the bed.

A further object of the invention proposes the provision of a padded top cover for extending across the opening in the mattress and which is resiliently urged upwards to be capable of being turned to a position to expose the opening in the mattress and which is arranged to be depressed under the weight of a person to assume a position flush with the top of the mattress.

Still another object of the invention proposes the provision of a bottom cover for extending across the top of the chamber pot when retracted from the tubular opening in the box spring and which is arranged in a convenient manner with relation to the padded top cover to be depressed when the padded cover is depressed to assume a position across the open top of the chamber pot to air tightly close the same.

Still another object of the invention proposes the provision of a platform upon which the chamber pot is disposed and which is associated with a mechanism controlled by switches at the disposal of a person in the bed to raise the chamber pot and extend it into the opening in the mattress and box spring when the top and bottom covers have moved to an inoperative position with relation to these openings.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a perspective view of a hospital bed constructed in accordance with this invention.

Fig. 2 is an enlarged partial vertical sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2 but illustrating a different position of the parts.

Fig. 4 is another view similar to Fig. 2 but illustrating a still further position of the parts.

Fig. 5 is an enlarged partial vertical sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is schematic wiring diagram of the electrical mechanism for controlling the positioning of the covers.

Fig. 7 is a schematic wiring diagram of the mechanism for raising and lowering the chamber pot.

The hospital bed, according to this invention, is arranged in combination with a bed 10 having a box spring 11 upon which a mattress 12 is rested. The box spring 10 has a tubular casing 13 mounted therethrough at a position located substantially centrally of the bed. The mattress 12 is formed with an opening 14 superimposed upon and aligned with the casing 13. The tubular casing 13 and opening 14 cooperate to form a continuous opening from the top of the mattress downwards through to the bottom of the box spring 11. A pair of vertical telescoping members 15 and 16 are vertically slidably mounted upon the casing 13 outside of the opening thereof. The bottom telescopic member 16 is rotatively and vertically slidably mounted upon the casing 13. An expansion spring 17 operates between a wall of the casing 13 and a collar 18 mounted upon the bottom telescoping member 16 for urging it vertically upwards. The top telescoping member 15 is vertically slidably, but non-rotatively extended into the bottom telescoping member 16. An expansion spring 19 operates between the bottom wall of the bottom telescoping member 16 and the bottom of the top telescoping member 15 for normally urging the top member 15 into an extended position with relation to the bottom member 16. When a person 20a indicated by dot and dash lines in Figs. 3–5, arches his back, as shown in Figs. 3 and 4, the springs 17 and 19 will urge the telescoping members 15 and 16 into a position in which the padded top cover 20, which is mounted on the top end of the telescoping member 15, will be positioned above the mattress 12, as shown in Fig. 3.

The padded top cover 20 is eccentrically mounted upon the top of the top telescoping member 15, and under the weight of a person on the bed, the cover 20 will be pushed into the opening 14 in the mattress 12, as shown in Fig. 2, to assume a position in which its top face will be flush with the top of the mattress 12. The weight of the person on the padded cover 20 causes the springs 17 and 19 to be contracted.

A platform 21 is disposed beneath the tubular casing 13 and has a chamber pot 22 mounted thereon. The bottom end of the bottommost tele-

scoping member 16 is provided with a bottom cover 23 for extending across the open top of the chamber pot 22. This bottom cover 23 is shown in its operative position in Fig. 2. When a person arches his back to permit the top cover 20 to move to the position shown in Fig. 3, the spring 19 will lift the bottom telescoping member 16 and correspondingly lift the bottom cover 23 free of the open top of the chamber pot 22.

The platform 21 carrying the chamber pot 22 is provided with a pair of downwardly extended racks 24 which slidably pass through a bracket 25' mounted upon the tubular casing 13. Pinions 25 mounted upon a shaft 26 mesh with the racks 24. The shaft 26 is rotatively supported in lugs 27 mounted upon the bottom of the bracket 25' and at one end the shaft 26 is provided with a bevel gear 28. The bevel gear 28 meshes with the bevel gear 29 mounted upon the driven shaft 30 of a reversible motor 31. The reversible motor 31 is positioned upon the side of the bracket 25'.

A push control means is provided for turning the telescoping members 15 and 16 for moving the covers 20 and 23 from their positions across the opening 14 in the mattress 12 and from over the open top of the chamber pot 22. This means comprises a gear 32 mounted on the bottom telescoping member 16 and which vertically slidably meshes with a rack 33 mounted on the end of a core 34 on a solenoid 35. A spring 36 operates between a pin 37 on the core 34 and a pin 38 on a stationary portion for urging the core 34 and rack 33 to normally turn the gear 32 into a position in which the covers 20 and 23 will be over their respective parts. The solenoid 35 includes a winding 39 mounted in an electric circuit 40 including a source of power 41 and a switch 42. The switch 42 is mounted upon a bracket 43 positioned at the side of the bed 10 at a point to be conveniently reached by a person in the bed. In the arched position of the body the switch 42 is closed to energize the solenoid 35 and move the rack 32 to turn the telescoping members 15 and 16 to move the covers to the position shown in Fig. 4.

A push button control means is provided for raising and lowering the platform 21 for lifting the chamber pot 22 upwards through the casing 13 and for lowering the same when the covers 20 and 23 are in the position shown in Fig. 4. This push button control means comprises a circuit 44 including a source of power and a reversing switch 45 for the reversible motor 31.

The switch 45 is also positioned on the bracket 43 and in the inoperative position the switch 45 may be thrown in one direction to cause the motor to rotate to lift the chamber pot into the tubular casing 13 in the inoperative position of the covers 20 and 23. When it is desired to retract the pot 22 it is merely necessary to reverse the switch 45 to cause the motor 31 to rotate in the opposite direction and lower the chamber pot 22 to its lowered position, shown in Fig. 2. The switch 42 is then opened, breaking the circuit 40 to de-energize the solenoid 35 so that the spring 36 will rotate the covers 20 and 23 back to their position over the opening 14 and the top of the pot 22. The person then returns the weight of his body to the top of the padded cover 20, causing it to move downwards to its position flush with the top of the mattress and in the opening 14 and also lower the bottom cover 23 to its position across the open top of the chamber pot 22.

A swinging tray 50 for food and dishes, and a glass receptacle 51 is shown attached to the bed.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I may claim as new, and desire to secure by United States Letters Patent is:

1. In combination with a box spring and mattress of a hospital bed formed with aligned vertical openings at a position located substantially centrally of the bed, a tubular casing mounted through the opening of said box spring, top and bottom members slidably but non-rotatively engaging each other, said bottom member being vertically slidably and rotatively supported on said casing, resilient means slightly urging the bottom telescopic member upwards relative to said casing, resilient means slightly urging the top telescopic member upwards relative to said bottom telescopic member, a padded top cover for extending across the opening in said mattress and eccentrically mounted on the top telescopic member for normally seeking a position slightly above said mattress and depressible into said mattress opening flush with said mattress under the weight of a person lying on said mattress, a platform for a chamber pot disposed beneath said aligned openings, a chamber pot on said platform, means vertically slidably mounting said platform to be raisable to extend the top of said chamber pot into the bottom of said aligned openings, a bottom cover for extending across the open top of said chamber pot in a lowered position thereof and eccentrically mounted on the bottom telescopic member for normally seeking a position slightly above said pot and depressible onto said pot when said top cover is depressed, push button controlled means for turning said telescopic members for moving said covers from their position over the opening in said mattress and over said chamber pot, and push button controlled means for raising and lowering said platform for lifting said chamber pot upwards into said casing and for again lowering the same in the latter position of said covers.

2. In combination with a box spring and mattress of a hospital bed formed with aligned vertical openings at a position located substantially centrally of the bed, a tubular casing mounted through the opening of said box spring, top and bottom members slidably but non-rotatively engaging each other, said bottom member being vertically slidably and rotatively supported on said casing, resilient means slightly urging the bottom telescopic member upwards relative to said casing, resilient means slightly urging the top telescopic member upwards relative to said bottom telescopic member, a padded top cover for extending across the opening in said mattress and eccentrically mounted on the top telescopic member for normally seeking a position slightly above said mattress and depressible into said mattress opening flush with said mattress under the weight of a person lying on said mattress, a platform for a chamber pot disposed beneath said aligned openings, a chamber pot on said platform, means vertically slidably mounting said platform to be raisable to extend the top of said chamber pot into the bottom of said aligned openings, a bottom cover for extending across the open top of said chamber pot in a lowered position thereof and eccentrically mounted on the

bottom telescopic member for normally seeking a position slightly above said pot and depressible onto said pot when said top cover is depressed, push button controlled means for turning said telescopic members for moving said covers from their position over the opening in said mattress and over said chamber pot, and push button controlled means for raising and lowering said platform for lifting said chamber pot upwards into said casing and for again lowering the same in the latter position of said covers, said platform being vertically slidably supported by a bracket extending from said tubular casing.

3. In combination with a box spring and mattress of a hospital bed formed with aligned vertical openings at a position located substantially centrally of the bed, a tubular casing mounted through the opening of said box spring, top and bottom members slidably but non-rotatively engaging each other, said bottom member being vertically slidably and rotatively supported on said casing, resilient means slightly urging the bottom telescopic member upwards relative to said casing, resilient means slightly urging the top telescopic member upwards relative to said bottom telescopic member, a padded top cover for extending across the opening in said mattress and eccentrically mounted on the top telescopic member for normally seeking a position slightly above said mattress and depressible into said mattress opening flush with said mattress under the weight of a person lying on said mattress, a platform for a chamber pot disposed beneath said aligned openings, a chamber pot on said platform, means vertically slidably mounting said platform to be raisable to extend the top of said chamber pot into the bottom of said aligned openings, a bottom cover for extending across the open top of said chamber pot in a lowered position thereof and eccentrically mounted on the bottom telescopic member for normally seeking a position slightly above said pot and depressible onto said pot when said top cover is depressed, push button controlled means for turning said telescopic members for moving said covers from their position over the opening in said mattress and over said chamber pot, and push button controlled means for raising and lowering said platform for lifting said chamber pot upwards into said casing and for again lowering the same in the latter position of said covers, said first mentioned push button controlled means comprising a rack meshing with a gear on one of said telescoping members, a solenoid for moving said rack, and a circuit including a source of power, said solenoid, and a switch for controlling the supply of current to said solenoid.

4. In combination with a box spring and mattress of a hospital bed formed with aligned vertical openings at a position located substantially centrally of the bed, a tubular casing mounted through the opening of said box spring, top and bottom members slidably but non-rotatively engaging each other, said bottom member being vertically slidably and rotatively supported on said casing, resilient means slightly urging the bottom telescopic member upwards relative to said casing, resilient means slightly urging the top telescopic member upwards relative to said bottom telescopic member, a padded top cover for extending across the opening in said mattress and eccentrically mounted on the top telescopic member for normally seeking a position slightly above said mattress and depressible into said mattress opening flush with said mattress under the weight of a person lying on said mattress, a platform for a chamber pot disposed beneath said aligned openings, a chamber pot on said platform, means vertically slidably mounting said platform to be raisable to extend the top of said chamber pot into the bottom of said aligned openings, a bottom cover for extending across the open top of said chamber pot in a lowered position thereof and eccentrically mounted on the bottom telescopic member for normally seeking a position slightly above said pot and depressible onto said pot when said top cover is depressed, push button controlled means for turning said telescopic members for moving said covers from their position over the opening in said mattress and over said chamber pot, and push button controlled means for raising and lowering said platform for lifting said chamber pot upwards into said casing and for again lowering the same in the latter position of said covers, said latter mentioned push button controlled means comprising a rotatively supported shaft carrying gears meshing with racks extending from said platform, a reversible motor for driving said shaft in one direction or the other to raise or lower said platform.

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