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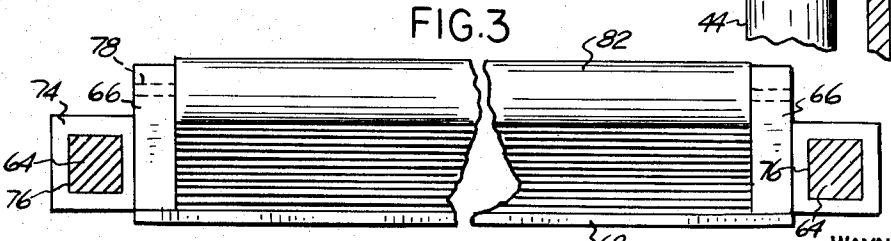
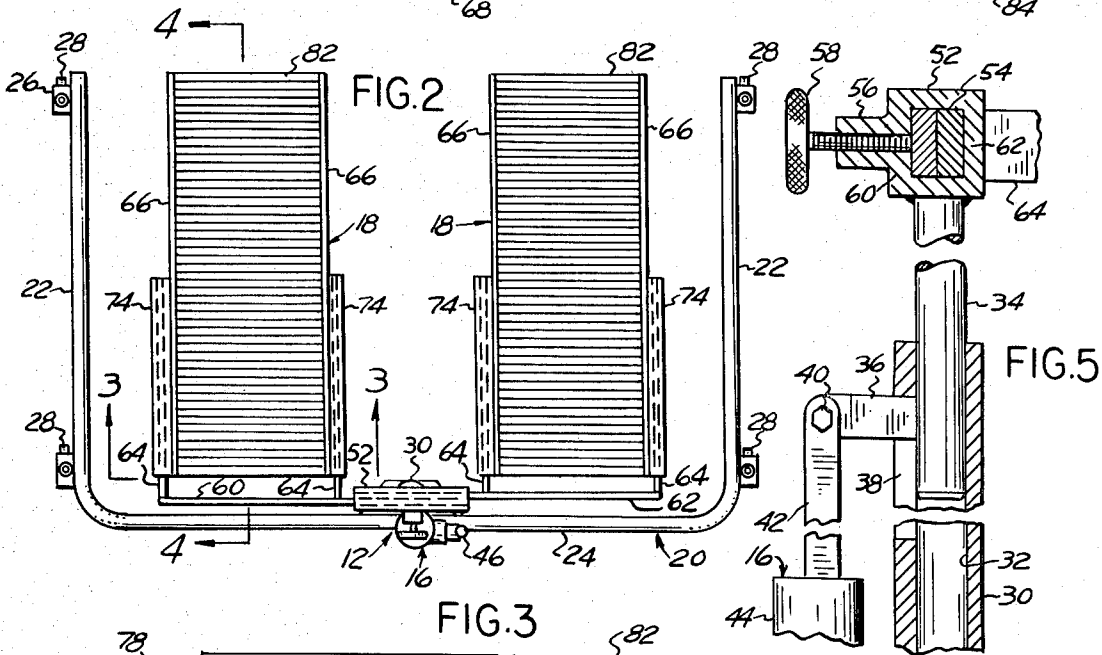
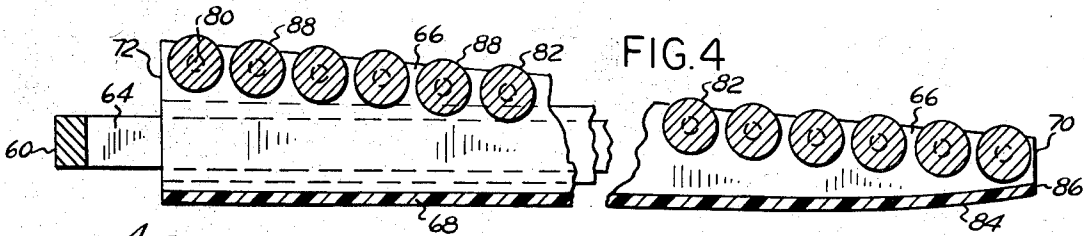
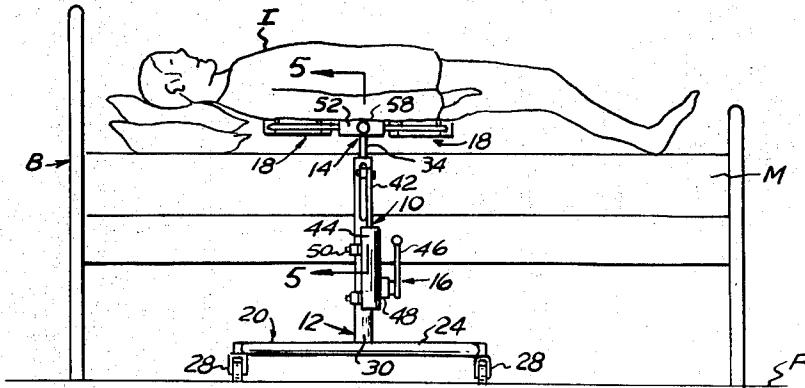
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3,541,617

ELEVATOR FOR INVALIDS

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FIG. 1



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ELEVATOR FOR INVALIDS

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5 Claims

ABSTRACT OF THE DISCLOSURE

For ease of insertion beneath the body of an invalid on a bed, and for raising the invalid off the bed in order to change the bed linen, there is disclosed a base frame structure equipped with casters and an upright upon which a shaft is raised and lowered by means of a suitable jack. Extending horizontally from the top of the shaft parallel to the base frame is a support frame in which a pair of body rests are slidably and removably mounted. These rests are equipped with multiple parallel rollers and are of thin wedge-shaped longitudinal section in order to facilitate their insertion beneath the shoulders and buttocks of the invalid.

In the drawings:

FIG. 1 is a side elevation of an invalid elevator, according to one form of the invention, showing an invalid raised from the bed in order to change the bed linen;

FIG. 2 is an enlarged top plan view of the invalid elevator of FIG. 1, with the bed and invalid omitted;

FIG. 3 is a further enlarged vertical section partly in end elevation, of one of the body rests;

FIG. 4 is a longitudinal section through one of the body rests, taken along the line 4—4 in FIG. 2; and

FIG. 5 is a fragmentary vertical section through the upright and shaft of the elevator, taken along the line 5—5 in FIG. 1.

Referring to the drawing in detail, FIG. 1 shows an invalid elevator, generally designated 10, according to one form of the invention as consisting generally of an elevating frame structure 12 including a support structure 14 which is raised and lowered by means of a lifting jack 16 mounted on a base structure 20 adapted to rest on the floor F. Slidably and removably mounted on the support structure 14 are two spaced parallel body rests 18.

The base structure 20 includes a U-shaped base member 21 consisting of two end portions or arms 22 interconnected by a central or bridge portion 24. This base member 21 is conveniently tubular for both lightness and strength. Mounted on the end portion 22 at opposite ends thereof are caster wheel supports 26 in which caster wheels 28 are pivotally mounted. The base member 21 is of suitable proportions and dimensions for insertion beneath a hospital bed, such as the hospital bed B shown in FIG. 1. Secured to and rising from the center of the bridge portion 24 is a hollow upright or stanchion 30 having a central vertical bore 32 (FIG. 5) in which a shaft 34 is vertically slidably mounted. An arm 36 is secured to the shaft 34 near the lower end thereof and extends transversely thereto through a vertically-elongated slot 38 in the stanchion 30 to a pivotal connection 40 with a vertically-movable plunger 42 projecting upward from the housing 44 of the lifting jack 16. The latter is operated by a hand lever 46 through a boss 48 (FIG. 1) and its housing 44 is secured by spaced brackets 50 to a hollow stanchion 30. The lifting jack 16 is conventional and its details are beyond the scope of the present invention. It is shown for convenience of illustration as a manually-operated hydraulic jack but may equally well employ a conventional screw jack or a conventional ratchet jack,

both of which are well-known to those skilled in the jack art.

Welded or otherwise secured to the top of the shaft 34 is a hollow tubular head 52 (FIG. 5) containing a horizontal bore 54 preferably of rectangular cross-section and also provided with a boss 56 which is bored and threaded transversely to the bore 54 to receive a hand screw 58. Slidably mounted within the bore 54 are two parallel bars 60 and 62 slidably engaging one another in face-to-face relationship. Secured to each bar 60 or 62 and projecting transversely thereto beyond the support structure 14 in cantilever relationship are two spaced parallel cross bars or arms 64 also preferably of rectangular cross-section. Slidably and removably mounted on each pair of the cross bars 64 is one of the body rests 18 in the manner shown in FIGS. 2 and 3. Each rest 18 includes a pair of side plates or side bars 66 interconnected by a base plate 68, the side plates 66 being approximately wedge-shaped and the base plate 68 being curved upward toward the smaller forward end 70 from the rearward end 72 (FIG. 4). Welded or otherwise secured to the side plates 66 are two tubular members 74 having elongated longitudinal bores 76 therein of rectangular cross-section configured to slidably receive the cross bars 64 in telescoping relationship. The side plates 66 are drilled with aligned pairs of holes 78 at intervals therealong to receive the axles 80 of elongated rollers 82 the peripheries of which project above the side plates 66. The rollers 82 are adapted to minimize the friction between the body of an invalid I and the rest 18. Friction between the base plate 68 and the bed B is minimized by the application of a layer or coating 84 of slippery material, such as the synthetic plastic material known commercially as Teflon to the lower surface of the base plate 68. A peripheral layer 88 of this material is also preferably applied to the rollers 82 for the same purpose.

In the use of the invention, the operator first removes the two body rests 18 from the elevating frame structure 12 by sliding them off the cross bars or arms 64. The operator then slides one of these body rests 18 beneath the shoulders of the invalid and another beneath his buttocks, as shown in FIG. 1, supporting his head temporarily by a pillow or two. This insertion is facilitated by the action of the rollers 82 and the slippery layer 84 on the top and bottom of each rest, as well as by the relatively thin forward end 70 thereof. The body rests 18 are so inserted that they lie parallel to one another and perpendicular to the edge of the bed B. The operator then operates the jack handle 46 to cause the jack 16 to raise the shaft 34 and arms 64 to the level of the body rests 18, and then loosens the parallel bars 60 and 62 by unscrewing the hand screw 58. He then slides the bars 60 and 62 relatively to one another until their respective arms 64 are aligned with the tubular members 74, whereupon he pushes the arms 64 into the tubular members 74 by pushing the entire elevating frame structure 12 toward the bed B.

The operator then actuates the jack handle 46 to raise the support structure 14 including the body rests 18 with the invalid I lying thereon a sufficient distance above the mattress M on the bed B to enable the attendant to change the bed linen or perform other necessary adjustments. The operator then lowers the support structure 14 by reversing the previously-described procedure as, by actuating the back handle 46 or by operating a valve (not shown) to bypass hydraulic fluid within the jack 16 in a conventional manner, if the jack 16 is of the hydraulic type. The operator may then withdraw the entire invalid elevator 10 by pulling it away from the bed B and at the same time sliding the body rests 18 out from underneath the invalid I. The body rests can then

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be removed and stored separately. The body rests 18 may also be used separately to raise an invalid from his bed and lower him to a chair, toilet seat or bath, and vice versa.

I claim:

1. An invalid elevator adapted to lift an invalid from his bed, said elevator comprising:
 - a wheeled base structure adapted to travel upon the floor beneath the invalid's bed and having an upright thereon,
 - a support structure mounted on said upright for movement upward and downward relatively thereto and having first and second pairs of substantially horizontal arms projecting forwardly beyond said support structure in spaced parallel cantilever relationship thereto,
 - a lifting jack mounted on said base structure and operatively connected to said support structure for moving said support structure upward relatively to said base structure,
 - and smooth-bottomed first and second body rests slidably mounted on said first and second pairs respectively of said arms in substantially parallel relationship to said base structure.
2. An invalid elevator, according to claim 1, wherein said first and second body rests are also removably mounted on their respective pairs of said arms.
3. An invalid elevator, according to claim 1, wherein a head with a horizontal bore therein is mounted on said support structure, wherein two oppositely-extending elongated parallel members are slidably mounted relatively to one another within said bore, wherein each pair of said arms is secured perpendicularly to one of said elongated members, and wherein a clamping device is mounted on said head in releasable clamping relationship to said elongated members for varying the spacing between said rests by varying the spacing between said pairs of arms.

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4. An invalid elevator, according to claim 1, wherein each body rest is provided with multiple spaced parallel rollers extending across the top thereof and with a bottom plate member on the bottom thereof having a smooth-surfaced bottom layer of slippery friction-reducing material.

5. A body rest, comprising:

a bottom plate member with a smooth-bottom surface thereon and with side members rising therefrom in spaced parallel relationship, and a multiplicity of elongated rollers journaled at their opposite ends in said side members near the top edges thereof with the peripheries of said rollers projecting above the tops of said side members and with the peripheries of the rollers at the forward ends of said side members disposed closer to the forward end of said bottom surface than the peripheries of the rollers at the rearward ends of said side members to the rearward end of said bottom surface and thereby forming with said bottom plate member a forwardly-tapered wedge-shaped body rest structure.

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