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3,394,933

INVALID LIFTING AND SUPPORTING DEVICE

Filed April 28, 1966

2 Sheets-Sheet 1

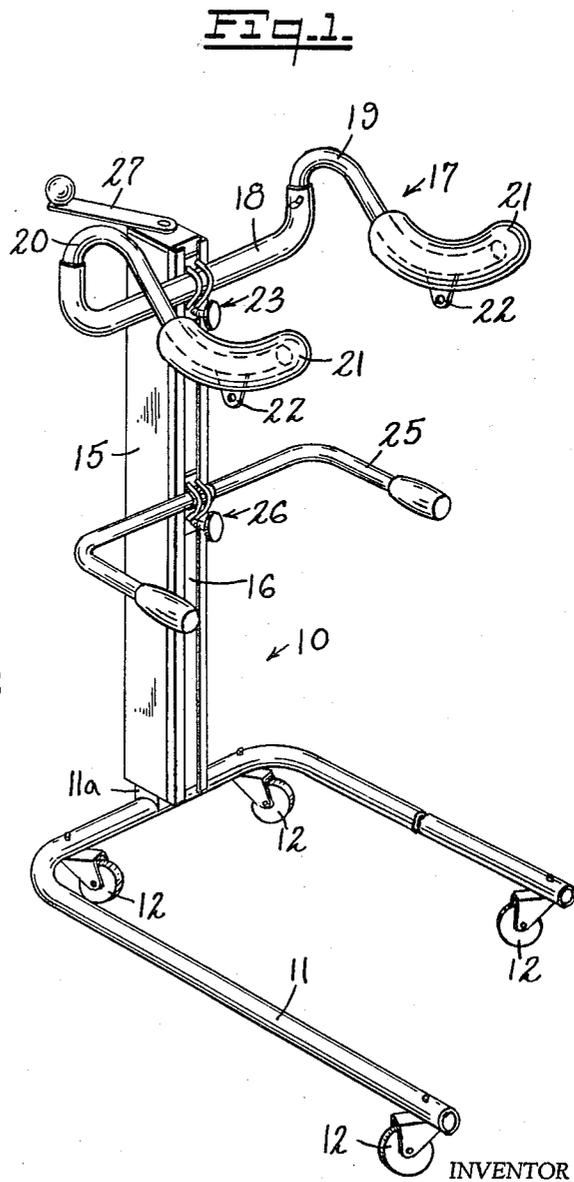
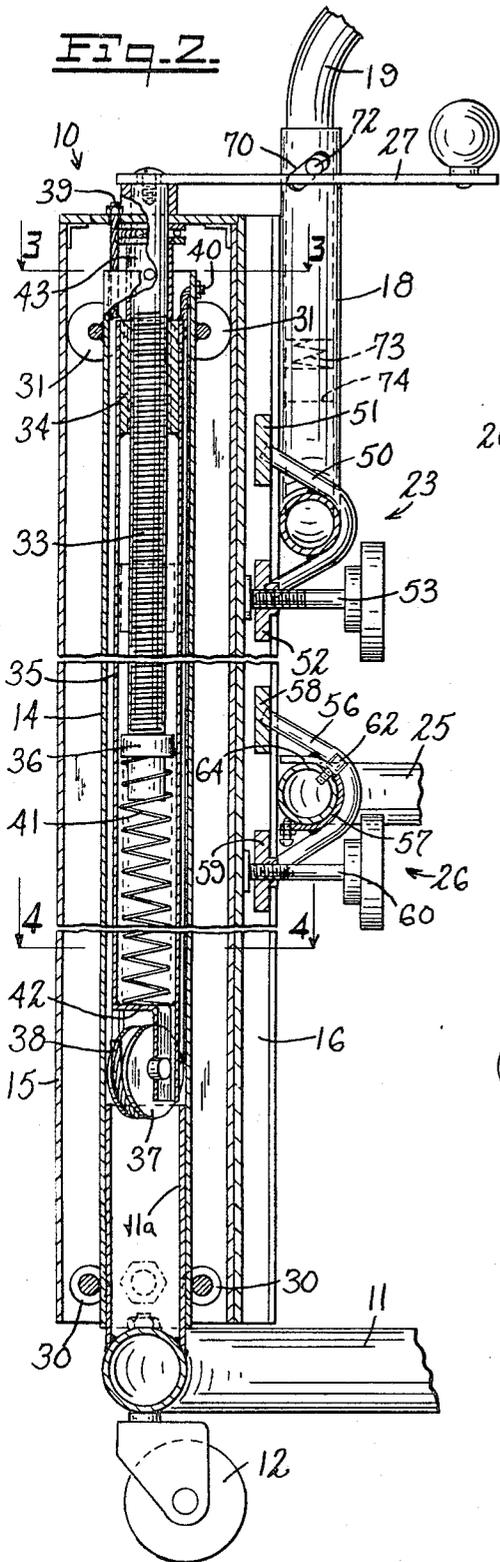


Fig. 1

Fig. 2

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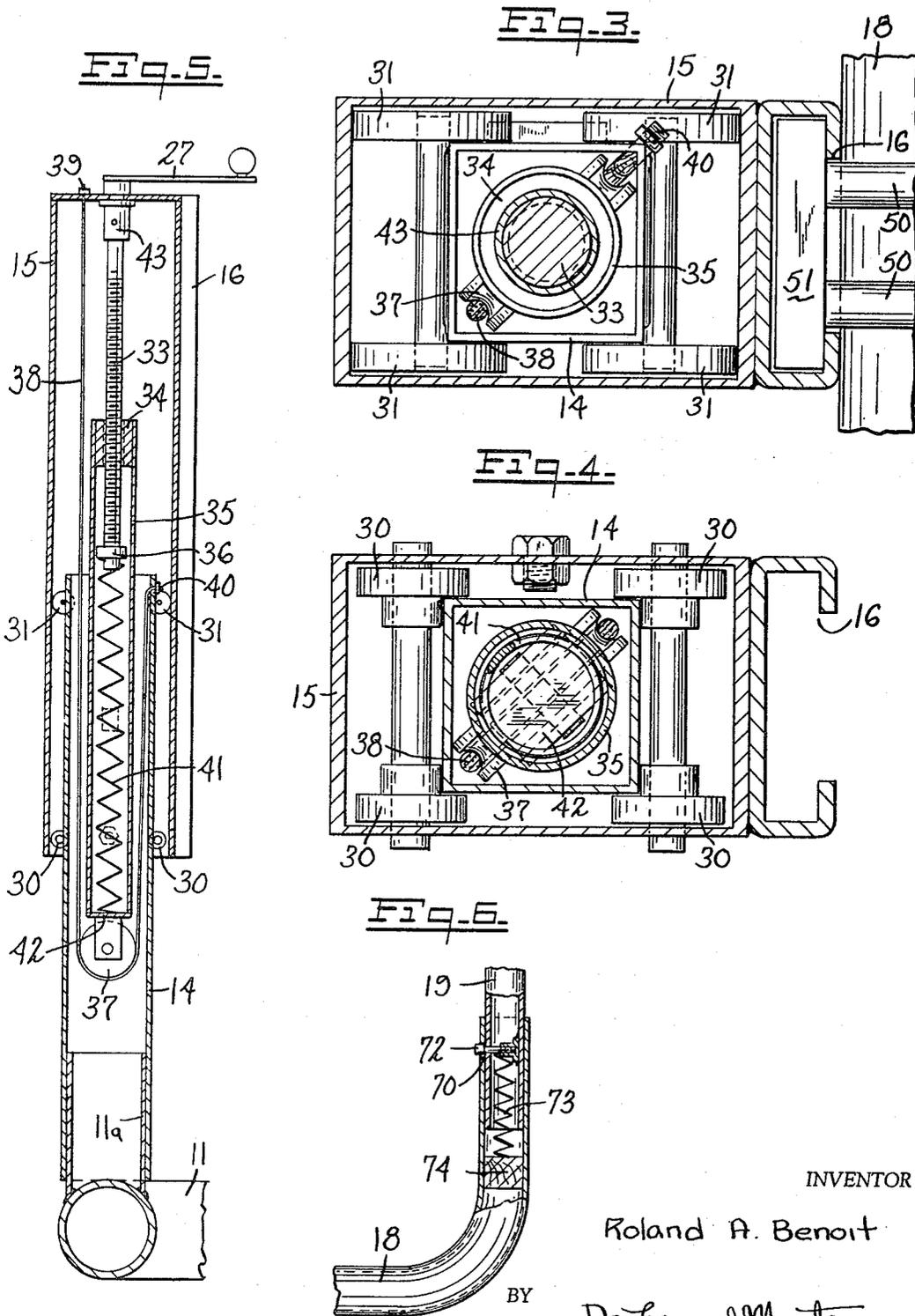
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**INVALID LIFTING AND SUPPORTING DEVICE**

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6 Claims. (Cl. 272—70.4)

This invention relates to the care and treatment of invalids and more particularly to a device which may be caused to lift an invalid from a sitting position to a standing position and then permit the invalid to walk under his own motivation.

The prior art has disclosed many arrangements utilizing mechanical means to assist nurses in handling invalid patients. In the main, the prior art devices have depended upon the passage of fabric slings and the like under the body of the patient which are then coupled to some type of lift mechanism for raising the sling. In certain situations the prior art devices are quite acceptable, where the sole purpose is to transport the patient. However, when in addition to the above, the purpose of lifting the patient is also for motor therapy, the constructions of the prior art do not lend themselves to such additional usage.

In view of the foregoing, applicant has invented a new and improved invalid-handling device which not only provides improved means for raising an invalid patient, but also provides means for permitting the patient to propel himself under his own motive power while being supported by the device.

Accordingly, it is an object of this invention to provide a new and improved invalid-handling device.

It is another object of this invention to provide a new and improved device for first raising a patient from a sitting position and then permitting the patient to propel himself while being supported by the device.

It is an additional object of this invention to provide a new and improved device for raising an invalid patient from a bed or the like.

It is a further object of the invention to provide a new and improved manually operable device for raising an invalid patient.

A still further object of the invention is to provide a new and improved therapy device which not only supports the patient but also permits him to aid in supporting himself while walking under his own motive power.

Still other objects and advantages of the invention will in part be obvious and will in part be apparent from the specification.

The invention accordingly comprises the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference is had to the following description taken in connection with the accompanying drawings, in which

FIG. 1 is a perspective view showing the improved therapy device according to the invention;

FIG. 2 is a breakaway, partially in section, showing the operative parts of the invention;

FIG. 3 is a sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is a sectional view taken along line 4—4 of FIG. 2;

FIG. 5 is a diagrammatic view showing the operating parts according to the invention; and

FIG. 6 is an enlarged view partially in section of a portion of the patient supporting means according to the invention.

Referring to FIG. 1, there is shown a perspective view

of the therapy device according to the invention. The device is generally shown at 10 and comprises a base member 11 having preferably mounted thereon a plurality of caster wheels 12. Supported by base member 11 is an upwardly extending member 11a which in turn supports a tubular member 14 (not shown in FIG. 1) having positioned thereabout an outer housing 15 having a guide slot 16 formed therein. The housing 15 is utilized to support the crutch lift means generally shown at 17 within the slot 16. The crutch means 17 preferably comprises a first tubular member 18 having tubular members 19 and 20 inserted therein at either end thereof. There is shown mounted on the members 19 and 20 molded cushions 21 which provide arm rests adapted to nest in the armpits of a patient. A pair of hook-like members 22 are also supported by members 19 and 20 respectively, such that the fabric slings may also be coupled thereto if the therapy device is used to lift a patient from a bed.

The crutch means 17 is supported in slot 16 by a clamping arrangement 23 and is free to move in slot 16 by adjustment of the clamping mechanism 23. Positioned below the crutch lift means 17 is provided a handlebar means 25 for permitting a patient to place his hands thereon to support himself while propelling himself. The handlebar means is supported in slot 16 by a clamping mechanism 26 in a manner such that while the patient is being assisted to his feet, it may be rotated such as about 90° upward and positioned out of the way. Thereafter it may be lowered so that the patient may hold on to it after he has reached a standing position.

There is shown positioned on top of the housing 15, a turnbar 27 which, when rotated, will raise or lower the housing 15, the crutch lift means 17 and the handlebars 25, to manipulate the patient.

Referring now to FIGS. 2-5, there is shown the operating parts of the device 10 according to the invention. The tubular member 14 is constructed such that it is preferably hollow throughout. The housing 15 is slidably movable against the member 14 by the action of rollers 30 and 31. There is positioned within the inner confines of the hollow member 14 a threaded shaft 33 which is connected to the turnbar 27. The shaft 33 is supported by a threaded bearing 34 which is positioned within another hollow member 35. The shaft 33 has a collar stop 36 mounted on one end thereof. As shown, a pulley 37 is coupled to the hollow member 35 at the bottom end thereof. A cable or guide wire 38 is positioned over the pulley 37 and is fixedly connected to the housing 15 at 39 and is also fixedly coupled at its other end at 40 to the hollow member 14. A spring 41 is positioned between collar 36 and a flange 42 formed in the hollow member 35. Additionally, spacers 43 are positioned between the bearing 34 and the housing 15.

As turnbar 27 and shaft 33 are rotated, the housing 15 will move upwardly and at the same time, the movement of the housing 15 will cause the wire 38 to raise the pulley 37 and the flange 42, such that spring 41 will push upwardly against the stop 36 of the shaft 33. In this manner an extra upward force is provided to the shaft 33, thus making it easier for the screw to be turned as the shaft is rotated by the turnbar 27.

The clamping mechanism 23 is mounted within the slot 16, such that the crutch means 17 may be raised or lowered depending on the patient. The clamping means 23 comprises an angularly-shaped bar 50 which is fixedly secured to the crutch lift 17, such as by welding. Positioned on either end of the angular bar 50 are slot guide means 51 and 52, respectively. The guide means 52 has a threaded bore therethrough for permitting an adjustable screw means 53 to move therein. By rotation of the screw means 53, the position of the crutch means 17 can be securely set at the required height for the patient.

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The clamping mechanism 26 for holding the handlebar 25, comprises an angular bar 56 having an inner angular member 57 affixed thereto such as by welding. Positioned on either end of bar 56 are guide slot means 58 and 59, respectively. A threaded shaft screw arrangement 60 is movable within a threaded bore of the guide slot means 59, such that as it is rotated the position of the handlebars may be set.

The handlebar 25 includes stop means 62 for limiting the upward and downward movements of the handlebar. This is accomplished by the formation of a groove 64 within the inner member 57, such that the stop means 62 will effectively stop the handlebar in a horizontal position and permit its rotation to a vertical position while the patient is being lifted.

Referring now to FIG. 6 in conjunction with FIG. 1, the members 19 and 20 of the crutch means 17 are permitted to move over a short distance by the provision of slots 70 formed within the first tubular member 18. Prior to the patient being fitted into the crutch lift means, members 19 and 20 having pins 72 for fitting in slots 70, are forced outwardly by the provision of a spring means 73 coupled between pins 72 and a stop member 74 supported within the member 18. Normally the molded cushions 21 will be forced outwardly due to the action of the spring 73, thereby making it easier for the patient to be fitted to the molded cushions. As the patient is fitted into the cushions 21 they will be forced downwardly and inwardly, thereby providing a more comfortable fit for the patient.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and since certain changes may be made in the above construction without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

What is claimed is:

1. An apparatus for use in the care and treatment of invalids, including a base member, a first hollow member mounted on said base member, a housing positioned over said first hollow member and adapted to move with respect to said first hollow member, a second hollow mem-

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ber positioned in the interior of said first hollow member and adapted to move therein, a pulley supported by said second hollow member, a cable positioned over said pulley having one end thereof supported at the top of the housing and the other end thereof supported by the first hollow member, means for raising and lowering said housing and said second hollow member with respect to said first hollow member and means carried by said housing for engaging and lifting an invalid.

2. An apparatus according to claim 1, said last-mentioned means comprising a member having a threaded bore supported by said second hollow member, threaded shaft means engaging said threaded bore, said shaft means extending outwardly of said housing, rotatably but relatively vertically immovably connected thereto, and having means for rotating said shaft to raise and lower said housing and said second hollow member.

3. An apparatus according to claim 2, including resilient biasing means positioned between a lower portion of said shaft and said pulley means, said pulley means being positioned below said biasing means to provide an upwardly directed force on said shaft.

4. An apparatus according to claim 1, wherein said invalid engaging means comprises crutch means.

5. An apparatus according to claim 4, including handlebars supported by said housing.

6. An apparatus according to claim 4, wherein said crutch means includes a first hollow member, two support members positioned in opposite ends of said first hollow member, guide limiting slots formed in said first hollow member of said crutch means, pins supported by said two support members, said pins adapted to move within said slots, and resilient biasing means positioned within said first hollow member for rotating said two support members outwardly.

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