

[54] **HOSPITAL TROLLEYS**
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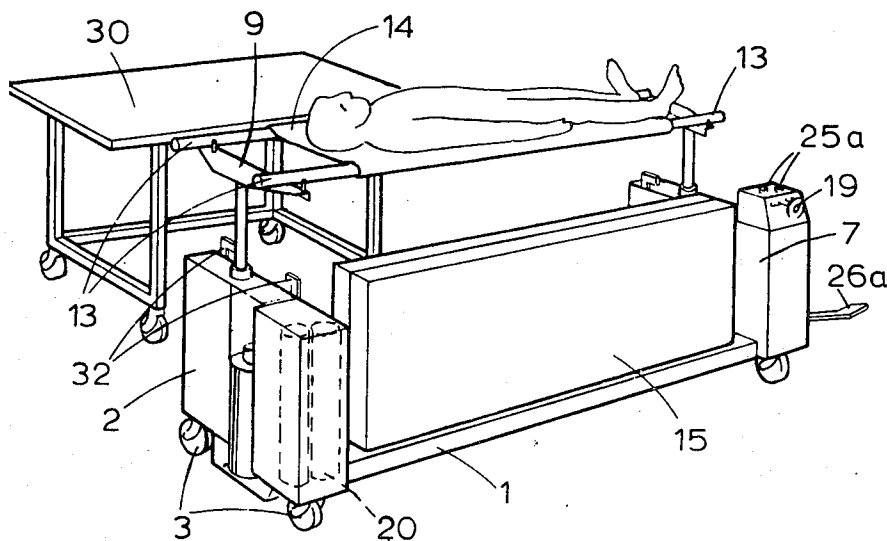
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 [58] **Field of Search** 5/62-64, 81 R,
 5/81 B, 86

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[57] **ABSTRACT**
 A hospital transfer trolley comprises a main frame from which two parallel end pieces extend at right angles so that a bed, trolley or the like can be received between the end pieces. A pair of horizontal lift members are carried by the end pieces and can be raised or lowered with respect to the end pieces. A couch including a mattress and a mattress support is movable between a horizontal patient-supporting position in which it is between the end pieces and an upright inoperative position on the main frame. The mattress support is engageable with the lift members when the couch is in its patient supporting position to enable the couch to be raised and lowered.

4 Claims, 7 Drawing Figures



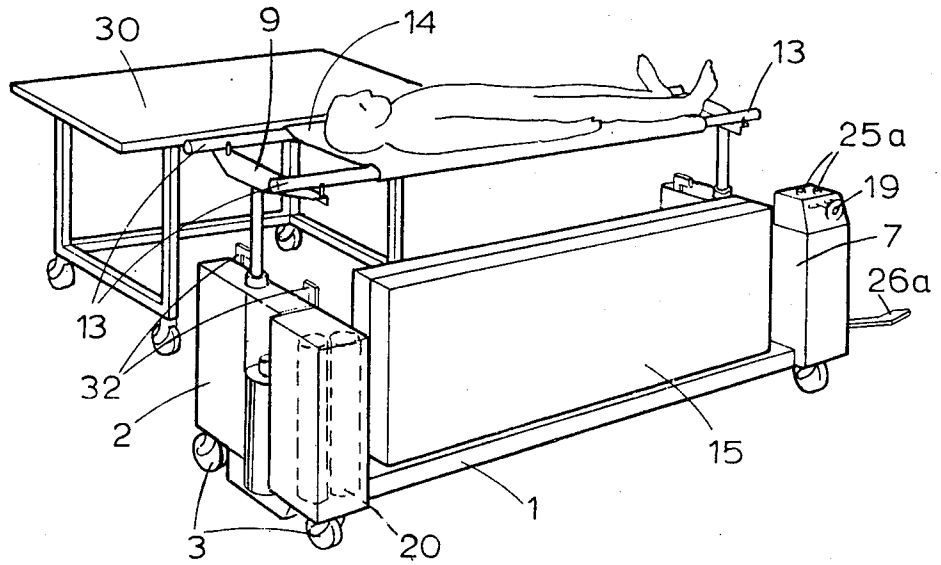


Fig. 1

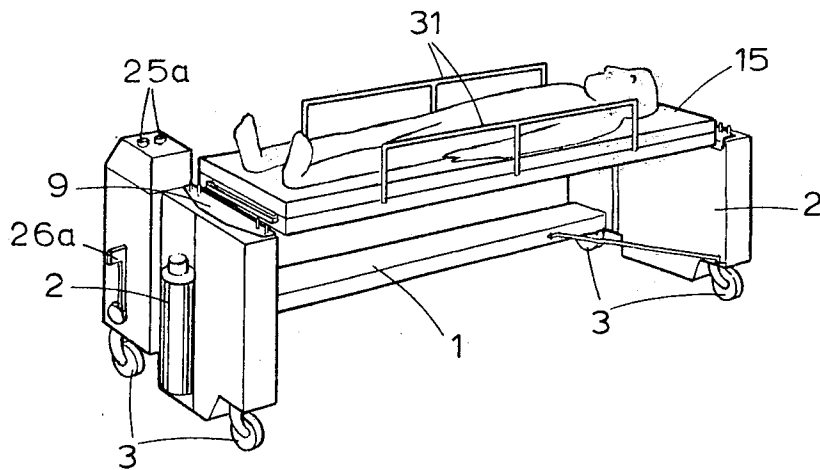


Fig. 2

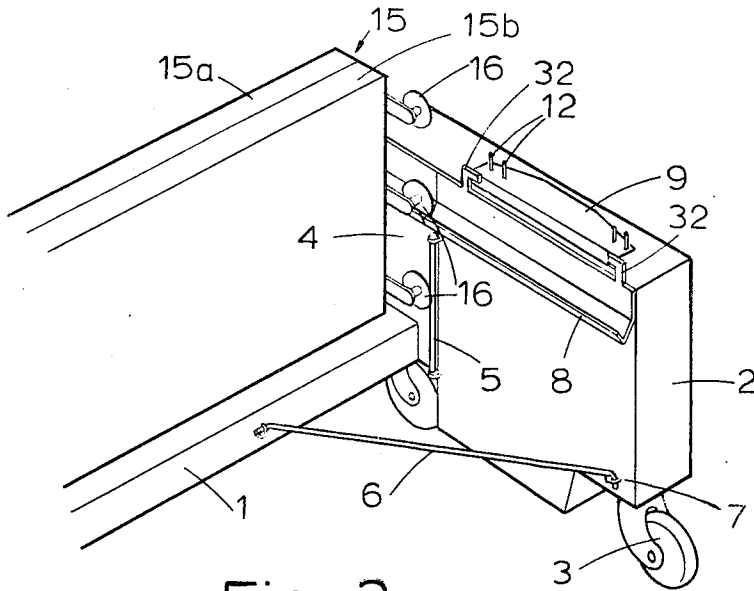


Fig. 3

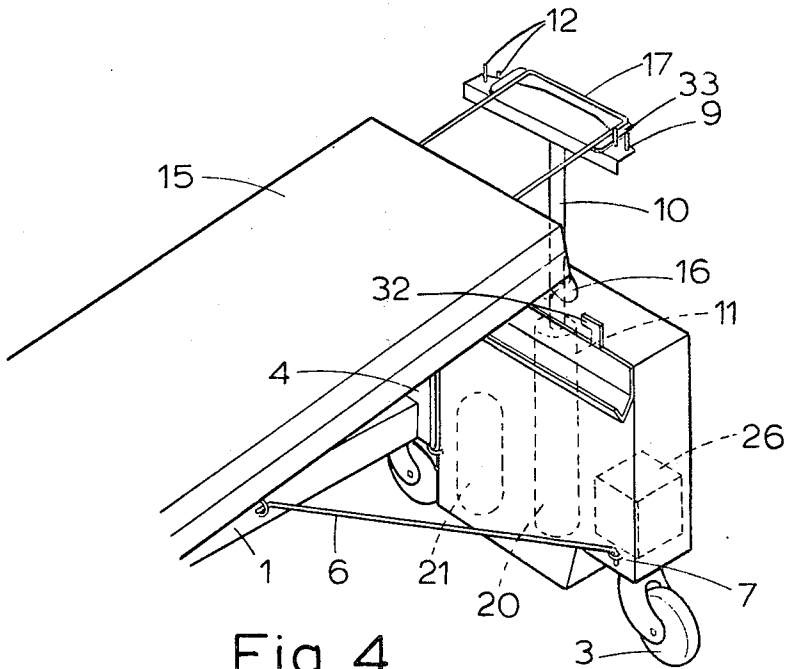


Fig. 4

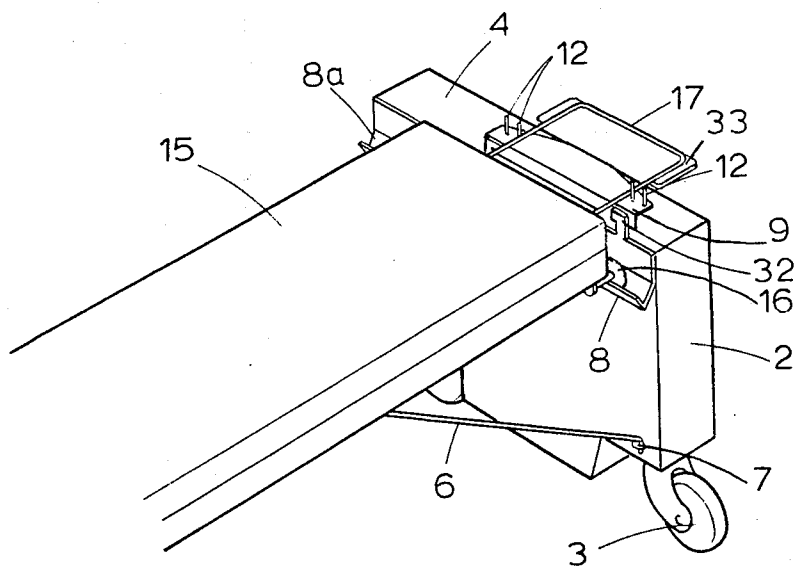


Fig. 5

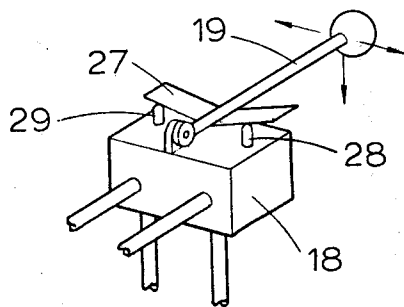


Fig. 7

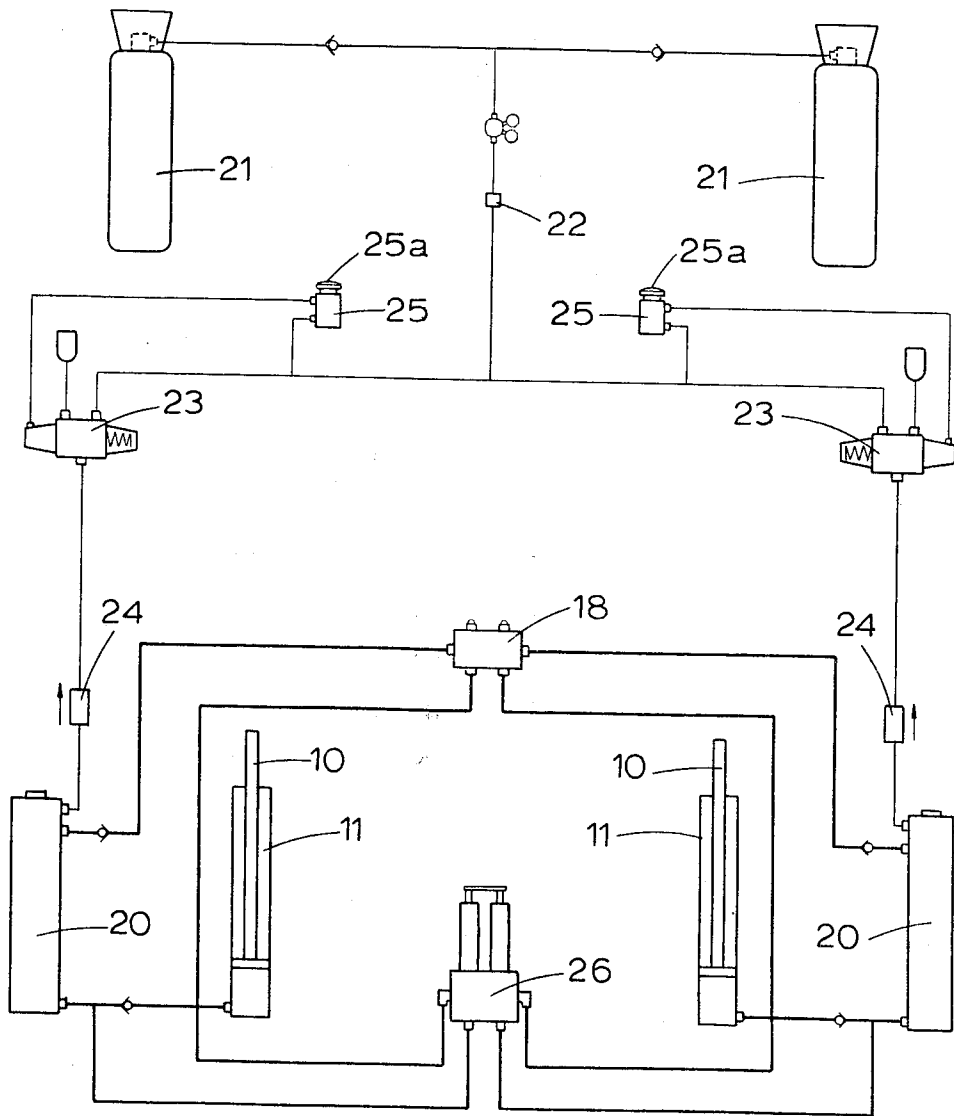


Fig. 6

HOSPITAL TROLLEYS

BACKGROUND OF THE INVENTION

The invention provides an efficient and comfortable patient transfer system by which a patient can be transferred to and from a bed or a stretcher trolley and a hospital operation table without any lifting of the patient by hospital staff being required.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

FIG. 1 is a perspective diagram illustrating a hospital transfer trolley,

FIG. 2 is a similar view illustrating the trolley in another position of use,

FIGS. 3, 4 and 5 are perspective detail views of part of the trolley,

FIG. 6 is a circuit diagram illustrating a gas/hydraulic network forming part of the trolley, and

FIG. 7 is a view of a variable flow valve.

DESCRIPTION OF PREFERRED EMBODIMENTS

In the illustrated embodiment of the invention, a hospital transfer trolley comprises a main or chassis frame 1 with two end pieces 2 extending at right angles from the frame and is mounted on wheels or castors 3. These end pieces 2 are parallel with each other and are connected with uprights 4 of the frame 1 by hinge 5. The end pieces are held in the normal or open position by arms 6 which are normally hooked into sockets 7 on the end pieces, but which can be disengaged from the sockets to enable the end pieces to be swung to a closed position against the frame 1. This reduces the amount of storage room required when the trolley is not in use.

A horizontal mattress support track member 8 extends near the top of the inside of each end piece 2. These mattress supporting members 8 are parallel with each other and have extensions 8a extending across the uprights 4 as shown in FIG. 5.

A lift member 9 is provided at the top of each end piece. Each of these lift members 9 is mounted at the top of an upright ram 10 (FIG. 4 and 6) which is slidable within a cylinder in the end pieces 2. The lift members 9 can each be raised from and lowered to a lower position in which they are positioned just above the horizontal mattress track member 8 (FIGS. 3 and 5). The lift supporting members 9 are raised and lowered by hydraulic pressure applied to the rams 10 in the cylinders 11 as to be described hereinafter.

Each lift member 9 is associated with a separate hydraulic mechanism so that the rams 10 can be raised and lowered independently of one another.

The lift members 9 are provided with upstanding pins 12 within which stretcher poles 13 of a stretcher 14 (FIG. 1) can be removably located.

A couch 15 (consisting of a mattress support 15a and a mattress 15b) is slidably mounted on the main frame 1. When in a horizontal patient-supporting position it is supported by the members 8 of the end pieces and can be raised and lowered on the lift members 9. When the couch 15 is not in use it hangs in an upright position on the frame 1 (as shown in FIG. 3). When it is desired to put the couch into use, it is swung upwards to a horizontal position and then slid transversely on wheels 16 running on the support members 8. A mechanism such as a garage "up and over door" mechanism may be used.

The couch 15 has at each end an extension frame 17 which is an extension of the mattress support of the couch and is normally enclosed within the couch but which can be pulled out lengthwise of the couch as shown in FIGS. 4 and 5 to engage the lift members 9 so that the couch can be interconnected with the lift members 9 to enable it to be raised at either or both ends. The end pieces 2 have fixed safety lock members 32 (FIGS. 3, 4 and 5) which are engageable with lock extensions or lugs 33 on the extension frame 17. The lugs 33 are so positioned that unless the extension frame is fully extended or fully enclosed, these lugs 33 are engaged by the lock members 32 so that the lift members 9 cannot be raised.

Hooks (not shown) may be fitted to the uprights 4 of the main frame 1 for the storage of stretcher poles when not in use.

The rams 10 are part of a gas/hydraulic power circuit under the control of a variable flow valve 18 (FIGS. 6 and 7) which is operated by a joystick control lever 19 (FIGS. 4 and 7). Liquid is supplied to the cylinders 11 from the two reservoirs 20 which are both contained in one end piece 2, as shown in FIG. 1 or alternatively one reservoir can be provided in each end piece. The liquid in the cylinders 11 is pressurised by gas (preferably CO₂) supplied from replaceable gas cylinders 21 one of which is removably arranged on each end piece. Gas passes from the cylinders 21 to the reservoirs 20 through a pipework which includes an on-off valve 22, pre-set control valves 23, 24 and manually controlled push button valves 25. The liquid in the ram cylinders 11 can also be pressurised by means of a foot-pump 26 operable by a pedal 26a. This makes it possible to raise the rams 10 when the supply of gas in the cylinders 21 is exhausted.

In order to operate the power circuit, the valve 22 is first opened and the push-buttons 25a of valves 25 are then depressed to supply gas under pressure to the reservoirs 20. This will cause the rams 10 to rise. As soon as pressure on the push buttons 25a is released, the gas exhausts to atmosphere, but the rams remain in their raised positions owing to the presence of non-return valves in the pipework. If only one push-button 25a is depressed, only one ram 10 will be raised. The rams are lowered, by allowing liquid to flow from the cylinders 11 back to the reservoirs 20 under the control of the joystick lever 19 of the variable flow valve 18. The lever 19 acts on a control plate 27 to depress either or both of two push rods 28 or 29 arranged to operate valve members controlling the flow of liquid to either of the reservoirs 20.

In use, the transfer trolley is positioned at the barrier of a theatre area of a hospital where it will be engaged with a stretcher trolley 30 (FIG. 1) which fits between the end pieces 2 of the transfer trolley. The lift members 9 are then raised to engage the stretcher poles 13 and lift the stretcher 14 carrying the patient. The couch 15 is then raised from the inoperative position shown in FIG. 1 to the operative patient-supporting position shown in FIG. 2. The lift members 9 are then lowered until the canvas of the stretcher 14 rests in a relaxed state on the couch 15. When the operation theatre staff is ready, the trolley can be wheeled to an operation table and the patient transferred thereto.

After treatment, the patient can be returned to the trolley and allowed to recover on the trolley. The couch 15 can be provided at each side with guard rails

31 to prevent the patient rolling off the mattress during recovery.

The couch may be provided with means which can be raised at either end to provide a back rest.

The transfer trolley of the present invention is very useful in hospital work as there are many periods within a theatre area of a hospital when patients are required to wait several minutes between stages in their movement to and from the operating table. After the operation, they can recover on a comfortable and well padded surface of the couch. Because of the inclusion of the couch in the transfer trolley it is much easier to keep a patient warm since blankets and other devices can be placed on the mattress surface before the stretcher is lowered on to it.

Although the invention is primarily intended for handling patients within the theatre area of a hospital it could also be used for collecting patients from a ward in which case the trolley can be wheeled to a position in which the end pieces enclose each end of the bed.

What is claimed is:

1. A wheeled hospital transfer trolley comprising a long side piece and two parallel end pieces extending horizontally at right angles to the long side piece and pivotally secured thereto on a vertical pivot so that a

patient-transfer vehicle can be received between the end pieces, vertically reciprocable individually operable lift member mounted on each of the end pieces, a patient-supporting bed member mounted on the frame and movable between a horizontal patient-supporting position between the end pieces and an upright inoperative position on the frame, and a bed member patient support means engageable with the lift members when the bed is in its patient supporting position to enable the bed member to be selectively raised or lowered or tilted.

2. A trolley as claimed in claim 1, wherein the patient support member is provided at each end thereof with an extension normally contained within the support member but which can be extended lengthwise of the mattress to engage the adjacent lift member whereby the bed member can be raised, lowered or tilted.

3. A hospital vehicle as in claim 1 wherein each end piece includes a track member on the opposing faces thereof, and the support member is provided with track engaging elements on the underside thereof.

4. A hospital vehicle as in claim 3 wherein the track engaging elements comprise at least one wheel at each end of the support member.

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