

Dec. 5, 1967

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3,356,184

TROLLEY

Filed Oct. 5, 1966

2 Sheets-Sheet 1

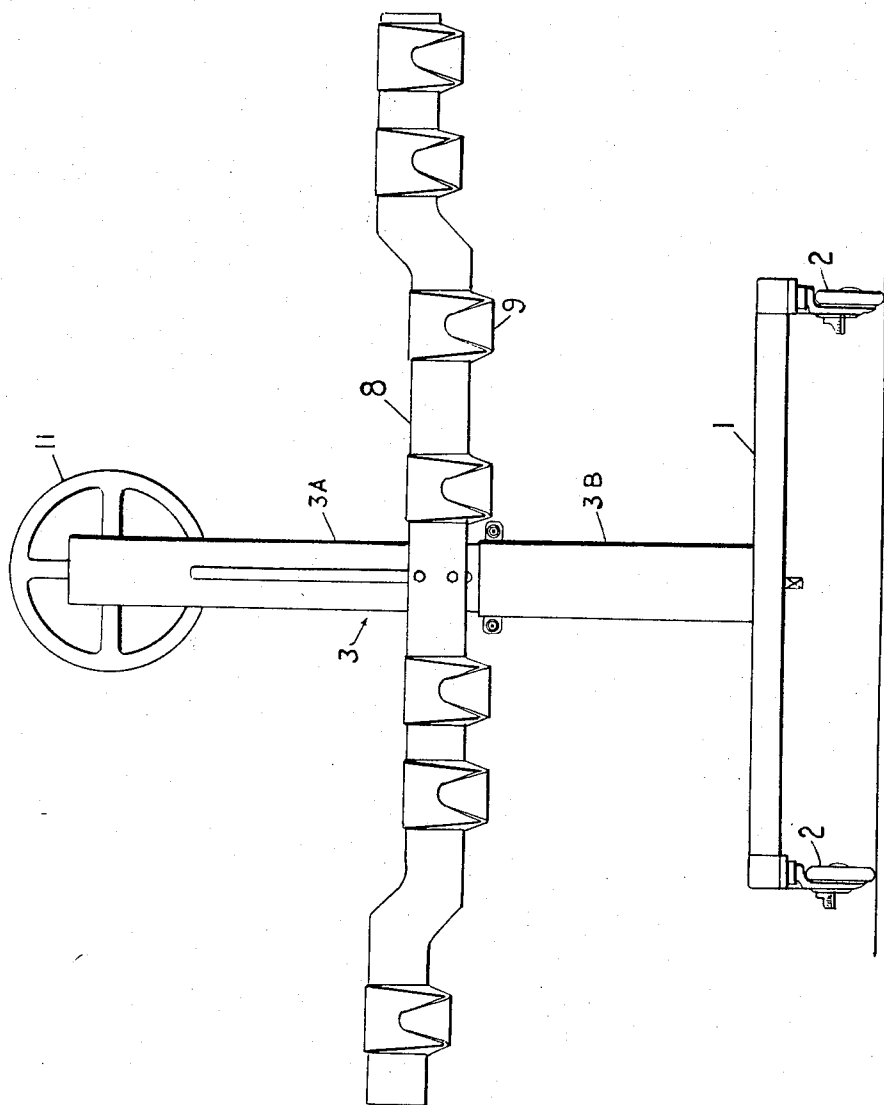


FIG. 1

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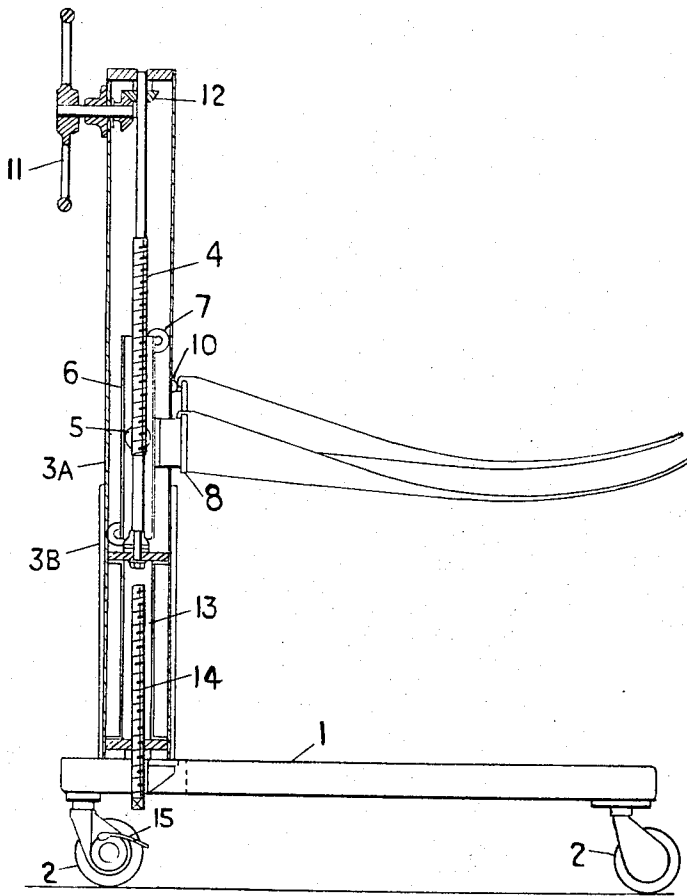


FIG. 2

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TROLLEY

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Filed Oct. 5, 1966, Ser. No. 584,579
1 Claim. (Cl. 187-9)

ABSTRACT OF THE DISCLOSURE

A trolley particularly for use in a hospital comprises a castor mounted chassis with an upstanding column formed in two portions so that the uppermost portion is movable longitudinally relative to the lowermost one. An adjusting screw carried by the chassis mates with a screw-threaded member of the movable portion of the column for adjusting the effective length of the column. A mechanical screw jack is carried in the movable portion of the column, the movable nut-like element of the jack carrying a horizontal beam to which tines are attached through downwardly facing notches so that the tines project over the chassis.

The subject of this invention is a trolley particularly for use in a hospital.

The handling of patients who are too ill to provide any assistance themselves has always been a difficulty in hospitals. The problem is to provide for a recumbent completely limp patient to be raised off a bed or a stretcher, for example, for treatment or transfer without causing pain or discomfort or further injury while using the minimum of hospital staff.

It is an object of the present invention to provide means by which this may be accomplished by a single nurse or other attendant.

A trolley according to the invention consists of a chassis mounted on casters, at least one column upstanding from the chassis, a lifting jack device incorporated in the column, a horizontal beam attached to the movable member of the lifting jack, and tines attachable to the beam to project substantially horizontally from the beam.

The lifting jack device may be of the mechanical screw-jack type having a vertical screw-threaded rod supported in the column and a nut-like element engaged with the screw-threaded rod, the beam being coupled to the nut-like element.

The column may be located at one side of the chassis, the tines being arranged to project above the chassis when engaged with the beam.

The means for rotating the screw-threaded rod, may include a gear box having an output shaft to which the rod is coupled.

In some cases it may be considered desirable that the trolley will incorporate two upstanding columns each incorporating a lifting jack device, the beam being coupled to the movable members of both lifting jack devices. In this construction the gear box may have two output shafts, each coupled to a respective lifting jack device, the construction being such that rotation of an input shaft will cause both screw-threaded rods to rotate simultaneously. The gear box may also contain provision for rotating the rods separately.

Alternatively, the lifting jack device may be a fluid-pressure operated jack device.

The chassis may consist of a single longitudinal member with two spaced outriggers, the longitudinal member being fitted with casters and each outrigger being fitted with a castor at its outermost end. The outriggers may be hinged to the longitudinal member to facilitate storing of the trolley.

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The gear box may be hand operated i.e., the input shaft may carry a hand wheel. Alternatively an electric motor may be coupled to the input shaft. The electric motor may be connectible to a convenient mains power point or may be arranged to be connected to a battery mounted on the chassis, the chassis supporting the necessary control equipment.

The column may incorporate a guide block guided to slide vertically in the column, the beam being fixed to the guide block.

The column may be in two portions movable relatively to one another to provide an adjustment of the length of the column.

A handle for pushing the chassis may be provided at each end of the chassis and each handle may be pivoted to a support on the chassis in such wise that the handle may be swung out of the way when not in use.

Each tine may be in the form of a pointed strip, the end remote from the point being formed to engage the beam. Each tine may be formed with a notch opening downwardly and formed to be engageable with the upper edge portion of the beam.

A handle for moving the chassis transversely may be fitted to the column.

One or more of the castors may carry an electric motor electrically connectible by way of control equipment to a battery mounted on the chassis.

A positive lock may be provided on at least one wheel and on the castor.

A practical embodiment of the invention is illustrated in the accompanying drawings in which FIG. 1 is a front elevation of a trolley and FIG. 2 is a side elevation of the trolley.

In the drawings, 1 denotes a chassis mounted on castors 2, 3 denotes a hollow column upstanding from the chassis 1, the column being in two telescopic parts 3A and 3B, the part 3B being attached to the chassis 1 and the part 3A being slidable in the part 3B. The column part 3A supports a screw-threaded bar 4 engaged with a nut-like element 5 to which is attached a guide member 6 carrying rollers 7 bearing against the inner surface of the column part 3A to resist the thrust exerted by the weight of a beam 8 attached to the guide members 6. 9 denotes tines pointed at their outer ends and formed at their other ends with notches 10 engageable with the beam 6. 11 denotes a hand wheel coupled by gearing 12 to the screw-threaded bar 4. The lower end of the column portion 3A is provided with an internally screw-threaded member 13 engaged with an adjusting screw 14 rotatable in the chassis 1 and restrained against axial movement. 15 denotes a brake device associated with one of the castor wheels 2.

In practice, the operation of lifting a patient from a bed or a stretcher for transfer to another position or for performance of any of the normal nursing functions is performed as follows:

As many tines 9 as are required for supporting the patient are inserted between the patient and the bed or other support on which he is resting, the tines being so spaced that the weight of the patient will be distributed as evenly as possible on them and the notched ends being arranged to project clear of the bed or other support. The hand wheel 11 is operated to cause the rod 4 to rotate in the appropriate direction to lower the beam 8 to a level below that of the notched ends of the tines. The trolley is then moved up to the bed or other support, the outriggers 2 moving below the support. The trolley is then manoeuvred and the notched ends of the tines are so adjusted that the notches on the tines are in vertical alignment with the beam. The hand wheel 11 is then rotated in the direction to cause the beam to rise and engage the notches 10 in the tines 9. Further rotation of the hand wheel 11 in the same direction then causes

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the patient to be lifted clear of the support on which he was resting. The patient may then be attended to with the trolley in that same position or he may be transferred to another support such as a bed or a stretcher by wheeling the trolley to the desired position, the patient being placed on the new support by manoeuvring the trolley so that he is held above the support, the hand wheel 11 being then operated to cause the beam 8 to move downwardly until the tines 9 rest on the support. Further rotation of the hand wheel 11 in the same direction causes the beam to move a further amount downwardly until the beam 8 becomes disengaged from the notches 10 in the tines 9. The trolley is then wheeled away and the tines 9 are withdrawn from underneath the patient.

The screw-threaded member 13 and the screw 14 provide the means for adjusting the effective length of the column 3 to permit the trolley to be used with widely differing heights of beds or other supports without having to make the screw-threaded bar 4 an excessive length. Since the amount of friction between the bar 4 and the nut 5 has a large effect on the effort required at the hand wheel 11 it is essential that the bar 4 should be accurately made. It is thus desirable to keep it as short as possible and the use of the element 13 and the screw 14 permits this to be done. Screw 14 can be adjusted by hand beneath the chassis, or in any other convenient manner, to adjust column portion 3A.

What is claimed is:

A trolley comprising a chassis, said chassis comprising a single longitudinal member and two spaced outriggers, at least one castor fitted to the longitudinal member and at least one castor fitted to each outrigger at its outermost end; a least one column upstanding from the chassis at one side of the chassis, said column being in two por-

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tions, the lowermost one of which is fixed to the chassis and the uppermost one of which is movable longitudinally relative to the lowermost one; an internally screw-threaded member fixed to the uppermost portion of the column, an axially restrained adjusting screw rotatable in the chassis engaged with the internally screw-threaded member for adjusting the uppermost portion of the column relative to the lowermost portion; a lifting jack device of the mechanical screw-jack type having a vertical screw-threaded rod support in the uppermost portion of the column and a nut-like element engaged with the screw-threaded rod for vertical movement upon rotation of the screw-threaded rod; a horizontal beam coupled to the nut-like element; and tines each in the form of a pointed strip, each tine having its end remote from the point formed with a notch facing downwardly and arranged to be engageable with the upper portion of the beam in such manner that the tine projects over the chassis when the tine is engaged with the beam.

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