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3,407,413

APPARATUS FOR DISABLED PERSONS

Filed Jan. 4, 1967

3 Sheets-Sheet 1

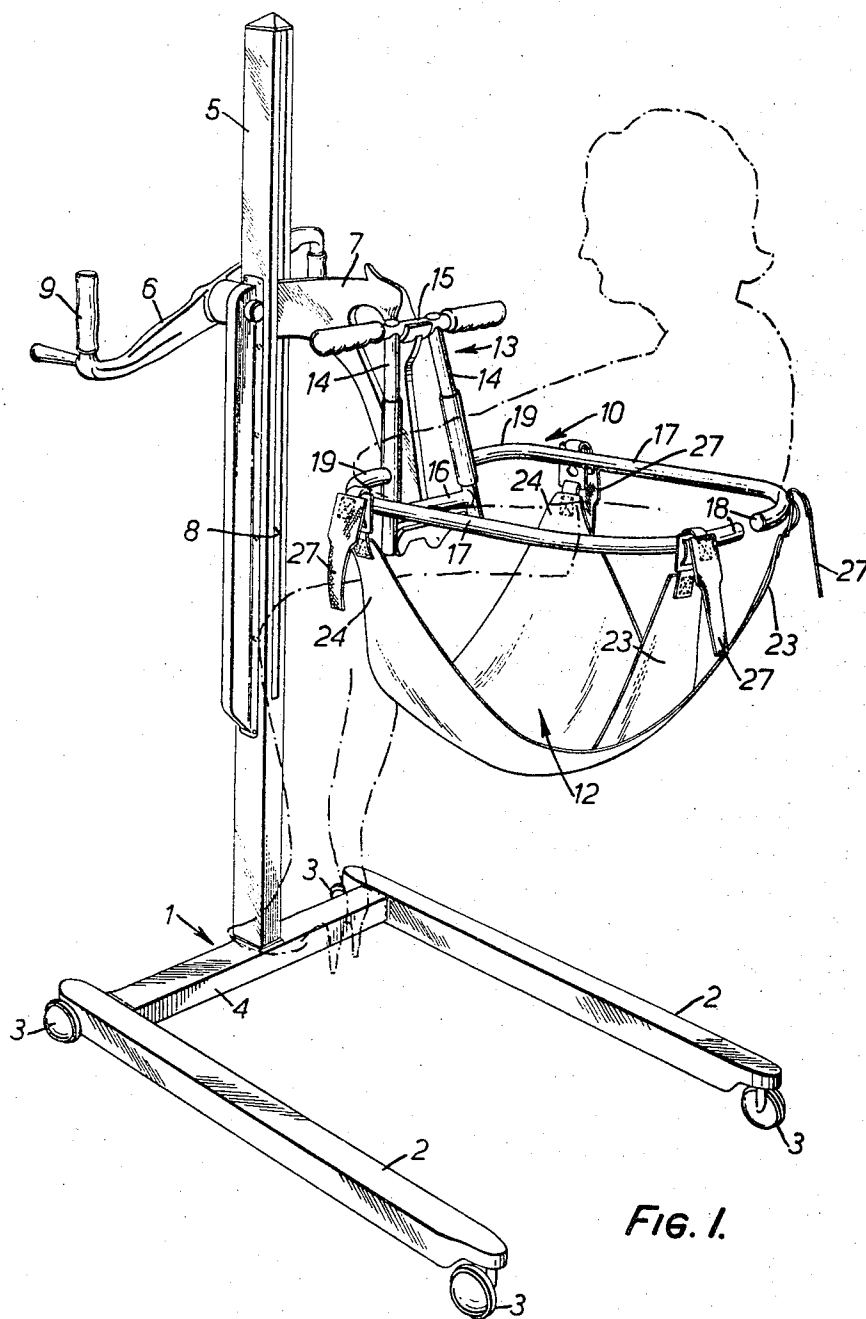


Fig. 1.

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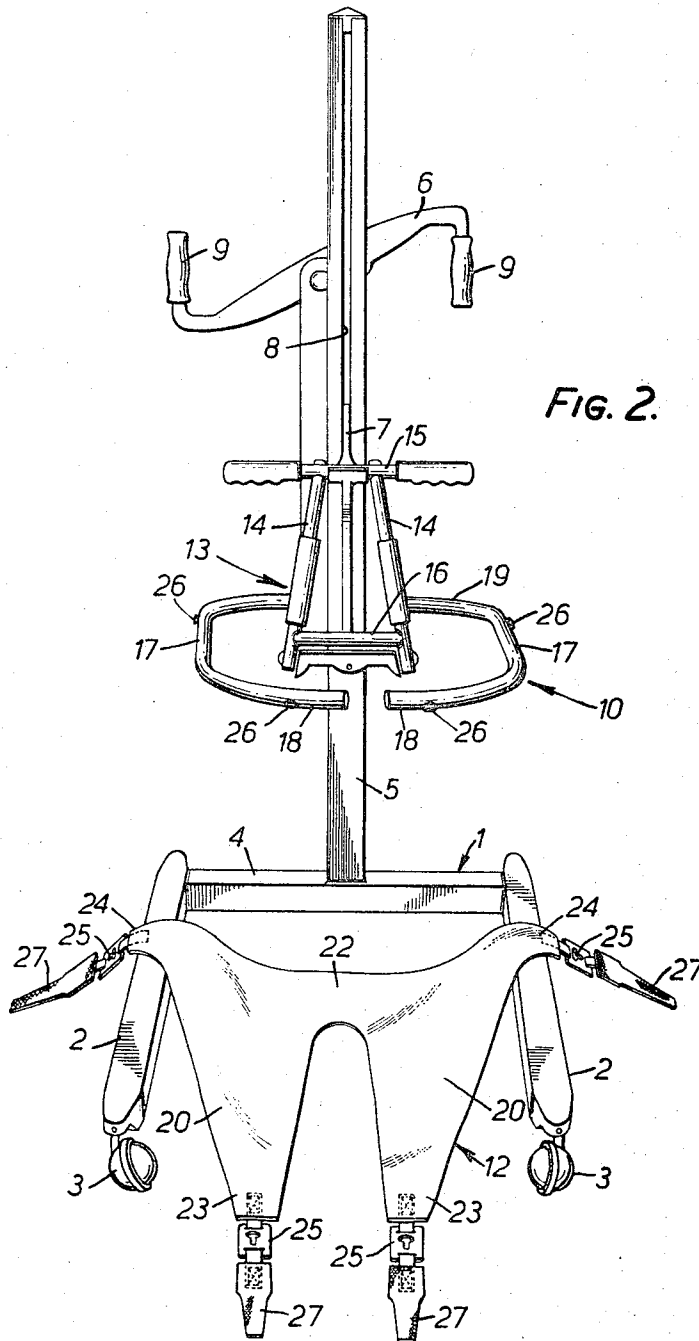
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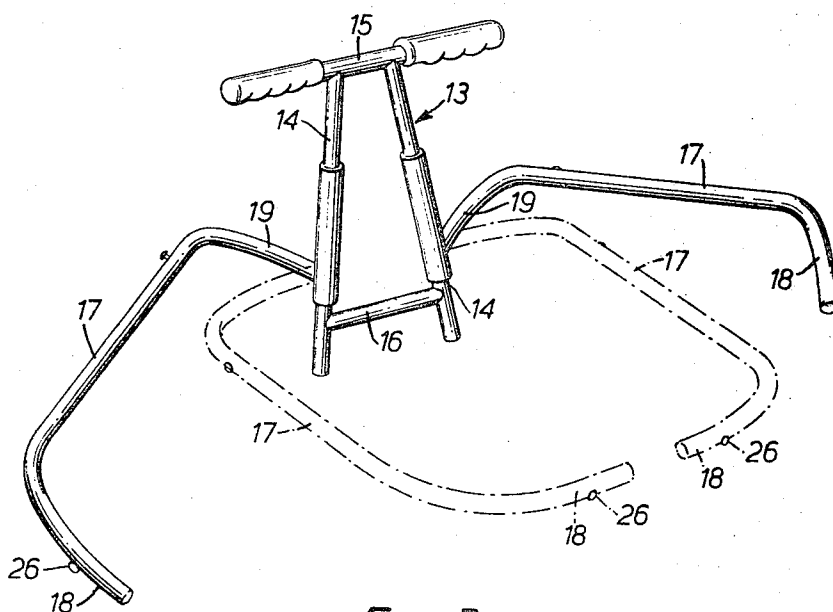


FIG. 3.

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APPARATUS FOR DISABLED PERSONS

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12 Claims. (Cl. 5—81)

ABSTRACT OF THE DISCLOSURE

A support for carrying a disabled or infirm patient in a sitting position comprises a frame which can be opened and then closed laterally around the patient, and a support sling for the patient which includes rear crossover and side strap portions for attachment to four attachment points on the frame structure.

This invention relates to apparatus designed to facilitate handling of hospital patients or other persons who are disabled or infirm and yet can conveniently be handled in a sitting position. The invention is suitable for application to the handling of disabled persons when moving them in a sitting position from a bed or chair to another situation, for example a bathroom or lavatory, and provides support means which can be used with or form part of any suitable lifting and transporting apparatus.

According to the invention in its broadest aspect, means for supporting a disabled or infirm patient in a sitting position comprises a frame structure which can be opened for movement laterally around a patient and then closed around him, and a support sling for the patient which includes rear cross-over and side strap portions for attachment to four attachment points on the frame structure.

More specifically, means according to the invention for supporting a disabled or infirm patient in a sitting position comprise a frame structure having two side arms which are each pivotally mounted adjacent one end and turned inwardly adjacent the other end to fit behind a supported patient, the frame structure being capable of being opened for movement laterally around the patient and then closed around him, and a support sling for the patient which includes four interconnected strap portions which can be detachably secured to the arms, in use two side strap portions respectively extending upwardly at the side of the patient's legs for attachment to attachment points on the arms and towards the pivotally supported ends thereof, and two rear strap portions crossing over beneath the patient for connection to further attachment points on the arms towards the free ends thereof.

The frame structure may be a permanent part of lifting apparatus embodying a wheeled carriage, but is preferably of separate detachable form so that the apparatus can also be used for other purposes and with support means of a different nature. The frame structure preferably includes a generally triangular section adapted for attachment to a cantilever lifting arm of the lifting apparatus, with inclined side tubes of the triangle providing pivots for the side arms so that the latter pivot not only laterally but also slightly upwardly when moved apart for withdrawal from the patient to leave him in the deposited sitting position. The rear free ends of the arms are conveniently curved inwardly to provide in use a back support for the patient.

The frame structure is when practicable best moved into position around the patient from the front of the latter. However, if the facility of a side or rear approach is desired it is convenient for the attachment points on the arms to be arranged so that they are equispaced around

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an imaginary circle. As a result the sling is supported in the same manner irrespective of the approach quadrant.

With sideways approach, if the patient is sitting in a chair the back of the latter may obstruct pivotal movement of one arm of the frame. This is particularly the case when the means are used in removing a patient from, or placing him in, the seat of a motor car. To enable this to be done one, or both, the arms of the frame structure may be detachable; for example, one arm may have a pintle attachment so that it can be removed and placed behind a patient between him and a chair back prior to attachment of the sling.

The sling, which is conveniently formed from an easily cleaned material such as polyvinylchloride which can be wiped down after use, may comprise two generally triangular parts interconnected at the front by a narrow integral band leaving in the flat a generally triangular spacing between the said parts. The rear apical sections of the triangular parts then provide the rear crossover strap portions, the crossover being positioned immediately below the patient, and the side apical sections of the triangular parts provide the side strap portions of the support sling.

The strap portions of the support sling conveniently carry key-hole plates for attachment to hooks on the side arms of the frame structure, and the strap portions are preferably extended beyond the respective key-hole plates to provide hand grips to facilitate handling during attachment to the frame.

In use the crossover of the rear strap portions not only provides adequate support beneath the patient but also causes each of these strap portions to apply an inward force to the corresponding side arm so that the arms are retained firmly in the operative position and no locking or retention means need be provided. In addition the sling support can very easily be fitted beneath the patient, being fitted from the front beneath the legs of the latter and eased just below the buttocks, the act of lifting pulling the rear strap portions to the final crossover position beneath the patient so that there is no need to lift the patient completely by hand.

One embodiment of support means for a patient in accordance with the invention and a suitable form of lifting apparatus for use therewith will now be described by way of example, with reference to the accompanying drawings, wherein:

FIGURE 1 is a perspective view of the support means and lifting apparatus, additionally showing a patient supported by the support means,

FIGURE 2 is another perspective view, showing the support sling in an inoperative position in order clearly to reveal the shape of the sling, and

FIGURE 3 is a perspective view of the frame structure, showing the side arms thereof in their laterally and upwardly pivoted inoperative position, the operative position of the side arms being indicated in broken lines for purposes of comparison.

The lifting apparatus embodies a wheeled chassis, generally indicated at 1, comprising two spaced parallel side members 2 provided with castors 3 and interconnected at the front end by a cross member 4 on which a central tubular mast 5 is supported. Within the mast 5 is mounted a carriage (not shown) which can be moved up and down the mast by turning a handle 6 mounted on the mast and acts through a suitable lifting mechanism, the carriage being connected to a cantilever lifting arm 7 which projects through a longitudinal slot 8 in the mast 5 above the parallel side members 2 of the chassis 1.

The handle 6 is in the form of a bar connected at the centre of the lifting mechanism and provided with hand

grips 9 so that it can be used as a handle-bar to guide and move the apparatus, being arranged at a suitable level for this purpose. The described form of the chassis enables it to be slid beneath a bed or bath to handle a patient therein.

The support means in accordance with the invention comprise a frame structure 10 formed from metal tube and a support sling 12 of a padded synthetic plastic material which can be wiped down if necessary after use. The frame 10 has a triangular front section 13 which is wider at the bottom and comprises tubular side members 14 interconnected by horizontal upper and lower tubes 15 and 16, respectively, which can be hooked on to the cantilever arm 7 of the lifting apparatus so that the frame 10 is firmly and rigidly secured thereto.

The side tubes 14 of the front frame section 13 provide pivots for two side arms 17 which in the closed operative position enclose a generally rectangular area within which the patient is supported in a sitting position (see FIGURE 1) the rear free ends 18 of the arms 17 almost touching and being curved inwardly towards each other to provide a back support for the patient. Each arm 17 has a forward curved section 19 adjoining the pivot and merging into a straight intermediate section.

The sling 12 has two generally triangular parts 20 (see particularly FIGURE 2) which are elongated from front to back and at the front are joined by a narrow integral band 22, the rear and side apical sections of the parts 20 providing rear and side strap portions 23 and 24 respectively. Each of the strap portions 23 and 24 carries a key-hole plate 25 so that the strap portions may be detachably connected to the side arms 17, the latter having suitable attachment hooks 26. The front hook 26 on each arm 17 is attached towards the front end thereof at the beginning of the straight intermediate section of the arm, and the rear hook 26 is attached adjacent the rear end 18 on the curved section thereof.

Each of the strap portions 23 and 24 is extended beyond the respective key-hole plate 25 to provide a hand grip 27 to facilitate handling during attachment of the support sling 12 to the frame structure and eventual detachment therefrom.

In use to pick up a patient in a sitting position, for example on a bed or in a chair, the sling 12 is inserted below the legs of the patient from the front, the rear strap portions 23 being gently eased under the respective buttocks. The lifting apparatus is now wheeled into position in front of the patient, with the frame structure 10 attached and the two side arms 17 turned out to an open position (see FIGURE 3) so that they pass on each side of the patient around whom they are closed when the apparatus is positioned.

The side strap portions 24 are now attached to the front hooks 26 on the frame so that they extend directly upwards on each side of the patient's legs. The rear strap portions 23 are crossed over and each of these portions is hooked on to the rear hook 26 of the opposite arm 17 of the frame structure 10. The patient can now be lifted by means of the lifting apparatus and then deposited again in a sitting position, by the reverse procedure.

The crossover of the rear strap portions 23 provides an inward force on the arms 17 which retains these arms in the operative inward position suited to the size of the patient so that there is no tendency for the arms to open, and during lifting the strap portions 23 are automatically pulled into the correct crossover position. In this position they cross over directly beneath the patient to provide a firm, satisfactory and comfortable support.

I claim:

1. Means for supporting a disabled or infirm patient in a sitting position, comprising a frame structure which can be opened for movement laterally around a patient and then closed around him, and a support sling for the patient which includes rear crossover and side strap portions for attachment to four attachment points on the frame

structure, said crossover strap portions being adapted to cross over round the buttocks of the patient and the side strap portions adapted to extend upwardly at the sides of the thighs of the patient.

2. Means for supporting a disabled or infirm patient in a sitting position, comprising a frame structure having two side arms which are each pivotally mounted adjacent one end and turned inwardly adjacent the other end to fit behind a supported patient, the frame structure being capable of being opened for movement laterally around the patient and then closed around him, and a support sling for the patient which includes four interconnected strap portions which can be detachably secured to the arms, in use two side strap portions respectively extending upwardly at the side of the patients' legs for attachment to attachment points on the arms and towards the pivotally supported ends thereof, and two rear strap portions crossing over round the buttocks of the patient for connection to further attachment points on the arms towards the free ends thereof.

3. Support means according to claim 1, wherein the frame structure forms part of a lifting apparatus embodying a wheeled carriage.

4. Support means according to claim 2, wherein the frame structure is associated with and detachable from a lifting apparatus embodying a wheeled carriage.

5. Support means according to claim 4, wherein the frame structure includes a generally triangular section adapted for attachment to a cantilever lifting arm of the lifting apparatus.

6. Support means according to claim 1, wherein the attachment points are equispaced around an imaginary circle.

7. Support means according to claim 10, wherein one side arm of the frame structure is pivotally attached to its associated side tube by a pintle attachment so that the said one side arm is detachable from the triangular frame section.

8. Support means according to claim 1, wherein the support sling comprises two generally triangular parts interconnected at the front by a narrow integral band leaving in the flat a generally triangular spacing between the said parts, the rear apical sections of the triangular parts providing the rear strap portions and the side apical sections of the triangular parts providing the side strap portions of the support sling.

9. Support means according to claim 8, wherein the strap portions of the support sling carry key-hole plates for attachment to hooks on the side arms of the frame structure.

10. Means for supporting a disabled or infirm patient in a sitting position comprising a lifting apparatus embodying a wheeled carriage and a cantilever lifting arm, a frame structure associated with and detachable from the lifting apparatus and including a generally triangular section adapted for attachment to said lifting arm, said frame structure also including pivotally mounted side arms which allow the frame structure to be opened for movement laterally around a patient and then closed around the patient and said triangular frame section having inclined side tubes which provide pivots for the side arms which thus pivot not only laterally but also slightly upwardly when moved apart, and a support sling for the patient which includes rear crossover and side strap portions for attachment respectively to four attachment points on the frame structure.

11. Means according to claim 10, wherein said rear crossover strap portions of the support sling are adapted to cross over round the buttocks of the patient and said side strap portions are respectively adapted to extend upwardly at the sides of the legs of the patient.

12. For use with lifting means for a disabled or infirm patient embodying a support frame, a lifting sling of flexible material and comprising two similar side sections interconnected at the front of the sling by a narrow integral

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band, each of said side sections providing a side strap portion and a rear crossover strap portion whereby to support a patient with all four strap portions attached to the frame at four spaced attachment points and the two side strap portions respectively extending upwardly at the sides of the thighs of the patient with the crossover strap portions crossing over around and hence supporting the buttocks of the patient.

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