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(54) Mobile chair

(57) A chair for a disabled person has a seat assembly 8 including a readily removable backrest 14 and a readily removable seat 15 so that the patient may enter the chair from the rear and raise and support himself by holding onto a table 9 whilst a helper replaces the seat and backrest, the patient then lowering himself onto the seat. The seat and the table are adjustable for

height by up-and-down movement on a pair of legs 7 of arms 10 of the seat assembly and frame 18 of the table. In a modification (not shown) a single centrally-disposed leg carries the seat assembly 8 and table 9. The backrest 14 and seat 15 may be combined to form a single component and this may be formed of a piece of fabric material which can be laid flat to facilitate placing under a patient before he enters the chair, e.g. from a sitting position on the side of a bed.

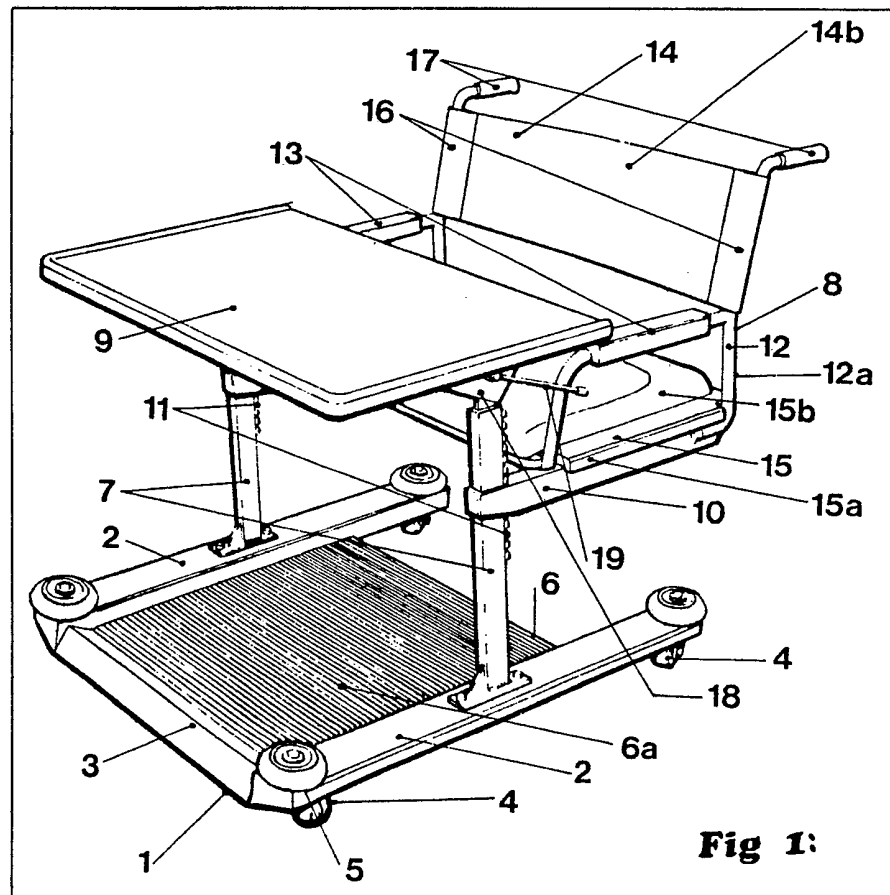


Fig 1:

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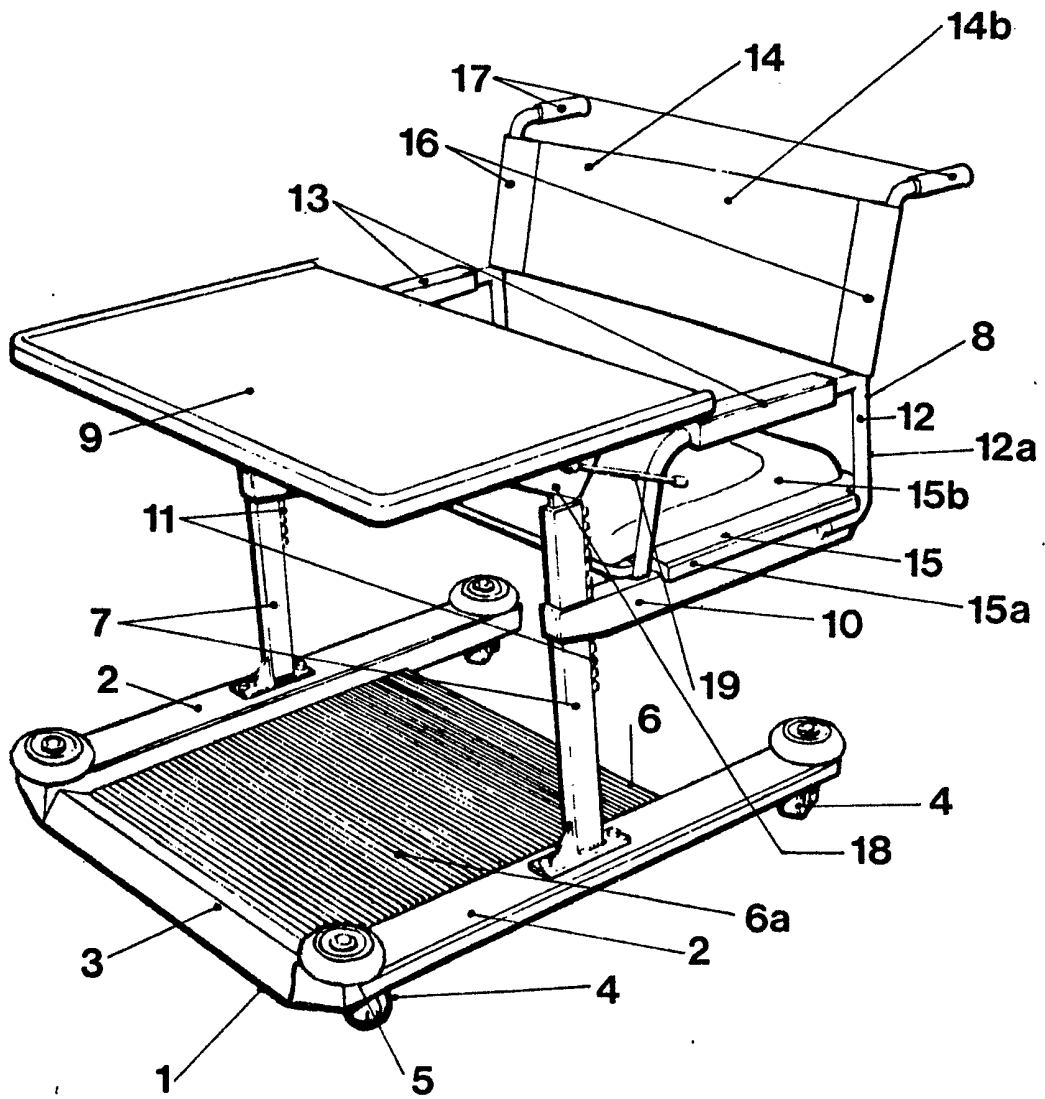
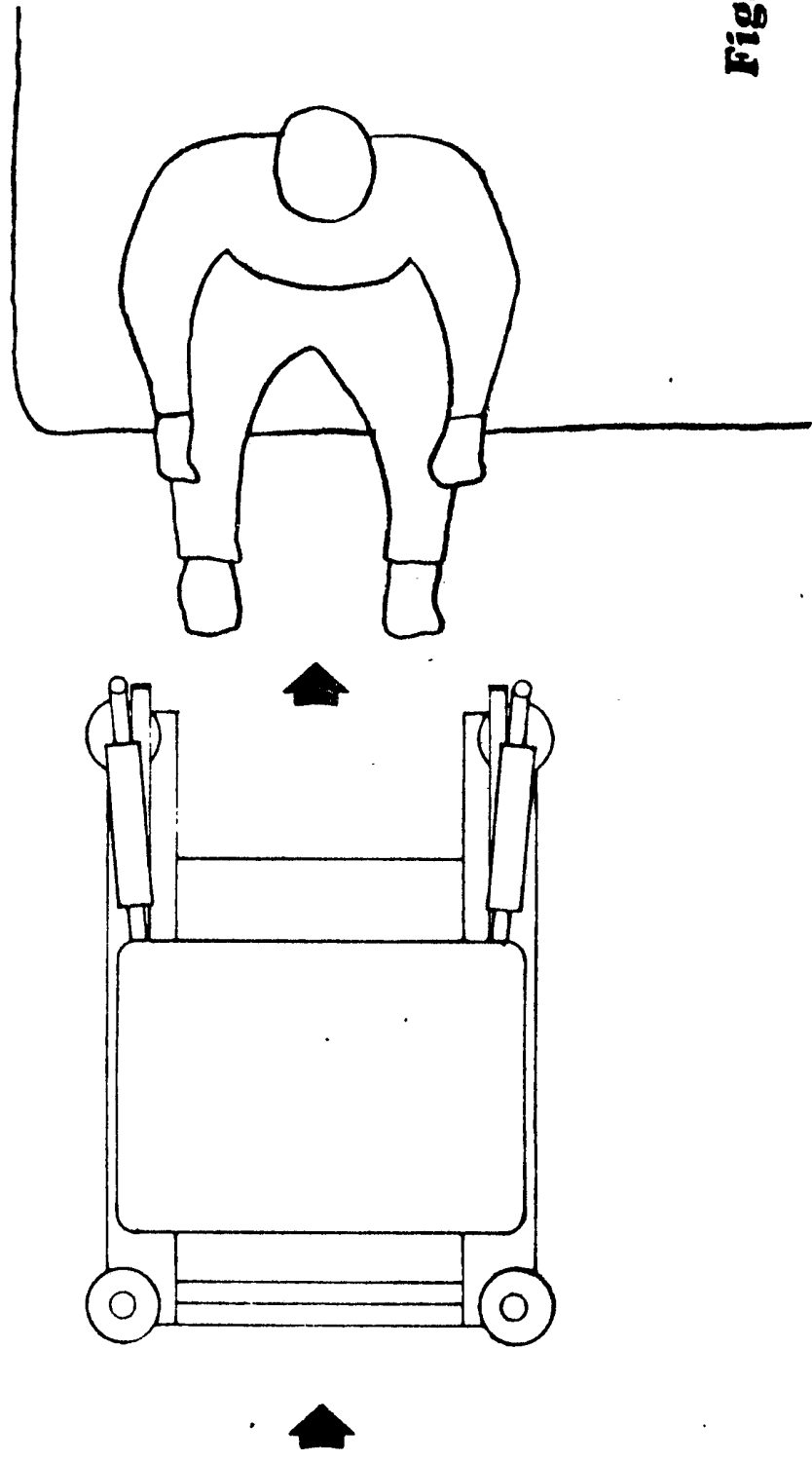


Fig 1:

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Fig. 2:



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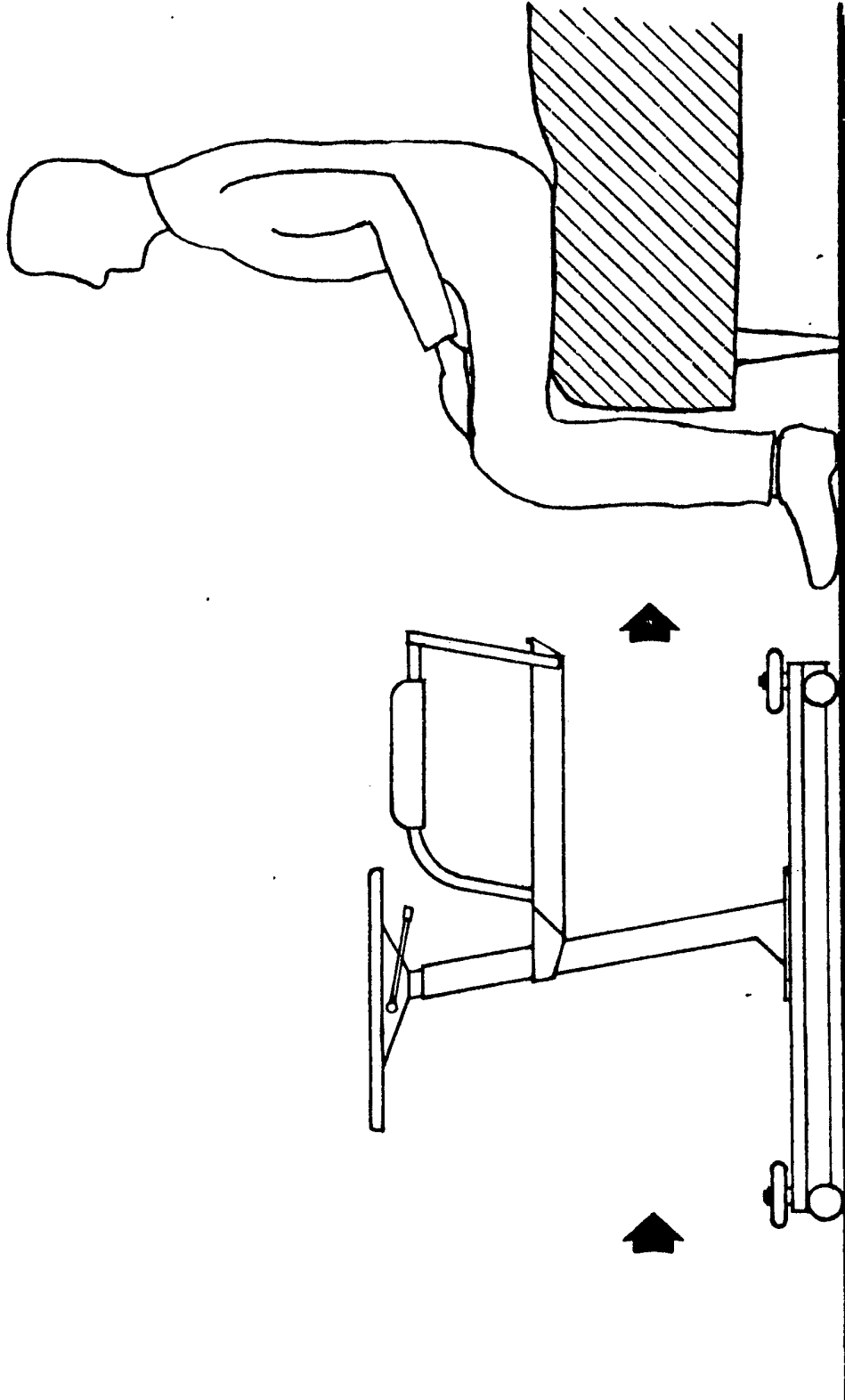


Fig. 3:

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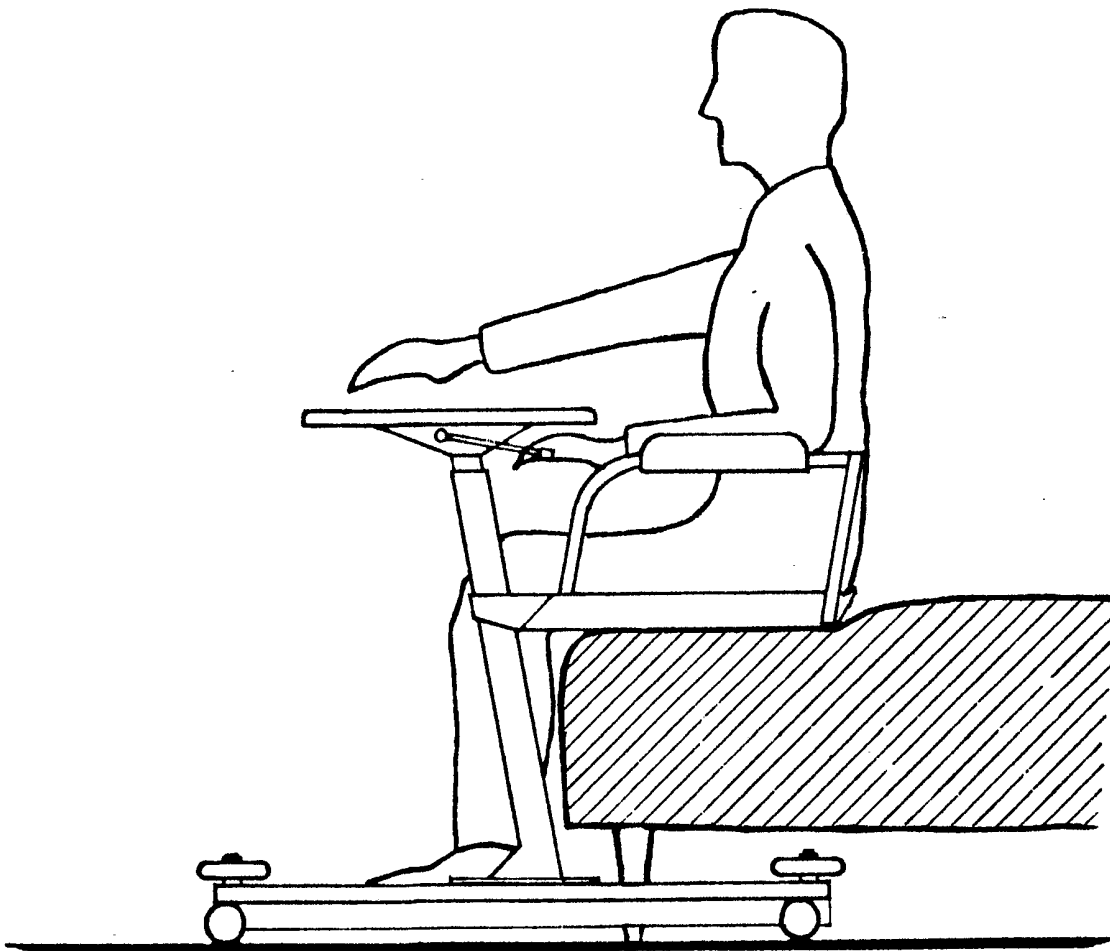


Fig. 4:

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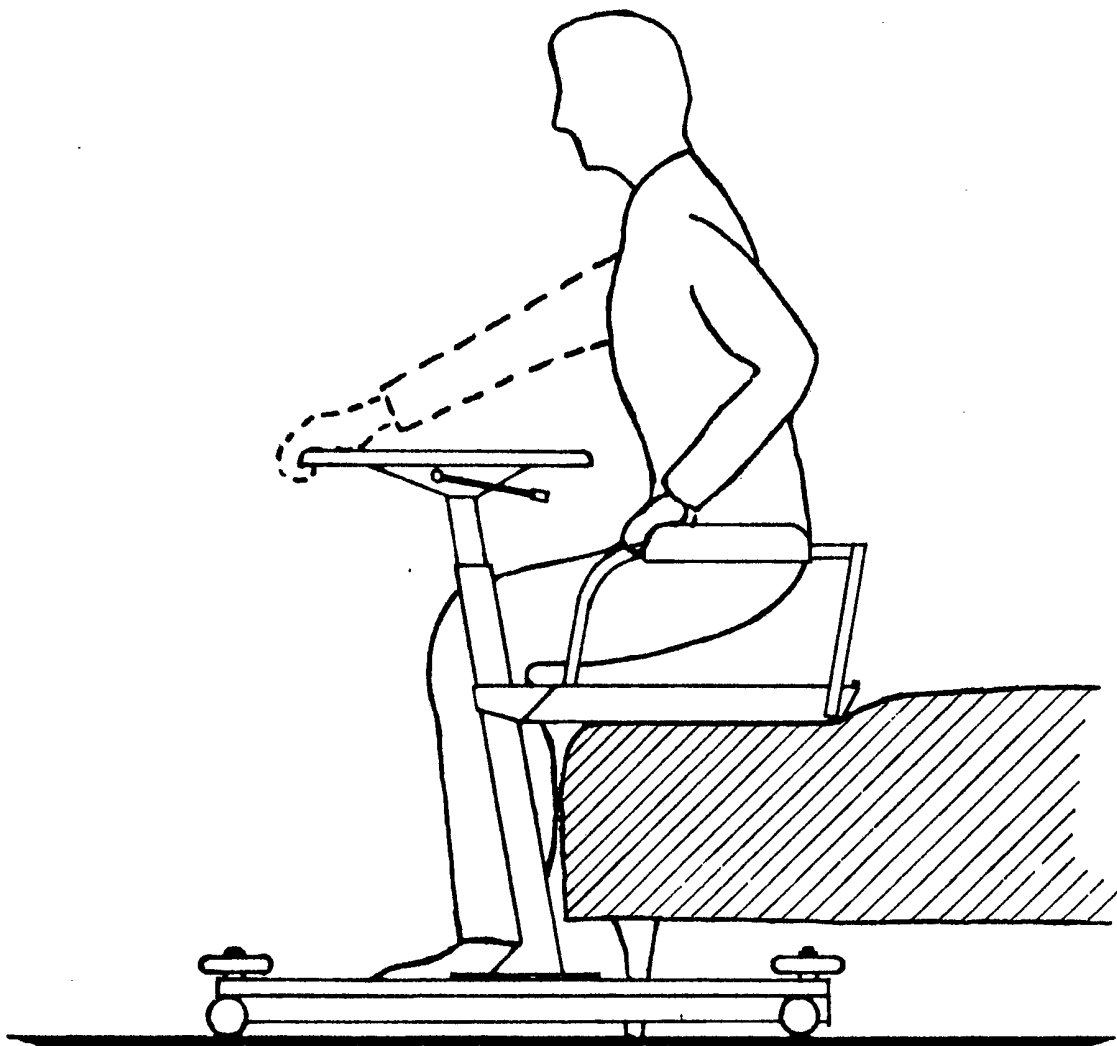


Fig. 5:

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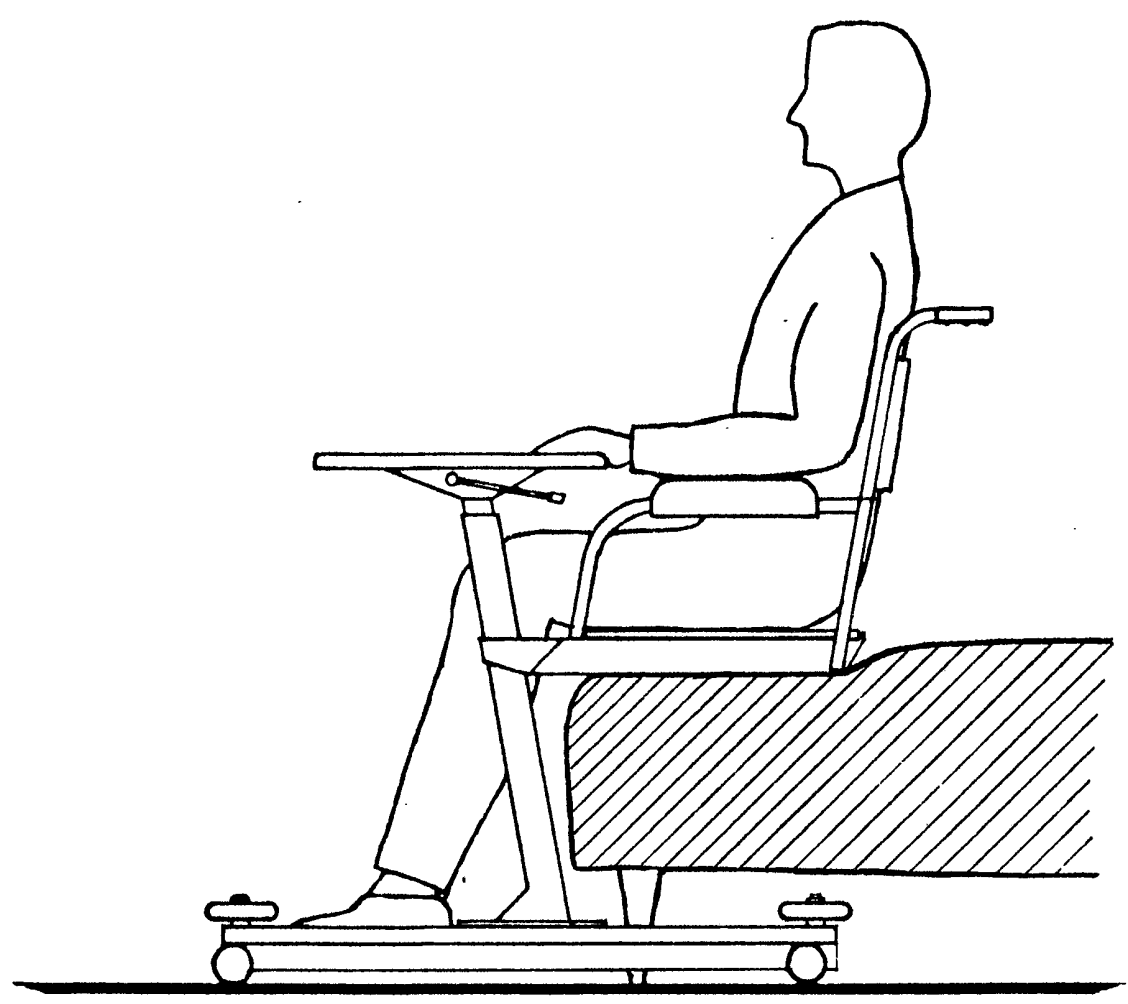


Fig. 6:

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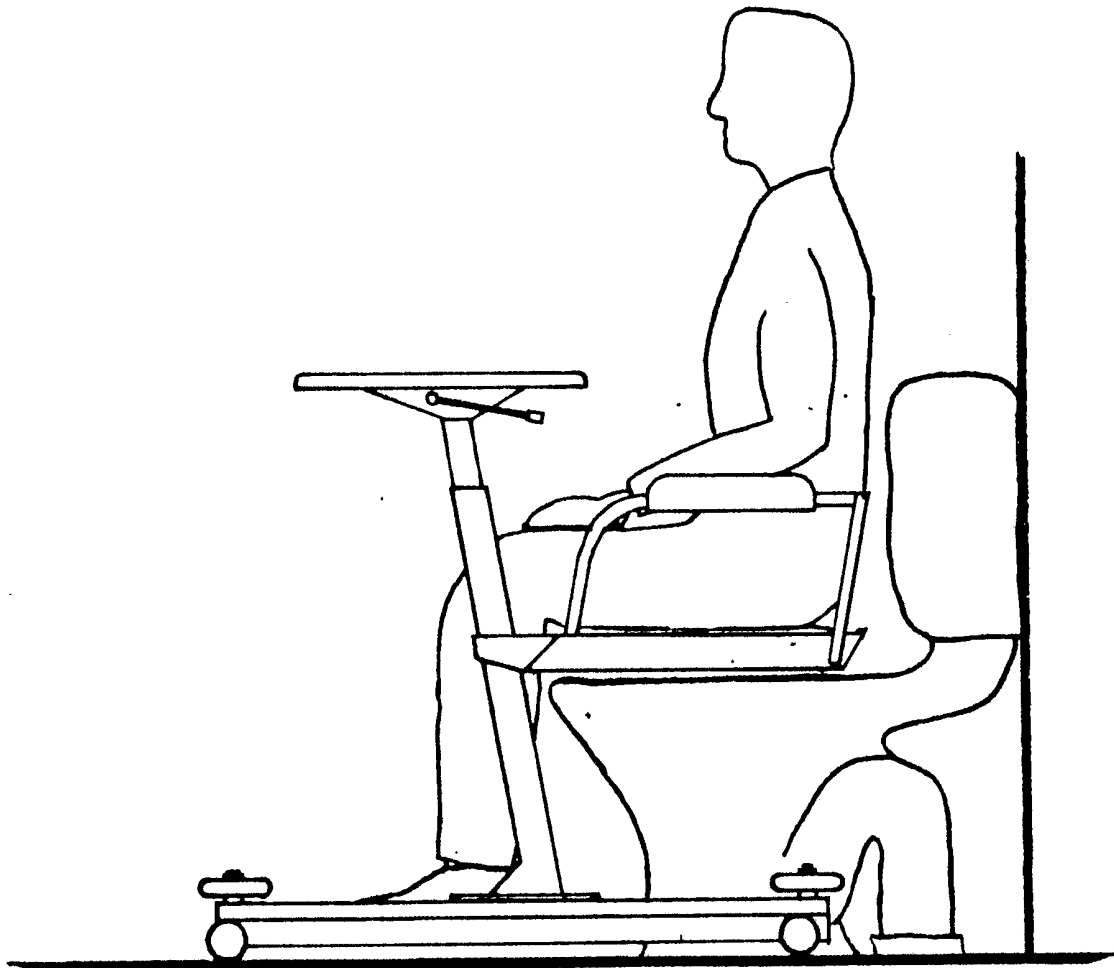


Fig. 7:

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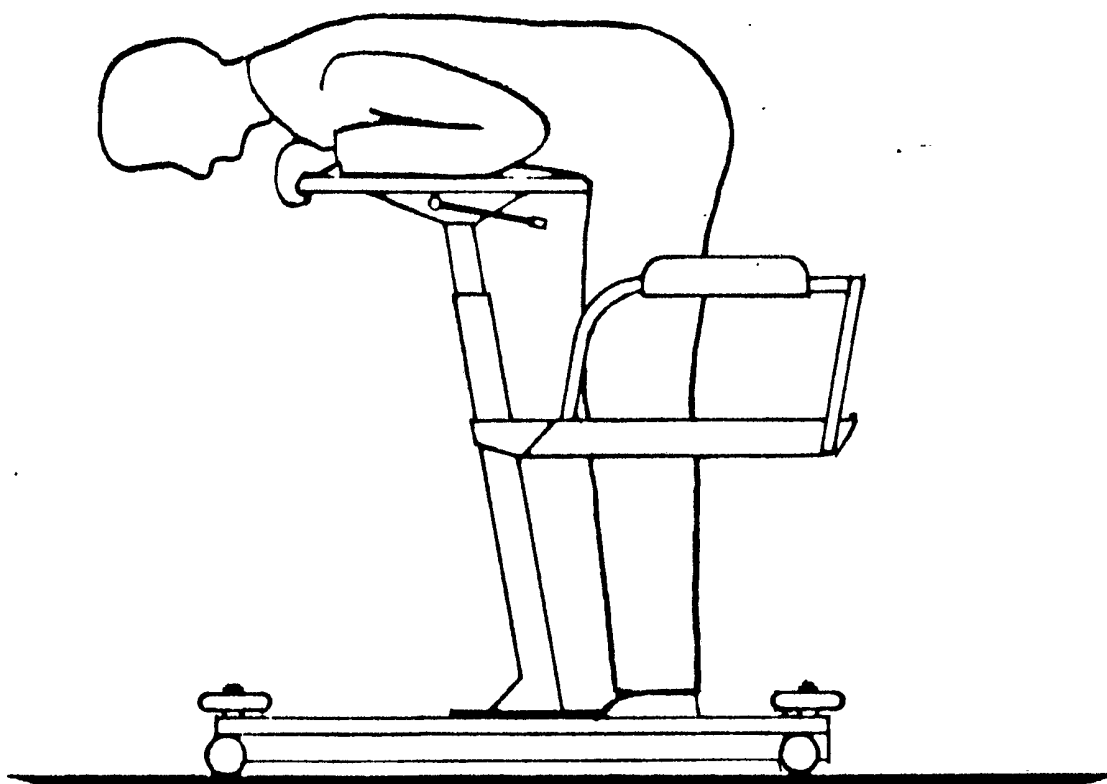


Fig. 8:

SPECIFICATION

Mobile chair

The invention relates to a mobile chair intended for use by persons having impaired or limited movement functions; for example, disabled, incapacitated or geriatric persons.

To assist in the movement from place-to-place of such persons, either by their own efforts or with assistance from helpers, various types and styles of wheelchairs and mobility aids are currently available. These known devices whilst being suitable for the stronger and lesser disabled person are not too suitable for the weaker or more disabled person in need of care from a helper.

Such patients are often subjected to undesirable physical effort when using these known devices and also there is a considerable strain on those providing care and assistance in the home; thus, in many cases there becomes little alternative to accepting hospital or institutional accommodation.

It is an object of the invention to provide a mobile chair which enables the physical effort required from the disabled person or patient to be significantly reduced and at the same time enables the physical strain on the person providing care to be lessened.

In accordance with the invention there is provided a mobile chair comprising:

a base having rotary support means permitting movement of the chair over a supporting surface, at least one upstanding member connected to the base,

a seat assembly carried by said upstanding member or members and comprising a removable seat and backrest permitting, when removed, entry into the chair from the rear and,

a support member carried by said base and located to the front of the seat so that the support member may be used by the chair occupant to assist in supporting himself.

Although there may be only a single upstanding member disposed on the medial fore-and-aft axis of the base, it is preferred to provide a pair of upstanding members in the form of leg members, each leg member being connected at its lower end to a respective one of opposite sides of the base.

The seat and backrest may comprise separate components which are individually removable or, alternatively, the seat and backrest may be combined to form a single component which is removable as a whole.

In the instance where the seat and backrest form a single component the combination may be formed of a piece of fabric material which can be laid flat. Alternatively, the single component may be rigid and of angle cross-section, the backrest upstanding from the seat.

Preferably, the seat assembly comprises a pair of arms each connected to a respective one of said leg members and extending in a direction towards the rear of the chair, said arms carrying said seat and said backrest, and said support member comprises a table connected to said leg members.

In a preferred embodiment of the chair the height of the seat and/or the table is adjustable. This adjustment may be performed manually either directly or through a mechanism giving a mechanical advantage such as a winding handle operating on rack-and-pinion gearing. In other arrangements this adjustment may be performed by pneumatic or hydraulic cylinder means.

In one advantageous embodiment of the chair the seat assembly includes side frames fixed to the arms and carrying armrests. These armrests may be used by the patient to assist in raising or lowering himself whilst also serving to ensure the patient's safety.

It will therefore become apparent that it is a simple operation for a disabled person to transfer himself into the chair, by entering the chair from the rear, with assistance from a helper. Thus, in one method, to transfer from a bed to the chair, the patient sits on the side of the bed and the chair is brought to him with the seat and backrest removed, the rear portion of the base passing under the bed and the pair of arms passing over the bed and to either side of the patient. The patient's feet are placed on the chair base and he then need only slightly rise onto his feet, assisting himself in doing this by pulling on the front edge of the table or by pressing down with his hands on the armrests. The helper then replaces the seat and backrest and the patient lowers himself onto the seat. The chair and occupant may then be moved from the bed. The important advantage of the ability to enter the chair from the rear is thus apparent.

Embodiments of the invention are hereinafter described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is an isometric view of the chair.

Fig. 2 is a schematic plan view showing the chair with the seat and backrest removed, the chair being moved toward a patient seated on the edge of a bed.

Fig. 3 is an elevational view corresponding to Fig. 2.

Fig. 4 is a view similar to Fig. 3 but showing the chair at the end of its movement towards the patient.

Fig. 5 is a view similar to Fig. 4 but showing the patient making use of the table and an armrest in order to raise himself.

Fig. 6 is a view similar to Fig. 4 but with the seat and backrest replaced and the patient in a normal seated position in the chair.

Fig. 7 is a schematic elevational view showing use of the chair at a standard toilet, and Fig. 8 is a schematic elevational view showing how the chair may be used to assist a helper in toilet preparation and care of a patient.

Referring now to Fig. 1, the mobile chair comprises a base 1 of generally planar configuration, having side members 2, a front member 3 which may serve as a foot rest, a transverse member (not shown) which extends between the side members and which is fixed to them at positions approximately centrally of their

length, and a web member 6 extending between the members 2 and 3 and overlying the transverse member, the web member carrying a non-slip mat 6a. The web member 6 stops short of the rear ends of the side members 2 to enable the chair to be used as shown in Fig. 7.

As shown, the base 1 is rectangular in plan and at the four corners of the base to the front and rear are disposed castors 4 enabling the chair to move over a supporting surface. The construction of the chair is such that it is always stable on the supporting surface and cannot be tipped over in any mode of use of the chair by the occupant.

The castors 4 may have known brake band means operable by hand or foot to prevent rotation of the castor wheels. The castors may also have known locking means to prevent swivelling of the castors about their vertical axes. Buffer wheels 5 mounted on the base 1 with their axes vertical serve to prevent damage to doorways and furniture in movement of the chair.

Leg members 7 are rigidly connected at their lower ends to the side members 2 at positions approximately centrally of the side members. The leg members 7 are hollow and slightly forwardly inclined and serve to support both the seat assembly 8 and the table 9, the latter serving both as a table top and as a support for the chair occupant.

The leg members 7 have toothed racks 11 and the front ends of the arms 10 of the seat assembly have openings receiving the leg members and cooperating with the racks 11. The height of the seat assembly is adjustable by lifting the rear end of the assembly to tilt it so as to disengage the locking action of the toothed racks 11. The arms 10 may then be raised or lowered on the leg members 7 and upon lowering the rear end of the seat assembly to tilt it back the assembly is re-locked on the leg members.

It will thus be apparent that the seat assembly extends canti-lever fashion towards the rear of the chair to provide an unobstructed open space between the underside of the seat assembly and a rear portion of the base 1. This feature permits the chair to be moved to the position shown in Fig. 4 or Fig. 7.

The seat assembly 8 also includes tubular side frames 12 carrying armrests 13, a backrest 14 and a seat 15. The side frames 12 are fixed to the arms 10 and their rear upright parts serve as sockets 12a for mounting the backrest.

The backrest 14 comprises a pair of tubular side members 16 and a piece of fabric material 14b extending therebetween. The upper ends of the side members 16 serve as handles for pushing the chair and have handgrips 17. The lower ends (not shown) of the side members 16 are slidably received in the sockets 12a and thus the backrest is readily removed from the chair by a simple lifting action.

The seat 15 comprises a lower, rigid part 15a of moulded plastic material and an upper padded cushion part 15b resting on the lower part. The lower seat part 15a is supported by resting at its

ends on the arms 10. Hence the seat 15 may be readily removed from the chair by a simple lifting and withdrawing action. Preferably, the lower seat part 15a has a central opening so that after removal of the upper seat part 15b the chair may be used as shown in Fig. 7. In this condition of the seat a pan may be clipped to the underside of the seat part 15a and serve as a commode.

In a modification of the seat assembly (not shown) the seat 15 and backrest 14 are combined to form a single rigid component of generally angle cross-section which is readily removable as a whole.

The table 9 has a frame 18 including a pair of legs slidably received within the hollow leg members 7. Toothed racks (not shown) similar to the racks 11 are provided within the leg members 7 and are engageable by the legs of the frame 18 whereby the height of the table 9 may be readily adjusted and the table locked in the adjusted position, this action being controlled by a locking and releasing lever 19. Preferably, the table top is of moulded plastic material and has a raised edge.

In a modification (not shown) the seat assembly 8 and/or the table 9 are adjustable in height and held in the adjusted position by manually operated means operating on a mechanism giving a mechanical advantage such as a winding handle operating on rack-and-pinion gearing. In other modifications (not shown) this adjustment is performed by pneumatic or hydraulic cylinder means. One advantage of making the seat height adjustable by any one of these modifications is that the adjustment may be performed with the patient sitting on the seat.

To facilitate transfer of a patient to or from the chair and a standard wheel chair the side members 2 may be of two-part pivoted construction so that the rear end portions of the side members may be splayed, when required, to give a greater distance therebetween to receive the wheel chair.

The leg members 7 may have road wheels fixed thereto enabling the chair occupant to propel himself along, these wheels being similar to bicycle wheels and like those used on a standard wheel chair. If desired, the wheels may be adapted for easy attachment and removal. Further, the chair may be provided with motor means for driving the chair along. Such motor means are well-known in the art and therefore are not described in detail.

In another embodiment of the chair (not shown) in which there is only a single upstanding member for carrying the seat assembly and the upstanding member is disposed on the medial fore-and-aft axis of the base, the front ends of the arms 10 may have inwardly turned extensions directed towards the single upstanding member and connected thereto. In this modification the table frame 18 may be connected at its centre to the upstanding member.

In a further embodiment of the chair (not shown) the seat and backrest of the seat assembly

are combined to form a single component formed by a piece of fabric material which may be laid flat.

In use of this embodiment of the chair, when transferring a patient from a bed to the chair, the piece of fabric material is placed under the patient and he is made to sit upright on the seat portion of the material on the side of the bed in the position shown in Fig. 3, the backrest portion of the material being raised so that it is against the patient's back. The chair is now brought to the position shown in Fig. 4 and the piece of fabric material is fastened at its edges to the pair of arms 10 and to upwardly-directed extensions of the side frames 12, these extensions being provided at the rear ends of the side frames and taking the place of the side members 16. Upon fastening of the fabric, which is done by means which are readily releasable, for example, hook and eye connections, the seat assembly is raised to take the weight of the patient from off the bed. The chair may now be moved away from the bed.

In this embodiment, since the patient is sitting on the seat when it is raised, the previously mentioned pneumatic or hydraulic cylinder means or the manually operated means operating through a mechanism giving a mechanical advantage, is provided for raising the seat assembly.

For convenience in marketing the chair, it may be constructed so that it can be supplied in the form of a kit of parts adapted for simple assembly. Thus, the leg members 7 may be connected to the side members 2 by nut and bolt fixings. The chair is then assembled by bolting the leg members to the side members, the arms 10 are slid over the leg members and the legs of the table frame 18 are slid into the leg members.

CLAIMS

1. A mobile chair comprising:

a base having rotary support means permitting movement of the chair over a supporting surface, at least one upstanding member connected to the base,

a seat assembly carried by said upstanding member or members and comprising a removable seat and backrest permitting, when removed, entry into the chair from the rear and,

a support member carried by said base and located to the front of the seat so that the support member may be used by the chair occupant to assist in supporting himself.

2. A chair according to claim 1 in which said seat and backrest are separate components which are individually removable.

3. A chair according to claim 1 in which said seat and backrest are combined to form a single component which is removable as a whole.

4. A chair according to any preceding claim in which:

a pair of upstanding members is provided in the

form of a pair of leg members, each leg member being connected at its lower end to a respective one of opposite sides of the base,

said seat assembly comprises a pair of arms each connected to a respective one of said leg members and extending in a direction towards the rear of the chair, said arms carrying said seat and said backrest and,

said support member comprises a table connected to said leg members.

5. A chair according to claim 4 in which said arms are adjustably mounted on said leg members so that the height of the seat assembly may be varied.

6. A chair according to claim 4 or claim 5 in which said leg members are hollow and said table is adjustably mounted in said leg members so that the height of the table may be varied.

7. A chair according to claim 5 or claim 6 in which the means for making the variation includes at least one toothed rack.

8. A chair according to claim 5 or claim 6 in which the means for making the variation includes pneumatic or hydraulic cylinder means.

9. A chair according to claim 5, 6 or 7 in which the height variation is performed manually through a mechanism giving a mechanical advantage.

10. A chair according to claim 3 when combined with either claim 8 or claim 9 in which the combination of the seat and backrest is formed of a piece of fabric material which can be laid flat.

11. A chair according to any preceding claim in which the seat assembly includes side frames carrying arm rests.

12. A chair according to any preceding claim in which said base is of generally planar configuration and comprises a pair of side members, a front member, a transverse member connected to the side members at positions approximately centrally of their length, and a web member extending between the side members and the front member and overlying the transverse member but stopping short of the rear ends of the side members.

13. A chair according to claim 12 in which said side members are of two-part pivoted construction so that the rear end parts of the side members may be splayed to increase the distance therebetween.

14. A chair according to any preceding claim in which said base is rectangular in plan and said rotary support means comprise a front pair of castors and a rear pair of castors disposed at the corners of the rectangle.

15. A chair according to claims 4 and 14 having a pair of road wheels, similar to bicycle wheels, secured to said leg members.

16. A chair according to any preceding claim having motor means for driving the chair along.

17. A mobile chair substantially as hereinbefore described with reference to the accompanying drawings.

18. A kit of parts which, when assembled, form a chair according to any preceding claim.

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