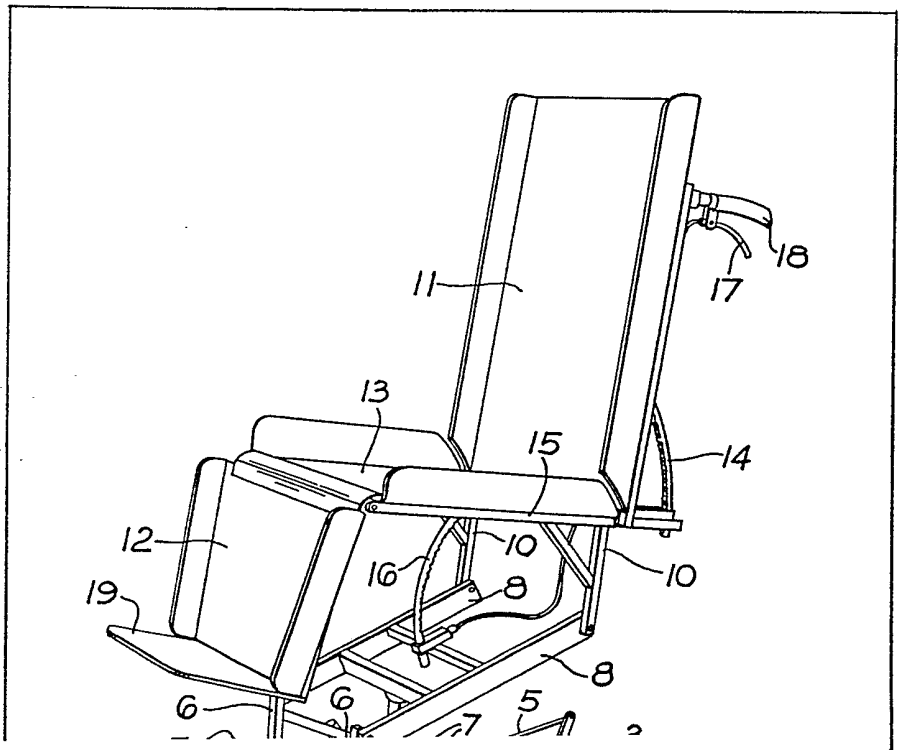
(12) UK Patent Application (19) GB (11) 2 125 285 A

(21) Application No 8319847
(22) Date of filing 22 Jul 1983
(30) Priority data
(31) 8221244
(32) 22 Jul 1982
(33) United Kingdom (GB)
(43) Application published
7 Mar 1984
(51) INT CL³
A47C 1/035 3/30
(52) Domestic classification
A4L 1003 101 104 1101 1106 111 112 702 BRE
U1S 1738 A4L
(56) Documents cited
GBA 2095545
GBA 2045602
GB 1429495
GB 1301595
GB 1180336
US 4183109
(58) Field of search
A4J
A4L
(71) Applicant
Terence Phillips,
4 Newstead Avenue,
Oughtibridge, Sheffield
(72) Inventors
Barbara Holmes,
Terence Phillips,
Edward White,
Glenis Joan Howe
(74) Agent and/or Address for Service
Hulse & Co.,
Cavendish Buildings,
West Street, Sheffield
S1 1ZZ

(54) **Invalid chair**

(57) An invalid chair capable of being set in a multiple of orientations and suitable for geriatric patients comprises a wheeled base unit 1, on which is mounted a height adjustable seat unit formed by a back support secton 11, and a lower leg support section 12 each hingedly connected to an intervening hip to knee section 13, and there being means to hold each section at a required angular disposition relative to the others and to sub-frame 8. The means may include pawl and ratchet mechanisms, as shown actuated by levers 17, or hydraulic means. Hydraulic jack 9 raises and lowers sub-frame 8 relative to base unit 1. The seat unit may include adjustable head and foot rests, hinged side supports, and upholstery consisting of polystyrene heads.



PATENTS ACT 1977

SPECIFICATION NO 2125285A

The following corrections were allowed under Section 117 on 5 July 1984:

Front page, Heading (71) Applicant, *for* Terence Phillips, *read* Terence Anthony Phillips,

Attention is also directed to the following printers error:

At the foot of front page *insert* This print embodies corrections made under Section 117(1) of the Patents Act 1977

THE PATENT OFFICE
31 August 1984

Bas 258622/9

SPECIFICATION AMENDED - SEE ATTACHED SLIP

GB 2 125 285 A

(12) UK Patent Application (19) GB (11) 2 125 285 A

(21) Application No **8319847**
(22) Date of filing **22 Jul 1983**
(30) Priority data
(31) **8221244**
(32) **22 Jul 1982**
(33) **United Kingdom (GB)**
(43) Application published
7 Mar 1984
(51) **INT CL**[3]
A47C 1/035 3/30
(52) Domestic classification
A4L 1003 101 104 1101 1106 111 112 702 BRE
U1S 1738 A4L
(56) Documents cited
GBA 2095545
GBA 2045602
GB 1429495
GB 1301595
GB 1180336
US 4183109
(58) Field of search
A4J
A4L
(71) Applicant
Terence Phillips,
4 Newstead Avenue,
Oughtibridge, Sheffield
(72) Inventors
Barbara Holmes,
Terence Phillips,
Edward White,
Glenis Joan Howe
(74) Agent and/or Address for Service
Hulse & Co.,
Cavendish Buildings,
West Street, Sheffield
S1 1ZZ

(54) **Invalid chair**

(57) An invalid chair capable of being set in a multiple of orientations and suitable for geriatric patients comprises a wheeled base unit 1, on which is mounted a height adjustable seat unit formed by a back support secton 11, and a lower leg support section 12 each hingedly connected to an intervening hip to knee section 13, and there being means to hold each section at a required angular disposition relative to the others and to sub-frame 8. The means may include pawl and ratchet mechanisms, as shown actuated by levers 17, or hydraulic means. Hydraulic jack 9 raises and lowers sub-frame 8 relative to base unit 1. The seat unit may include adjustable head and foot rests, hinged side supports, and upholstery consisting of polystyrene heads.

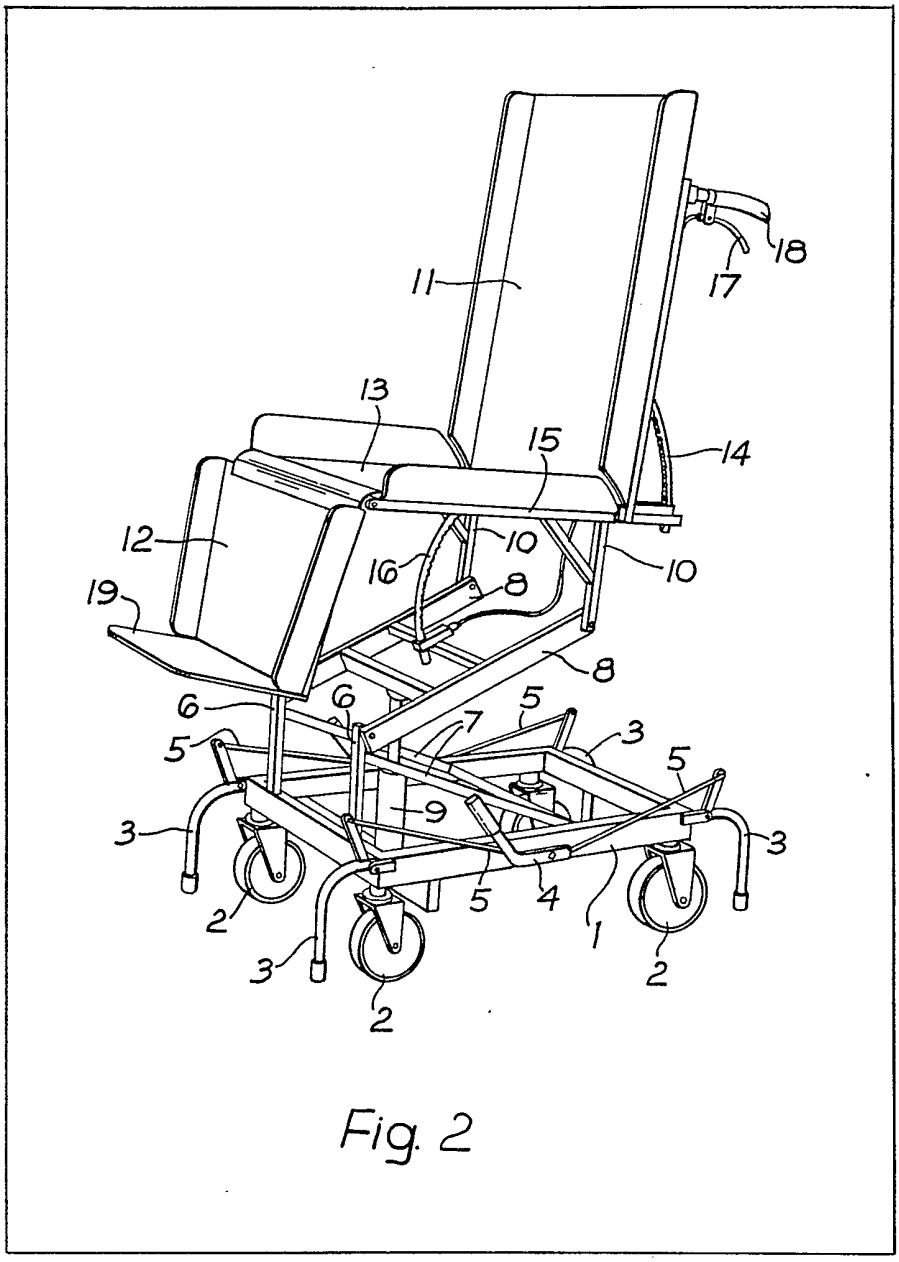
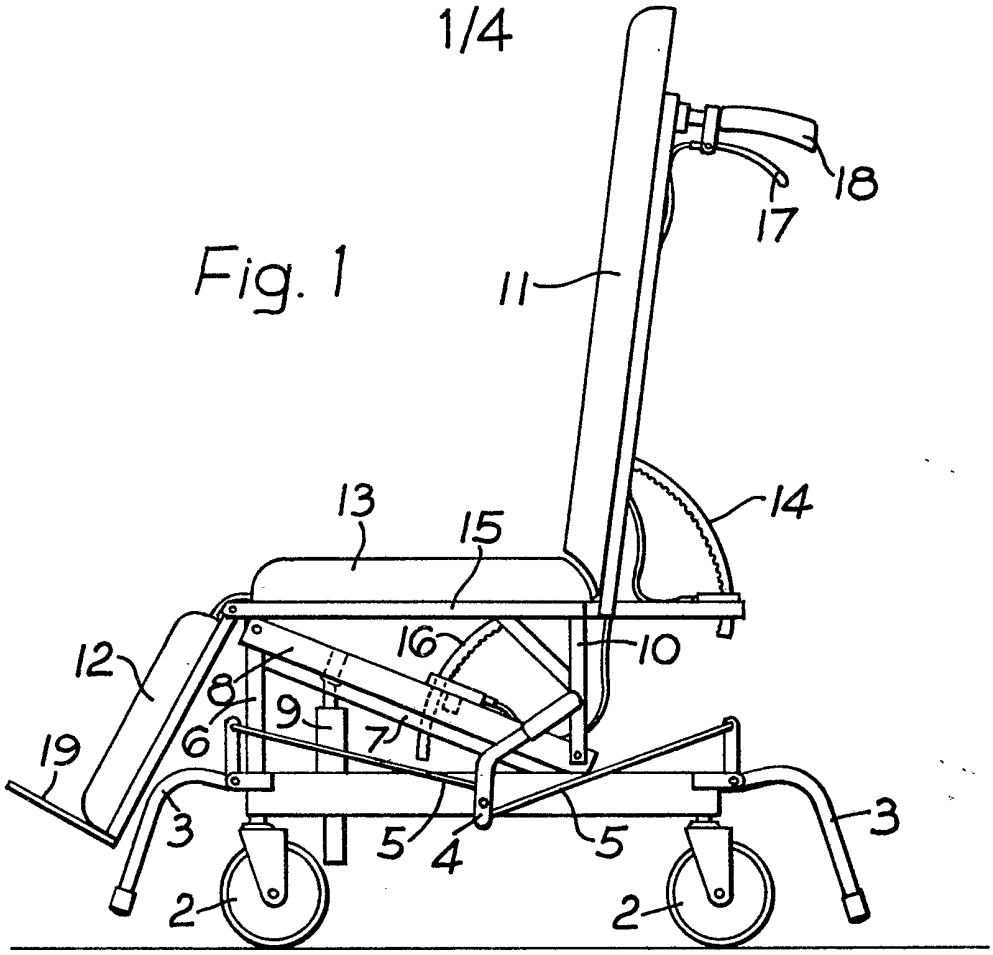


Fig. 2

SPECIFICATION AMENDED - SEE ATTACHED SLIP

GB 2 125 285 A

Fig. 1


11
18
17
13
15
14
12
16
10
8
9
6
7
19
3
5
4
5
3
2
2

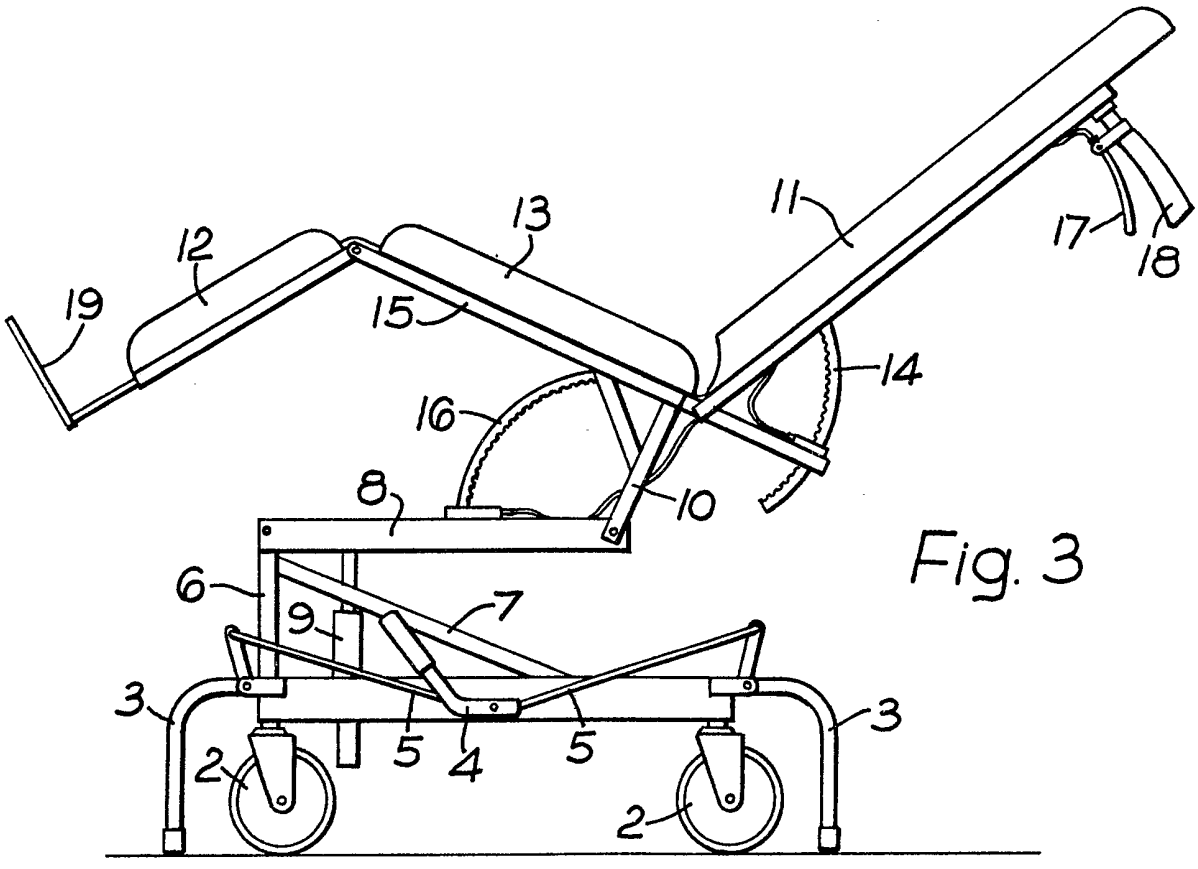

11
17
18
13
12
19
15
14
16
10
8
6
9
7
3
5
4
5
3
2
2

Fig. 3

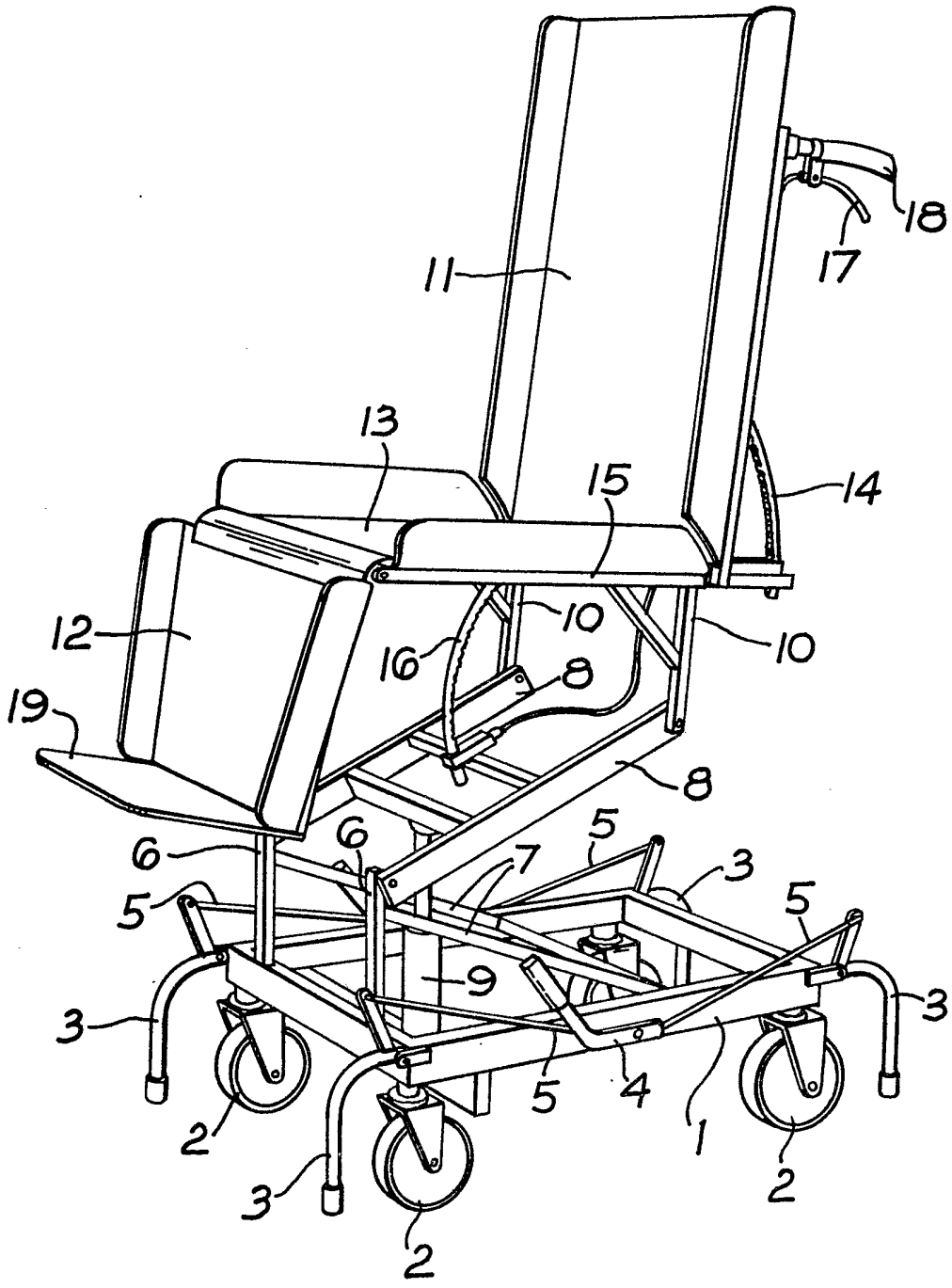


Fig. 2

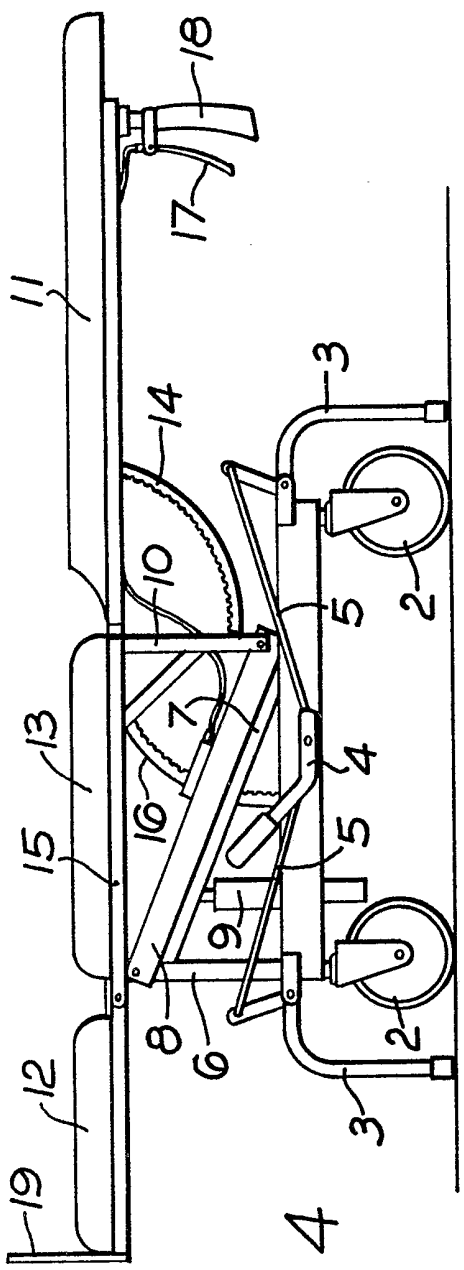

18
17
11
14
3
10
5
2
13
7
4
16
15
5
9
8
6
2
12
3
19

Fig. 4

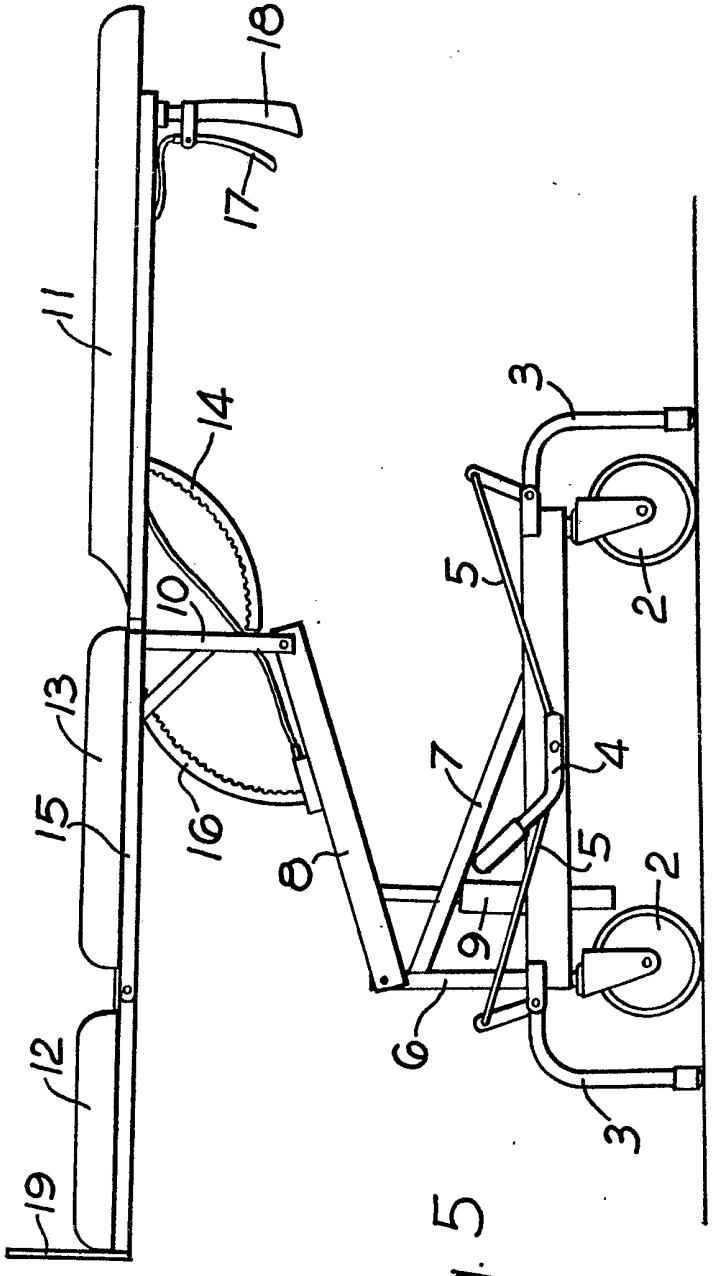

18
17
11
14
3
10
5
2
13
7
4
16
15
8
5
9
2
6
12
3
19

Fig. 5

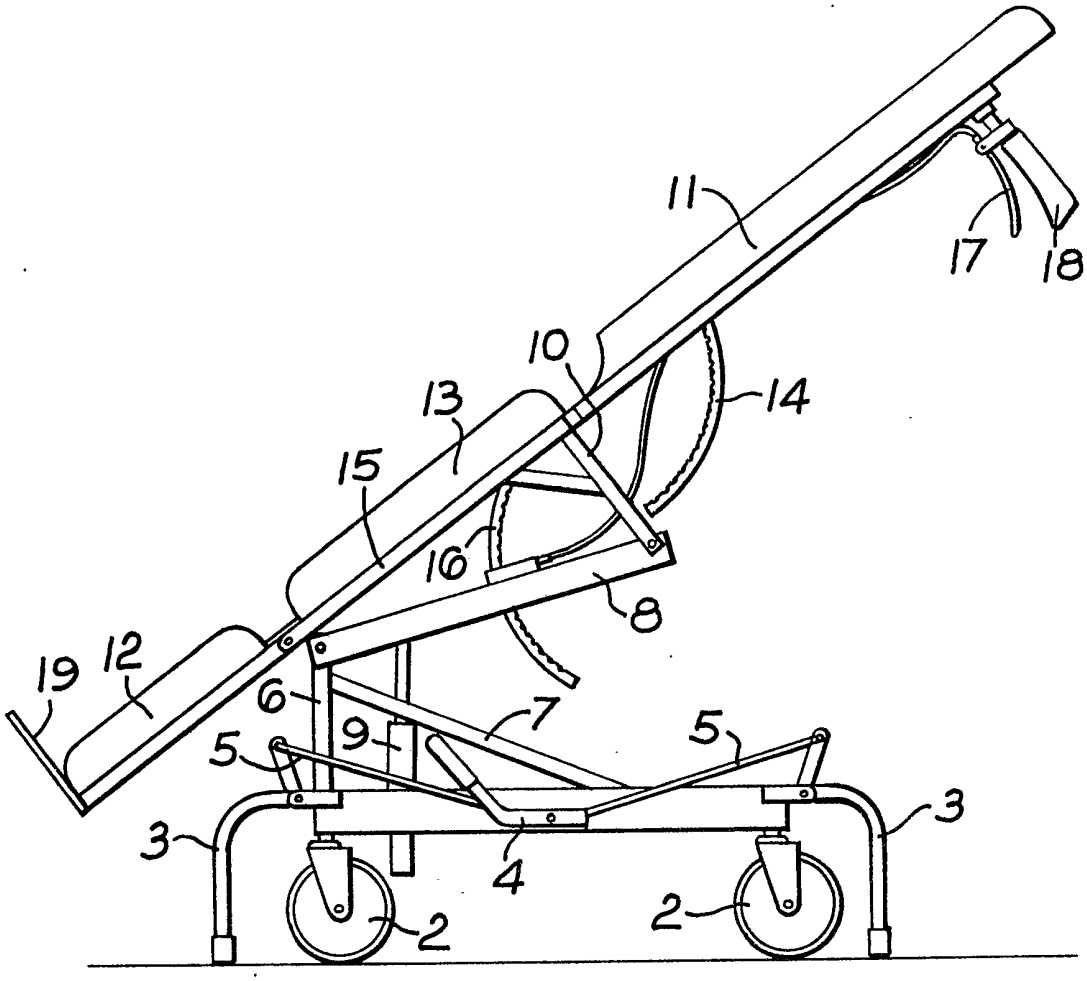


Fig. 6

SPECIFICATION
Invalid chair

This invention relates to an invalid chair, particularly though not necessarily exclusively, for use by geriatric patients.

Whilst every effort is made to preserve the mental and physical health of geriatric patients and help them to maintain their independence for as long as is possible, physical and mental deterioration is an inevitable consequence of the ageing process. Some patients suffer such severe physical deterioration as to render them totally dependant with often a complete loss of mobility. The most severely affected patients suffer gross postural deformity and virtually all become incontinent to some degree. The difficulties in meeting the physical needs of such patients are manyfold. Specially designed furniture and equipment is essential for their safety and comfort.

Lifting hoists, commodes, wheelchairs, walking frames etc. are all readily available, however, a chair suitable for this type of patient does not exist.

The object of the present invention is to provide an invalid chair, particularly suited to use by geriatric patients.

According to the present invention, an invalid chair comprises a wheeled base unit, on which is mounted a height adjustable seat unit formed by a back support section, and a lower leg support section each hingedly connected to an intervening hip to knee section, and there being means on the base unit to hold each section at a required angular disposition. Preferably, an adjustable foot rest is provided on the lower leg section and an adjustable head rest provided on the back support section. It is also preferred that side supports are provided hingedly secured to the seat unit, and which can be lowered to facilitate removal of a patient from the chair.

Therefore, irrespective of the postural deformity of a particular patient, the back support section, the hip to knee section and the lower leg support section can each be set at an angle to give maximum support and hence comfort to the patient.

By having the seat unit height adjustable allows the seat unit to be set at a height to suit other seating arrangements and hence allow the patient to be seated at a height equivalent to others sat in more conventional chairs, and set at a height to allow the relatively easy transfer of a patient to and from a bed, or at a height to suit a nurse during administration of nursing care.

To enable height adjustment, a pedal operated hydraulic unit may be provided, and the seat unit sections may also be set in position by hydraulic means. Alternatively simple adjustable strut means may be provided or a suitable bar and ratchet mechanism provided.

Because of the long periods that a patient must occupy the chair, a suitable upholstery must be provided on the sections of the seat unit. Therefore, according to a further feature of the invention, each section of the seat unit is covered by upholstery comprising a series of interconnected sections each filled with lightweight granular material. Thus the granular material may be polystyrene beads. With upholstery so constructed, it provides considerable additional support to the patient by at least in part forming itself to the shape of a patient, with the added advantage that voluntary or involuntary movement of a patient results in the upholstery reshaping itself to suit any slightly changed posture adopted by the patient. To further assist in giving maximum support, the panels can be filled to different densities dependent on the particular location of a panel.

It is preferred to form the panels from an air permeable material so that the upholstery can "breath" and which is of assistance in reducing the tendency of the formation of so-called bed sores, and it is further preferred that the material is water impermeable which is of great assistance in the cleaning of the upholstery as is frequently required particularly when the chair is used by incontinent patients.

One embodiment of the invention will now be described by way of example only with reference to the accompanying drawings, in which Figures 1 to 8 are perspective views of an invalid chair in various of its possible operative positions.

In the drawings, an invalid chair has a base unit 1 formed as a generally rectangular frame with a wheel 2 at each corner, and with retractable legs 3 at each corner activated by levers 4 and links 5.

Mounted on the front of the base unit are two vertical support pillars 6 braced by struts 7 extending between the pillar and the base unit, there being pivotally mounted on the pillar a sub-frame 8 supported by a hydraulic jack 9 located on the base unit. Towards the rearward end of the sub-frame 8, there is pivotally mounted thereon support arms 10 to which are secured a seat unit formed by a back support section 11, a lower leg support section 12 both hingedly connected to an intervening hip to knee section 13.

In the form of construction illustrated, the back support section 11 is provided with a curved ratchet arm 14 engaged by a pawl mounted on the frame member 15 of the hip to knee section 13, and the hip to knee section has a curved ratchet arm 16 engaged by a pawl mounted on the sub-frame 8, the pawls being cable activated from levers 17 associated with handles 18 for manoeuvring the chair. The lower leg support section 12 has an inbuilt ratchet in its hinged connection to the hip to knee section, and at its lower end has an adjustable foot support 19.

It will readily be understood that in place of the ratchet mechanisms between each section of the seat, other adjustment means such as hydraulic piston/cylinder arrangements can be provided.

It will also be understood that overlying the sections of the seat will be appropriate upholstery specifically suited to the precise use to which the

invalid chair will be put.

Although not shown arm members can be provided detachably connected to the hip and knee section 13.

Thus, as is shown in Figure 1 the sections 11, 12 and 13 of the seat unit can be positioned after the manner of a conventional chair and when a patient can be seated in the chair and the chair manoeuvred in relatively conventional manner, and when the chair is held stationary, the legs 3 can be lowered into contact with the ground. With the members of the seat unit in much the same configuration, the whole seat unit can be elevated by the hydraulic jack either to bring the patient, e.g., to the height of a table or to bring the patient to a convenient height for the administration of any necessary care and attention.

As is shown by Figure 3 the members of the seat unit can be set into a generally reclining condition for the comfort of the patient.

Figures 4 and 5 show the ability of the invalid chair to assume the roll of a trolley for the transport of a patient in a prone position. In this case the members of the seat unit are adjusted to be substantially in line and the seat unit set at a relatively low level (Figure 4). Figure 5 shows the ability of the seat unit in the prone condition to be raised in height by the hydraulic jack and which is of considerable assistance to nursing staff in moving a patient in a prone condition to and from a bed and of equal assistance to the nursing staff in administering care and attention to the patient in a prone condition.

Figure 6 shows yet another position which can be assumed by the invalid chair of the invention where the sections of the seat unit are again set in line, but in this case the seat unit as a whole is set at an angular disposition so that, for example, a patient who must be kept generally prone can be positioned such that his head is at a height for the convenient administering of food and so that the patient can readily converse with others sat in conventional seating.

The dispositions shown in Figures 1 to 6 are not exhaustive but merely exemplary of the multiplicity of positions, orientations and heights that the seat unit can be set at.

Although not shown in the drawings it will be understood that the sections of the seat unit will be covered with an appropriate upholstery, preferably formed from panels of air permeable material filled to different densities with polystyrene beads. With such upholstery the panels will form themselves to the contour of the patient and hence reduce considerably the tendency for bed sores to be produced or other skin conditions that are harmful to the patient.

CLAIMS

1. An invalid chair comprising a wheeled base unit, on which is mounted a height adjustable seat unit formed by a back support section, and a lower leg support section each hingedly connected to an intervening hip to knee section, and there being means on the base unit to hold each section at a required angular disposition.

2. An invalid chair as in Claim 1, wherein an adjustable foot rest is provided on the lower leg section and an adjustable head rest provided on the back support section.

3. An invalid chair as in Claim 1 or Claim 2, wherein side supports are provided hingedly secured to the seat unit, and which can be lowered to facilitate removal of a patient from the chair.

4. An invalid chair as in any of Claims 1 to 3, wherein to enable height adjustment, a pedal operated hydraulic unit may be provided.

5. An invalid chair as in any of Claims 1 to 4, wherein the seat unit sections are set in position by hydraulic means.

6. An invalid chair as in any of Claims 1 to 4, wherein the seat unit sections are set in position by a bar and ratchet mechanism.

7. An invalid chair as in any of Claims 1 to 6, wherein the seat unit is covered by upholstery comprising a series of interconnected sections each filled with lightweight granular material.

8. An invalid chair as in Claim 7, wherein the granular material is polystyrene beads.

9. An invalid chair as in Claim 7 or Claim 8, wherein the panels are filled to different densities dependent on the particular location of a patient.

10. An invalid chair as in any of Claims 7 to 9, wherein the panels are formed from an air permeable material.

11. An invalid chair substantially as hereinbefore described with reference to the accompanying drawings.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1984. Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained.