



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
04.10.2001 Bulletin 2001/40

(51) Int Cl.7: **A61G 7/10**

(21) Application number: **01201092.2**

(22) Date of filing: **22.03.2001**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventors:
• **Corcoran, Michael**
Northumberland (GB)
• **Yates, Adam**
Newcastle Upon Tyne, NE13 6PE (GB)

(30) Priority: **22.03.2000 GB 0006771**

(74) Representative: **Thaker, Shalini**
Huntleigh Technology plc
310-312 Dallow Road
Luton, Bedfordshire LU1 1TD (GB)

(71) Applicant: **HUNTLEIGH TECHNOLOGY PLC**
Luton, Bedfordshire LU1 1TD (GB)

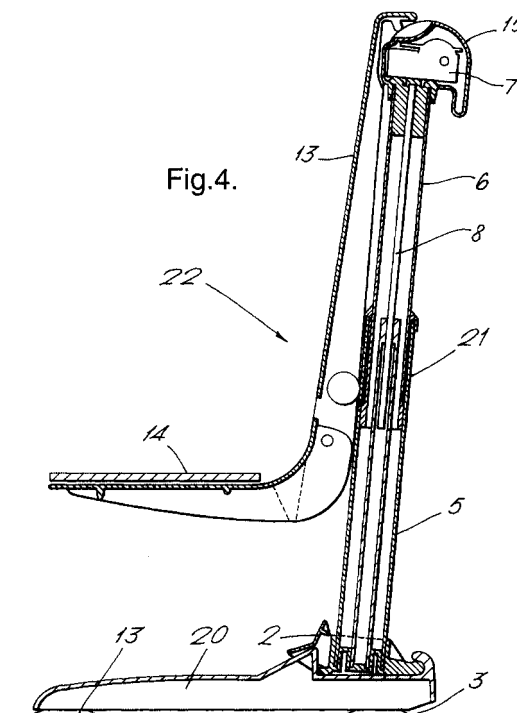
(54) **Bath lift**

(57) A lifting device for lowering and raising a person into and out of a bath includes a base 20 having suction pads 3 at its extremities. A column 21 fits into a recess within the base 20 and supports a seat 22 movable along its length by means of a motor driven actuator housed within the column 21.

The seat consists of a backrest 13 and a support surface 14 and upon being lowered into the bath, contacts a latch 2 on the base which allows the entire seat including the backrest 13 and the support surface 14 to pivot backwards towards the column 21. Thus, the seat backrest is reclined for more comfortable bathing and also the support surface is tilted so that the bodyweight of the user is more evenly spread between the back, the thighs and buttocks.

The base 20, column 21 and seat 22 are dismantable for ease of storage and transport.

Figure 4 to accompany the abstract.



Description

[0001] The invention relates to a lifting device to be used in a bath for safely lowering a person into and raising them from the water, in particular to a lifting device that is portable and allows the person to recline when in the bath.

[0002] There have been many bath lifts manufactured having various mechanisms for lowering and raising a person in a bath and a seat for the person to sit on during the raising/lowering and the bathing. However, these bath lifts are not comfortable for the bather or readily portable for the carer/user. In an effort to make the bath lifts more comfortable, there was a move to provide a reclining backrest, this solution was fine for the nearly able-bodied, but the frail and elderly just slipped further into the water with subsequent tissue shear at the point of contact with the seat surface.

[0003] The aim of the invention is to provide an improved lifting device.

[0004] Accordingly the invention provides a lifting device for lowering and raising a person into and out of a bath comprising a base adapted to be attached to a bath floor, a seat comprising a backrest and a support surface, means for raising and lowering the seat relative to the base wherein the entire seat including the seat backrest and support surface is pivoted backwards about its supporting surface as the seat is lowered to the bath floor towards the base. The benefit of both the seat backrest and support surface being pivoted backwards as the seat is lowered is that the seat backrest is reclined and the support surface lifted up so that the bodyweight of the user is spread more evenly between the back, the buttocks and the thighs providing a more comfortable reclining position. Also, by pivoting the entire seat the user is safely cradled and the older or more frail bather is prevented from slipping further into the water as with prior art bath lifts where only the backrest reclines.

[0005] Preferably, the means for raising and lowering the seat comprises an actuator within a column upstanding from the base, said actuator movable upwardly and downwardly along the column. More preferably the seat is attached to the top of the column for movement along the column. Preferably, the entire seat and column are adapted to pivot backwards to provide a reclining seat position. Preferably, the seat can only pivot backwards when it has reached its lowermost position relative to the base.

[0006] Preferably, the seat backrest is pivotally connected to the seat support surface to allow the support surface to be folded up against the backrest when not in use.

[0007] Preferably, the base, the column and seat are detachable when not in use for ease of storage and transport.

[0008] Further features of the invention will be apparent from the accompanying description of a presently preferred embodiment, in conjunction with the accom-

panying drawings in which:

Figure 1 is a fragmentary side view of the invention; Figure 2 is a side view showing the parts in position; Figure 3 is a view of the seat in the lowered position; Figure 4 is a cross-sectional view of the lifting device;

Figures 5a, 5b and 5c show the lifting device in its various positions in a bath; and

Figure 6 shows an emergency stop feature in the event of a fault in the lifting device electrical operating system.

[0009] Referring to Figure 1, the base 20 consists of suction pads 3 at its extremities. The base is first placed in the bottom of the bath and secured in position by a rubber suction pad 3 at each of the four extremities. The suction pads 3 at the front end of the base 20 are connected to a central pull handle 23 for quick and easy removal from the bath surface.

[0010] On the upper surface of the base is a moulded recess 1 into which fits a column 21. The bottom of the column 21 is profiled at 4 for location within recess 1 on the base 20. The column 21 is retained on base 20 by a sprung latch 2. The column 21 houses an actuator constructed of two aluminium extrusions 5, 6 slidable one within the other as shown in Figure 4. The actuator is powered by a battery driven motor and gearbox 7 encased in a housing 15 at the top of the column 6. The motor spindle rotates a helical screw 8 that acts upon the lower extrusion 5 to lift, lower and tilt the extrusions 5, 6 and hence seat 22.

[0011] A battery pack 24 is able to be withdrawn vertically from the housing 15 and connects to a remote control 25 for controlling the motor. The top edge of the seat backrest 13 is attached to the housing 15 enabling the seat 22 to be driven up or down. The seat backrest 13 engages channels on the lower extrusion 5 of the actuator for stability. The seat backrest 13 is connected via a hinged joint to the seat base 14 to allow folding of the base 14 against the backrest 13. An optional clip-on folding side panel 9 may be fitted to either seat edge 10 if desired. The seat base 14 also may have a removable section 11 and a turntable 12 to aid in access into the bath.

[0012] The operation of the lifting device as shown in Figures 5a - 5c, is by means of a remote control switch to activate the motor. When a 'Down' button is depressed, the actuator lowers the seat to the bath bottom. As the seat reaches the base 20 it mechanically disengages latch 2 and column 21 and seat 22 are able to recline through a range governed by the latch. Latch 2 is a two-stage release mechanism which is sprung to lock the column 21 in its' upright position on the base 20. Deflection of the latch 2 by the seat 22 allows the column 21, seat 22 and user to be reclined within a pre-set range. The downward pressure of the seat 22 on the base 20 provides the force required to recline the col-

umn 21, and seat 22.

[0013] From being fully reclined, depression of the 'UP' button will return seat 22 and user to an upright position and column 21 automatically re-engages latch 2 before seat 22 is raised to its full height.

[0014] To ensure safe operation, depression of the 'DOWN' button will not initiate lowering of the seat 22 if the charge in the battery 24 is at a predetermined low value and considered insufficient to raise the seat safely. However, if the seat is part way lowered when the battery reaches this limit then the seat will continue to be lowered and raised after bathing.

[0015] If the electrical operating system of the lifting device is faulty the battery 24 is disconnected from the operating system to stop the lifting device immediately. As shown in Figure 6, the handle 30 is pulled by the user from a position adjacent the seat 13 side to a position perpendicular to the seat 13 side about pivot 31. The handle 30 is linked to member 32 which upon movement of the handle 30 is pivoted about pivot 33 to lift the battery 24 sufficiently to disconnect the electrical power from the battery to operate the lifting device.

[0016] When handle 30 is pulled to the perpendicular position, it remains in that position until returned to its original position. If the handle 30 is operated by mistake then returning the handle to its original position returns member 32 to its original position and the battery 24 will return under gravity to its operating position allowing the lifting device to operate normally. In this way, the battery 24 can be reset by the user whilst still sitting on the seat in the bath.

[0017] To transport or store the lifting device, the seat folds up and is detachable from the column top, the column 21 may be removed from the base by manually moving latch 2, and the base lifted from the bath floor by pulling handle 23.

ment along the column.

4. A lifting device as claimed in claims 1, 2 or 3 wherein the entire seat and the column are adapted to pivot backwards to provide a reclining seat position.
5. A lifting device as claimed in claim 4 wherein the seat can only pivot backwards when it has reached its lowermost position relative to the base.
6. A lifting device as claimed in any preceding claim, wherein the seat backrest is pivotally connected to the seat support surface to allow the support surface to be folded up against the backrest when not in use.
7. A lifting device as claimed in claims 2 to 6 wherein the base, column and seat are detachable when not in use for ease of storage and transport.
8. A lifting device as claimed in claims 1 or 2 wherein the actuator is powered by means of a battery, means to deactivate the battery in the event of an electrical fault, the means operable by a user of the lifting device.
9. A lifting device as claimed in claim 8 wherein upon inadvertent deactivation of the battery, means to reactivate the battery, the means operable by a user whilst using the lifting device.

Claims

1. A lifting device for lowering and raising a person into and out of a bath comprising a base adapted to be attached to a bath floor, a seat comprising a backrest and a support surface, means for raising and lowering the seat relative to the base wherein the entire seat including the seat backrest and support surface is pivoted backwards about its supporting surface as the seat is lowered to the bath floor towards the base.
2. A lifting device as claimed in claim 1 wherein the means for raising and lowering the seat comprise an actuator within a column upstanding from the base, said actuator movable upwardly and downwardly along the column.
3. A lifting device as claimed in claim 2 wherein the seat is attached to the top of the column for move-

Fig.1.

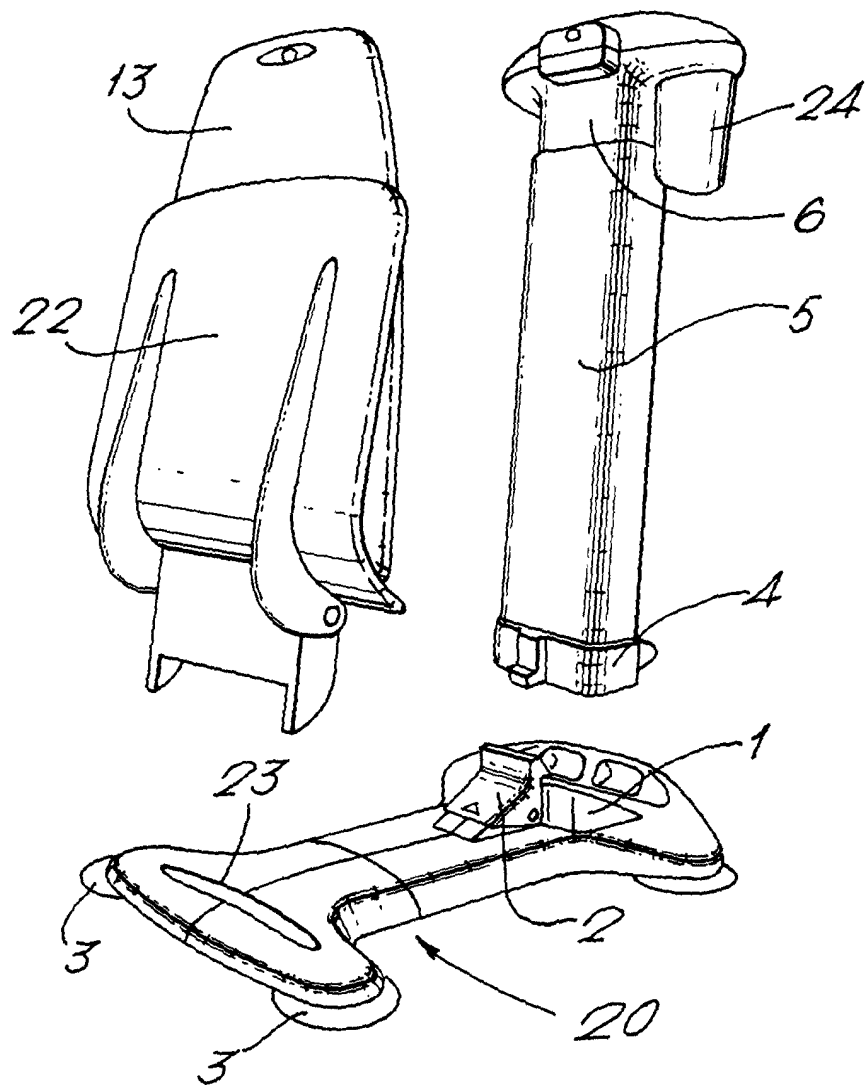


Fig.2.

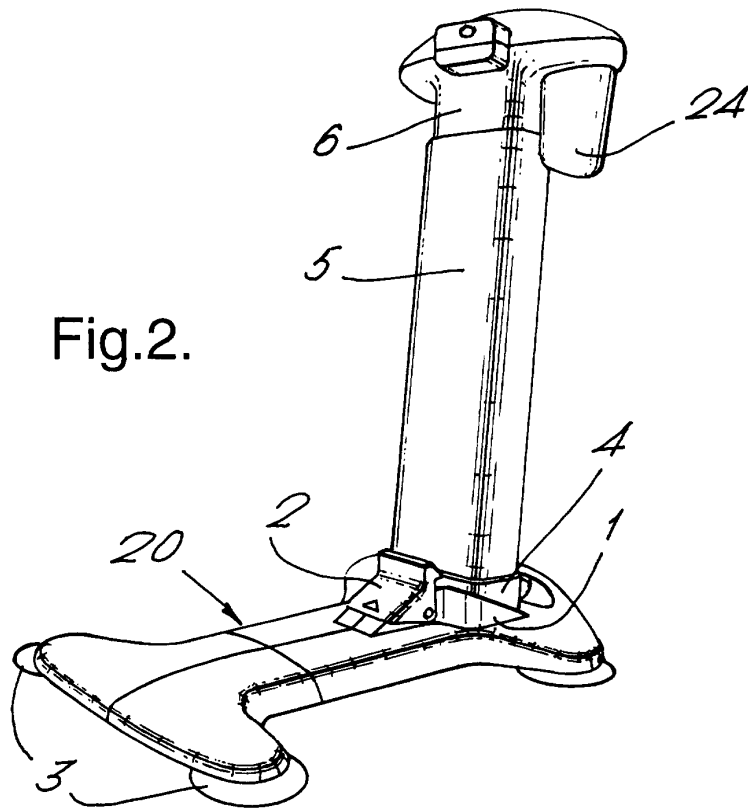
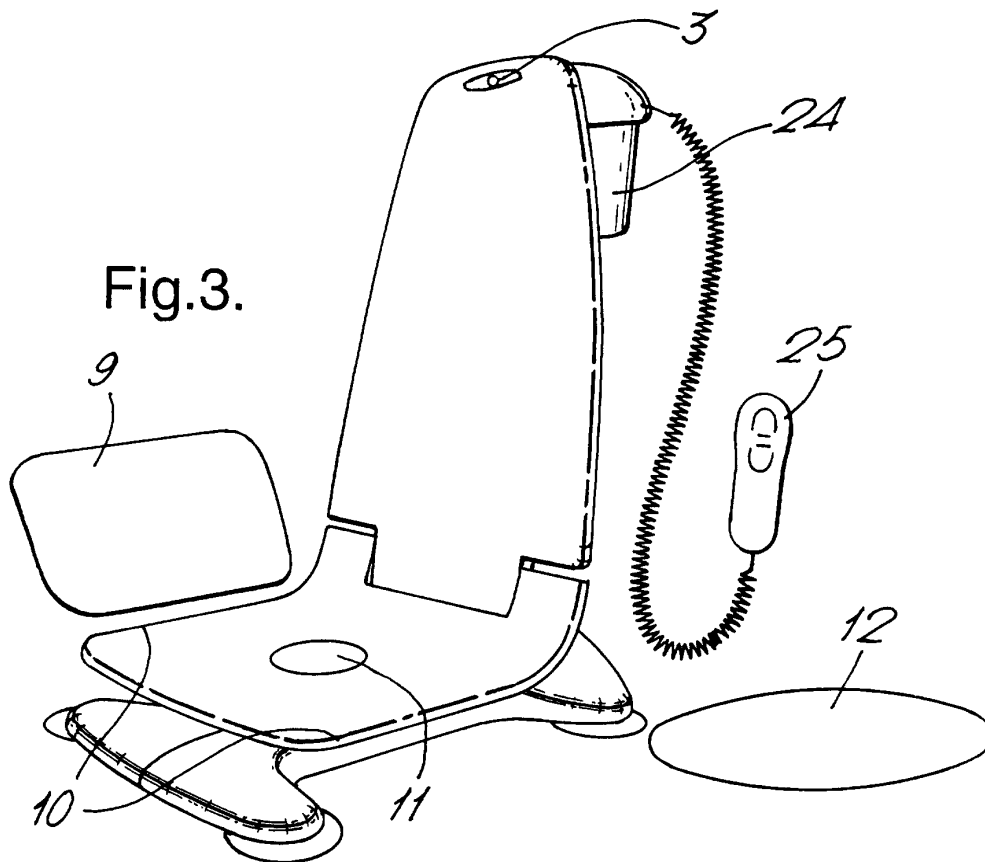


Fig.3.



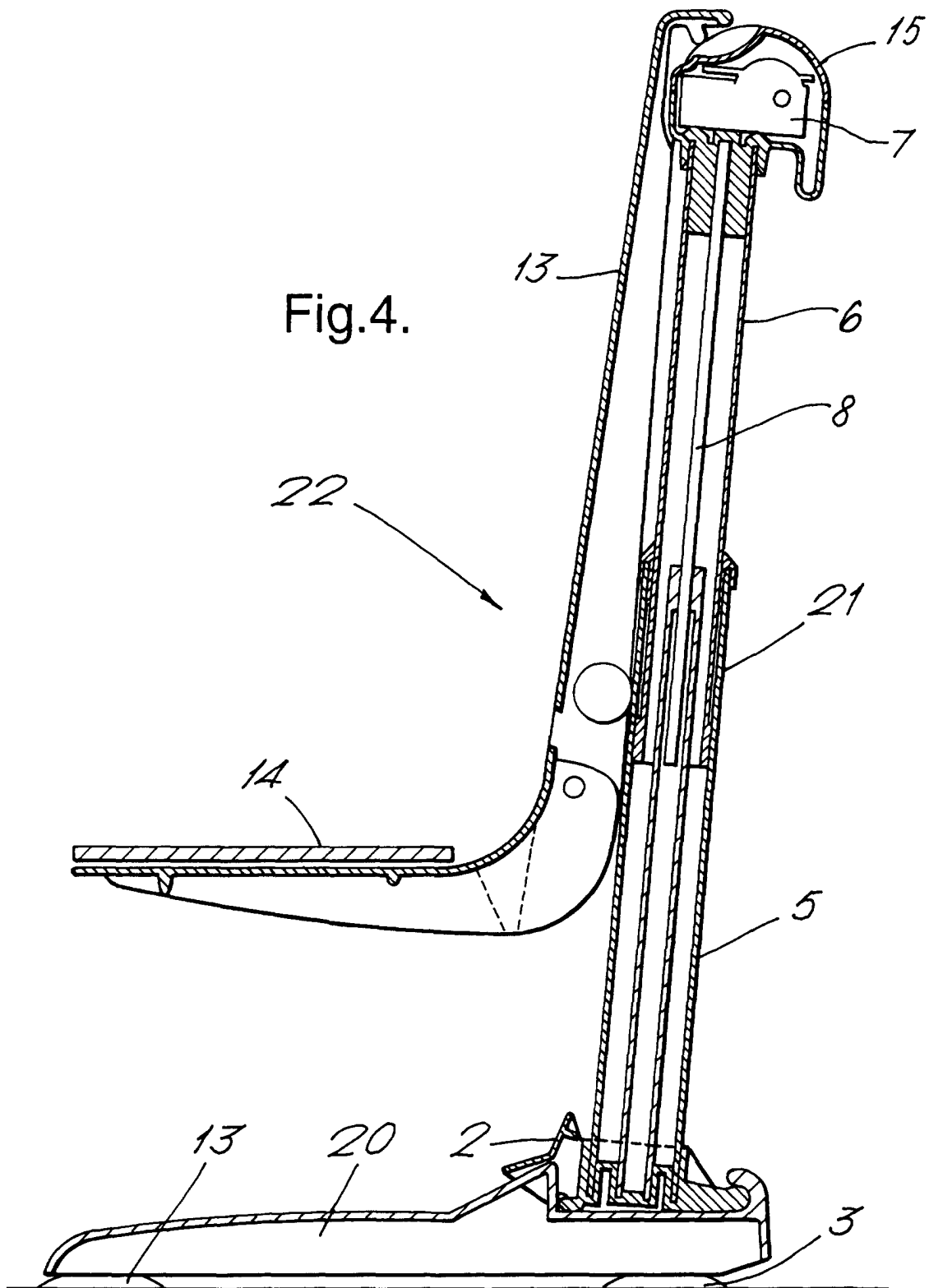


Fig.5 a.

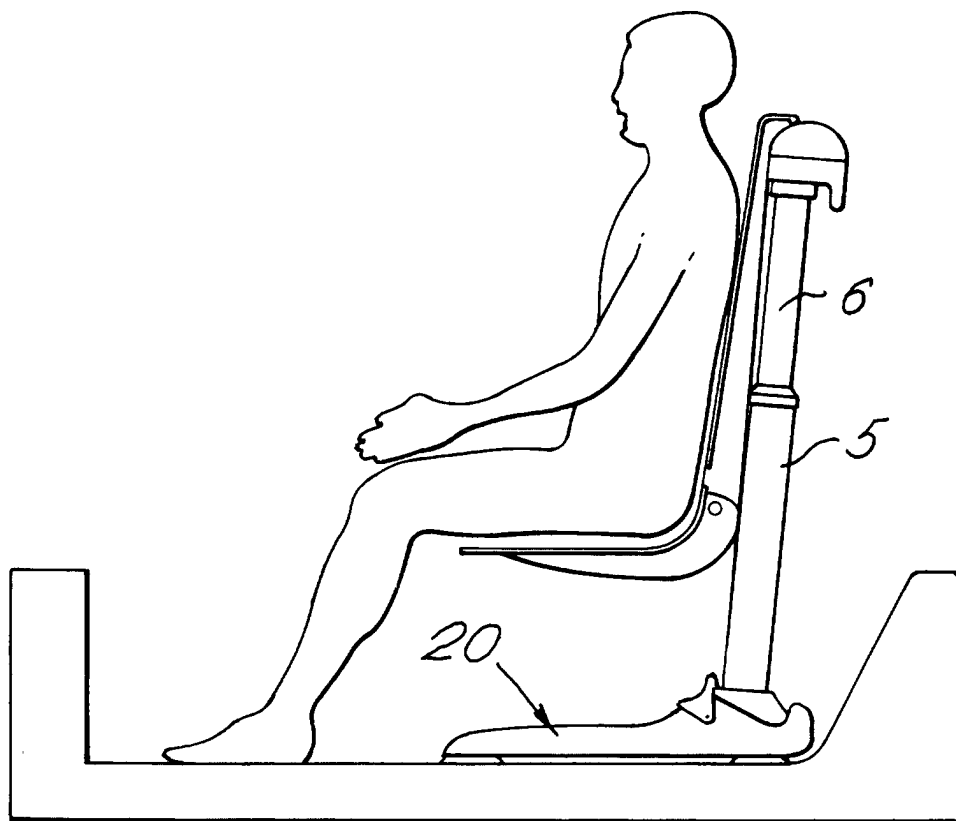


Fig.5b.

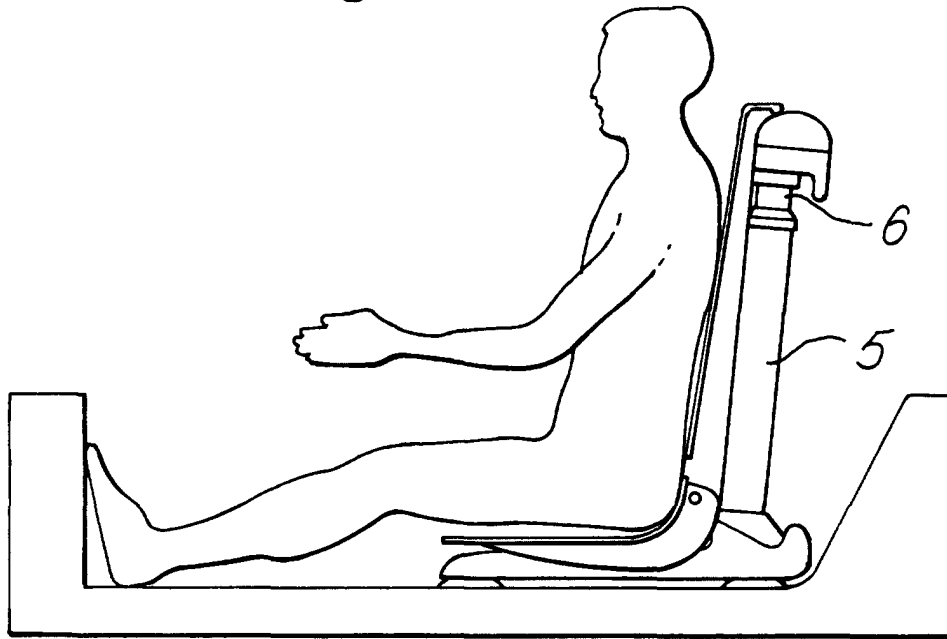


Fig.5c.

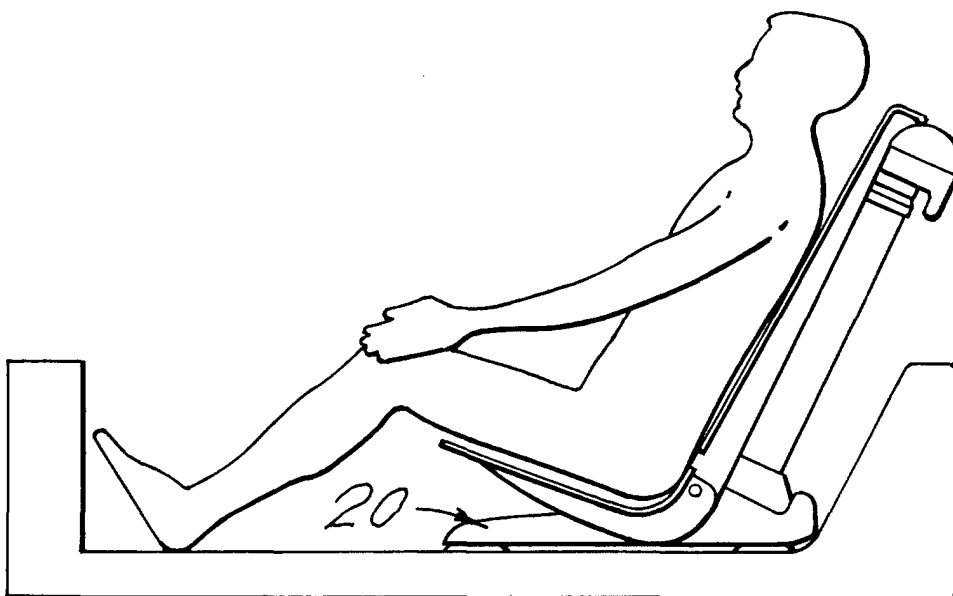


Fig.6.

