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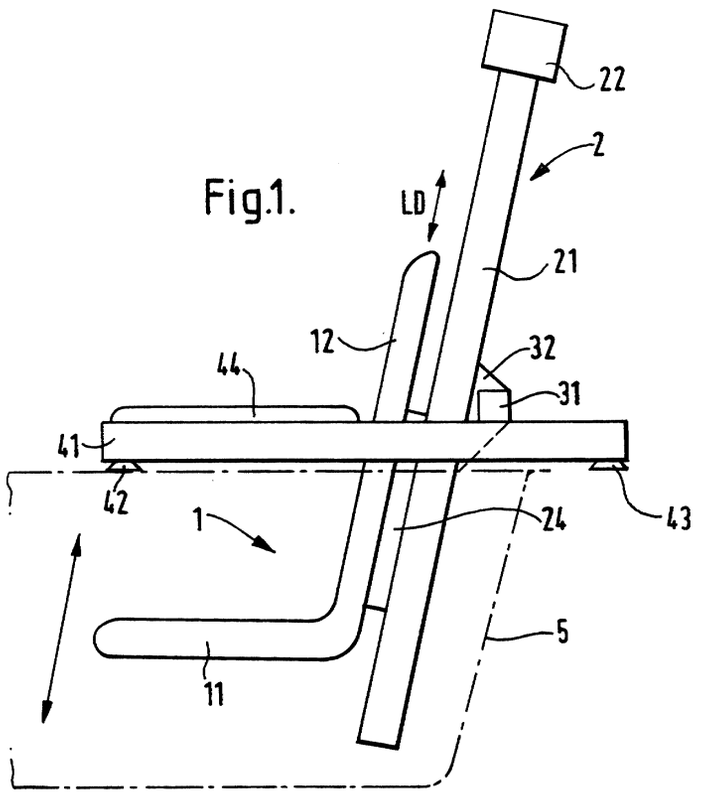
(54) Bath lifts

(57) A bath lift has a seat (1) which can be powered up and down a slideway (2) extending down into the bath. The slideway (2) is supported on a mounting arrangement having left and right side support members (41) which extend along and rest on the respective sides of the rim of the bath. No support resting on the bottom of the bath or floor is required.

Fig.1.



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Description

[0001] This invention has to do with bath lifts, used for helping people with restricted mobility to get into and out of the bath.

[0002] Bath lifts generally comprise a seat portion of dimensions to fit inside a bath, a lift system having a lift drive mechanism (which may be manual and/or motorised) for controllably adjusting the height of the seat between upper and lower positions of the lift system, and a mounting arrangement which maintains the lift system in an operating position relative to the bath in use so that in its lower position the seat is down inside the bath whereas at the upper position the seat is up near the rim level of the bath for the user to move on or off.

[0003] Our proposal is that the mounting arrangement has a rim-level load-bearing support which is adapted to engage the rim of the bath in the operating position and bear down on the rim, so that the lifting loads when operating the lift system are transmitted through the support to the rim of the bath.

[0004] Preferably the support has an engagement locus distributed around the lift system to make at least a three-point contact around the rim of the bath and thereby maintain the lift system stably in the operating position.

[0005] The support may have left and right side support members to engage along the respective sides of the bath rim to either side of the seat, which is oriented to face along the bath. For optimal stability each of these side support members has an engagement locus (i.e. one or more contacts with the rim) extending both in front of and behind the centre of gravity of the lift both loaded and unloaded.

[0006] The locus of the support engagement is usually substantially at the level of the upper position of the seat.

[0007] The preferred form of support member is elongate in the direction of the bath rim, e.g. in the form of an elongate beam to extend along above the bath rim, since this provides a good combination of load distribution, low profile (to minimise obstruction to movement in and out of the bath) and safety (since localised projections can be avoided) .

[0008] Support members preferable have downwardly-directed deformable contact pads to engage the bath rim without damage. The lift may be a permanent installation, but in many cases it is preferred that the lift be easily removed so a contact arrangement with a retaining function is preferred, e.g. suckers and/or friction pads to help keep the lift in position.

[0009] To make it easier and more comfortable for the user to move across the bath rim to the seat, the lift preferably includes an upwardly-directed deformable body-contact pad extending along the top of a side support member. This can also serve as an arm rest to help the user keep balance comfortably as the seat is lowered.

[0010] Typically the lift system has a slideway or track extending generally up-and-down and rigidly connected to the mounting arrangement, the seat being slidably mounted to the slideway or track and the drive mechanism operable to drive the seat along the slideway or track. In one preferred arrangement the slideway or track includes one or more generally upright fixed frame members extending generally parallel to a moveable lifting member e.g. of the telescopic kind which is already known for this purpose. The drive mechanism preferably includes a motor drive, but manual drive is also possible.

[0011] The connections of the lift system (e.g. the slideway) thereof to the mounting arrangement can be means of one or more frame connector elements preferably adjacent or above the upper seat position. These connectors are desirably behind the seat path to minimise obstruction, particularly insofar as they may extend above the level of the upper seat position.

[0012] Preferably the lift has a slideway or track mounted via one or more fixing brackets to one or more transverse frame elements connected to the rim level support, and extending at least below and preferably both above and below said transverse frame element(s) to best support the travelling-seat The seat may be generally conventional, and will usually have a backrest portion in addition to the seat portion on which the user sits.

[0013] The lift system is preferably mounted to the mounting arrangement so that the lower end of the lift system, and in particular the lower end of a longitudinally-fixed slideway or track, projects down and preferably hangs freely in the bath interior from the load-bearing support. This avoids the need to make positional adjustments of the lift system's lower end relative to the rim-level support to adapt to baths of different dimensions. However it would be possible to have a lower end support or location engagement for the lift to engage the bottom of the bath and indeed optionally to take lifting load, although it would not need to provide any stability since this can be provided by the rim-level support.

[0014] A skilled reader will appreciate the potential advantages of the general and preferred proposals described above. Known bath lifts have a mounting arrangement which sits on the bottom of the bath or on the floor outside the bath. The former arrangement clutters the bath interior with support structure. The latter is very bulky. Known slideways project inconveniently high above the rear end of the bath and give little stability to the seat, which has been mounted to the end of a long downward bracket, in the lowermost position. The present proposals make it possible to reduce these difficulties.

[0015] An embodiment of the proposals is now described with reference to the accompanying drawings, in which

Fig 1 is a partially schematic side view of a bath lift in its operating position;
Fig 2 is a fragmentary plan view of the bath lift, and
Fig 3 is a front view.

[0016] The drawings show the bath lift installed in a bath 5 (indicated in broken lines) which, as in the usual case, is an ordinary single-person bath of the domestic type having in particular a base 51, side walls 52 and an out-turned integral rim portion 53 to either side. It will be appreciated that not all baths are of this precise construction, but most will have integral rim portions 53 as illustrated. The invention will also work in relation to surrounding structures adjacent the bath's own rim portion and at the same general level, and these can be understood as included in references herein to the rim of the bath.

[0017] The lift consists essentially of a support frame 4 mounting a lift system 2 which moves a seat 1 between upper and lower positions in the bath 5 along a lift path in the direction LD (see Fig 1).

[0018] The various frame elements of the lift are made from box-section steel beams. The support frame 4 consists of right-hand and left-hand side beams 41 which extend parallel to the (parallel) sides of the bath from rear ends behind the lift system 2 to front ends well in front of the lift system, about in register with the front edge of the seat portion 11 of the seat 1. The underside of each side beam 41 has front and rear suction contact pads 42,43 which hold the construction in position on the bath in an easily removable fashion.

[0019] The lift system 2 consists of a vertical slideway formed by a pair of parallel upright frame elements 21 to either side of a telescopic actuator element 23. A drive motor unit 22 is mounted at the top of the slideway. The seat 1 is securely fixed to the telescopic element 23 by means of a rigid connector bracket 24 (see Fig 1) joined to its backrest 12. The drive motor unit 22 operates in a way generally known to the skilled person to drive the seat 1 up and down the lift path between the upper and lower seat positions.

[0020] Figs 1 and 3 show an intermediate position of the seat 1. In the lower position the seat portion 11 is closely adjacent the bottom 51 of the bath. In the upper position the seat portion 11 is substantially in register with the side beams 41 of the support frame.

[0021] In this embodiment the lift path is somewhat inclined from the vertical and this is preferred because it exploits the usual inclination of the bath end to minimise obstruction by the top end of the lift arrangement. It is not essential, however.

[0022] Transverse connecting beams 31 extend horizontally from the respective side beams 41 to the rear of the lift system's upright frame elements 21 where they are fixedly secured by metal brackets 32.

[0023] The skilled person will appreciate that other arrangements of the support frame, particularly as regards its securement to the lift system, will be possible. However it is preferred to minimise the components which extend down into the bath interior and components which extend in front of the lift path or substantially above the rim of the bath to the side of the lift path.

[0024] It can be seen that the support frame 4 mounts the lift arrangement with its fixed track lower end, which supports the seat in the lower position, hanging clear of the bottom and side of the bath. Adjustable contact members may be provided on the lower part of the lift system 2 for contact with the bath interior e.g. to facilitate alignment and/or load-bearing, but these are not preferred because usually they will need to be adjustable and may to some extent lose advantages of the present construction in leaving the bath interior uncluttered.

[0025] Resilient pads are provided along the tops of the front parts of the side beams 41. These help to bridge the gap over the edge of the bath to the seat 1 when the user gets on or off the seat in its upper position. They also act as arm rests or hand holds by which the user can position or balance themself for operation of the lift.

[0026] It is preferred that the lift system includes safety devices such as braking arrangements, cut-outs, and the like to ensure that the movement of the seat 1 is not forced to continue against unexpected resistances, for example if the user inadvertently moves their leg to beneath the descending seat.

Claims

1. A bath lift comprising a seat portion (1) to fit inside a bath, a lift system (2) having a lift drive mechanism (22, 23) for controllably adjusting the height of the seat(1) between upper and lower positions of the lift system, and a mounting arrangement (4) which maintains the lift system (2) in an operating position relative to the bath in use so that in its lower position the seat (1) is down inside the bath and in its upper position the seat (1) is adjacent the rim level of the bath for a user to move on or off, wherein the mounting arrangement (4) has a rim-level load-bearing support (41) adapted to engage the rim of the bath in the operating position and bear down on the rim, so that operational lifting loads are transmitted through the support (41) to the rim of the bath.

2. A bath lift according to claim 1 in which the lift system (2) comprises a slideway or track (21) fixed to the mounting arrangement so as to extend down below the rim-level support (4) thereof into the bath, the seat (1) being mounted to the slideway or track and the drive mechanism (22,23) being operable to drive the seat (1) along the slideway or track (21).

3. A bath lift according to claim 2 in which the lift system (2) is mounted to the mounting arrangement (4) so that the lower end of the track or slideway (21) hangs freely in the bath interior from the load-bearing support (41).

4. A bath lift according to claim 2 and 3 in which the

support (41) has an engagement locus distributed around the lift system to make at least a three-point contact around the rim of the bath.

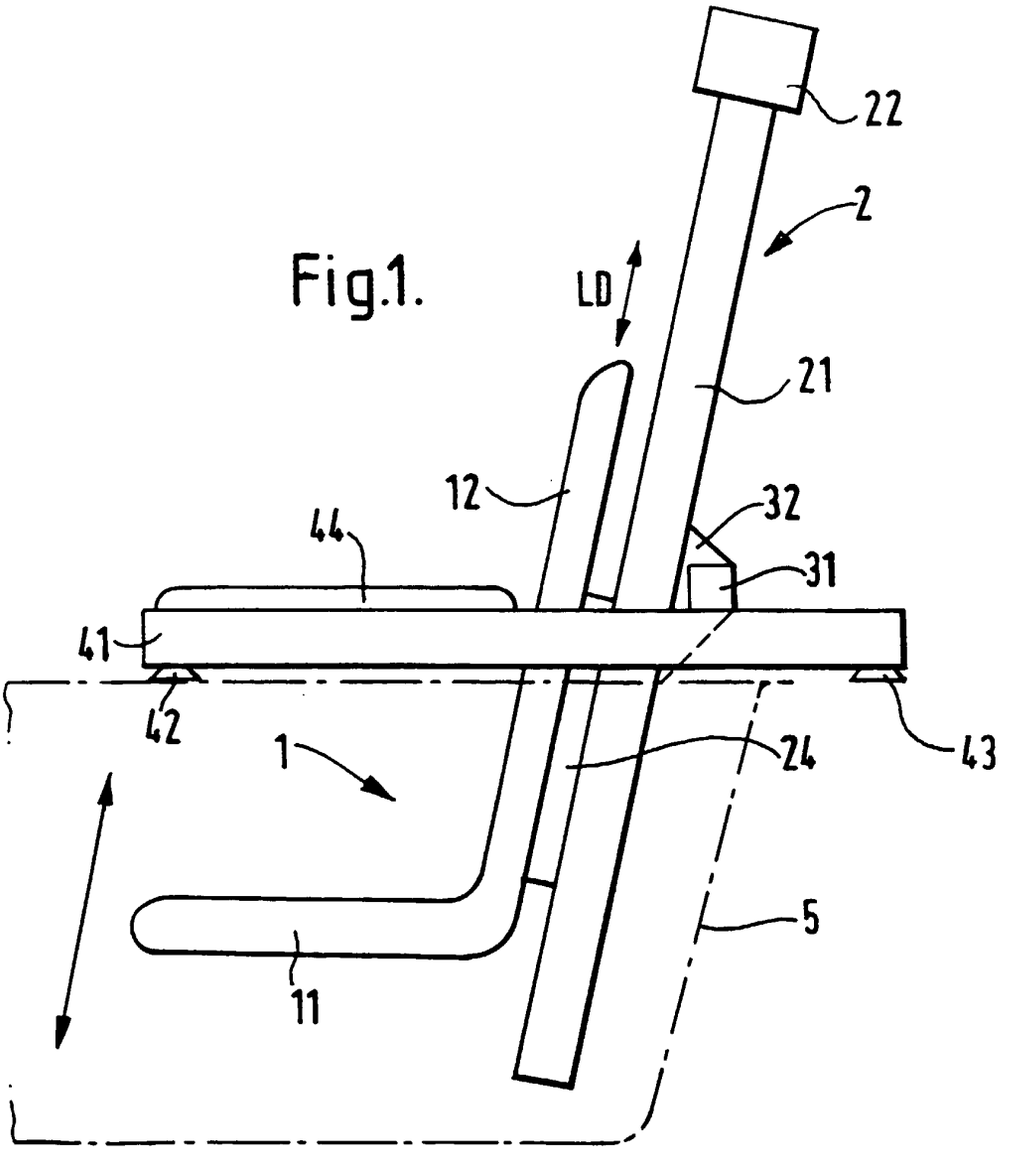
5. A bath lift according to claim 4 in which the support (4) has left and right side support members (41) engageable along the respective sides of the bath rim to either side of the seat (1) the seat being oriented to face along the bath.

6. A bath lift according to claim 5 in which each support member (41) of the support is elongate in the bath rim direction.

7. A bath lift according to any one of claims 2 to 6 in which the or each support member (41) of the support has a downwardly-directed contact pad (42) to engage the rim of the bath in use.

8. A bath lift according to any one of claims 2 to 7 in which the support includes a side support member (41) which has an upwardly directed body-contact pad (44).

Fig.1.



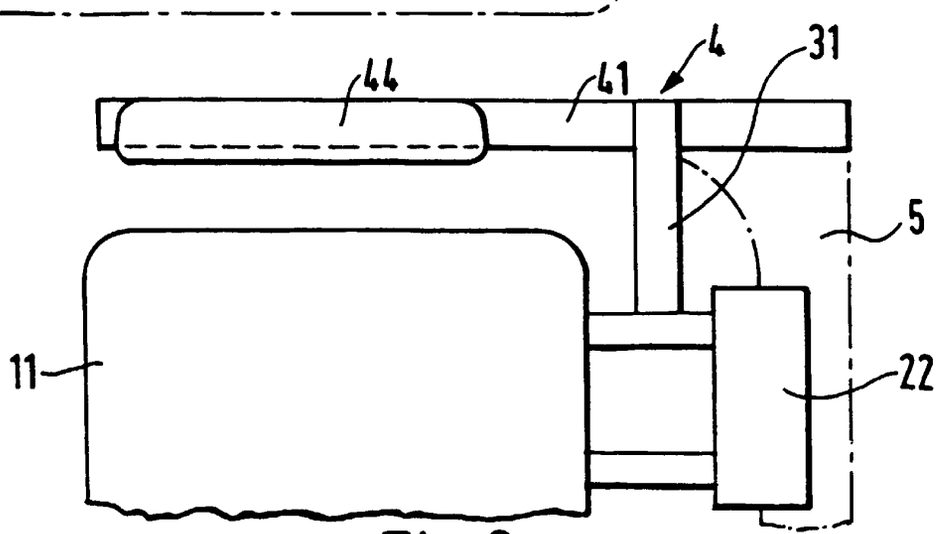


Fig.2.

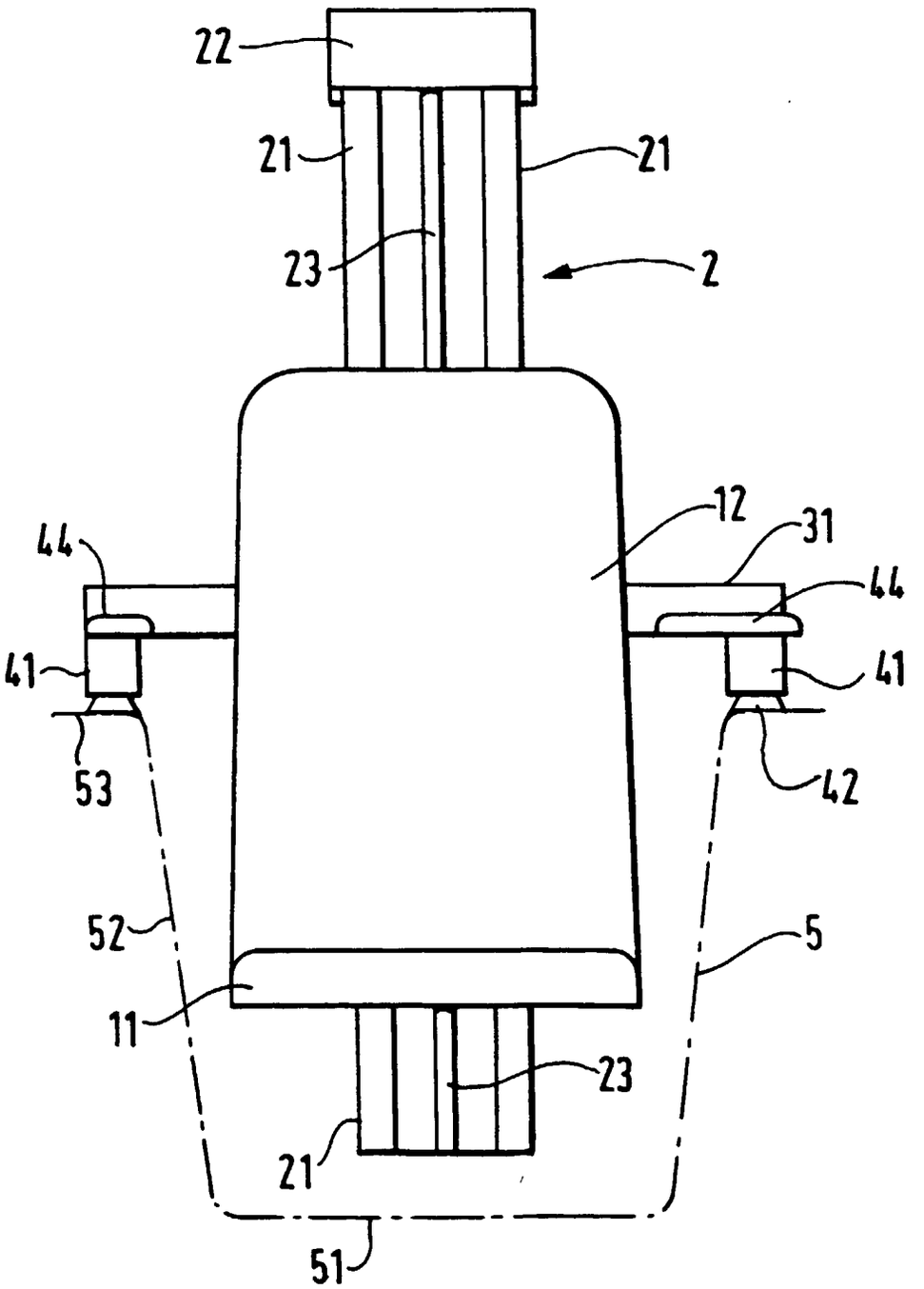


Fig.3.

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EUROPEAN SEARCH REPORT

Application Number
EP 99 30 8986

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	WO 93 08783 A (AQUA MEDICS PTY LTD) 13 May 1993 (1993-05-13)	1,4-7	A61G7/10
A	* page 7, line 18 - line 27 * * page 8, line 5 - page 9, line 34; figure 5 *	2,8	
X	US 3 381 317 A (DANIELS WILLIAM A ET AL) 7 May 1968 (1968-05-07)	1,4-7	
A	* column 2, line 24 - line 37 * * column 2, line 60 - column 3, line 61; figures 1-5 *	2	
X	US 5 129 112 A (SCHAFFER RICHARD C) 14 July 1992 (1992-07-14)	1-6	
A	* column 3, line 29 - line 61 * * column 4, line 58 - line 68 * * column 5, line 1 - line 14 * * column 5, line 32 - line 46 * * column 6, line 36 - column 7, line 9 * * column 7, line 50 - line 64; figures 1,5 *	7	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A61G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	30 March 2000	Baert, F

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 99 30 8986

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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30-03-2000

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82