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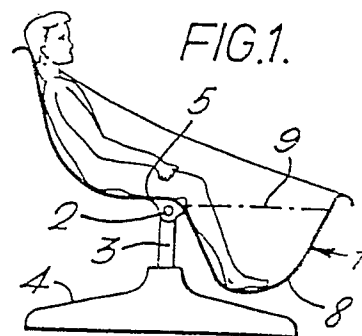
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(54) Baths.

(57) A bath (1) incorporating a seat (5) for a user, the bath being tippable from an upright position to place a seated user in a reclined position in which most of the user's body may be immersed in water contained in the bath.



"Baths"

This invention relates to baths, particularly but not exclusively for use by disabled people. When using a conventional bath a disabled person has to be bodily lowered into and lifted out of the bath; in hospitals this is often done with lifting tackle, which can be very uncomfortable or even dangerous for the patient, whilst in domestic surroundings where no mechanical assistance is available the procedure is very difficult if not impossible. Modified baths are known which comprise a box-like, open-topped enclosure provided with a closeable side door and containing a seat for a disabled user, which can be filled to a level at which about half of the seated user's body is immersed. However such a bath has the disadvantage as compared with a conventional bath that it is difficult for a nurse or other assistant to reach the lower part of the user's body, particularly the legs and feet, because of the depth of the container. This difficulty is increased if the bath is filled to its maximum level, because of the depth of the water, whilst if the bath is not filled so much then washing the upper part of the user's body is made more difficult. It is therefore an object of the present invention to provide a bath for disabled people in which most of the user's body can be immersed in a substantially reclined position, without his having to be bodily lowered into and lifted out of that position.

Viewed from one aspect the invention provides a bath incorporating a seat for a user, the bath being tippable from an upright position to place a seated user in a reclined position in which most of the user's body may be immersed in water contained in the bath.

Such an arrangement enables the user to be washed in a

reclined and immersed condition, with ready access to all parts of the user's body, without his having to be bodily lowered into and lifted out of that position.

The bath may be arranged to be tippable in any convenient fashion. Preferably it is pivotally mounted for movement about a predetermined axis, but this is by no means essential. Indeed in a simple form of the invention the bath could be arranged to rest on the floor and to be manually lifted and lowered between a stable upright position in which the user is initially seated and a stable tipped back position in which he is reclined. In another alternative the bath could be mounted for combined sliding and tipping movement constrained by a pivoted arm connecting the bath to a fixed point so that when the bath is pushed or pulled along its sliding path the arm constrains it to tip in the desired fashion. In whatever manner the tipping is effected, however, it may readily be arranged that the movement of water in the bath aids the tipping movement in both directions, whilst the presence of that water stabilises the bath in both positions, for example by mounting the bath for pivotal movement about a transverse axis approximately midway of its length.

Preferably mechanical means are provided to move the bath between its upright and reclined positions. One such means comprises a lever-operated mechanism having its operating lever mounted alongside the bath for convenient operation by a user in the bath. Preferably the lever is pivotally mounted on a stationary base of the bath, to tip the bath about a transverse horizontal axis where it is pivotally mounted on the said base. Preferably the lever is constrained for movement in a longitudinal slot or recess in a side flange or lip of the bath and is preferably resiliently biased towards one side of the said slot so as to be releasably lockable in respective lateral recesses at the ends of the latter so as to hold the bath in its upright and reclined positions respectively.

If desired means may be provided for positively securing the bath in the upright and/or the reclined position, for example one or more mechanical latches acting between the bath

and a stationary base structure, or a mechanical or hydraulic jack which may be arranged to effect the movement of the bath as well as hold it in its respective positions. Preferably however the arrangement is such that the bath is stable when the user is reclined and immersed, rather than having to be held in that position. Preferably also the bath is arranged to be stable when the user is seated upright with his lower legs and feet immersed in water.

Preferably the "foot end" of the bath which contains the user's feet when he is seated upright is arranged to house enough water to immerse most of the user's body when the bath is tipped back to the reclined position, so that no more water need then be added. Indeed the preferred manner of use of the bath is to fill the foot end with sufficient water, before the bath is tipped back, to achieve immersion when it is so tipped. The weight of that water then counterbalances the weight of the user to provide stability in the seated position whilst the movement of the water when the bath is tipped back assists in moving it to the reclined position.

Preferably the bath has an openable side wall portion to provide an access opening for a user to enter and leave the bath from the side. This enables a user to be moved directly into a seated position in the bath from his bed, and back again by sideways movement. In a preferred form of the invention this procedure is facilitated by making the seat in the bath substantially the same height above floor level as the surface of a bed. The said openable side wall portion may be a removable panel, or a hinged door, or of any other convenient nature.

Preferably a hand grip is provided in the form of a bar extending across the bath in front of the seat for a user. One function of such a bar is to restrain a user against slipping into the foot of the bath. Such a bar is however particularly useful when provided in conjunction with a drop-down panel for closing a side access opening as just mentioned. Such a hand bar may then have one of its ends hingedly connected to such a panel and its other end engageable with a catch on the opposite side wall of the

bath, thus providing both a convenient part for a user to grip in order to close the said panel without having to lean out of the bath, and a means of securing the panel in its closed position. The said catch for the free end of the hand
5 bar may be an over-centre type spring catch which when engaged applies a substantial inward force to the said panel via the bar, to achieve a water-tight seal between the latter and the side of bath. Alternatively or in addition the bar may comprise two parts connected end to end by a double-threaded
10 connector of the bottle-screw type which is rotated by a user to tighten the side panel in its closed position.

The bath may be mounted on a wheeled base so as to be positionable next to a user's bed when needed. Whether or not the base is wheeled, the bath may be mounted for vertical
15 adjustment on the base, e.g. by means of a screw or a mechanical or hydraulic jacking device, to enable the height of its seat to be varied, e.g. to suit different bed heights. In a preferred embodiment the bath is mounted on a vertical pillar slidably adjustable in a base structure to adjust the height
20 of the bath above floor level, suitable cooperating apertures for the reception of a locking pin being provided in the pillar and the base.

The bath may be made of any suitable material, but is preferably a glass-reinforced-plastics moulding.

25 An embodiment of the invention is illustrated by way of example in the accompanying drawings, in which: -

Figure 1 is a diagrammatic side view of a bath according to the invention in its upright position;

Figure 2 is a similar view showing the bath tipped
30 back to its reclined position;

Figures 3 and 4 are more detailed illustrations similar to Figures 1 and 2;

Figure 5 is a diagrammatic transverse cross-section;

Figure 6 is an enlarged view of the top end of the
35 operating lever;

Figure 7 is a plan view with the side access panel open; and

Figure 8 is a similar view with the side panel closed.

The general arrangement and operation of the bath will first be described with reference to Figures 1 and 2.

The bath comprises a glass-reinforced-plastics body 1
5 mounted for pivotal movement about a transverse horizontal
axis 2 on an upright pillar 3 itself mounted for up and down
sliding movement in a base structure 4. Suitable cooperating
apertures (not shown) are provided in the pillar and in the
base structure to receive a locking pin for securing the bath
10 at a desired height above the floor level. The bath is
formed with a seat 5 and has a drop-down hinged panel 6 (see
Figure 5) closing an access opening in one of its side walls
7.

In use, the bath in the upright position shown in
15 Figure 1 has its foot end 8 filled with water up to the level
9 which is judged to be sufficient water to immerse most of a
user's body when the bath is tipped back as described below.
The bath is now positioned alongside the user's bed with the
panel 6 dropped down to form a bridge between the bath and the
20 bed. The user's legs are swung across into the foot end of
the bath and his body is then slid across into a sitting
position on the seat 5. The panel 6 is now closed. In this
condition the bath is stabilised by the weight of the water
in the foot end, but the user's weight counterbalances the
25 water sufficiently to make it easy for the bath now to be
tipped gently into the position shown in Figure 2 by means of
mechanism to be described below. As a result the user is
placed in a reclined position with most of his body immersed
in water, whose new level 10 is indicated in Figure 2. The
30 whole of the user's body is now readily accessible for washing
by an assistant. Once this has been done the bath is gently
tipped back to the Figure 1 position so that the water drains
back into the foot end 8 and the user is once more sitting
upright ready to be returned to bed.

35 Referring now particularly to Figures 3 to 8, a lever
11 for enabling a user to move the bath between its upright
position shown in Figures 1 and 3 and its reclined position

shown in Figures 2 and 4 is pivotally mounted at 12 on an extension 13 of the pillar 3 and an arm 14 integral with the lever 11 is pivotally connected to a link 15 itself pivotally connected to a downwardly extending portion 16 (Figure 5) of the bath body 1. It will be understood that movement of the lever 11 to the right from the position shown in Figure 3 has the effect of pulling the link 15 downwardly and thus tipping the bath rearwardly about its pivotal axis 2 to the reclined position of Figure 4. Reverse movement of the lever of course returns the bath to its upright position shown in Figure 3.

The top end of the lever 11 is received in a slot 17 (Figure 6) formed in a side flange 18 of the bath body 1 and provided with terminal recesses 19 and 20 for securing the lever, which is resiliently biased towards the recessed side of the slot 17 in each of its terminal positions so as releasably to secure the bath body in its respective upright and reclined positions.

A manually grippable hand bar 21 extends across the bath in front of the seat 5 for a user. The bar 21 is pivotally connected to the panel 6 which closes the access opening already mentioned. The free end of the bar 21 is engageable in an over-centre type spring catch 22 so as to hold the panel 6 in its closed position and thus provide a water-tight seal between the panel and the side wall 7 of the bath. When in the position shown in ghost lines in Figure 7 (and in full lines in Figures 5 and 8) the bar 21 provides a convenient lever for the user to open and close the access panel 6. The position of the bar shown in full lines in Figure 7 is an out of the way position to enable the bath to be placed immediately alongside a user's bed.

Preferably, a resilient, e.g. rubber, sealing member is provided between the access panel 6 and the bath body, for example in the form of a compressible rubber tube received in a groove formed in the side wall of the bath around the access opening.

I have found that the lever mechanism described above, which in the illustrated embodiment provides a mechanical advantage of about $7\frac{1}{2}$ to 1, enables a user in the bath to

move the bath between its upright and reclined positions with very little effort, which is of course of great importance to a disabled user. As already described, such movement of the bath is intended to be carried out with the appropriate

5 quantity of water already in the bath, the water in the foot part of the bath counterbalancing the weight of the user when the bath is upright and the movement of the water lengthwise of the bath assisting the movement of the bath between its upright and reclined positions, in both directions.

10 The location of the panel 6 well above the foot region 8 which initially receives the water means that all of the water can be added before the user enters the bath, as compared with the box-like baths previously mentioned in which the water can only be added with the side door closed. The
15 advantage of this is that the temperature of the water can be adjusted in simple fashion before the user enters, as compared with the box-like bath just mentioned in which a mixer tap has to be used because the user is already in the bath.

The bath body is formed with a recess 23 (Figures 7 and
20 8) below the crotch region of a user to facilitate washing. Such a recess may be of channel-like configuration to assist flow of water lengthwise of the bath during its movement from one position to another.

A bath according to the invention can of course be used
25 at any desired location. As well as being positioned adjacent a user's bed as described above, it can be located elsewhere in for example a bedroom or a bathroom, for use by a user in a wheelchair or on a stretcher or indeed by a user who is able to walk. When used adjacent a bed the
30 access panel does not have to be used as a bridge as described above, but can alternatively be dropped right down to an out of the way position and the bath then placed in side by side contact with the bed, or indeed alongside a wheelchair or stretcher.

CLAIMS:

1. A bath incorporating a seat for a user, the bath being tippable from an upright position to place a seated user in a reclined position in which most of the user's body may be immersed in water contained in the bath.
2. A bath as claimed in claim 1, having a foot region which is arranged to accommodate sufficient water, with the bath upright, to achieve the desired immersion of a user's body when the bath is reclined.
3. A bath as claimed in claim 1 or 2, which is pivotally mounted for movement between its upright and reclined positions about a predetermined axis transverse to its length.
4. A bath as claimed in claim 3, wherein the said pivotal axis is located approximately midway of the length of the bath.
5. A bath as claimed in any of the preceding claims, which is arranged to be stable in both its upright and reclined positions when it contains a user and an appropriate quantity of water.
6. A bath as claimed in any of the preceding claims, having means for positively securing the bath in both its upright and reclined positions.
7. A bath as claimed in any of the preceding claims, having a channel-shaped recess extending lengthwise of the bath in its said seat, to assist flow of water along the bath during movement between its upright and reclined positions.
8. A bath as claimed in any of the preceding claims, which is mounted for height adjustment on a base structure.
9. A bath as claimed in any of the preceding claims, including mechanical means providing a mechanical advantage and operable by a user in the bath to move it between its upright and reclined positions.
10. A bath as claimed in claim 9, wherein the said mechanical means comprises a lever mounted for movement along one side of the bath and operatively connected to the bath body via a stationary base structure of the bath.
11. A bath as claimed in claim 10, wherein the said lever is constrained for movement in a longitudinal slot in a side

flange of the bath body.

12. A bath as claimed in claim 11, wherein the said lever is resiliently biased towards one side of the said slot so as to be releasably lockable in respective lateral recesses at the ends of the latter so as to hold the bath in its upright and reclined positions respectively.

13. A bath as claimed in any of the preceding claims, which has an openable side wall portion to provide an access opening for a user to enter and leave the bath from the side.

14. A bath as claimed in claims 2 and 13, wherein the said openable side wall position is located wholly above the said foot region.

15. A bath as claimed in any of the preceding claims, including a hand grip in the form of a bar arranged to extend across the bath in front of the said seat.

16. A bath as claimed in claim 15, when dependent on claim 13 or 14, wherein the said hand bar is connected or connectible to the said openable side wall portion and is operative to hold the latter closed.

17. A bath as claimed in any of the preceding claims, which is mounted on a wheeled base.

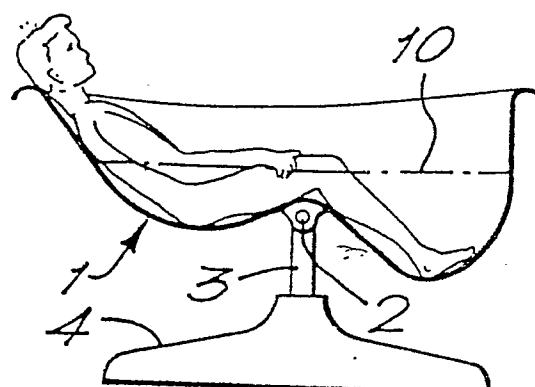
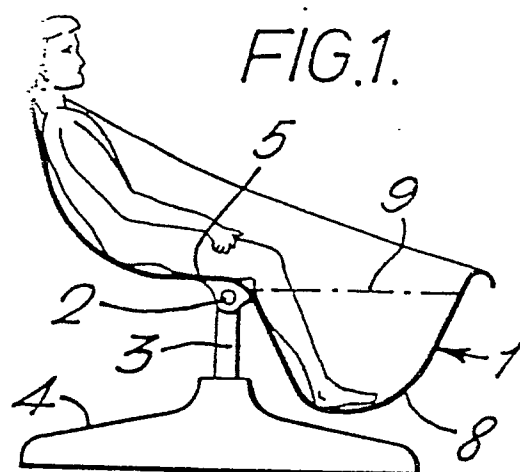


FIG.2.

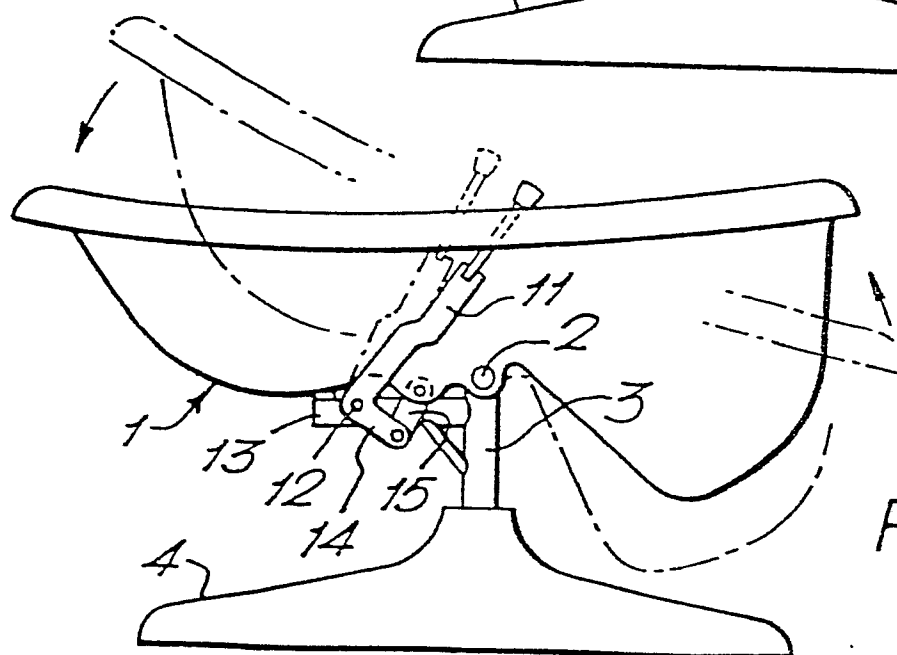
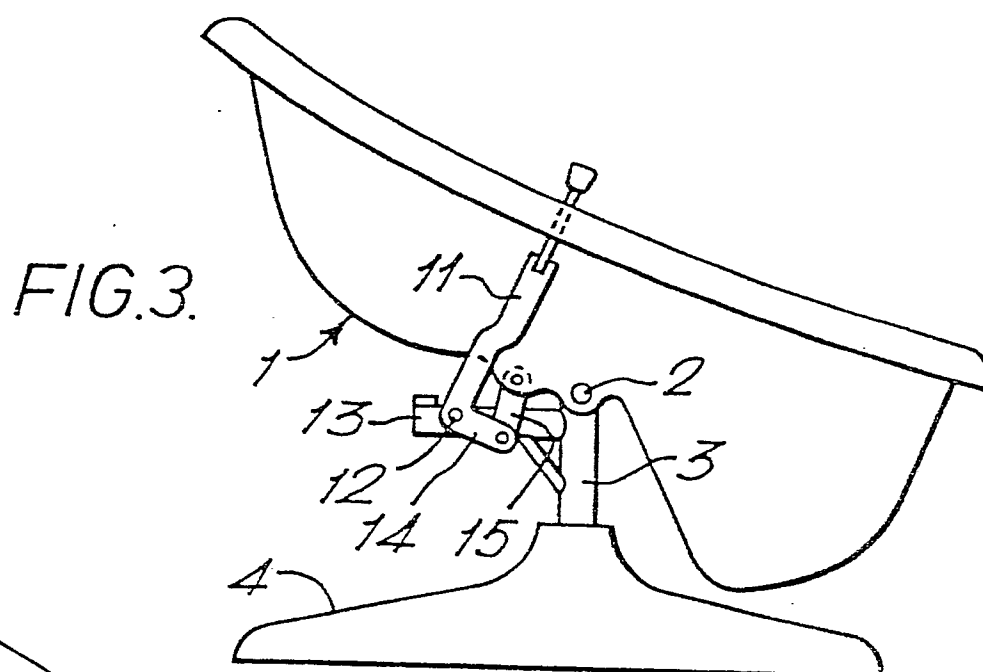


FIG.4.

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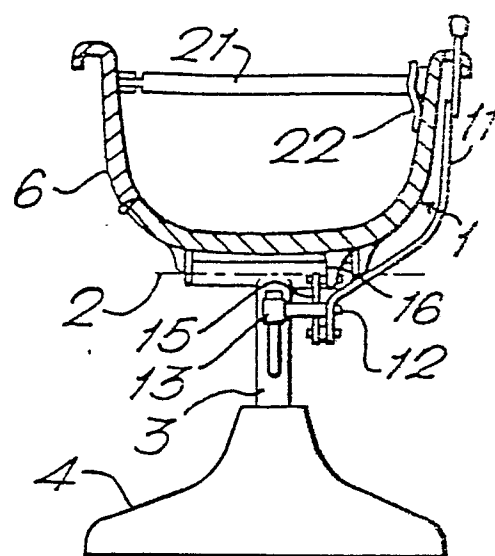
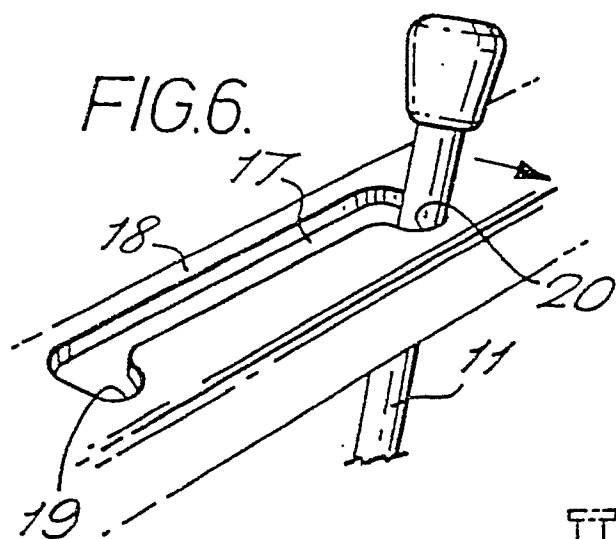


FIG. 5.

FIG. 7.

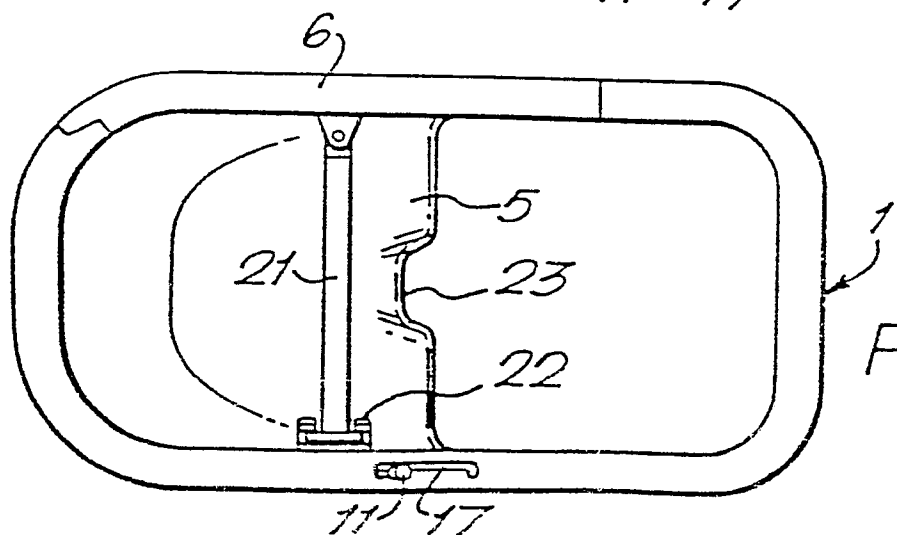
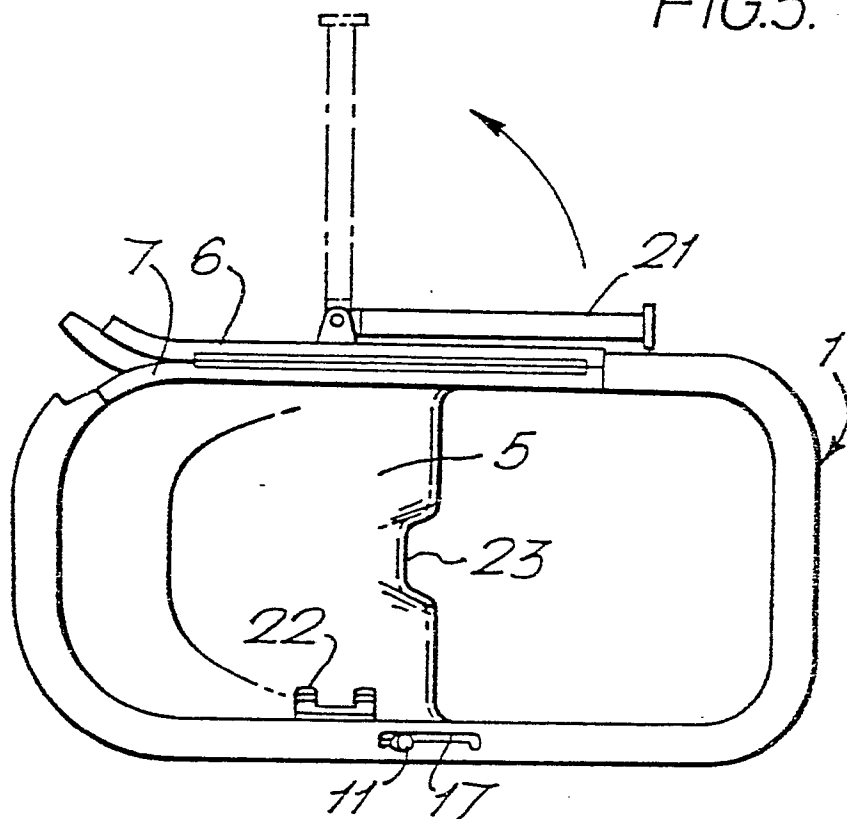


FIG. 8.



European Patent
Office

EUROPEAN SEARCH REPORT

Application number

EP 79 30 1624

0008515

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	DE - A - 2 348 349 (BLOMQVIST) * Page 5, lines 15-27; page 6, lines 1-26; page 7, lines 1-25; page 8, lines 1-29; figures 1-4 * --	1-5	A 47 K 3/00
X	DE - C - 21 746 (BOEGLER) * Page 1, column 1, lines 1-24; column 2, lines 1-17; figures 1,2 * --	1-5, 9,10	TECHNICAL FIELDS SEARCHED (Int.Cl.)
	CH - A - 554 665 (BILL) * Column 1, lines 37-68; column 2, lines 1-19, 41-43; figures 1-4 * --	1,3-6	A 47 K
	GB - A - 749 644 (GOSLETT) * Page 1, lines 43-60; figures 1,2 * ----	15	CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
			&: member of the same patent family.
			corresponding document
☒ The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		13-11-1979	SCHOLS