United States Patent [19]

Loren

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[54] **BATHING DEVICE FOR INVALIDED PERSONS**

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[73] Assignee: **Soderberg Tollam AB,** Vastra Frolunda, Sweden

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[52] **U.S. Cl.** ..... **4/185 L**

[51] **Int. Cl.** **A47k 3/12**

[58] **Field of Search** ..... 4/185 L, 185 R, 185 S, 4/185 AB, 173–178, 182; 134/118; 128/369; 5/81 R, 83–85, 92

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Assistant Examiner—John M. Jillions
Attorney, Agent, or Firm—Holman & Stern

[57] **ABSTRACT**

When bathing invalided persons, it is desirable that the bath tub be located at a certain level above the base flooring. This may be brought about by lifting an ordinary low tub, or by lifting the person to be treated into a high tub. The person rests in a cradle pivotably mounted at a pillar structure, so it can be swung in and out with respect to the tub.

1 Claim, 8 Drawing Figures

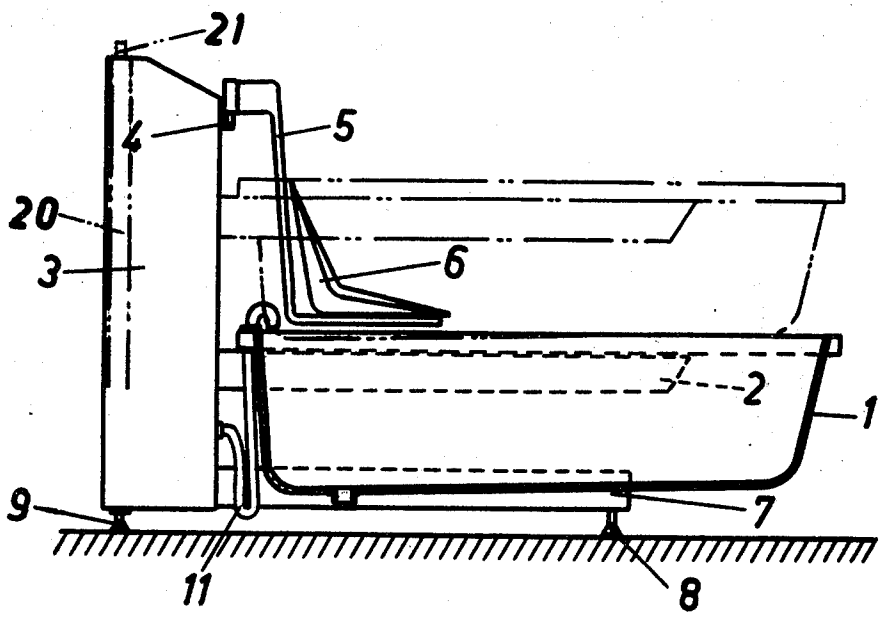


FIG. 1

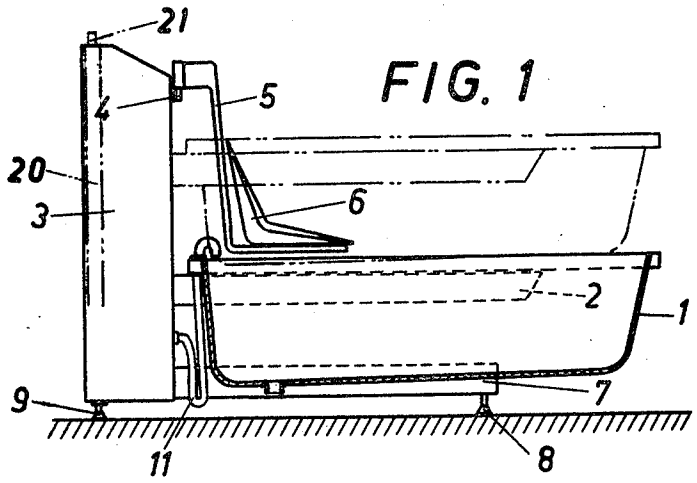


FIG. 2

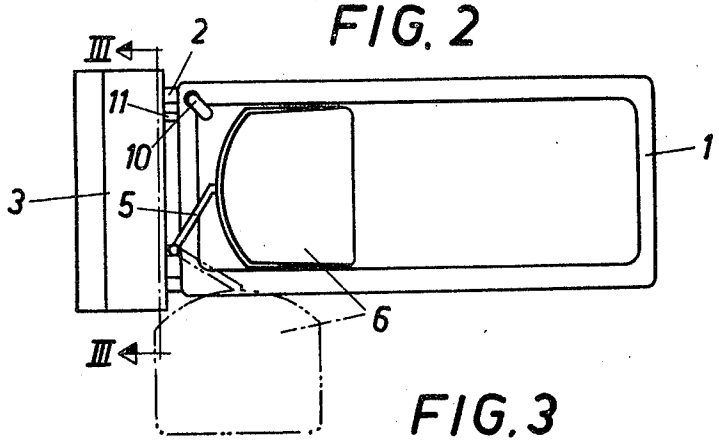


FIG. 3

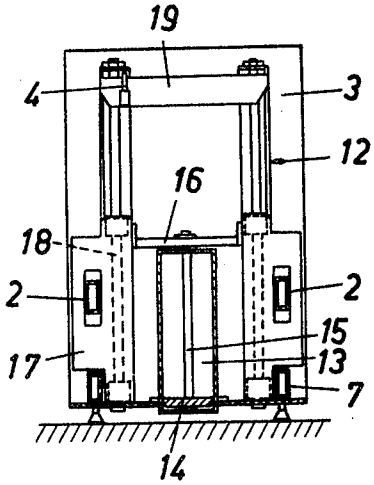


FIG. 4

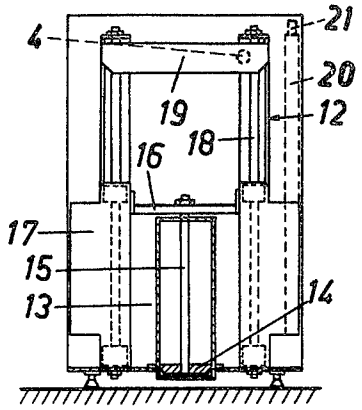


FIG. 5

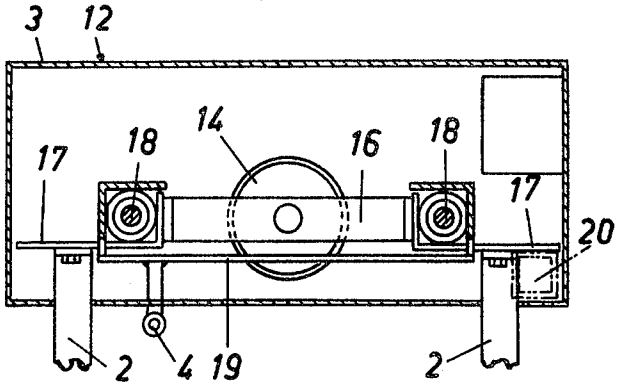


FIG. 6

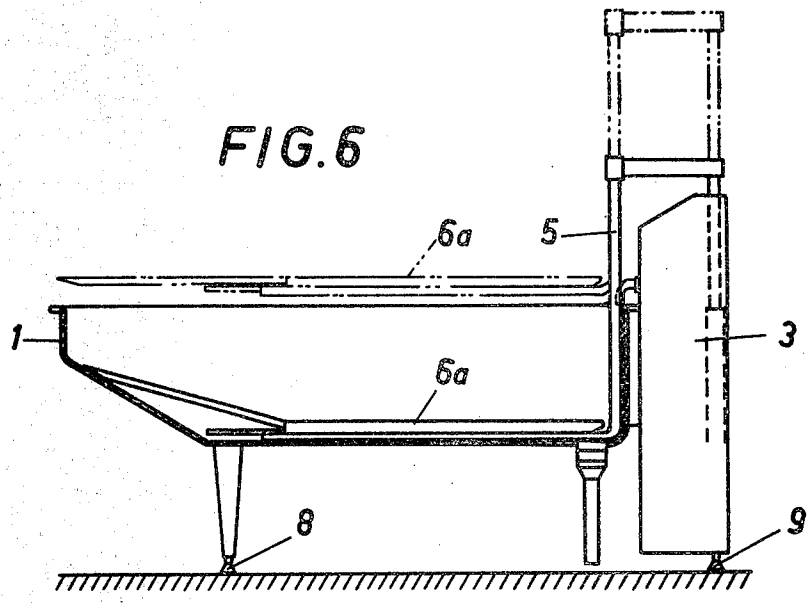


FIG. 7

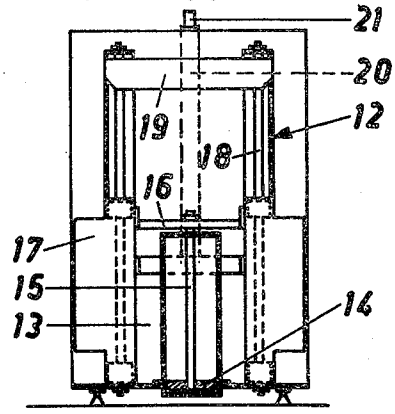
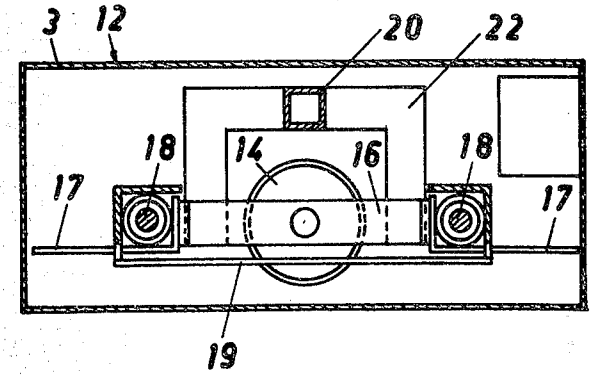


FIG. 8



BATHING DEVICE FOR INVALIDED PERSONS

BACKGROUND OF THE INVENTION

The present invention relates to a device for handling invalided persons during bathing and similar treatment, said device including in connection with a base flooring, a pillar structure resting thereon, a bathtub, a platform for carrying the person and power means for bringing about a relative movement in the vertical direction between the platform and bathtub. Such devices are standard equipment in hospitals, old people's homes and similar institutions.

PRIOR ART

Several devices are known in the art, which include a platform on which a patient may be placed, either sitting or lying down, outside the bath tub, after which the platform is swung in over the bathtub and then lowered down thereinto. In order to facilitate the work for the staff attending to the washing or like treatment, it is desirable that the bathtub, during the treatment, be located at a certain level above the base flooring, higher than the level at which the patient is brought to the bathtub. The patient may arrive sitting in a wheel chair or lying on a wheeled litter.

The devices hitherto used for transferring a patient from a wheeled carriage into the bathtub, and back again, have been cumbersome, difficult to operate and they furthermore have made the bathtub difficult to clean after use.

OBJECT OF THE INVENTION

The object of the present invention is to provide a device, which may be used with different types of installations suited to various local facilities in which either the tub or the platform is stationary and the counterpart component, i.e. the platform or the tub, is displaceable up and down.

SUMMARY OF THE INVENTION

The invention is characterized in that the power means includes a cross beam movable up and down along at least two vertical guides, and means at the cross beam for alternative attachment thereto of bracket members to support the platform or the bathtub, respectively, with the counterpart component thereto remaining stationary with respect to the base flooring.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows an elevation of a bathing arrangement of a first embodiment according to the invention,

FIG. 2 shows the arrangement of FIG. 1 as viewed from above,

FIG. 3 shows a section along line III—III in FIG. 2,

FIG. 4 shows a corresponding section through a somewhat modified embodiment,

FIG. 5 on a larger scale shows, and partly in section, a detail of the lifting mechanism as viewed from above,

FIG. 6 shows, partly in section, an elevation of a bathing arrangement according to a further, modified embodiment, and

FIGS. 7 and 8 show sections thereof corresponding to those of FIGS. 4 and 5.

DESCRIPTION OF SOME PREFERRED EMBODIMENTS

In FIG. 1, reference 1 denotes a bathtub carried by brackets 2. These are displaceable in the vertical direction by means of a lifting mechanism fitted at a pillar structure 3, which is fixedly attached to a base flooring. The pillar structure is provided with a fixed, vertical pivot 4 carrying by means of a sleeve bearing a cradle structure 5, including a cantilever seat 6. The lower portion of the pillar structure includes a forked frame 7, which at the end remote from the pillar structure is provided with a pair of adjustable feet members 8. A further pair of adjustable feet 9 are provided beneath the pillar structure proper.

FIG. 2 shows how the seat 6 may be swung from a position above the tub, to a position outside the tub to receive a patient. It is evident that a platform adapted to receive a lying patient may be used instead of a seat. FIG. 2 further shows the device for supplying water to the tub, which includes a faucet 10 and a hose 11.

FIG. 3 shows, partly in section, an end view of the pillar structure 3 with a lifting mechanism 12. The lifting and the lowering of the tub is brought about by means of a pressure fluid operated motor including a cylinder 13, a piston 14 working therein and a piston rod 15. The piston rod 15 is connected to a cross beam 16, which is provided with sidewardly directed plates 17 and for movement up and down is guided by two vertical members 18. The top end of the guides are interconnected by means of a beam 19, which locates the guides, serves as a stop for the upwardly movement of the lifting mechanism and also carries the pivot 4. The beams 2 forming the brackets carrying the tub are detachably mounted at the plates 17.

On some occasions, it may be advantageous to have the pivot for the cradle structure located further away from the longitudinal middle plane than indicated by the fixed pivot 4, and also in such a manner that the cradle can be accessible from either side of the tub. This may be a requirement called for by local conditions with respect to a wall or other building component, or when it is desirable to have the tub stationary and to raise and to lower the platform.

Each of the sidewardly directed plates 17 is provided with means for detachably mounting a stanchion 20, which at its upper end is provided with a gudgeon pin 21 for cooperation with the cradle structure. In FIG. 4, the stanchion is suited to carry a vertically displaceable cradle structure, and the pin 21 will therefore be located at a higher level than the fixed pivot 4. A stanchion 20 may thus, instead of the beams 2, be attached to any of the plates 17 to make possible a serving from either side of the tub, which on this occasion remains stationary at the base flooring, but preferably is provided with high feet.

The arrangement according to FIGS. 1–3 is operated in the following manner. When the tub, still remaining in its lower position, as shown in full lines in FIG. 1, has been filled with water, the seat is swung to the position shown in dash dotted lines in FIG. 2 in order to receive the patient. The seat is then swung to proper position above the tub, as is shown in full lines in FIG. 2. This movement may be terminated by a fixed stop, or by manual adjustment.

Cylinder 13 is then supplied with pressure fluid so piston 14 is moved upwards, thereby raising the cross-

beam **16** and the plates **17** along the guides **18.** The beams **2** carrying the tub will also be raised up to a level indicated by dashdotted lines in FIG. **1** at which the seat **6** and the patient is surrounded by water. The upward movement can, of course, be terminated at any desirable position below the level indicated by the interruption of the supply of pressure fluid. When the tub is to be lowered, a valve (not shown) spills the fluid from the cylinder **13** at a controlled rate.

With the embodiment according to FIGS. **4** and **5,** the cradle structure, which may be a full length platform, is brought outside and below the tub, to a level suitable directly to receive a patient from a wheeled litter. The platform is then raised to a level just above the tub, swung inwards over the latter and the lowered thereinto by using the pressure fluid operated motor in the same manner as has been described in connection with FIGS. **1–3.** When the washing has been finished, the platform is first raised, then swung outside the tub and finally lowered down to the suitable wheeled litter level.

FIGS. **6, 7** and **8** shows a further modified embodiment, here arranged for service in connection to a fixed, high footed tub. The components are basically the same as in the previously described figures, but the crossbeam **16** is here fitted with a staple structure **22,** which makes possible the fitting of the stanchion **20** in a central position. This will require a modification of the cantilever structure at the cradle, but means that the load will be imparted centrally upon the pillar structure.

The seat **6*a*** is pivotable on pin **21** which takes part in the vertical movement, but there is no drive to the pivoting of the seat. The seat is swung by manual force. The seat can, of course, not be pivoted when it is lowered into the tub or while it is moving upwardly or downwardly inside the tub.

The expensive parts of the device, i.e. the pillar structure and the lifting means, may as with the previously described embodiments, be used also with installations where the tub is raised and lowered with respect to a

cradle structure, which remains swingable in a horizontal plane only. Instead of the stanchion **20** two beams **2** will then be attached to the side plates **17,** and a fixed pivot is mounted at the upper beam **19.**

By designing the pillar structure in the manner above described, it will be possible by simple alterations to make the device suitable for installations in places where local conditions impose limitations thereon, or other factors make one embodiment more attractive than the other.

The same basic structural elements may be used for several applications, whereby manufacturing, service and maintenance costs will be reduced. A further advantage resides in the fact that the staff, when used to one type of the apparatus will easily learn to handle other types also.

The construction is sturdy and compact and it is easy to clean the tub and other components, as the cradle may be swung aside during such operations.

What I claim is:

1. A lifting and lowering mechanism for baths of the type intended for invalided persons and including a bath tub and a platform for carrying the person to be placed in the tub, said lifting and lowering mechanism comprising a pressure fluid operated piston and cylinder unit to be used for alternate lifting and lowering of the bath tub or the carrying platform respectively, in which there are provided two vertical guide members, two plates movable vertically along the guide members, a cross beam attached to the two plates, the piston of the piston and cylinder unit being fixedly connected to the cross beam, said plates extending sideways outside said guide members, a horizontal bracket for supporting the tub, each of the plates being provided with means for removably securing the horizontal bracket, a vertical stanchion, each of said plates having at its extended portion means for attachment of the vertical stanchion and means for removably, pivotally fitting said carrying platform to an upper part of said stanchion.

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