

Jan. 15, 1952

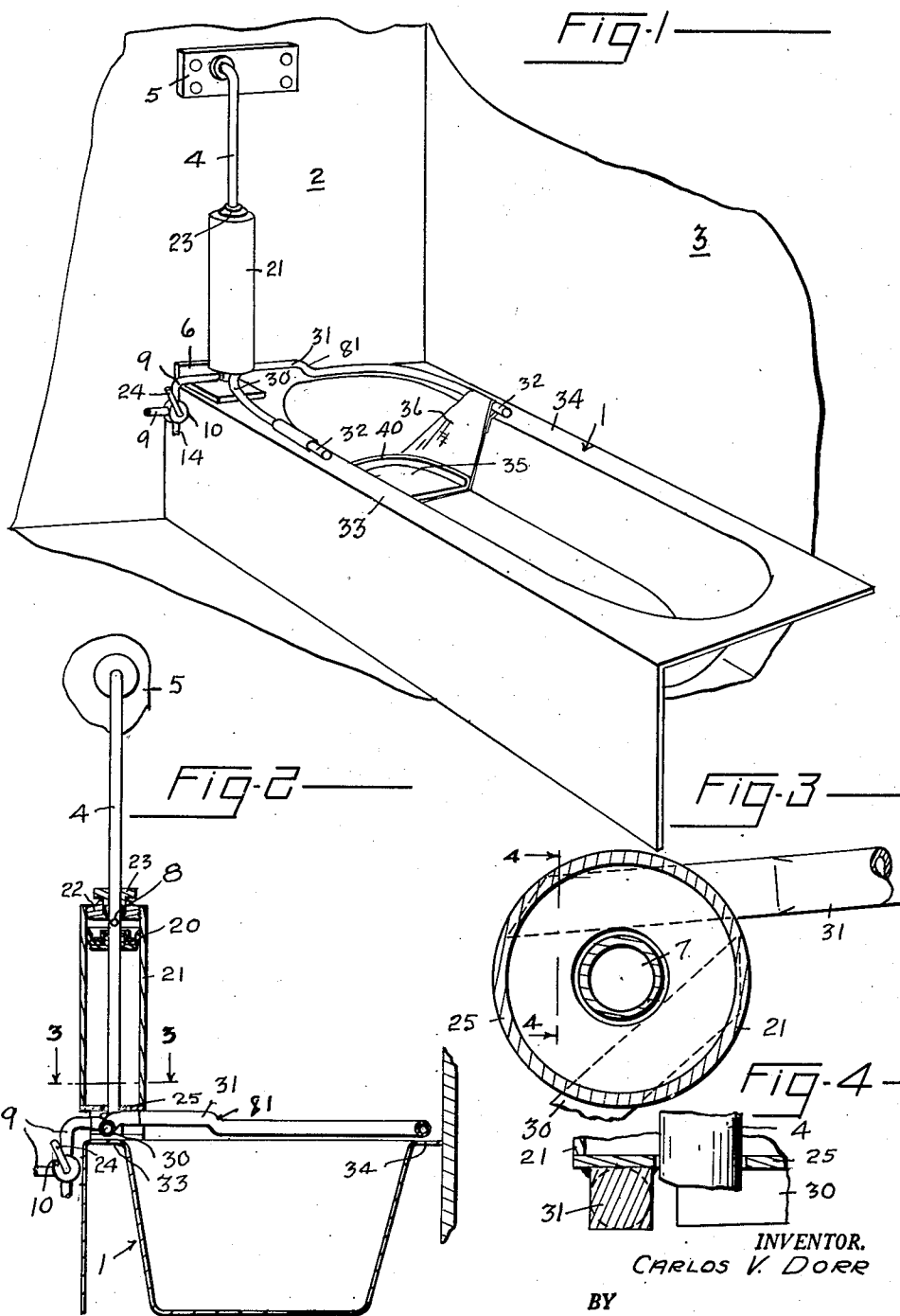
C. V. DORR

2,582,586

PATIENT HANDLING ATTACHMENT FOR BATHTUBS

Filed Feb. 28, 1948

3 Sheets-Sheet 1



Jan. 15, 1952

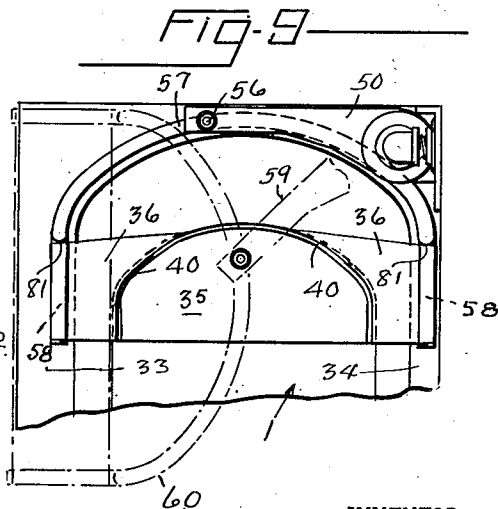
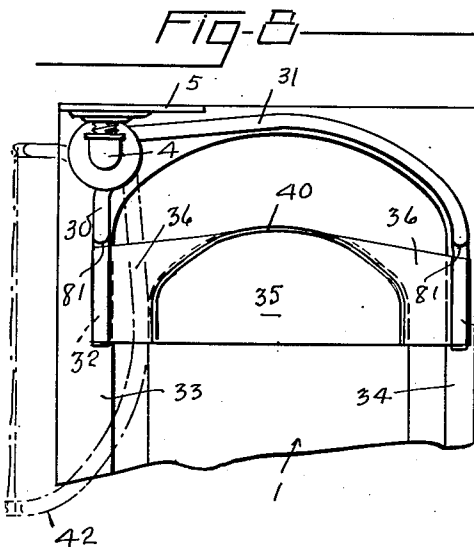
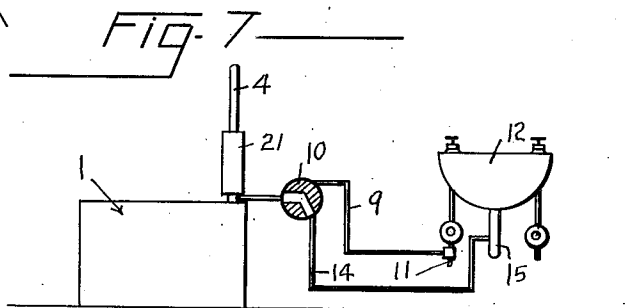
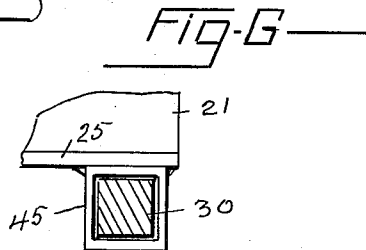
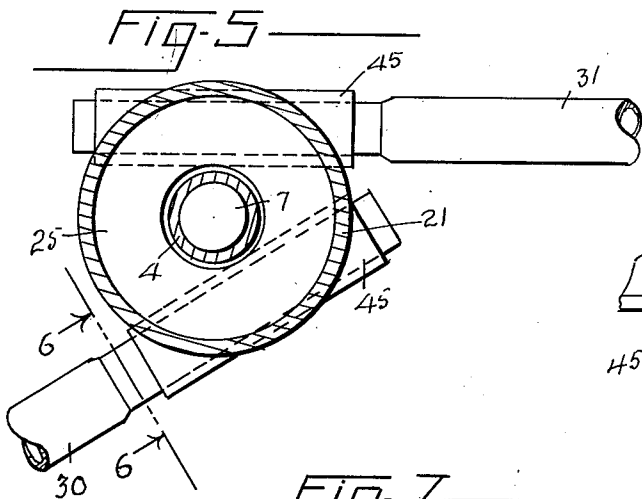
C. V. DORR

2,582,586

PATIENT HANDLING ATTACHMENT FOR BATHTUBS

Filed Feb. 28, 1948

3 Sheets-Sheet 2



INVENTOR.
CARLOS V. DORR

BY

Boyer, Miller, & Beckley
ATTORNEYS

Jan. 15, 1952

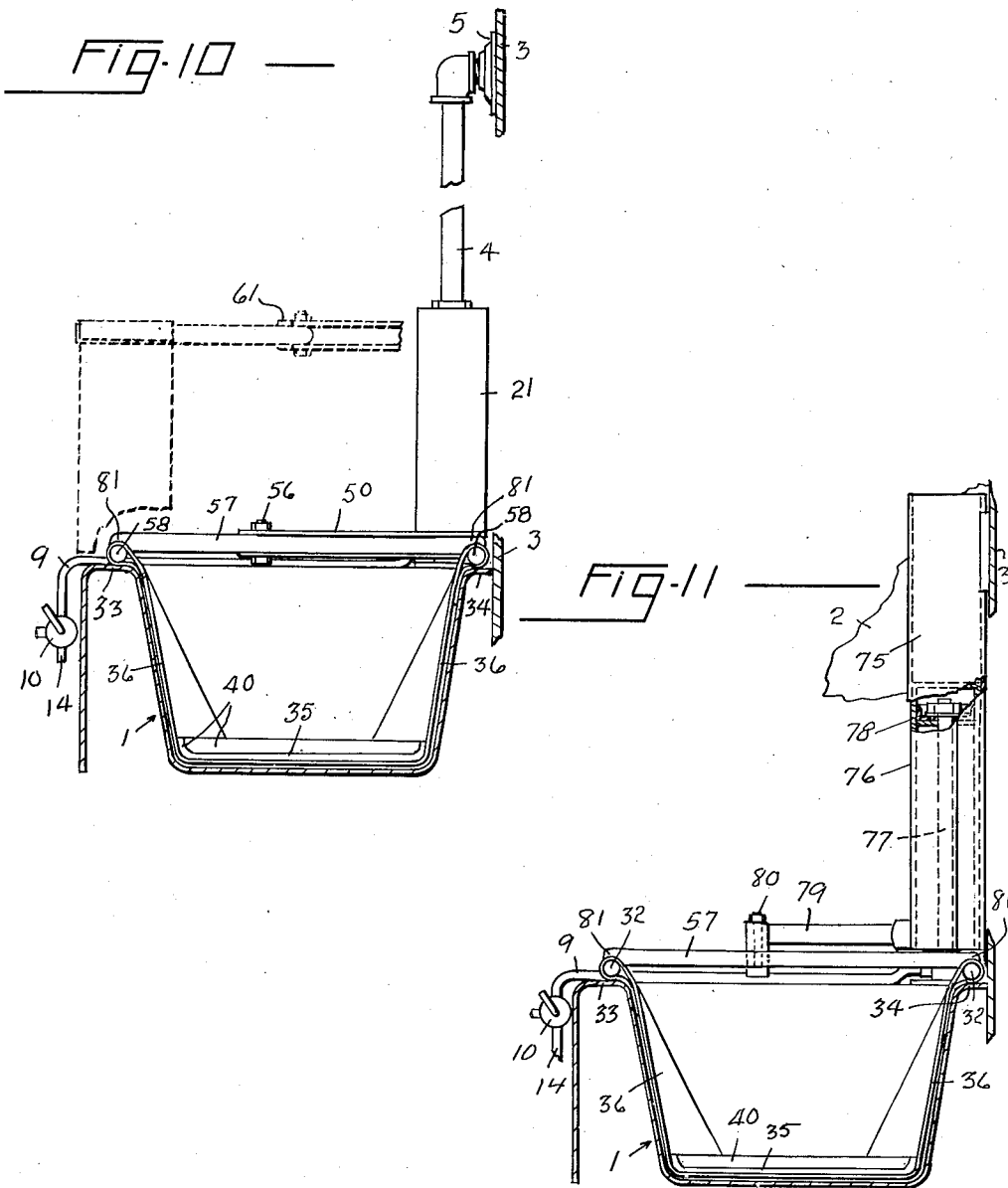
C. V. DORR

2,582,586

PATIENT HANDLING ATTACHMENT FOR BATHTUBS

Filed Feb. 28, 1948

3 Sheets-Sheet 3



INVENTOR.
CARLOS V. DORR

BY

Boyer, Mohler & Beckley
ATTORNEYS

UNITED STATES PATENT OFFICE

2,582,586

PATIENT HANDLING ATTACHMENT FOR
BATHTUBS

Carlos V. Dorr, San Francisco, Calif.

Application February 28, 1948, Serial No. 11,900

7 Claims. (Cl. 4—185)

1

This invention relates to a bath apparatus for use by invalids and persons that may have difficulty in getting into and out of a bathtub, although it is suitable for use by any person.

One of the objects of the invention is to provide apparatus that is economical, positive, rugged, and easily manipulated and that includes a seat for the person using the same, which is adapted to carry the person over the edge of the tub and then lower such person to the bottom of the tub after which the same seat will elevate the person out of the water for swinging over the side of the tub.

A still further object of the invention is the provision of apparatus that is adapted to be permanently installed over one end of a tub where the latter adjoins the wall of the bath room at said end, and which apparatus is adapted to lower a person into the tub and to elevate such person out of the tub, and over one edge of such tub, but which apparatus will not interfere with the normal use of the tub by others not desiring to use the apparatus.

A still further object of the invention is the provision of a single, simple post stationarily secured to a vertical wall adjoining one end of a bath tub and which post carries a seat adapted to swing about the axis of said post for a position over one side of the tub to a position aligned over the tub basin at said end and to reciprocally move vertically into and out of the tub when a person is carried on said seat and under full control of such person.

Heretofore devices have been designed for raising and lowering invalids into and out of a tub. Some have required supports or movable carriages disposed between the head or end of the tub and the wall, and are therefore not suitable for use where the ends of the tub adjoin walls, a structure common in most modern buildings.

Other devices have been devised requiring special tubs or alteration of such tubs.

The present invention is adapted to be quickly and easily installed in over one end of a bath tub where such end adjoins a vertical wall of the bath room, and requires no alteration in the tub. Also the patient using the same may readily be seated on the seat while outside the tub, after which the seat is adapted to swing over the end of the tub and is adapted to lower the patient directly into the tub free from the use of levers and swinging about a horizontal axis inasmuch as in the latter instance vitally important space is lost in effecting the swing and un-

2

desirable bulk is required to take the strains imposed on the mechanism.

Other objects and advantages in the present invention will appear in the detailed drawings and in the description.

In the drawings, Fig. 1 is a fragmentary perspective view of a tub with the invention herein indicated in position, but with the hand valve and certain pipe lines omitted.

Fig. 2 is a vertical sectional view taken through the hydraulic cylinder of Fig. 1 showing the inlet for the fluid to be admitted into the cylinder. The hand valve is also indicated.

Fig. 3 is an enlarged fragmentary sectional view taken along the line 3—3 of Fig. 2.

Fig. 4 is a fragmentary sectional view taken along line 4—4 of Fig. 3.

Fig. 5 is a fragmentary sectional view of a modified form of the invention as it would appear if taken along line 3—3 of Fig. 2.

Fig. 6 is a fragmentary sectional view taken along the line 6—6 of Fig. 5.

Fig. 7 is a diagrammatic view illustrating the hydraulic system and piping for the invention.

Fig. 8 is a fragmentary plan view of the device of Figs. 1 to 6 showing the position of the seat aligned over the end of the tub in full line, and the position when swung over the edge of the tub in dot-dash lines.

Fig. 9 is a plan view of a slightly different form of the invention illustrating the same with the seat in three positions.

Fig. 10 is sectional view through a tub looking toward the invention of Fig. 9 the latter being in elevation and the elevated position of the seat being indicated in dotted lines.

Fig. 11 is a part sectional part elevational view of a slightly different form of the invention than is shown in the other views.

In detail, the tub 1 in Fig. 3 is illustrative of a modern tub in a bathroom, which tub ordinarily extends at its head end to a vertical side wall 2 of said room. Wall 3 adjoins wall 2 and extends alongside one of the longitudinally extending sides of the tub.

At the head end of the tub is secured a vertical post 4, which post may be rigidly secured to wall 2 at its upper end by a bracket or member 5, and another bracket or member 6 at the lower end may secure said lower end to the wall 2 or in some instances to the head end of the tub or to both the wall and to the tub adjacent their junctures. In any event, post 4 is held against any vertical movement or lateral movement and is

3

spaced from the wall 2 and over the head end of the tub.

The preferable position of the post 4 is over one of the corners of the tub at the head end. In Fig. 1 it is shown over the corner that is remote from the side wall 3, or which is adjacent the side of the tub that faces into the bathroom and over which side the bather would normally enter the tub.

The post 4 is formed with a passageway 7 (Fig. 3) extending longitudinally therethrough from its lower end to an opening 8 (Fig. 2) that is intermediate the opposite ends of said post. The lower end of said passageway communicates with a fluid inlet pipe 9 in which is a three-way valve 10.

Said valve is adapted to establish communication between said passageway and a main water pressure line 11. The latter may be the cold water line leading to the wash basin 12, which is perhaps the most convenient place to make the connection inasmuch as it is exposed and readily accessible. However, the connection could be made to any other suitable source of fluid pressure or to the city water line at some other point in the bathroom.

Valve 10 in one of its other positions may establish communication between the passageway 7 and a drain pipe 14 and at the same time close off the pipe 9 (Fig. 7) whereupon any fluid in said passageway will drain therefrom. Said drain pipe 14 may in turn, discharge into the drain pipe of the tub or the pipe 15 of the basin 12 or to any other suitable place for draining said fluid. A third position of the valve closes all ports leading therefrom or thereto.

Secured rigidly to post 4 below said opening 8 is a piston 20, and enclosing said piston coaxial therewith and with post 4 is a cylinder 21. Cylinder 21 has a head 22 at its upper end having a packing gland 23 through which the post extends and which forms a liquid seal between the post and cylinder while permitting the cylinder to reciprocate longitudinally thereof on said post and to also rotate about the post.

The lower end 25 of the cylinder is preferably a reasonably close sliding fit on the post, but is not necessarily liquid tight, inasmuch as any liquid that might enter the cylinder below the piston, should there be any leakage between said piston and said cylinder, will drain from the lower portion of the cylinder into the tub. Such leakage is not usual, but could occur, in which event no harm is done and the device is perfectly operative and will continue to be.

From the foregoing description it will be seen that by turning the handle 24 so as to establish communication between the pressure line 11 and the passageway 8, the cylinder 21 will move upwardly to the limit permitted by the post 4 or to the height desired, whereupon valve 10 may be actuated to close all ports opening therefrom, and the cylinder will remain elevated. By manipulating handle 24 to establish communication between passageway 7 and the drain 14, the cylinder will lower by gravity at a speed determined by the degree of rotation of the valve and the viscosity of the fluid. Water is preferably used in all installations, hence the flow will remain substantially the same for similar openings of the valve irrespective of temperature conditions normally encountered in water systems.

Secured to the lower end or lower head 25 of cylinder 21 are a pair of arms 30, 31 that extend divergently outwardly and laterally from the

4

axis of said cylinder for a predetermined distance, and a length of their outer end portions 32 are preferably substantially parallel (Figs. 1, 8).

The inner ends of said arms may extend past opposite sides of the post 4 (Fig. 3) and may be square or formed with a flat side for secure welding to the head 25 (Fig. 4). Also said inner ends may be solid, whereas the main lengths of said arms may be tubular.

As seen in Figs. 1, 8 the arrangement of the arms 30, 31 is such that the parallel outer ends 32 of said arms may be positioned substantially parallel with the longitudinally extending sides 33, 34 of the tub 1 and over the latter.

Secured to said parallel ends 32 is a seat 35 on which a person may sit when positioned between the arms 32, the said seat having hanger extensions 36 supported at their upper ends on said arms 32 and depending therefrom to said seat.

The entire seat including the extensions 36 may be of plastic, metal, plywood, canvas or any desired combination. For example, the hanger extensions 36 that are indicated in the drawings may be of canvas, having loops at their upper ends through which the arms 32 extend, and the seat portion 35 may be of plastic or other relatively rigid material, and the canvas of extensions 36 may extend below the same. Preferably, the seat has an upstanding rim 40 and the canvas hangers 36 extend partially around the rear of the seat.

In the position in which the arms are over the sides 33, 34 of the tub and substantially thereon, the seat 35 is practically on the bottom of the tub. In fact, it may be on the bottom, if desired. The cylinder 21 is then at substantially the lower end of its stroke and the water is exhausted, or substantially exhausted therefrom.

When the valve 10 is manipulated to elevate the cylinder, the seat 35 will clear the upper edge 33 of the bath tub, and it can be swung laterally, rotating the same about the axis of the cylinder and post 4, until the seat is swung to position 42 (Fig. 8) across and past the upper edge 33 of said tub.

When in said elevated position, the seat is at a height convenient for a person to be seated thereon and the liquid within the cylinder will hold the same elevated with such person on the seat. Said person then merely swings over the edge 33 and in a position with the seat aligned over the head end of the tub. By manipulating valve 10 so that the water or liquid therein will pass into the drain, the person will be lowered to the bottom of the tub. The degree of opening of valve 10 to the drain will control the speed of descent, but ordinarily it is impossible to cause too rapid a descent to be safe, even with quite feeble persons who might find too rapid a descent undesirable.

By providing sockets 45 on the head 25 (Figs. 5, 6) it would be possible to have the arms 30, 31 readily removable. The shoulders at the junctions between the square ends of the arms and the cylindrical portions would function as stops. Of course any desirable stop projections could be secured on the arms, and the latter could be square for their entire lengths.

The arms as shown in Figs. 5, 6, may be easily slipped out of the sockets; and when in the latter the angular relationship between the arms is such that any weight on the seat will tend to hold the arms more tightly in the sockets, thereby

5

avoiding any chance of their accidentally slipping out during use of the device.

Also, and if desired, the hangers 36 can be slipped from arms 30, 31. Thus the tub can be used by anyone not desiring to use the elevator or lift device, and there will be no interference by the latter. Removal of the seat facilitates washing the fabric portion as well as the seat, when and if they become soiled.

In the form of the invention as seen in Figs. 9, 10 the same numbers as have already been used will be repeated where they identify identical parts.

In the invention as shown in Figs. 9, 10 the post 4 and cylinder 21 including piston 20, are the same as seen in Fig. 1. However, the post is secured in position in the corner of the bath room adjacent the juncture between walls 2, 3.

With the cylinder 21 in the corner, instead of securing the seat and the arms carrying the same directly to the lower end of the cylinder, a horizontal arm 50 is secured at one end to the lower end of the cylinder. This arm 50 is preferably in the form of a channel with the channel opening directed laterally and toward the foot end of the tub when said arm extends across the head end, as seen in Fig. 9.

The seat support in the form of invention shown in Figs. 9, 10 comprises a U-shaped tubular member 55 disposed with the legs thereof extending horizontally and vertically pivoted at 56 to the outer end of arm 50. The closed end of member 55 is preferably positioned within the channel of arm 50 at the outer end of the latter, and said pivot 56 is at a point in the closed end portion 57 of said member 55 intermediate arms 58 thereof.

The seat 35 including the flexible support 36 are identical with seat 35 and hangers 36 of Fig. 1.

The length of arm 50 and the position of pivot 56 are such that when the arm 50 is in full line position over the upper end of the tub (Fig. 9), and the cylinder 21 is lowered, the seat 35 will be lowered into the tub exactly as is the case in Figs. 1 to 8. When the arm 50 is in elevated position 61 (Fig. 10) and is swung to dot-dash position 59, and the member 57 is swung on pivot 56, the seat will be swung over the edge 33 of the tub to position 60 (Fig. 9), which substantially corresponds with position 42 of Fig. 8.

In the form of invention as shown in Fig. 11 a cylinder 75 is secured to the wall 3 adjacent the juncture between walls 2, 3. A second cylinder 76 is vertically reciprocable within this cylinder 75, the latter functioning as a support and guide for cylinder 76, thus not making it necessary for a post, such as the post 4 in Fig. 1, to extend through cylinder 76.

Post 77 is hollow and open ended, and carries piston 78 at its upper end and the fluid or liquid is conducted through post 77 from pipe 9 for injection into cylinder 76 above the piston. The cylinder 76, which carries laterally projecting arm 79 at its lower end, will be elevated when the liquid is injected into cylinder 76.

Arm 79 carries D-shaped member 57 at its outer end, said member being identical with the member 57 of Fig. 10. Pivot 80 pivotally secures said member to the outer end of arm 79.

The positions of the seat 35 when supported on arm 79 are identical with those to which seat 35 in Figs. 9, 10 are adapted to swing.

While no packing gland is required in the form of invention as shown in Fig. 11, such as the

6

gland 23 of Fig. 2, the invention as shown in Fig. 11 is slightly more costly than that of either Figs. 1 or 10.

In each of the different forms of the invention, the arms from which the seat is suspended are preferably slightly offset downwardly from points 81 although this is not absolutely essential.

By the arrangement as described, there are no vertically swinging levers or complicated lever arrangements, and the bathtub and walls of the bathroom do not require alteration. The device is compact and out of the way over the head end of the tub. It is always in position ready for use, but its presence in no way interferes with the use of the tub in the normal manner. The complete device can be installed in a few hours' time by any competent workman, and the device is absolutely safe to use and is easily manipulated by any person. Any possible mistake in the manipulation of valve 10 does no harm and cannot cause injury.

I claim:

1. In a bath apparatus of the character described, a vertical post, means for securing said post to a wall adjacent one end of a bathtub, a cylinder coaxial with said post slidably and rotatably carried by the latter, means for causing upward movement of said cylinder on said post including a piston secured to said post within said cylinder and an inlet for fluid under pressure communicating with the space between said piston and the upper end of said cylinder, a head on said cylinder in sealing sliding engagement with said post, and a seat carried by the lower end of said cylinder for movement therewith, said seat being offset to one side of said cylinder for swinging from a position over the end of said tub adjacent thereto to a position over one side of said tub when said cylinder is elevated and rotated on said post.

2. In a bath apparatus of the character described, a vertical post, means for securing said post to a wall adjacent one end of a bathtub, a cylinder coaxial with said post slidably and rotatably carried by the latter, means for causing upward movement of said cylinder on said post including a piston secured to said post within said cylinder and an inlet for fluid under pressure communicating with the space between said piston and the upper end of said cylinder, a head on said cylinder in sealing sliding engagement with said post, and a seat carried by the lower end of said cylinder for movement therewith, said seat being offset to one side of said cylinder for swinging from a position over the end of said tub adjacent thereto to a position over one side of said tub when said cylinder is elevated and rotated on said post, a head at the lower end of said cylinder through which said post extends in slidable engagement therewith, laterally projecting arms on the lower end of said cylinder carrying said seat at their outer ends.

3. In a bath apparatus of the character described, a vertical post, means for securing said post to a wall adjacent one end of a bathtub, a cylinder coaxial with said post slidably and rotatably carried by the latter, means for causing upward movement of said cylinder on said post including a piston secured to said post within said cylinder and an inlet for fluid under pressure communicating with the space between said piston and the upper end of said cylinder, a head on said cylinder in sealing sliding engagement

with said post, and a seat carried by the lower end of said cylinder for movement therewith, said seat being offset to one side of said cylinder for swinging from a position over the end of said tub adjacent thereto to a position over one side of said tub when said cylinder is elevated and rotated on said post, a head at the lower end of said cylinder through which said post extends in slidable engagement therewith, laterally and divergently projecting arms extending from said head and removably secured thereto and carrying said seat at their outer ends.

4. In a bath apparatus of the character described, a vertical cylindrical post, means at the upper and lower ends of said post for rigidly supporting the same spaced from but adjacent a wall of a bathroom and adjacent the head of a tub in such room, a piston secured rigidly on said post coaxial therewith, a cylinder coaxial with said post enclosing said piston and reciprocable relative to the latter longitudinally of said post, a passageway for fluid under pressure within said post extending from its lower end to a point adjacent and above said piston and communicating with the interior of said cylinder at said point, heads at the upper and lower ends of said cylinder through which said post slidably extends, a seat carrying device secured at one end to the lower end of said cylinder and projecting laterally from said lower end and a seat on the other end of said device for supporting a person seated thereon, said post and cylinder being positioned for supporting said seat over the tub basin at one end thereof for lowering said person into said tub upon downward movement of said cylinder on said post and said seat being swingable about the axis of said post from its elevated position over said one end to a position over the side of said tub whereby such person will be carried to said side, fluid pressure means including controls therefore connected with the lower end of said passageway for causing upward and downward movement of said cylinder and seat on said post.

5. In a bath apparatus of the character described the combination of a support mounted to swing about a vertical axis and to move reciprocally up and down parallel with said axis, a seat secured to said support for movement therewith, said support being capable of being swung into a position to enable said seat to align over the interior of one end of a tub, and means associated with said support enabling the same to be lowered to carry said seat into said tub at said one end and to enable the same to be raised thereafter out of said tub, and means securing said support against vertical swinging movement at all times and restricting the same to said reciprocable movement and to lateral swinging, said support including spaced, horizontally disposed arms, and said seat being secured to said arms and depending therefrom a sufficient distance to position said seat substantially on the

bottom of said tub when said arms are horizontal and are substantially even with the top of said tub.

6. In a bath apparatus of the character described, a vertical post, a bracket for securing the upper end of said post stationary to a vertical wall of a bath room with the said post spaced from said wall and over one end of a tub in said room, a support carried by said post projecting laterally therefrom and including a pair of horizontally extending horizontally spaced arms, a seat secured at opposite sides to said arms and depending therefrom with the bottom of said seat spaced below said arms a sufficient distance to substantially rest on the bottom of said tub when said arms are adjacent the upper edges of the sides of said tub, said support being vertically reciprocable on said post and revolvable about its axis, and means for lowering and for elevating said support on said post for lowering and for raising a person on said seat into and out of said tub.

7. In a bath apparatus of the character described, a vertical post, a bracket for securing the upper end of said post stationary to a vertical wall of a bathroom with the said post spaced from said wall and over one end of a tub in said room, a support carried by said post projecting laterally therefrom and including a pair of horizontally extending horizontally spaced arms, a seat secured at opposite sides to said arms and depending therefrom with the bottom of said seat spaced below said arms a sufficient distance to substantially rest on the bottom of said tub when said arms are adjacent the upper edges of the sides of said tub, said support being vertically reciprocable on said post and revolvable about its axis, and means for lowering and for elevating said support on said post for lowering and for raising a person on said seat into and out of said tub, said post being of sufficient length and height above said tub to enable sufficient upward movement of said support to elevate the seat to a point where the bottom of said seat will clear the upper edge of said tub for swinging said support laterally to carry said seat over an edge of said tub to enable the person on said seat to step therefrom out of said tub.

CARLOS V. DORR.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
274,527	Stelle et al. _____	Mar. 27, 1883
2,087,286	Hicks _____	July 20, 1937
2,187,283	Schuetz _____	Jan. 16, 1940

FOREIGN PATENTS

Number	Country	Date
38,236	Austria _____	Aug. 10, 1909