

March 16, 1943.

A. J. HUNTING

2,314,044

BATHTUB STRUCTURE

Filed March 20, 1942

4 Sheets-Sheet 1

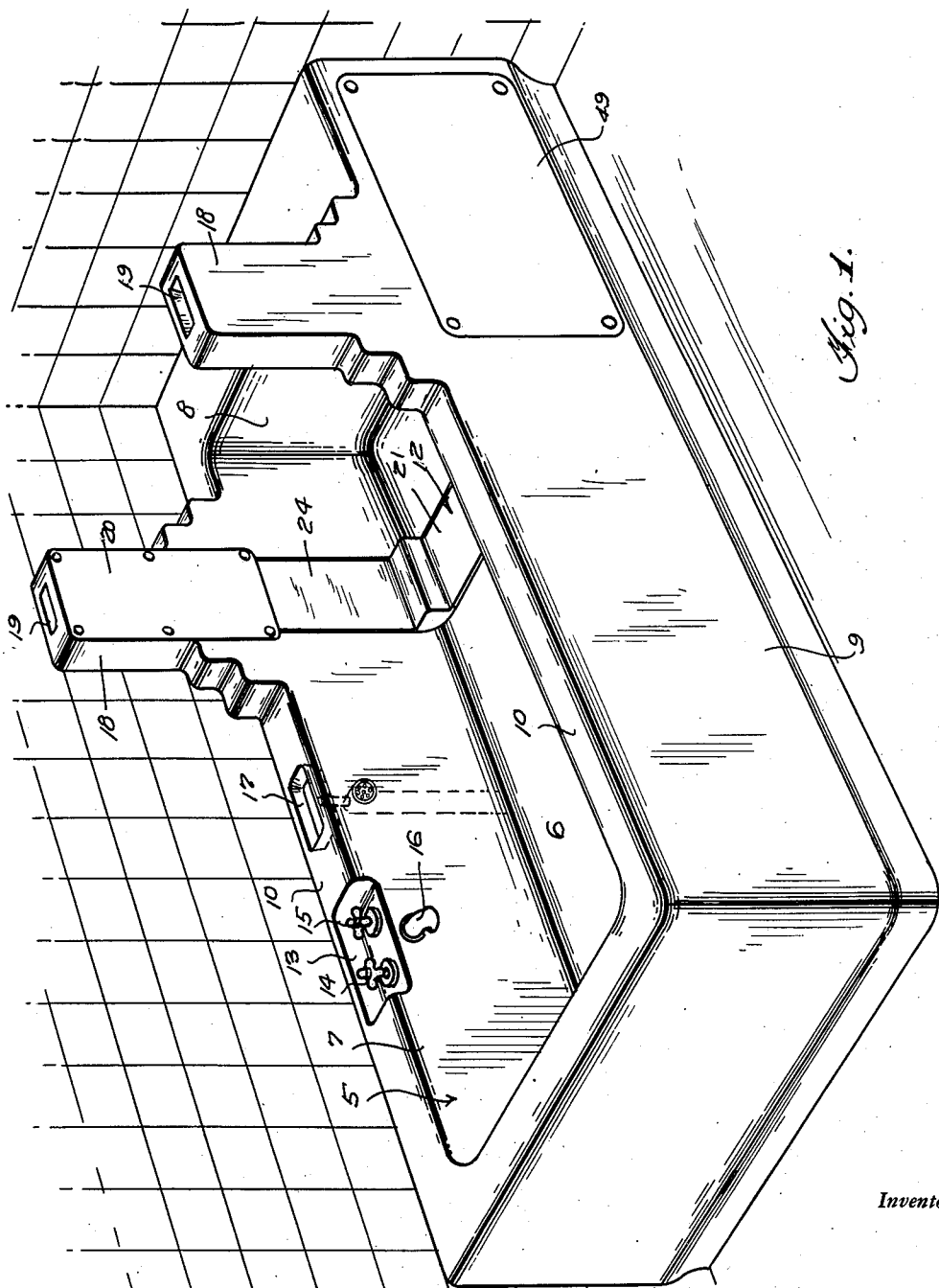


Fig. 1.

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4 Sheets-Sheet 2

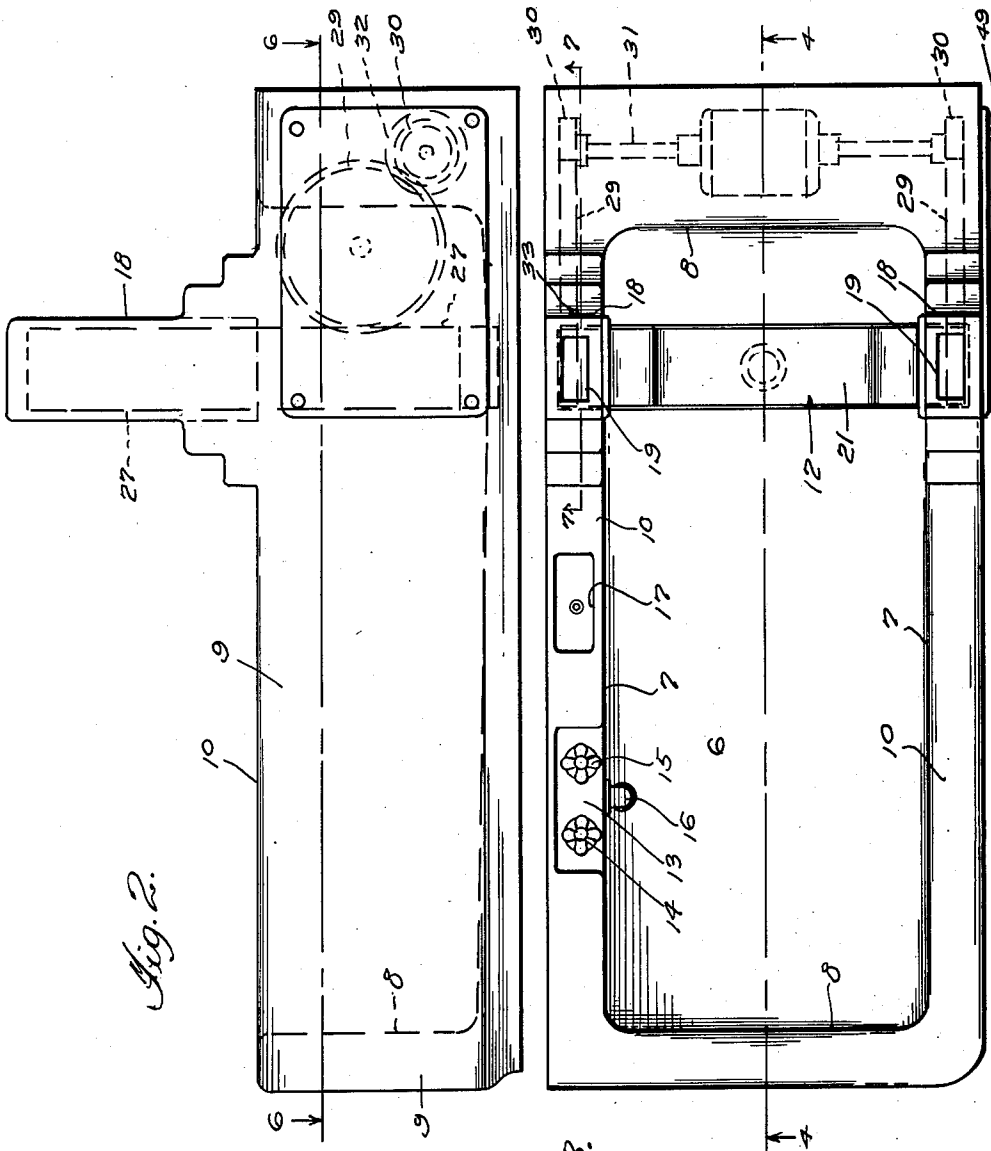


Fig. 2.

Fig. 3.

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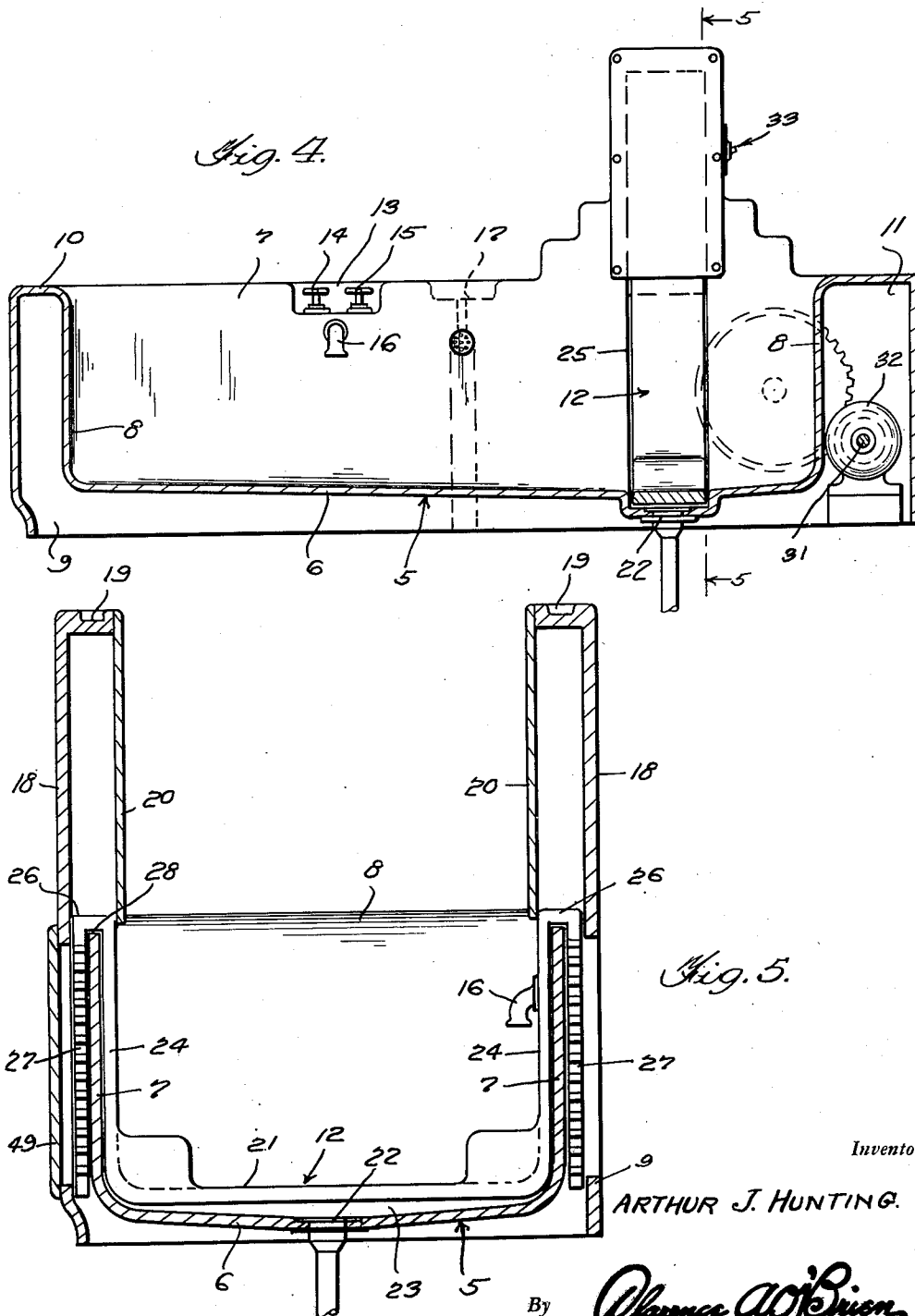
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BATHTUB STRUCTURE

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4 Sheets-Sheet 4

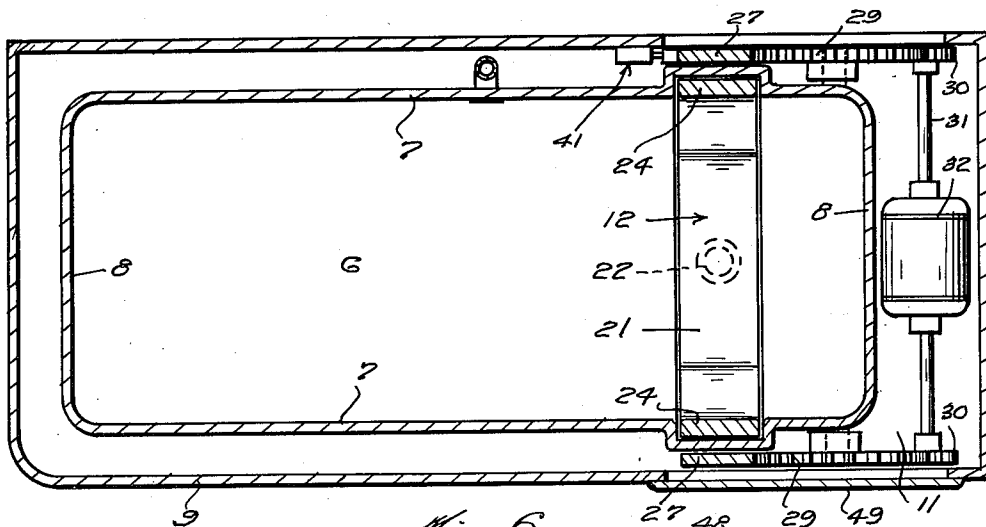


Fig. 6.

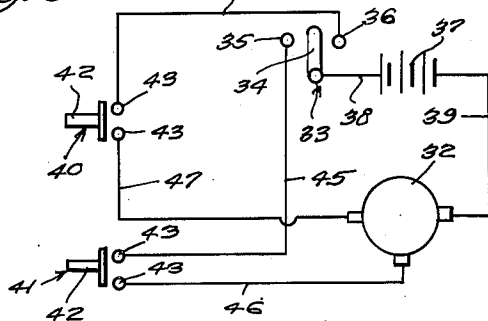


Fig. 8.

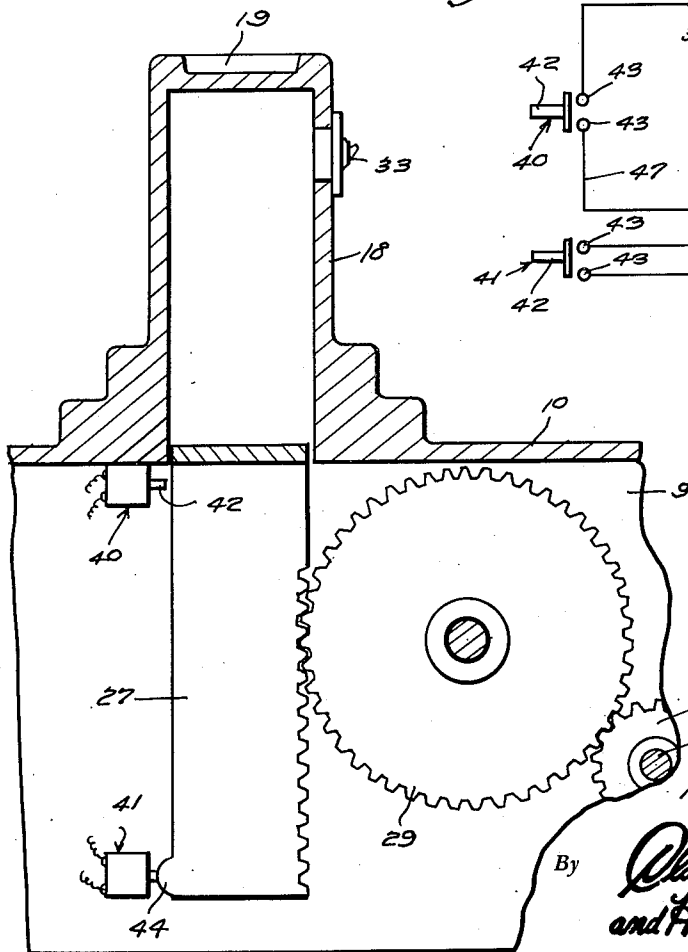


Fig. 7.

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UNITED STATES PATENT OFFICE

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BATHTUB STRUCTURE

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Application March 20, 1942, Serial No. 435,555

4 Claims. (Cl. 4—185)

This invention relates to new and useful improvements in bathtub improvements, the principal object being to provide a bathtub with a lift which in use can be operated to lower and elevate a person in a bathtub, thus minimizing the chances of injury.

Another important object of the invention is to provide a power driven lift for bathtubs which can be operated by the tub user without any appreciable manual effort on his part.

Another important object of the invention is to provide a bathtub constructed in such a manner as to offer immediate facilities to the user and in providing such facilities to reduce to a very low extent the possibility of bathtub accidents.

Other objects and advantages of the invention will become apparent to the reader of the following description.

In the drawings:

Figure 1 is a perspective view with the lift in lowered position.

Figure 2 is a side elevational view with certain of the parts shown in broken lines.

Figure 3 is a top plan view.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is a cross sectional view on the line 5—5 of Figure 4.

Figure 6 is a horizontal longitudinal sectional view taken substantially on the line 6—6 of Figure 2.

Figure 7 is a fragmentary vertical sectional view taken substantially on the line 7—7 of Figure 3.

Figure 8 is a diagrammatic view showing the electrical connections between the electrical devices employed.

Referring to the drawings wherein like numerals designate like parts, it can be seen that numeral 5 generally refers to a tub structure preferably of cast or molded formation and comprising a bottom 6, side walls 7, 7, end walls 8, 8 and an outside wall or apron 9 which at its upper portion is connected by a shelf-like portion 10 which defines the spaced relation of the apron with respect to the side and end walls of the tub. Furthermore at the head portion of the tub ample space is allowed between the apron 9 and the adjacent end wall 8 to define a motor containing compartment 11.

Numeral 12 generally refers to an occupant lift and adjacent this lift the shelf-like portion 10 has a depression 13 in which are valve handles 14, 15 for controlling hot and cold water to an

outlet spout 16 protruding from the corresponding side wall 7.

More adjacent the lift 12 and in the shelf 10 is a depression 17 for containing soap.

Adjacent the head end of the tub 5 a tower-like structure 18 rises from each side wall 7 and each of these tower structures 18 is hollow and has a hand hold defining depression 19 in the top thereof.

The inner side of each of these tower structures is normally closed by a removable plate 20.

The lift 12 further includes a narrow seat 21 which in contrast to the sloping bottom 6, is disposed on a horizontal plane so as not to interfere with a drain 22 which is preferably located in the tub bottom 6 immediately under the lift 12. As is apparent in Figures 1, 4 and 5, the bottom 6 of the tub is provided with a transversely disposed trough 23 for partly receiving the seat 21.

The seat 21 has upstanding arms 24, 24 which are rideable in channels 25 in the side walls 7 and each of these arms 24 at its upper end has an outwardly disposed portion 26 from which depends a rack bar 27 at the outside of the corresponding side wall 7. In other words, this rack bar depends into the space between the corresponding side walls 7 and the apron 9 through an opening 28 in the shelf portion 10 and just at the lower end of the corresponding tower structure 8.

Meshing with each of the rack bars 27 is a large idler gear 29, while meshing with the gears 29 are drive pinions 30 located on the ends of a drive shaft 31 driven by an electric motor 32. Obviously, the motor 32 serves to raise and lower the seat 21 by the action of the rotating gears and racks 27. As is apparent in Figures 4 and 6, the motor 32 is located in the aforementioned motor compartment 11.

Another phase of the present invention is the motor controlling means which is also very accessible to the occupant of the tub. This control means comprises a switch 33 located on one of the towers 18 and this switch comprises a contactor 34 and a pair of spaced contacts 35, 36. One side of a battery 37 is connected by a jumper 38 to the contactor 34 while the other side is connected by a conductor 39 with the motor 32.

Vertically spaced switches 40 and 41 are provided adjacent one of the rack bars 27 and each has a movable contactor 42 capable of bridging a corresponding pair of contacts 43, 43 when actuated by a bulge 44 on the lower end of the said corresponding rack bar 27.

As shown in Figure 8, a jumper 45 extends from the contact 35 to one contact 43 of the lower switch 41, while the other contact 43 of the same switch is connected by a jumper 46 to one side of the field of the motor 32.

The other side of the field of the motor is connected by a conductor 47 to one contact 43 of the upper switch 40, while the other contact 43 of the same switch is connected by a conductor 48 to the contact 36 of the switch 33.

Thus it can be seen that assuming the seat 21 is in elevated position and a person has entered the tub and is seated on the seat ready to be lowered into the water. The bulge 44 on the rack bar 27 shown in Figure 7 is in a position engaging the uppermost contactor 42 for closing the upper switch 40. The occupant moves the contactor 34 of the switch 33 to the right in Figure 8 engaging the contact 36. This starts the motor, which rotates slowly and is geared in such a manner as to lower the seat gradually.

When the occupant is ready to be lifted, of course, the contactor 34 of the switch 33 is moved to the other contact 35, to the end that the motor is reversed and the action thereof and the gears is to lift the seat 21.

Each side of the tub structure has a removable plate 49 permitting access to the lift 12, gears and motor 32.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:

1. In a tub including a bottom and side walls, a substantially U-shaped seat-like structure disposed transversely in the tub and power means

for lifting and lowering the seat-like structure, said side walls having upstanding tower-like structure for receiving the upper portions of the seat-like structure when the seat-like structure is in elevated position, said seat-like structure having racks at the side portions thereof, said power means including a motor, and gears between the motor and the rack.

2. In a tub including a bottom and side walls, a substantially U-shaped seat-like structure disposed transversely in the tub and power means for lifting and lowering the seat-like structure, the bottom of the tub being provided with a trough underlying the seat-like structure, and a drain in the trough.

3. A tub comprising arch-shaped sides and a similarly shaped end providing inner and outer walls, a seat in said tub vertically movable and embodying upstanding bifurcated side arms straddling the inner walls of the sides of the tub and including upright racks movable vertically into and out of the space between the inner and outer walls, a motor mounted between the inner and outer walls at said end of the tub, and operating connections between said motor and racks.

4. A tub comprising arch-shaped sides and a similarly shaped end providing inner and outer walls, a seat in said tub vertically movable and embodying upstanding bifurcated side arms straddling the inner walls of the sides of the tub and including upright racks movable vertically into and out of the space between the inner and outer walls, a motor mounted between the inner and outer walls at said end of the tub, operating connections between said motor and racks, and a pair of tower structures arising from opposite sides of the tub for housing said arms during vertical movement thereof.

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