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2,788,527

ADJUSTABLE BATHTUB

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Fig. 1.

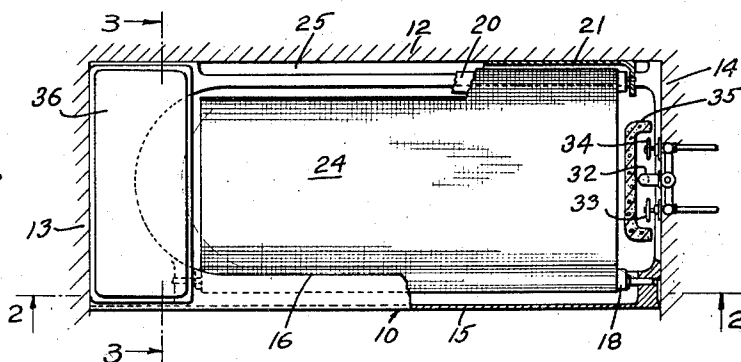


Fig. 2.

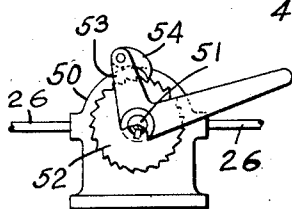
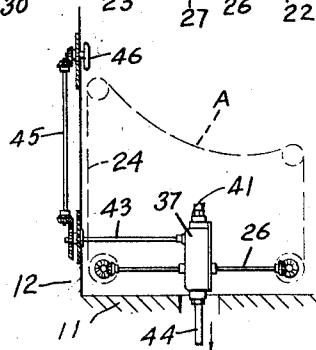
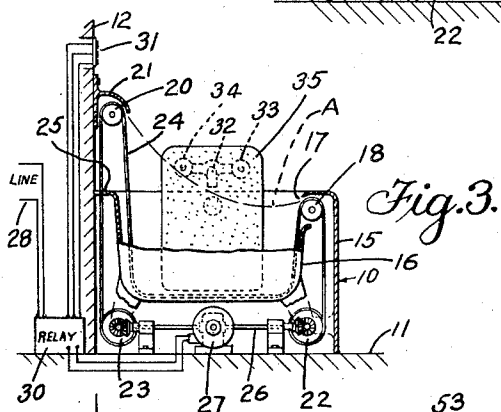
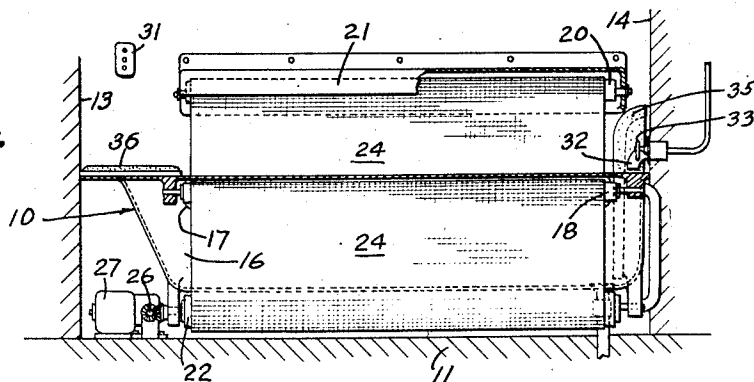
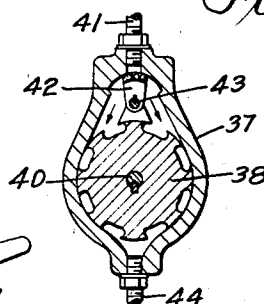


Fig. 6.

Fig. 4.

Fig. 5.



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ADJUSTABLE BATHTUB

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4 Claims. (Cl. 4—185)

This invention relates to bathing structures and more especially to an improved bathtub construction.

An object of the invention is to provide a simple, practical and inexpensive bathtub structure of the character described.

Another object of the invention is to provide a bathtub structure having modified features to facilitate use by an invalid or crippled person.

Another object of the invention is to provide a bathtub construction having flexible supporting features for a user by which the user may be lowered into the tub and raised therefrom.

A further object of the invention is to provide a structure according to the previous objects wherein the operating means for the flexible element may be manually or power actuated.

Other objects and advantages will appear and be brought out more fully in the following specification, reference being had to the accompanying drawing wherein:

Fig. 1 is a top view of a bathtub incorporating my invention.

Fig. 2 is an elevation view in section taken along the line 2—2 of Figure 1.

Fig. 3 is a cross sectional elevational view taken along the line 3—3 of Figure 1.

Fig. 4 is a partial view similar to Figure 3 showing a modified actuator for the flexible element shown in Figures 1 to 3.

Fig. 5 is a sectional view of the hydraulic motor shown in Figure 4.

Fig. 6 is a view showing a manually actuatable motor for the flexible element.

Referring more particularly to the drawing, the numeral 10 designates a bathtub positioned on a floor 11 with one side against a bathroom wall 12, the room having walls 13 and 14 adjacent the ends of the tub 10. Tub 10 has a front side wall 15 which is a continuation of the side 16 of the tub itself which is constructed of plate material having a longitudinal slotted opening 17.

A roller 18 extending substantially the length of the side of the tub is positioned between walls 15 and 16 and suitably mounted in bearings at each end. A similar roller 20 is mounted on wall 12 and a suitable cover guard 21 may be provided therefor. The pair of rollers 22 and 23 are suitably bearing mounted below rollers 18 and 20. A flexible sheet element 24 such as mercerized canvas or the equivalent has its ends respectively secured to rollers 22 and 23, and the intermediate portion thereof is extended over guide rollers 18 and 20, the flexible element extending through opening 17 and a slot 25 in the upper side portion of the tub plate adjacent wall 12. Rollers 22 and 23 have drive shafts which carry beveled gears, which gears are driven by a pair of beveled gears on the ends of a shaft 26, and an electric motor 27 is suitably gear connected to shaft 26 for rotating rollers 22 and 23 in opposite directions so

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as to wind or unwind the ends of flexible element 24 thereon. Motor 27 is preferably supplied with power from a light source 28 through a relay 30, a low voltage relay switch 31 being provided on wall 12 accessible to the occupant of the tub. Motor 27 is reversible and it will be understood that switch 31 is arranged to control the operation of the motor in either direction.

A water inlet 32 having the usual control valves 33 and 34 is provided at the end of the tub in wall 14, and in order to protect the occupant of the tub the flexible rubber shield 35 is provided as shown. A head rest 36, preferably of soft rubber or the like, is provided at the other end of the tub as shown, for the convenience of the user.

The operation of the invention as thus far described should be apparent from the foregoing description. The user of the bathtub apparatus can be positioned on the flexible element 24, it being understood that the central portion thereof is substantially horizontal as indicated at A in Figures 3 and 6, and either before or after the tub has been filled with water the motor 27 may be actuated to drive rollers 22 and 23 in a direction to permit the flexible element 24 to lengthen and lower the person in the tub. Thereafter at a desired time the motor operation may be reversed and the user elevated to a position which will permit ready removal from the tub.

In Figures 4 and 5 I show a modified motor drive for the rollers 22 and 23 and drive shaft 26. A hydraulic motor 37 has an impeller 38 carried by shaft 40 which is gear connected to shaft 26. A water pressure inlet 41 leads into the casing of motor 37, and a control valve 42 is mounted on a shaft 43 and deflects the inlet water in either direction so as to rotate impeller 38 to turn drive shaft 26 in either direction for raising and lowering the flexible element 24, as described. Motor 37 has a discharge outlet 44, and shaft 43 has suitable gear and linkage 45 to an operating knob 46 accessible to a person on the flexible element 24.

In Figure 6 I show a manually actuatable motor for turning shaft 26 and the drive rollers for the flexible element. In this figure a frame 50 provides mounting for a shaft 51 which is suitably gear connected to shaft 26 and has mounted thereon a ratchet wheel 52. A crank arm 53 is loosely mounted on shaft 51 and carries a pawl 54 for engagement with the teeth of ratchet wheel 52. It should be clear that by reciprocatory movement of crank arm 53, ratchet wheel 52 will turn shaft 26, thereby driving rollers 22 and 23 for raising a person on flexible element 24. It should also be clear that for lowering such a person mere release of the ratchet connection is necessary, and it may be necessary or desirable to have a suitable brake for controlling the speed of such lowering movement.

While I have shown and described several forms of drive means for the rollers, it should be clear that other forms may be readily substituted for those shown.

It will be understood that the foregoing description is illustrative rather than restrictive of the invention and that changes and modifications may be made without departing from the spirit and scope of the sub-joined claims.

Having described my invention what I claim is:

1. The combination as described with a bathtub having a slotted side wall of pairs of rollers mounted at each side of said tub, a flexible element extending through said slot and across the tub and having its ends secured respectively to a pair of said rollers, hydraulic means for driving said last pair of rollers in one direction to shorten the span of said element and a control for said hydraulic means within reach of an occupant of the tub.

2. Structure according to claim 1 wherein said tub has an apron enclosing an alternate pair of said rollers.

3. Structure according to claim 2 wherein at least three of said rollers are concealed within said apron.

4. Structure according to claim 1 wherein the rollers of a first pair thereof are mounted substantially at the top of the tub.

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