Nov. 11, 1930. R. F. DOWLING 1,781,325

BATHTUB

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Fig. 1,

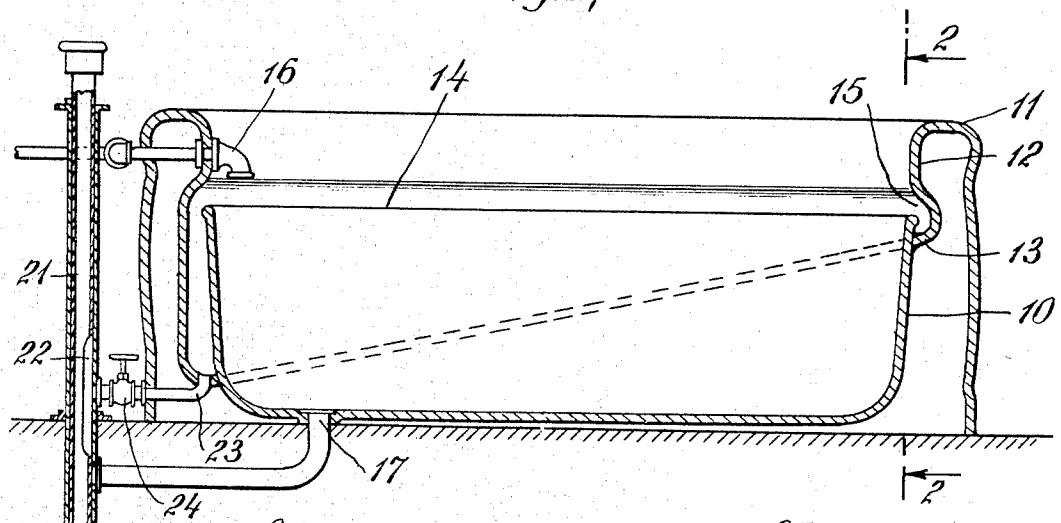


Fig. 2,

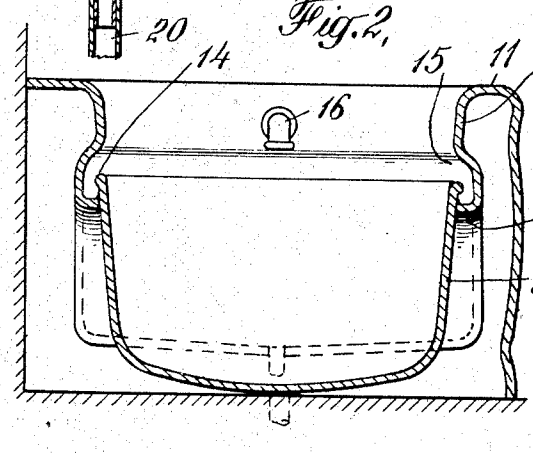


Fig. 3,

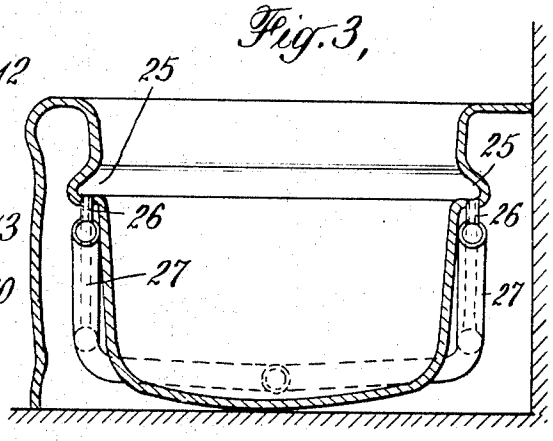
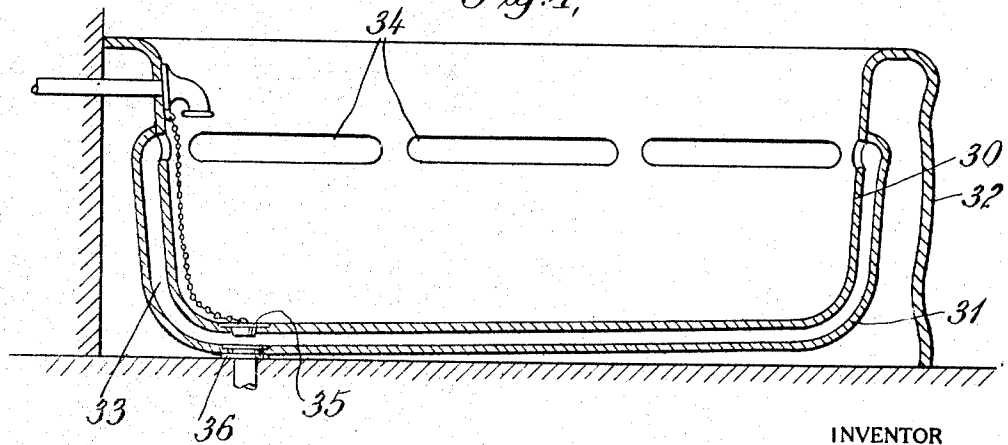


Fig. 4,



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Fig. 5,

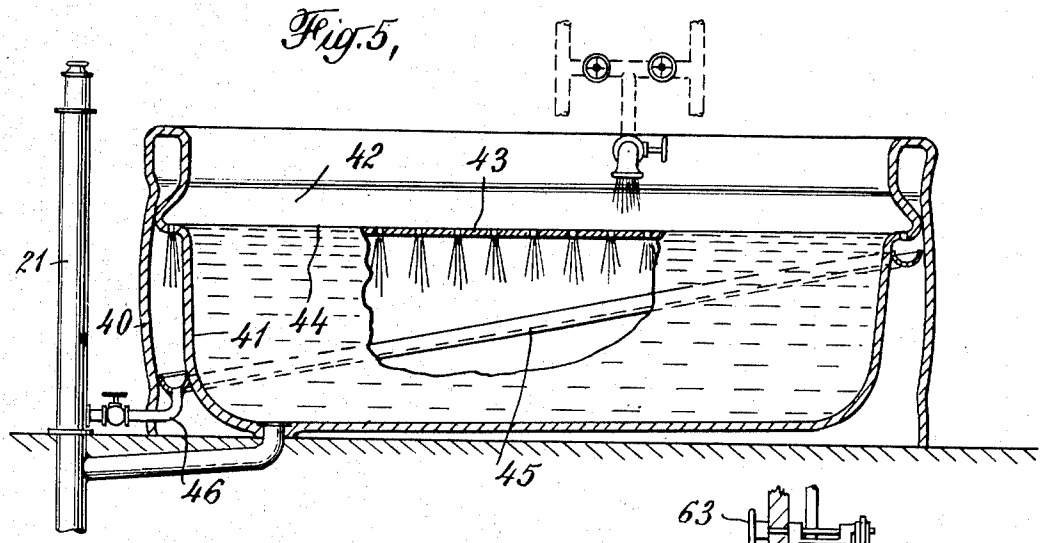


Fig. 6,

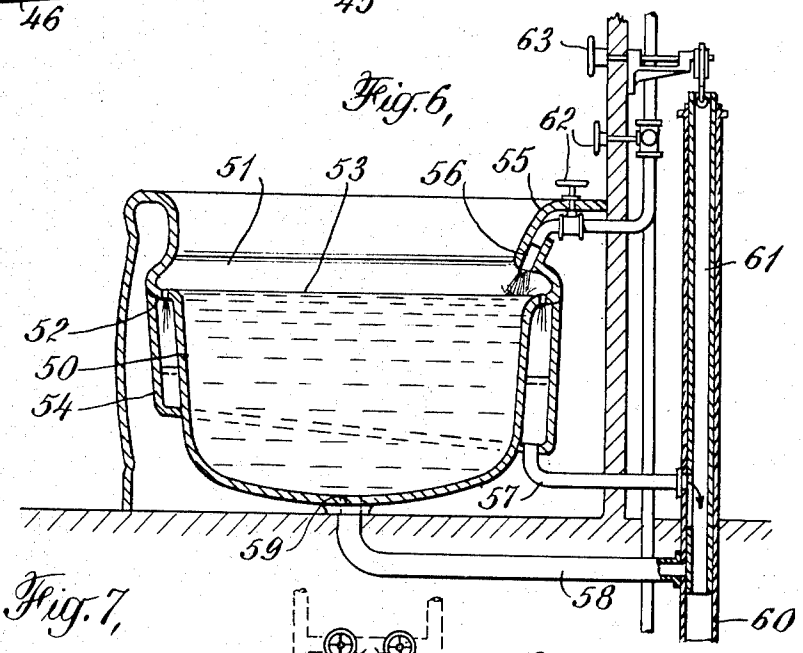
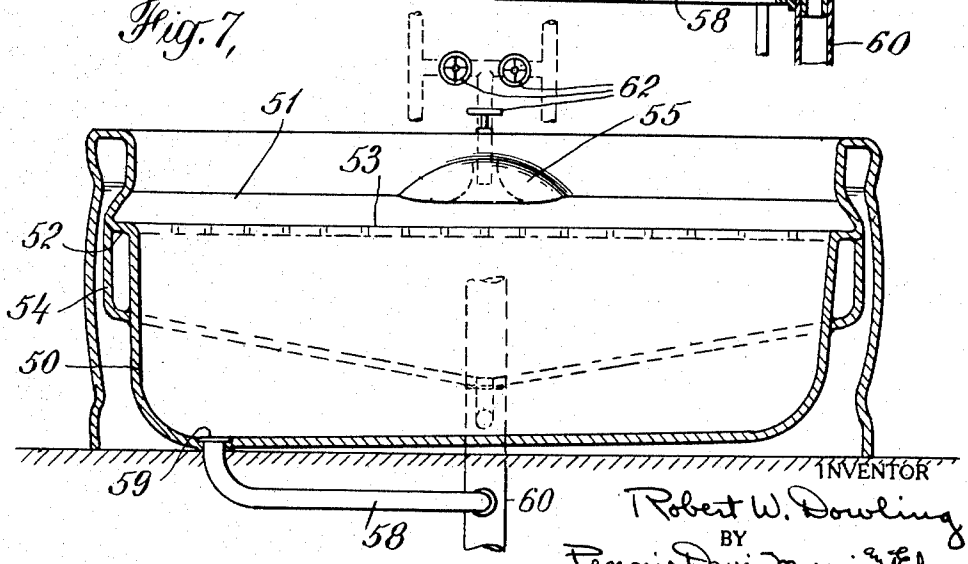


Fig. 7,



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UNITED STATES PATENT OFFICE

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BATHTUB

Application filed September 15, 1928. Serial No. 306,216.

This invention relates to bath tubs and has for its object the provision of an improved sanitary bath tub. More particularly, the invention contemplates the provision of a bath tub having means for changing the bathing water continuously, and means for permitting the immediate removal of insoluble substances formed by the interaction of soaps, body excretions and soluble salts found in most waters. The invention further contemplates the provision of means for facilitating the control of the fresh water supply by the bather, and, in one of its aspects, the invention contemplates the provision of a tub of such construction that spilling of water as a result of movement of the tub and contents, such movement for instance, as occurs on ships, is substantially completely prevented.

During bathing operations, soaps usually combine with body excretions and soluble salts usually found in water to form insoluble substances which float upon and form a scum upon the surface of the water. It is desirable, if possible, to remove these substances as formed. Otherwise they accumulate, forming thick surface films which are highly offensive to sensitive people. These substances also have a tendency to attach themselves to the inner walls of the tub to form thick coatings which are difficult to remove and which give the tub an ugly and unsanitary appearance.

During the course of a tub bath, in a tub of ordinary construction, it is virtually impossible to avoid the formation of a thick unsightly scum on the surface of the water, and to prevent the deposition of the material forming such scum in a ring around the wall of the tub. When a bather is emerging from the bath water some of the scum becomes attached to the body and must be removed by subsequent rubbing. Also, at the conclusion of the bath and while the water is draining from the tub, the scum is gradually deposited on the lower side walls and bottom of the tub further adding to the unsightly appearance of the tub. At the conclusion of the bath, not only does the tub present an unsightly and unsanitary appearance, but, in spite of the thoroughness of the cleansing operation, the bather often retains a definite feeling of uncleanliness.

The usual bath tub is provided with side and end walls which slope upwardly and outwardly from the bottom. Tub walls which are so disposed offer little resistance to the upward flow of water when, for any reason, the body of water within the tub has been set in motion. It is common knowledge, in homes and such places, that it is a difficult problem to bathe in a relatively full tub without, at some time during the course of the bath, setting the body of water in motion to such an extent that spilling of the water over the sides of the tub occurs. It is also common knowledge among travelers that it is difficult if not impossible to take a tub bath on board ship without having a large amount of the bathing water thrown over the wall of the tub and onto the floor of the bathroom as a result of the movement of the ship.

As pointed out above, in the usual bath tub construction the fresh water inlet and the discharge outlet together with the control valves therefor, are located at one end of the tub. When a bather is seated in such a tub he faces the discharge end of the tub and his hands and arms are usually near the other end of the tub. The resulting arrangement is such that it is difficult or impossible for the bather to control the discharge or inflow of water from the normal bathing position. Consequently, in most cases the bather rises and stands on the bottom of the tub while attempting to regulate the bathing water. The result, in many cases, is a serious fall occasioned by the slippery condition of the tub bottom and the tendency of the water to lift the body of the bather.

To the aforementioned objectionable conditions may be attributed the gradually decreasing popularity of bath tubs and the gradually increasing popularity of showers.

The present invention contemplates the provision of an improved bath tub by means of which many of the objectionable features of tub bathing may be eliminated. Bath tubs constructed in accordance with the invention are preferably provided with in-

wardly opening drain channels having horizontal overflow lips extending substantially entirely around the inner walls thereof. This feature permits a continuous inflow of fresh water to be maintained with a consequent continuous overflow of surface water from all portions of the body of bathing water, resulting in a continuous removal of surface scum and a constant renewal of bathing water. Such a construction also provides means for breaking the upward flow of water along the walls of the tubs resulting from any of the usual courses.

The invention will be better understood from a consideration of the following detailed description taken in conjunction with the accompanying drawings in which

Fig. 1 is a longitudinal section taken substantially through the center of a bath tub embodying certain features of the invention;

Fig. 2 is a section taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a transverse section of a modified form of tub;

Fig. 4 is a longitudinal section of a second modified form of tub;

Fig. 5 is a longitudinal section of a tub with a portion of the side wall broken away to show the perforated lowermost wall of the overflow channel, and showing the water supply inlet disposed adjacent one side;

Fig. 6 is a transverse section of a tub embodying the invention; showing the discharge outlet, concealed supply inlet, and the control means for the inlet and outlet disposed at one side; and

Fig. 7 is a longitudinal section of the tub shown in Fig. 6.

The bath tub shown in Figs. 1 and 2 comprises an inner receptacle 10 and an outer facing and supporting member 11. The outer supporting member 11 comprises an outer substantially vertically extending wall having an inner downwardly extending wall 12 forming a continuation thereof.

The downwardly extending wall 12 is provided at its lower edge portion with an inwardly extending flange 13 which is rigidly connected to the sidewall of the inner receptacle 10. The lower portion of the wall 12 is preferably flared outwardly to permit it to telescope with and surround the upper portion of the inner receptacle 10.

The wall 12 and flange 13 together with the side wall of the receptacle 10 form an outer drain compartment. The flange 13 forms the bottom of the drain compartment and it slopes downwardly on either side of the receptacle 10, from one end of the tub to the other. The inner receptacle 10 and the outer supporting member 11 are preferably so connected that the upper peripheral edge portion 14 of the inner receptacle is substantially horizontal when the assembled tub is in its normal position of use. The edge portion 14 forms an overflow lip for the inner receptacle 10 and it is so spaced from the wall 12 as to provide an overflow outlet 15 extending entirely around the tub.

The tub may be provided with the usual water inlet 16 and drain outlet 17. The drain outlet is preferably connected with a main drain pipe 20 and controlled by the usual hollow plunger 21 having a slot 22 therein. A conduit 23 is connected with the lowermost portion of the drain compartment and the main drain pipe 20. A valve 24 is provided for controlling the flow of water from the drain compartment.

The tub may be constructed in any desired manner and of any suitable material. I prefer to make the tub of cast iron, casting the receptacle 10 and supporting member 11 separately and later joining them by welding.

A tub of the type illustrated in Figs. 1 and 2 gives highly satisfactory results. The inner receptacle may be made of suitable volume and depth to contain a satisfactory amount of water. When the desired amount of water has been introduced into the tub the bather may shut the water off entirely, and remove the scum as it forms by splashing the surface water over the overflow lip and into the drain compartment. On the other hand, if desired, the water may be permitted to flow continuously, providing a continuous and uniform flow of surface water over the overflow lip and causing the continuous removal of scum as formed. This latter method is probably the most advantageous as the fresh water in entering is distributed throughout the entire inner receptacle and a constantly changing body of bathing water is provided. This is obviously a highly desirable condition, both from a sanitary viewpoint and in regard to the immediate effect on the bather.

The valve for controlling the flow of water from the drain compartment is provided primarily for the purpose of permitting scouring or cleaning of the drain compartment. When necessary, the valve 24 may be closed and the cleaning compartment filled with suitable cleaning solution. The outlet 15 may be made large enough to permit the insertion of a person's hand and a cleaning cloth or brush.

Two modified forms of tubs embodying certain features of the invention are shown in Figs. 3 and 4. In the modification shown in Fig. 3, the receptacle and outer supporting wall are preferably formed integrally. A horizontal channel 25 is formed completely around the inner wall of the tub, and this channel is connected at various points by means of a member of vertical conduits 26 to a large conduit 27. The conduit 27 surrounds the receptacle portion of the tub, is higher at one end than the other, and is connected at its lowermost end to the main drain pipe. Tubs of

the type illustrated in Fig. 3, are relatively simple to manufacture and very efficient in service.

The type of tub shown in Fig. 4 comprises two telescoping receptacle sections 30 and 31, and a supporting or facing wall 32. The lower portion of the outer receptacle section 31 is spaced from the inner section 30 to form a drain compartment 33. The upper portion of the outer section 31 is flared inwardly and rigidly connected to the inner section 30. The drain compartment 33 communicates with the interior of the inner receptacle section through elongated horizontal openings 34. Concentric drain outlets 35 and 36 may be provided for the inner receptacle and drain compartment. This type of tub is also relatively simple to manufacture. I prefer to cast the inner and outer receptacles separately and subsequently weld them together.

Two of the most desirable forms of tubs constructed in accordance with the invention are shown in Figs. 5, 6 and 7. The tub shown in Fig. 5 comprises an outer facing or supporting wall 40 which is preferably formed integrally with an elongated inner receptacle 41. The upper portion of the receptacle 41 is shaped to form an inwardly opening horizontal overflow channel 42 having a perforated bottom wall 43 and a horizontal overflow lip 44 extending entirely around said wall. A half pipe 45 is attached to the wall 40 and receptacle 41 and disposed at such an angle with the horizontal as to form a drain channel for conducting overflow liquid to the drain conduit 46. A water supply inlet 47 and a suitable mixing valve 48 are disposed adjacent one side of the tub.

The structure shown in Figs. 6 and 7 is similar in many details to the structure shown in Fig. 5. The receptacle 50 is provided with an overflow channel 51 having a perforated bottom 52 and a horizontal overflow lip 53. An angle member 54 is attached to the overflow channel 51 and the side wall of the receptacle 50 to provide a drain channel for the overflow liquid.

The upper portion of one side of the receptacle is shaped at 55 to provide a partially concealed water supply inlet. The inlet opening or conduit 56 is so disposed that a stream of water passing therethrough enters the receptacle without striking the lip 53. The discharge conduit 57 leading from the overflow drain compartment, and the discharge conduit 58 leading from the outlet 59 are connected to a discharge pipe 60 controlled by a slide valve 61 and disposed adjacent the center of a longitudinal side of the tub. The control handles 62 for the water supply and the control handle 63 for the drain valve 61 are disposed adjacent the center of a longitudinal side of the tub so as to be within easy reach of a bather from a sitting position within the tub.

I claim:

1. A bath tub provided with an inwardly opening substantially horizontally extending overflow channel having a plurality of discharge openings in its lowermost wall, and a drain conduit disposed below said overflow channel and adapted to receive liquid passing through said discharge openings.

2. Bathing apparatus comprising a receptacle having a circumferentially extending horizontal overflow channel formed in its side wall between the top and bottom thereof, and a substantially coextensive drain conduit disposed below and communicating with said overflow channel.

3. A bath tub comprising a lower wall having its upper edge terminating in a substantially horizontal outwardly extending perforated lip over which the overflow from the tub is adapted to pass, an upper wall spaced from said lower wall substantially in alignment therewith, a portion connecting the outer edge of said horizontal lip with the upper wall, and a drain conduit adapted to receive water passing through said perforations.

In testimony whereof I affix my signature.

ROBERT W. DOWLING.