

Jan. 2, 1934.

C. A. GOTTFRIED

1,941,832

THERMOS BATHTUB

Filed Feb. 10, 1932

2 Sheets-Sheet 1

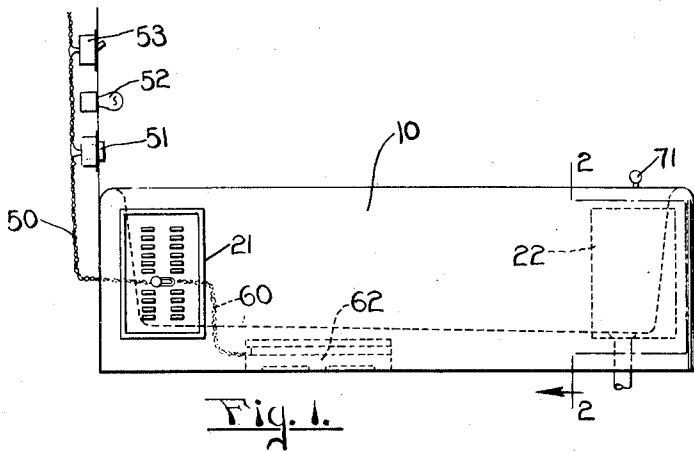


Fig. 1.

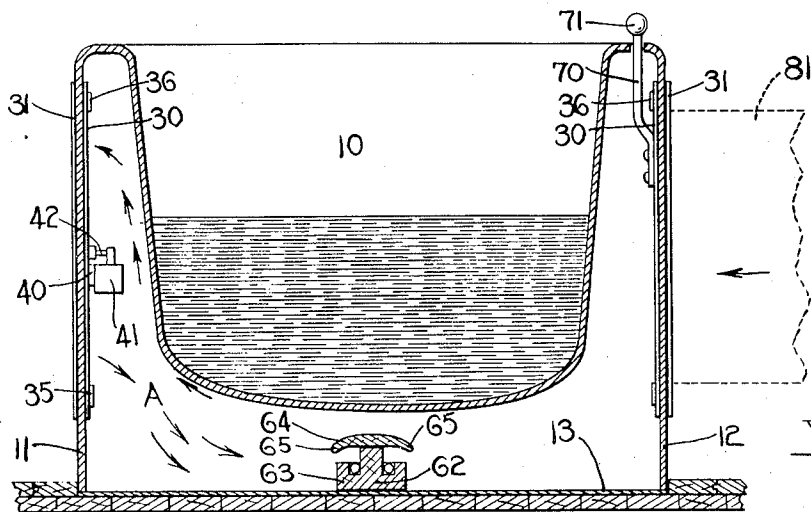


Fig. 2.

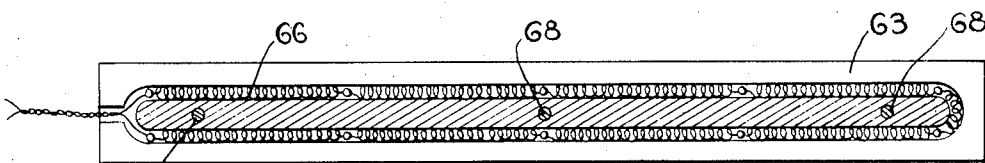


Fig. 3.

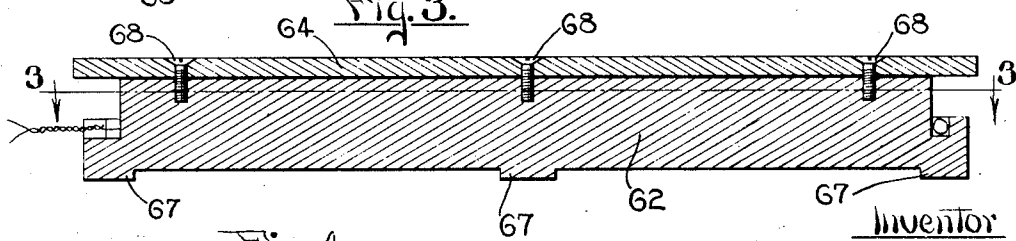


Fig. 4.

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2 Sheets-Sheet 2

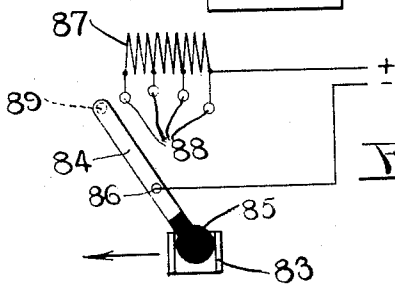
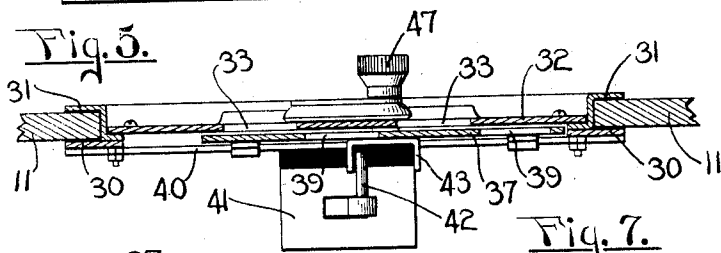
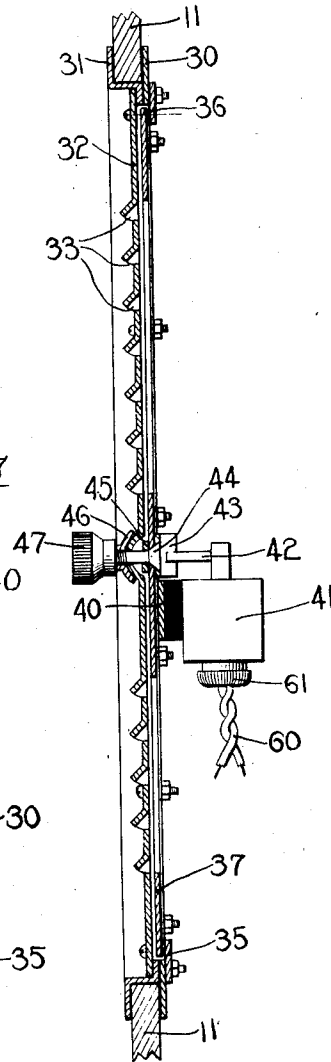
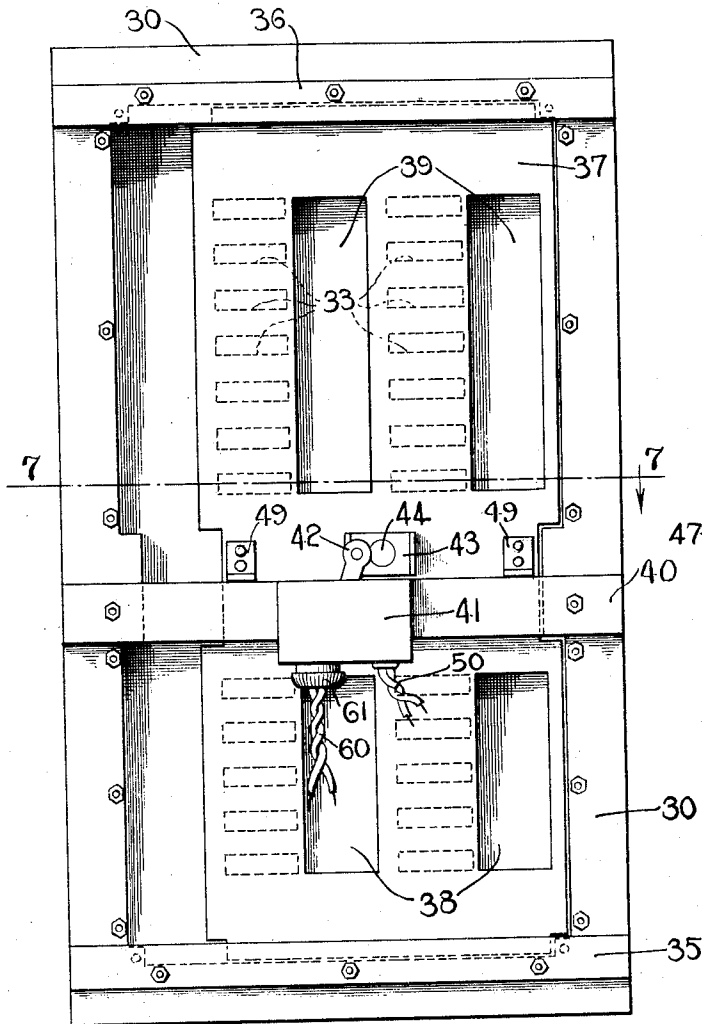


Fig. 6.

Fig. 7.

Fig. 8.

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UNITED STATES PATENT OFFICE

1,941,832

THERMOS BATH TUB

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Application February 10, 1932. Serial No. 591,957

9 Claims. (Cl. 219—38)

This invention relates generally to a thermos bath tub and more particularly to an enclosed bath tub having an electric heater of small size located thereunder, this heater being controlled by an automatic switch, the automatic switch in turn being regulated by the opening and closing of my novel gate means, such gate means controlling the entrance of air to and from the space underneath the tub.

One advantage of my invention resides in the fact that the water in the bath tub, such being heated in the usual manner, may be maintained therein at a constant temperature for a long period of time, this being accomplished by my novel heating device which transmits a small amount of heat to the exterior of the bath tub and hence prevents or counteracts radiation from occurring with the accomplishment of the aforesaid result.

Other objects, advantages and meritorious qualities reside in the special construction, combination and arrangement of the various elements forming the invention as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein:

Fig. 1 is a side view, partly diagrammatic, of a bath tub equipped with my invention.

Fig. 2 is a cross sectional view taken along the line 2—2 of Fig. 1.

Fig. 3 is a sectional view through the heater, this view being taken along the line 3—3 of Fig. 4.

Fig. 4 is a sectional view of the heater member shown in Fig. 3.

Fig. 5 is an enlarged view of the gate means or air inlet and outlet.

Fig. 6 is a cross sectional view taken about centrally of Fig. 5.

Fig. 7 is a view taken along line 7—7 of Fig. 5.

Fig. 8 shows a modified type of switch whereby the rheostat of the heating element may be controlled.

Similar numerals refer to similar parts throughout the several views.

Referring to the drawings, especially Figs. 1 and 2, numeral 10 designates a bath tub having two upper sides extending outwardly and then downwardly to form sides 11 and 12, these sides being identical in construction and having rectangular shaped openings 21 and 22 respectively, at corresponding ends. These openings are adapted to detachably receive the gates thus controlling the passage of air to and from the space underneath the bath tub. The bath tub is also closed at its ends and a strip of insulation, such

as asbestos paper, is placed underneath the bath tub as illustrated at 13.

Referring now to Figs. 5, 6 and 7, 30 indicates a rectangular open frame member located inside of the opening 21 and 31 is a cooperating frame of Z-bar shape attached thereto. These frames are bolted together.

A stationary plate 32, having a series of openings 33, is removably fastened at the outside of the frame construction and can be bodily removed when desired. The openings 33 are formed by slitting the plate 32 and then forcing the material outwardly and upwardly whereby the openings are shielded and hence water cannot be splashed inwardly and downwardly there-through. See Fig. 6. Thus the electrical connections, to be presently referred to, are protected.

Strips 35 and 36 are fastened at the lower and upper inner sides of the frame thereby forming channel shaped guides for the sliding plate 37. The sliding plate 37 has lower rectangular openings 38 and upper rectangular openings 39, these openings being located either directly behind the openings 33 or else shifted so as to close the openings 33. This latter position is shown in Fig. 5 and when the plate 37 is so located no air will pass through the gate.

A central cross bar 40 supports a snap switch 41 thereon and the operating lever 42 of the switch extends into a channel member 43, this member 43 being rigid with the sliding plate 37.

The sliding plate 37 has rigid brackets 49 extending rearwardly thereon, these brackets riding and sliding on the cross bar 40 thus giving easy movement.

A stud 44 extends through the web of the channel 43, then through the sliding plate 37 and a nut 45 maintains these several elements together, the stud 44 continues through a slot in the stationary plate 32, then through a washer 46 and a locking knob 47 is threaded onto the end of the stud 44.

Hence, by grasping the knob 47, after the same has been loosened, the sliding plate 37 may be shifted in either direction, thus opening or closing the upper and lower passages through the gate. The shifting of the moving plate 37 likewise causes movement of the channel 43 and this in turn operates the snap switch 41 through its lever 42 and hence the actuation of the gate from open to closed position will cause the snap switch to assume an inoperative position, and vice versa.

The switch 41 has inlet electrical connections 50 leading therefrom, these connections passing

through a safety fuse 51, a pilot light 52 and a switch 53, these elements serving the usual purposes and functions.

The switch 41 has the outlet wires 60 detachably connected thereto by the plug 61 and these wires supply the heater member 62.

The heater member 62 consists of two parts, a lower member 63 of inverted T-shaped configuration and a roof member 64, the roof member having overhanging portions 65 whereby any condensation from the underside of the bath tub will not drip upon the heating elements 66. The heating elements 66 are contained in a continuous groove in the base member, this base member being formed of a single unit of insulating material and having legs 67 as clearly shown in Figs. 1 and 4. The top member 64 is detachably fastened to the bottom member 63 by means of the bolts 68.

As previously stated, the bath tub 10 has a second rectangular opening 22 and this opening, for convenience in manufacture, is equipped with a gate similar to the gate over the opening 21. However, the operating means for the latter gate consists of a member 70 rigidly attached thereto, the upper end of the member 70 extending through the bath tub and terminating in a knob 71 whereby the gate may be slid to and from a closed position. The latter gate is located adjacent the wall of the bath room and the hot air duct 81 leads to the gate.

If desired the member 70 may be placed at the outside of the gate and extend upwardly interiorly of an adjacent wall, the knob 71 providing the manual operating means in the usual manner.

Referring now to Fig. 3, 83 indicates a channel member, fastened to the sliding plate 37, similarly to the previously mentioned channel member 43 and a lever 84 having a ball member 85 snugly engaged in the channel member 83, pivotally mounted as at 86. A rheostat 87, having several leads 88, adapted to be engaged by the contact 89 on the lever 84, provides means whereby the heat issuing from the heater 62 may be controlled by movement of the sliding plate 37 if desired.

The operation

After the switch 53 has been turned on, the knob 47 may be loosened and the sliding plate 37 shifted so the openings 38 and 39 lie immediately behind the slots 23 and hence the space underneath the bath tub is connected with the interior of the bath room through said openings. The movement of the plate 37 operates the switch 41 to cause the electricity to flow through the heater 62 and thus heat is given off therefrom. The heat given off by the heater 62 flows around the outside of the bath tub and finally flows out through the openings 39 into the bath room and cooler air enters through the openings 38 to replace the same. This is indicated by the arrows A. The heater 62 does not give off sufficient heat to raise the temperature of the water in the bath tub but is only for the purpose of raising the temperature of the air underneath the bath tub to a temperature slightly above the temperature of the water in the bath tub, thus preventing radiation of heat outwardly from the bath tub.

Hence the temperature of the water in the bath tub may be maintained substantially constant for a long period of time.

In the winter time, the amount of heat necessary to accomplish the above function will necessarily be slightly more and I supply this heat by

means of the hot air pipe flowing into the gate at the opposite side of the bath tub. The furnace gate, regulated by the knob 71, is also useful in the summer time as by its adjustment the degree of heating may be controlled. That is, the operation of the electric gate is from a completely opened position to a completely closed position, or vice versa, as previously explained, and by moving the furnace gate, the heat which is allowed to escape is regulated through the conduit 81.

The manipulation just recited may be accomplished by the mechanism illustrated in Fig. 3 whereby the usual switch construction at 41, 42 and 43 may be replaced by a controlling rheostat but such is rather expensive and hence the preferred form of control is as above recited, by means of the furnace gate.

It will be noted that the bath tub is symmetrical with regard to the openings 21 and 22 and hence it may be utilized on either side of the bath room.

Having thus revealed this invention, I claim as new and desire to secure the following combinations and elements, or equivalents thereof, by Letters Patent of the United States:

1. In a bath tub arrangement of the character described, a bath tub having closure means extending entirely therearound whereby an enclosed air space is formed underneath the same, said closure means having an opening there-through, a removable frame member consisting of an outer frame of Z-bar construction and a flat inner frame, said web of the Z-bar being located adjacent the edge of the opening and one flange of the Z-bar extending outwardly at the outside of the opening, a stationary plate having a series of slots therethrough located against the outer side of the other flange of the Z-bar, bolt means extending through the stationary plate Z-bar and the other frame member to detachably hold them in position, a sliding plate located immediately behind the stationary plate, said sliding plate having openings therein whereby said openings may be positioned directly behind the slots in the stationary plate or else laterally positioned therefrom, thus, respectively, permitting or not permitting the passage of air through the structure, and means for moving the sliding plate.

2. A device as set forth in claim 1 but further including switch means controlled by the movement of the sliding plate, and a heater underneath the bath tub controlled by said switch means.

3. A device as set forth in claim 1 but further characterized by the fact that a switch means is actuated by movement of the sliding plate, a heater underneath the bath tub, said switch controlling the operation of said heater and said closure means having a second opening there-through and means for decreasing or increasing the size of said second opening for the purpose described.

4. In a device of the class described, a bath tub having its sides continued outwardly and then extended downwardly in parallelism, each side having an opening at its opposite ends, manually adjustable means for controlling the size of opening through both of said openings, an electric heater located under but spaced from the bath tub and means controlled by the opening and closing of the one of said openings for respectively energizing and shutting off the flow of electricity to the heater, said heater being ener-

gized only when the said opening is opened for the purpose described.

5 5. A thermos bath tub of the type described comprising, a bath tub having portions extending
10 outwardly and downwardly entirely there-
around whereby an enclosed air space is formed
underneath the same, means to open the en-
closed space to connect it with the space exterior
thereof, electric means under the bath tub, and
15 snap switch means for said electric means, lost
motion means controlled by the movement of the
first mentioned means to operate said snap switch
means whereby the electric means is energized.

20 6. In a thermos bath tube apparatus of the
type described, a bath tub adapted to receive
warm water therein, heating means located be-
low and spaced therefrom, closure means adapt-
ed to be operated to either permit or prevent
air from flowing over said heating means, switch
25 means for the said heating means and additional
means operated by the closure means to prevent
energization of the heating means unless the clo-
sure means is in such position as to permit air to
flow thereover.

7. In a construction of the class described hav-
ing a rectangular opening, an open frame member

positioned against one side of the opening, a
second open frame member positioned against the
other side of the opening, means for fastening
these two frame members together, strips fast-
ened to the first mentioned frame member at its
top and bottom sides and extending inwardly
therefrom, a plate fastened to the second men-
tioned frame member, said plate having a series
of openings therein, and a sliding plate located
between the said strips and the said plate for the
purpose described.

8. A construction as set forth in claim 7 in
which said sliding plate is fastened onto the first
mentioned plate whereby the same may be bodily
removed from the said open frame members.

9. In a device of the class described, a bath
tub having its sides extending downwardly, an
opening in one of said sides whereby air may flow
therethrough, an electric heater located under-
neath the bath tub but spaced therefrom and
means controlled by the opening and closing of the
said opening for respectively energizing and shut-
ting off the flow of electricity to the heater, said
heater being energized only when the said open-
ing permits the passage of air therethrough.

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