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2,283,848

DOUCHE APPARATUS

Filed Nov. 7, 1940

2 Sheets-Sheet 1

Fig. 1.

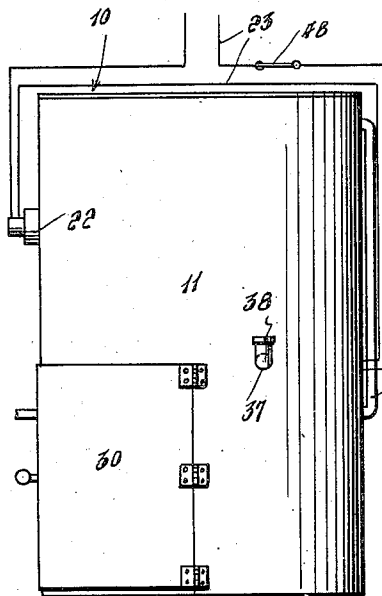


Fig. 3.

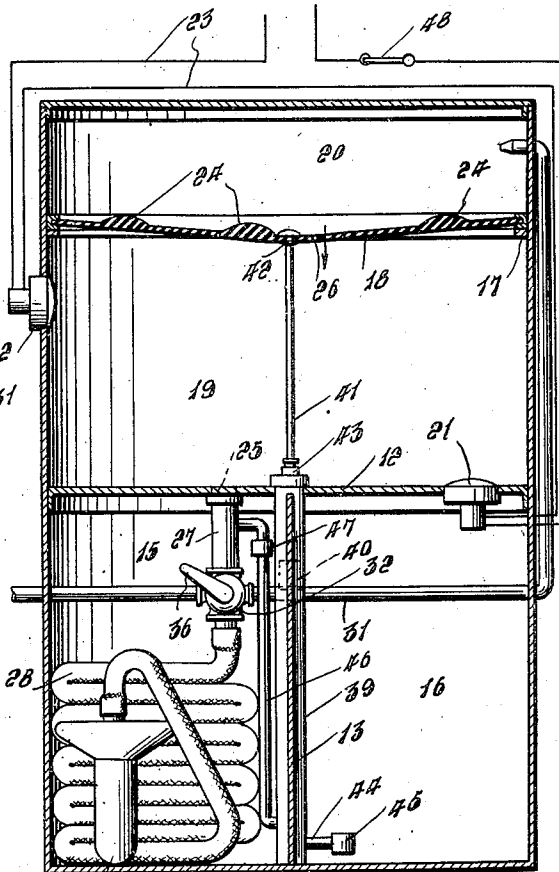


Fig. 2.

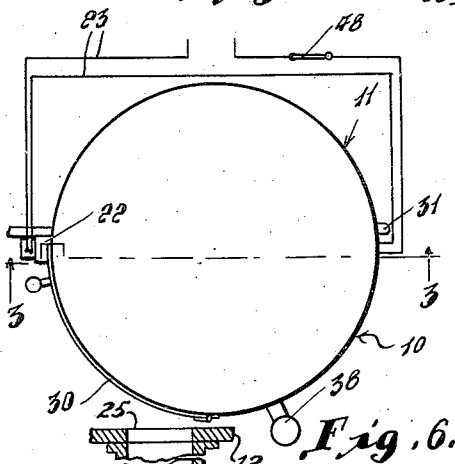


Fig. 6.

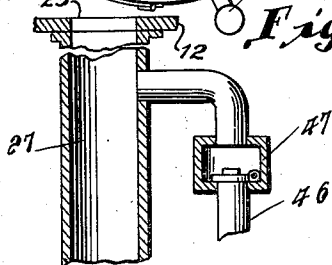
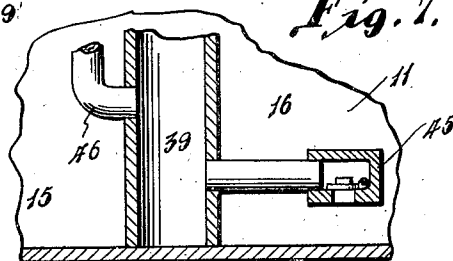


Fig. 7.



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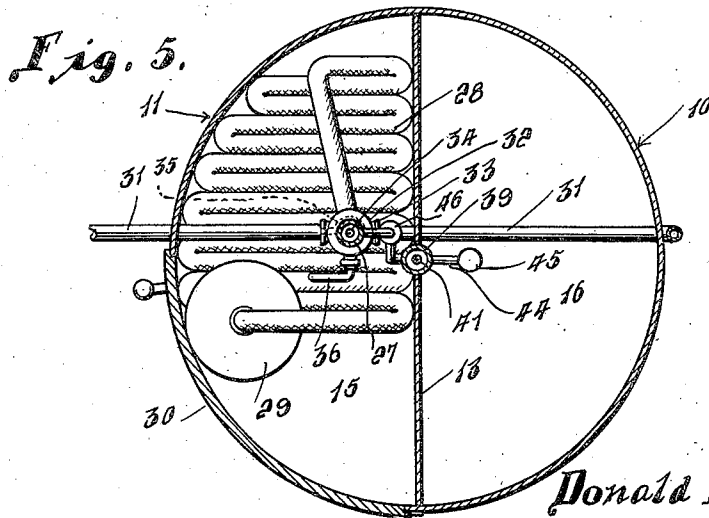
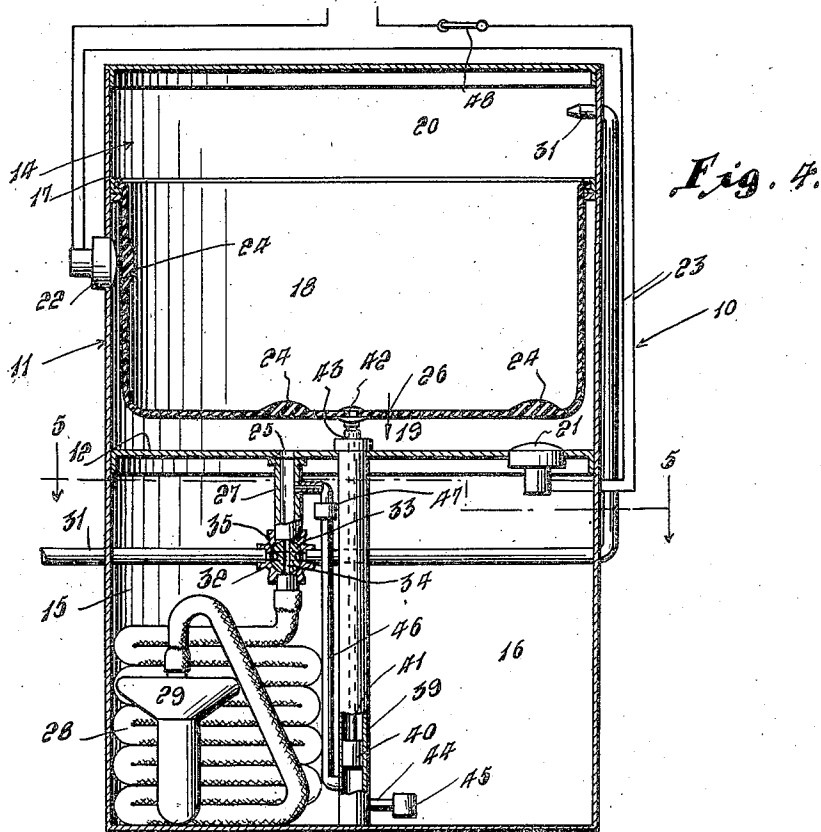
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DOUCHE APPARATUS

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5 Claims. (Cl. 128—229)

This invention relates to a novel, compact douche apparatus for treatment of the internal organs of the human body, and more particularly to a device wherein the liquid employed in the douche will be discharged under pressure by pressure resulting from water discharged under pressure from a water main.

More particularly, it is an aim of the invention to provide a device wherein the water discharged from the water main and which is employed for pumping the liquid forming the douche will be separate from the liquid of the douche so that said liquid may be heated or otherwise treated preparatory to being used.

Still another aim of the invention is to provide a diaphragm against which water, from a water main, is discharged under pressure for distending the diaphragm for forcing water out of another chamber, said diaphragm being apertured to permit the passage of water therethrough to refill the chamber from which the water has been pumped and to permit the diaphragm to contract to its normal position.

Still another aim of the invention is to provide a thermostatically controlled electric heater for heating the contents of the chamber or compartment from which the water or liquid is expelled.

Still a further object of the invention is to provide a tank for containing an antiseptic, and a pump operated by the movement of the diaphragm for pumping the antiseptic from said tank and into the liquid being expelled by the diaphragm and to be used as the douche.

Other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, which illustrate a preferred embodiment thereof, and wherein—

Figure 1 is a front elevational view of the device,

Figure 2 is a top plan view of the same,

Figure 3 is an enlarged vertical sectional view taken substantially along the plane of the line 3—3 of Figure 2,

Figure 4 is a view similar to Figure 3, and showing the diaphragm in a distended position,

Figure 5 is a horizontal sectional view taken substantially along the plane of the line 5—5 of Figure 4,

Figure 6 is an enlarged fragmentary detail view partly in section and partly in elevation, showing the one way valve of the pipe which leads from the pump cylinder and the outlet of the reservoir, and

Figure 7 is a similar view of the valve of the pipe which leads to the pump cylinder.

Referring more particularly to the drawings, wherein like reference characters designate like or corresponding parts throughout the different views, 10 designates generally the douche apparatus comprising the invention and which includes a casing 11 which is adapted to be mounted either in the tank of a water closet, beneath a water closet or in a recess in a wall adjacent thereto. The casing 11, as illustrated, is shown as being substantially cylindrical in cross section, but may be of any desired shape. The casing 11 is provided intermediate of its top and bottom with a partition 12 and is also provided with a partition 13 which extends downwardly from the partition 12 to the bottom of the casing 11. The partition 12 forms a reservoir 14 in the upper portion of the casing 11 and combines with the partition 13 to form a compartment 15 and a tank 16 in the lower part of the casing 11.

An inwardly opening annular channel member 17 is mounted in the reservoir 14 adjacent its upper end and forms a support for a diaphragm 18, the marginal edge of which is clamped in the channel member 17, and supported thereby to form a partition which divides the reservoir 14 into a lower chamber 19 and an upper chamber 20. The diaphragm 18 is preferably formed of rubber or other suitable material capable of being stretched. An electric heating element 21 and a thermostat 22 are each mounted in the chamber 19 and connected by electric wiring 23 leading to a source of electric current, not shown. The diaphragm 18 is provided with reinforced portions 24 one of which is arranged to be disposed adjacent the heater 21, another of which is arranged to be disposed adjacent the thermostat 22 and still another of which is arranged to be disposed adjacent an outlet 25 in the bottom of the chamber 19, when the diaphragm 18 is in a distended position, as seen in Figure 4, to hold the diaphragm out of engagement with the heating element 21, thermostat 22 and the outlet opening 25. The diaphragm 18 is also provided with a small aperture 26, for a purpose which will hereinafter be described.

A short outlet pipe 27 is disposed in the compartment 15 and connects with the outlet opening 25. A hose 28 is attached at one end to the opposite, lower end of the outlet pipe 27 and is attached at its opposite end to a douche nozzle 29, to which it is detachably connected so that douche nozzles of various sizes and shapes may be attached to the hose 28. As best seen in Fig-

ures 4 and 5, the hose 28 is normally coiled for storage within the compartment 15 which compartment is provided with a hinged door 30 to provide access to the compartment 15 for removing the nozzle and hose therefrom or for storing it therein. A pipe 31 which leads from a water main or other suitable source of water supply under pressure, not shown, extends transversely through the compartments 15 and 16 and opens into the chamber 20. The pipes 27 and 31, as best seen in Figures 4 and 5, intersect in the compartment 15 and are connected at their intersection by a coupling 32 which forms a housing for a valve body 33 which is disposed therewithin and which is provided with a straight passage 34 which connects the ends of the outlet pipe 27 and an arcuately shaped passage 35, which extends around the passage 34 and which connects the portions of the pipe 31. The passages 34 and 35 are arranged to communicate with the pipes 27 and 31 at the same time so that the passages through said pipes will be simultaneously opened or closed. A handle 36 projects from the coupling 32 and is connected to the valve body 33 and is adapted to be turned an eighth of a revolution in either direction for closing the valve 33 and the same distance in the opposite direction for opening the valve. Assuming that the handle 36 is swung upwardly to the position, as seen in Figure 3, for closing the valve, by swinging the handle downwardly and into alignment with the pipe 31 the valve body 33 would be in the position, as seen in Figure 4.

Tank 16 is adapted to contain a liquid antiseptic, not shown, and is provided with a filling neck 37 which is disposed on the outer side of the casing 11 and which opens into the tank 16 and which is provided with a closure cap 38. The partition 13 is provided with a cylinder 39 which is formed integral therewith. The lower end of the cylinder 39 is closed by the bottom of the casing 11 and the upper end thereof extends through the partition 12 and opens into the chamber 19. A piston 40 is slidably mounted in the cylinder 39 and is provided with a piston rod 41 which extends upwardly therefrom, through the cylinder 39 and into the chamber 19 and which is connected at its opposite end to the diaphragm 18 at 42. The piston rod 41 is slidably mounted in a bushing 43 which is attached to the upper end of the cylinder 39 and which prevents the liquid, contained in the chamber 19, from seeping into the upper portion of the cylinder 39.

A pipe 44 is disposed in the lower portion of the tank 16 and has one end opening into the lower portion of the cylinder 39. A one way valve 45, which opens inwardly of the pipe 44 and the cylinder 39, is mounted on the opposite end of the pipe 44 and in the tank 16. A pipe 46 has one end communicating with the cylinder 39, adjacent its lower end, and the opposite end thereof communicating with the outlet pipe 27, adjacent its upper end. A one way valve 47 is mounted in the pipe 46 and opens toward the outlet pipe 27. Valves 47 and 45, respectively, are best illustrated in Figures 6 and 7.

Assuming that the hose 28 and douche nozzle 29 have been removed from the compartment 15 and are ready for use, and assuming that the diaphragm 18 is in its normal, contracted position, as seen in Figure 3, and that the chamber 19 is filled with water, the water in the chamber 19 will be heated by the heater 21 to a prede-

termined temperature, as governed by the thermostat 22. A switch 48 may be provided in the electric wiring 23 to break the circuit to the heater and thermostat when the apparatus 10 is not in use. However, the switch 48 is shown in a closed position so that the contents of the chamber 19 will be heated as previously described. By swinging the handle 36 downwardly, the valve 33 is moved to an open position for opening the passages through the pipes 27 and 31 so that the heated water in chamber 19 can flow through outlet pipe 27 and hose 28 and be discharged through the nozzle 29. At the same time, the water under pressure from the water main will be passing through pipe 31 and be discharged into chamber 20 where the pressure of the water therein will gradually distend the diaphragm 18 downwardly from its position, as seen in Figure 3, until it assumes the position, as seen in Figure 4. It will thus be apparent that the diaphragm 18 will force the heated water out of the chamber 19 through the outlet pipe 27. At the same time, a downward movement of the diaphragm 18 will force the piston 40 downwardly in the cylinder 39. The portion of the cylinder 39 below the piston 40 is filled with the antiseptic from the tank 16, as will hereinafter become apparent, and as the piston 40 moves downwardly this antiseptic will be forced through pipe 46 to open the valve 47, past the valve 47 and into the outlet pipe 27 to be mixed with the heated water being forced under pressure from the chamber 19. As the valve 45 opens toward the cylinder 39 this valve will be held in a closed position by the pressure in the lower portion of the cylinder 39 caused by the downward movement of the piston 40. When the supply of the heated water, mixed with the antiseptic, discharged through the nozzle 29 ceases, the valve 33 is closed to close the pipes 27 and 31. The water in the chamber 20, which has been substantially enlarged by the diaphragm 18 being distended to its position, as seen in Figure 4, will slowly flow through the aperture 26 to refill the chamber 19 and to permit the diaphragm 18 to return, by its own resiliency, to its normal position, as seen in Figure 3, by which time the chamber 19 will have been refilled and the water contained therein reheated by heater 21 so that the apparatus 10 is ready to be used again. As the diaphragm 18 contracts and moves upwardly the piston 40 will be drawn upwardly in the cylinder 39 thereby creating a suction beneath the piston which will open the valve 45 and draw the antiseptic from the tank 16 to fill the portion of the cylinder 39 below the piston 40 to thereby supply another charge of antiseptic to be used with the water that has refilled the chamber 19. It will be apparent that the suction created in the cylinder 39 will hold the valve 47 in a closed position. When this operation has been repeated as many times as is required, the switch 48 can be opened and the hose 28 and nozzle 29 stored in the compartment 15.

Various modifications and changes are contemplated and may obviously be resorted to, as only a preferred embodiment of the invention has been disclosed.

I claim as my invention:

1. A liquid dispensing device comprising a container, a diaphragm disposed in said container and dividing it into compartments, an outlet formed in one of said compartments, a pipe connected to a source of liquid supply under pressure and opening into the other compartment, a

shut-off valve for said outlet, a control valve for said pipe, said diaphragm being distended by the liquid entering said last mentioned compartment when said control valve is opened for forcing the liquid from said first mentioned compartment, and into which the diaphragm is distended, when said shut-off valve is in an open position, and an aperture formed in said diaphragm for the slow passage of the liquid from said last mentioned to the first mentioned compartment, said aperture providing means for refilling the first mentioned compartment when said valves are closed.

2. A liquid dispensing device comprising a container, a diaphragm disposed in said container and dividing it into compartments, an outlet formed in one of said compartments, a pipe connected to a source of liquid supply under pressure and opening into the other compartment, a shut-off valve for said outlet, a control valve for said pipe, said diaphragm being distended by the liquid entering said last mentioned compartment when said control valve is opened for forcing the liquid from said first mentioned compartment, and into which the diaphragm is distended, when said shut-off valve is in an open position, a tank containing an antiseptic, a cylinder formed in said tank, a passage between said tank and cylinder, a one way valve mounted in said passage and arranged to open toward the cylinder, a passage leading from said cylinder and communicating with said outlet, a one way valve formed in said last mentioned passage and opening toward said outlet, a piston slidably mounted in said cylinder, and a piston rod connected to said piston and to the diaphragm for pumping the antiseptic from the cylinder into the outlet when the diaphragm is distended and for drawing the antiseptic from the tank into the cylinder when the diaphragm is retracted.

3. A liquid dispensing device comprising a container, a diaphragm disposed in said container and dividing it into compartments, an outlet formed in one of said compartments, a pipe connected to a source of liquid supply under pressure and opening into the other compartment, a shut-off valve for said outlet, a control valve for said pipe, said diaphragm being distended by the liquid entering said last mentioned compartment when said control valve is opened for forcing the liquid from said first mentioned compartment, and into which the diaphragm is distended, when

said shut-off valve is in an open position, a tank containing an antiseptic, a cylinder formed in said tank, a passage between said tank and cylinder, a one way valve mounted in said passage and arranged to open toward the cylinder, a passage leading from said cylinder and communicating with said outlet, a one way valve formed in said last mentioned passage and opening toward said outlet, a piston slidably mounted in said cylinder, a piston rod connected to said piston and to the diaphragm for pumping the antiseptic from the cylinder into the outlet when the diaphragm is distended and for drawing the antiseptic from the tank into the cylinder when the diaphragm is retracted, and said diaphragm being provided with an aperture to permit the passage of the liquid from the last mentioned to the first mentioned compartment for refilling the first mentioned compartment, when the shut-off valve and control valve are closed.

4. A douche apparatus comprising a casing, a partition dividing said casing into upper and lower compartments, said upper compartment forming a reservoir and being provided with a diaphragm dividing it into upper and lower chambers, an outlet pipe leading from the lower chamber, a pipe connected to and leading from a water main and opening into the upper chamber of said reservoir for distending said diaphragm into the lower chamber for forcing a liquid from said lower chamber through said outlet pipe, and said diaphragm having an opening for the passage of water therethrough for refilling the lower chamber and to allow the diaphragm to return to its normal position.

5. A device as in claim 4, said lower compartment forming a tank for containing an antiseptic in liquid form, a cylinder formed in a wall of said tank and opening into the lower chamber of the reservoir, a passage connecting the lower portion of the cylinder to the tank, a one way valve mounted in the passage and opening toward the cylinder, a passage leading from the lower portion of the cylinder and opening into said outlet pipe, a one way valve mounted in said last mentioned passage, and opening toward the outlet pipe, a piston slidably mounted in the cylinder, and a piston rod connected to said piston and to the diaphragm for pumping the antiseptic from the tank into the outlet pipe.

DONALD M. CHAPIN.