ABSTRACT: Soap-mixing-and-dispensing shower head in the form of a valve block having an inlet connected with a supply pipe for clear water and having an outlet having a spray-shower nozzle in communication therewith. The valve block has a soap container extending upwardly therefrom having a spray nozzle therein directed to spray water over a bar of soap in the soap container, and has a soap channel for soapy water leading from the soap container into the valve block. A slide valve is provided in the valve block and is manually movable along its axis into one position to supply clear water to the spray nozzle, and soapy water from the soap channel into the outlet and spray shower nozzle. A reduced cross-sectional area passageway in the valve provides the pressure drop between the inlet and outlet of the valve to draw soapy water from the soap channel. The valve has a diametral passageway leading therethrough positionable in alignment with said inlet and said outlet when the valve is in a second position, to effect the supply of clear water through the shower nozzle.
SOAP MIXER AND DISPENSER FOR SHOWER BATHS AND THE LIKE

SUMMARY AND OBJECTS OF THE INVENTION

In carrying out my invention I connect a valve block to a water inlet pipe extending into the shower for universal movement with respect to the inlet pipe and connect a spray-shower nozzle or head to the valve block to extend from the valve block. I mount a container for bar soap on top of the valve block and provide a spray in the soap container and running water over the bar soap and draw soapy water from the container to be discharged through the spray nozzle, under the control of a slide valve movable into position to supply either clear or soapy water to the shower-spray nozzle.

A principal object of the present invention, therefore, is to provide a simplified form of shower head so arranged as to selectively supply clear or soapy water to a shower nozzle. Another object of the invention is to provide an efficient and economical form of soap-mixing and dispensing shower head, which may be detachably mounted on the supply pipe for the shower and includes a selectively operable valve, enabling the bather to select clear or soapy water.

A still further object of the invention is to provide an improved form of soap-mixing and dispensing valve for shower heads which may be attachable to a conventional inlet water connection for a shower to enable the bather to select clear or soapy water by the simple operation of moving a valve into one or another limited position. Still another object of the invention is to provide an apparatus to replace the conventional shower head for a shower bath and the like, arranged to enable the bather to select either clear or soapy water by a simple manual operation. A still further object of the invention is to provide a soap mixer and dispenser forming an attachment for a shower head in which clear water may be supplied over a cake of soap and aspirated through the spray nozzle of the shower head, or clear water free from soap may be selectively discharged through the shower head.

A still further object of the invention is to provide a soap-mixing and dispensing shower head selectively operable to dispense soapy or clear water and arranged with a view toward utmost simplicity in construction and economical use of cake soap. Other objects, features and advantages of the invention will be readily apparent from the following description of preferred embodiments thereof, taken in conjunction with the accompanying drawings, although variations and modifications may be effected without departing from the spirit and scope of the novel concepts of the disclosure.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of a shower head constructed in accordance with the principles of the present invention and connected to a water supply pipe leading into a shower, with certain parts of the wall along which the water pipe leads broken away and shown in vertical section. FIG. 2 is a sectional view taken through the soap container substantially along lines II—II of FIG. 1. FIG. 3 is a fragmentary, transverse sectional view taken substantially along lines III—III of FIG. 2, with the spray nozzle shown in full and the valve in position to supply clear water to the spray shower nozzle. FIG. 4 is a sectional view somewhat similar to FIG. 3 but showing the valve in position to effect the supply of soapy water to the spray shower nozzle; and FIG. 5 is a top plan view of the valve shown in FIGS. 2, 3 and 4.

DESCRIPTION OF PREFERRED EMBODIMENT OF INVENTION

In FIG. 1 of the drawings, I have shown an inlet pipe 10 for a shower, for supplying water to the shower under the control of a valve 11 on a spout 12 for a conventional bathtub (not shown). The usual hot and cold water valves generally indicated by reference numeral 13 control the supply of hot, cold or mixed water through the spout 12 and through the supply pipe 10, when the valve 11 is in position to block the supply of water through said spout. The pipe 10 is connected with an elbow 15 having a pipe 16 leading therefrom to the shower bath and having a conventional form of universal coupling 17 on the end thereof. A pipe 18 leads from said universal coupling, and is connected with a soap mixing and dispensing shower head 19 constructed in accordance with the principles of the present invention. The shower head 19 and pipe 18 may be moved relative to the pipe 18 about the universal coupling, to control the direction of spray from the shower head in a conventional manner.

The soap mixing and dispensing shower head 19 includes a valve block 20 having an inlet 21 leading thereinto and adapted to be threaded on the end of the pipe 18. The valve block 20 has an axially aligned outlet 22 leading therefrom having a spray-shower nozzle or head 23 threaded therein. The spray-shower nozzle or head 23 may be a conventional form of spray nozzle and is herein shown as being formed from a plastic material threaded into the outlet 22, although it need not necessarily be made from plastic.

The valve block 20 is shown as being generally rectangular in cross section and has a flat top face 25 forming a mounting for a container 26. As shown in the drawings, the container 26 is generally cylindrical in form and may be made from a transparent plastic material to contain a cake of soap (FIG. 1) to be sprayed with water by a spray nozzle 27. A detachable cover, 28 serves to close said soap container. The spray nozzle 27 is spaced to one side of said container and extends above a bottom plate 29 of said soap container. The bottom plate 29 is shown as abutting the flat top face 25 of the valve block 20 and may be adhesively secured thereto.

As shown in FIGS. 3, 4 and 5, the nozzle 27 is in the form of an inverted generally cup-shaped member having a cylindrical interior wall and having a portion of the outer wall formed to conform to the interior cylindrical wall of the container 21. A spray slit 31 leads through the cylindrical wall of said spray nozzle and is spaced above the bottom of the bottom plate 29, in position to spray water on a cake of soap contained within said container.

The nozzle 27 is supplied with water through a passageway 32 leading through the bottom wall 29 thereof and having communication with a channel 33 in the top surface of the valve block 20 and leading inwardly of the passageway 32 in a direction extending radially of the soap container. A drilled hole or passageway 34 leads inwardly along the valve block from the channel 32 to a generally cylindrical valve chamber 35, extending along the valve block 20 at right angles to the inlet 21 and outlet 22 and opening to opposite ends of said valve block. A slide valve 36 is slidably mounted in said valve chamber, and projects beyond opposite ends thereof, to be engaged at either end of a finger of the hand to move the valve 36 into its selected operative positions.

A soap channel 37 for soapy water, leads through the bottom wall 29 of the container 26 and is disposed on the opposite side of said container from the spray nozzle 27. The soap channel 37 has communication with an upwardly opening channel 39 extending along the top face of the valve block 20 and closed by the bottom wall 29 of the container 26. A passageway 40 leads from the channel 39 inwardly along the valve block and opens to the valve chamber 35 and is shown in FIG. 2 as being in alignment with the clear water channel 33.

The valve 36 is shown as being a generally cylindrical slide valve having first and second passageways 41 and 43 recesses therein and shown in transverse section as being in the form of sectors of a circle and opening to the wall of the valve chamber 35. The first passageway 41 has communication with the inlet 21 and the passageway 35 to supply water to the channel 33 and spray 27. The second passageway 43 has communication with the outlet 22 and the soap channel 37.
through the channel 39 and passageway 40 to accommodate the flow of soapy water through the outlet 22 and spray nozzle 23. A passageway 44 of a relatively small cross-sectional area affords communication with the inlet 21 and connects the first passageway 41 to the second passageway 43, to create a Venturi effect by the pressure drop of water flowing through the valve, to thereby aspirate soapy water from the soap channel 37, channel 39 and passageway 40 into the spray nozzle 23, to be discharged from said spray nozzle onto the body of the bather. When the valve 36 is in the position shown in FIG. 2, clear water will be supplied to the spray nozzle 27 to be sprayed over a bar of soap in the container 26, through the slit 31. At the same time water under pressure, flowing through the passageway 44 and opening to the passageway 43 will positively draw soapy water from the soap channel 37 to be discharged in the form of a spray through the spray shower nozzle 23.

The valve 36 is also shown as having a clear water passageway 45 leading diametrically therethrough in direct alignment with the inlet 21 and outlet 22, as the valve 36 is moved into position to close the passageways 34 and 40, and to effect the discharge of clear water through the spray nozzle 23. O-rings 46, 46 are shown as recessed in the valve body on opposite sides of the passageways 41, 43 and 45 to retain the water to a selected of said passageways and to prevent the leakage of water from the valve block 20. The O-rings 46, 46 are of a conventional form so need not herein be shown or described in detail. A slot 47 is recessed in the valve 36 and extends axially therealong between the O-rings 46, 46 and is engaged by a stop pin 48 extending inwardly along the valve block from the bottom thereof, into the valve chamber 35 and slot 47. The slot 47 forms a stop slot and opposite ends thereof terminate in such relation to the first and second passageways 41 and 43 and the clear water passageway 45 that as the valve 36 is moved in one direction to engage an end of the slot 47 with the pin 48, the passageway 45 will be in axial alignment with the inlet 21 and outlet 22, to discharge clear water through the spray nozzle 23. As the valve 36 is moved in an opposite direction to the opposite extreme end of the slot 47, the first passageway 41 will be in registry with the inlet 21, to supply clear water to the spray 27 while the second passageway 43 will be in registry with the outlet 22, to effect the aspiration of soapy water from the soap channel 37 to be discharged through the spray nozzle 23.

The stop pin 48 has an enlarged head 49 on its outer end, forming a knob enabling the stop pin 48 to be moved out of registry with the stop slot 47 when it is desired to remove the valve 36 from the valve block 20. In the drawings, the valve block 20, valve 36, soap container 26 and spray nozzle 23 are shown as made from a plastic material which preferably may be a suitable form of transparent plastic such as a transparent nylon plastic material. It should be understood, however, that the device need not be made from a transparent plastic but may be made from any other suitable plastic material, and may be made from metal, if desired.

I claim as my invention:
1. In a soap mixer and dispenser and in combination with a 60 shower bath having a spray-shower nozzle,
a water supply pipe leading into the shower bath,
a valve block adapted to be mounted on said supply pipe and having an inlet in direct communication therewith and an outlet having direct communication with the spray shower nozzle,
a soap container on said valve block adapted to contain bar soap, a valve in said valve block,
a spray nozzle in said soap container having a spray outlet directed to pass water over the bar soap in said soap container,
a first passageway in said valve having communication with said inlet and said spray nozzle in one position of said valve, to supply water to flow over soap in said soap container,
a second passageway in said valve having communication with said soap container and with said outlet in said one position of said valve,
a third passageway in said valve affording direct communication between said inlet and said outlet, in a second position of said valve, to pass clear water through said valve and said spray-shower nozzle and
a fourth passageway connected between said first and second passageways, to create the pressure drop to draw soapy water from said soap container through said outlet.
2. The soap mixer and dispenser of claim 1, wherein the valve is a slide valve movable in an axial direction and projects beyond opposite sides of said valve body to enable a finger of a hand to engage either end of said valve and move said valve into position to register said first and second passageways.
3. The soap mixer and dispenser of claim 1, wherein a soap channel is provided in the bottom of said soap container and has communication with said second passageway in said valve, wherein said first passageway is in communication with said inlet and said spray nozzle, to collect soapy water to be drawn along said soap channel and through said outlet and shower spray head, and wherein the fourth passageway connecting said first passageway with said second passageway and positioned in alignment with said inlet and said outlet in one position of said valve is a reduced area passageway to create a Venturi effect to draw soapy water along said soap channel from said container.
4. The soap mixer and dispenser of claim 3, wherein the soap channel leads along the bottom of said soap container on the opposite side of said soap container from said spray nozzle, and the first and second passageways in said valve block are diametrically opposed.
5. The soap mixer and dispenser of claim 4, wherein stop means are provided to limit movement of said valve block into one position to afford communication between said inlet and said spray nozzle, and between said soap channel and said outlet, and into a second position to afford direct communication from said inlet through said outlet and the spray-shower nozzle.
6. A soap mixer and dispenser for shower baths comprising, a valve block having an inlet adapted to be connected to a water supply pipe, and an outlet axially aligned with said inlet, a spray-shower nozzle in communication with said outlet, a soap container mounted on said valve block and extending upwardly therefrom, a cylindrical valve chamber leading along said valve block transversely of said inlet and outlet passageways and having communication therewith, a slide valve slidably mounted in said valve chamber for movement along the axis of said valve chamber, a first passageway in said valve in the form of a sector having communication with said inlet and said soap container and opening to the wall of said valve chamber, a second passageway in said valve in the form of a sector having communication with said soap container and said outlet and opening to the wall of said valve chamber, a reduced cross-sectional area passageway in said valve block in alignment with said inlet and said outlet and connecting said first and second passageways to supply pressure to aspirate soap from said container through said outlet and spray-shower nozzle.
7. The soap mixer and dispenser of claim 6, wherein O-rings are carried by said valve on opposite sides of said first and second passageways and said diatrical passageway, wherein the soap container is adapted to contain bar soap and a spray nozzle is provided in said soap container and supplied with water under pressure from said first passageway to spray water over the soap in said container, and
wherein a soap channel extends along the bottom of said soap container and has fluid communication with said second passageway in the one position of said valve.

8. The soap mixer and dispenser of claim 7, wherein the valve extends beyond opposite ends of said valve block and has projecting ends adapted to be engaged by the finger of a hand to move the valve into the two operative positions, and

wherein a stop is provided to limit movement of said valve in one direction to register said first and second passageways with said inlet and said outlet, to effect the supply of soapy water through the spray-shower nozzle and to limit movement of said valve in an opposite direction to directly connect said inlet with said outlet and supply clear water through said shower-spray nozzle.

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