Feb. 26, 1963 R. BELLOWS 3,079,093

COMBINATION DISPENSER AND SPOUT

Filed Jan. 9, 1962

FIG. 1.

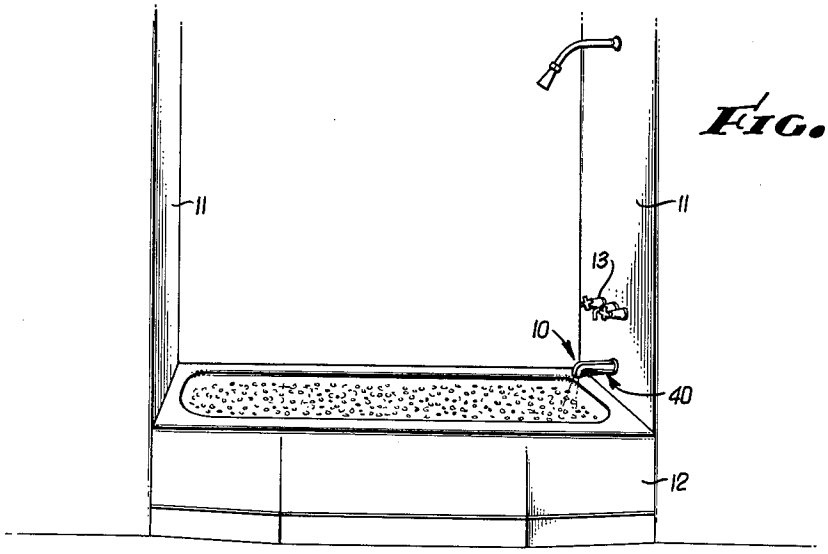


FIG. 2.

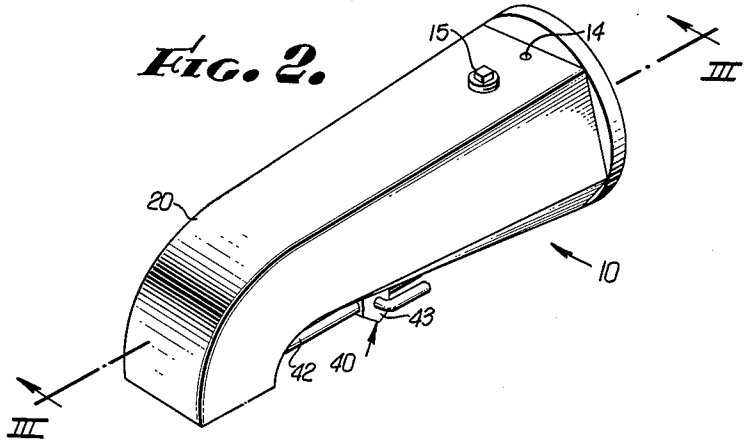
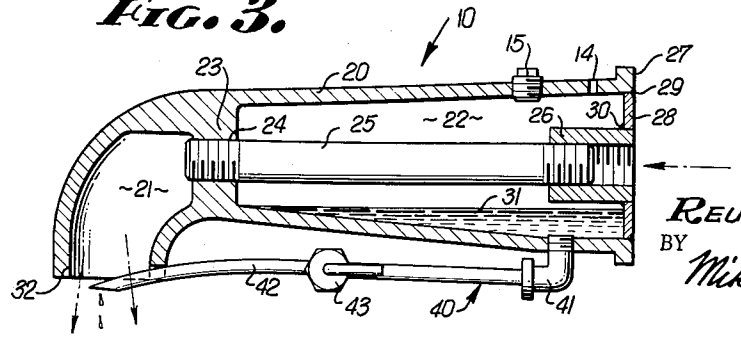


FIG. 3.



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COMBINATION DISPENSER AND SPOUT

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This invention relates in general to a combination liquid soap dispenser and water spout adapted to store and dispense an additive liquid into a stream of water emitted from the spout. More particularly, the invention relates to a bubble bath dispensing spout for bathtubs comprising an integral reservoir and spout wherein bubble bath liquid soap or detergent is stored entirely within the spout, surrounds a water conduit through the spout in thermal communication therewith and is dispensed by the force of gravity into the water stream emitted from the spout at a point below and spaced from the spout. It is contemplated that other liquids such as skin conditioners may be dispensed from the combination dispenser and spout as well as bubble bath detergents and soaps.

The prospect of a bubble bath is an intriguing thing to the young and old alike. Children are filled with delight by the presence of bubbles in an otherwise routine and perhaps unwanted bath; adults find added luxuriousness, comfort and relaxation. The popularity of bubble baths has been enhanced by the number of bubble bath scenes in the movies, but little has been done to make the means of providing the bubble bath more attractive and more readily available. Containers or packages of bubble bath solution or powder which can be accidentally dropped or spilled into the water are troublesome, inconvenient and often wasteful. I have devised an integral dispenser and spout which is attractive in appearance, is readily and easily operated and which dispenses liquid soap or detergent into the bath water at a predetermined rate to provide just the right amount of soap for a normal bubble bath.

It is an object of my invention, therefore, to disclose and provide a combination liquid soap dispenser and water spout to replace the standard bathtub spout whereby a bubble bath may be readily and effortlessly obtained by merely turning on the bath water and moving a valve lever on the spout.

It is another object of my invention to disclose and provide an integral liquid dispenser and spout for adding a first liquid stored within the combination to a second liquid passing through the combination wherein no back siphoning of the first liquid into the second may occur and wherein no cross-connections between the two liquids may occur.

It is another object of my invention to disclose and provide an integral dispenser and spout having an outward appearance resembling that of a standard bathtub spout but which contains an internal liquid reservoir wherein the dispensing of an additive liquid stored within the reservoir is facilitated by the heat of the bath water passing through the dispenser and spout.

It is a further object of my invention to disclose and provide an integral dispenser and spout adapted for use as a bubble bath dispensing spout which will dispense bubble bath liquid detergent or soap by the force of gravity into the bath water during filling of the tub at a predetermined rate to provide a total amount of detergent or soap in the water whereby sufficient bubbles are formed but the soap or detergent is not wasted or over-supplied to the bath water.

Various other objects and advantages of the combination liquid dispenser and spout according to my invention will be seen from a consideration of the following detailed description of an exemplary embodiment thereof. Reference will be made to the appended sheet of drawings in which:

FIG. 1 is a representation of a standard bathtub and shower installation with exemplary embodiment of the combination dispenser and spout according to the invention provided on the bathtub in place of a standard bathtub spout;

FIG. 2 is an enlarged perspective view of the combination dispenser and spout of FIG. 1 according to the invention; and

FIG. 3 is a sectional view of the combination dispenser and spout of FIGS. 1 and 2 taken in the plane III—III of FIG. 2.

An exemplary embodiment of a combination dispenser and spout is shown in FIGS. 1 through 3. As is apparent in FIGS. 1 and 2, the outward appearance of the combination dispenser and spout, indicated generally at **10**, may resemble an ordinary bathtub spout. No additional dispenser is required to be hung on the walls **11** or tub **12** and all that is required to provide a bubble bath is the drawing of the bath water by turning the hot and cold water handles **13** and moving a lever of the dispensing means, indicated generally at **40**. The bubble bath detergent is stored in an internal reservoir, vented at **14** and filled through an opening at plug **15**. As the bath water fills the tube **12**, bubbles **16**, as shown in FIG. 1, are formed by the addition of drops of liquid detergent, feed into the stream of bath water, the drops bursting into bubbles in the turbulence of the water stream hitting the tub or the water rising therein.

The combination dispenser and spout, according to the invention, comprises a chambered housing having a spout chamber and a reservoir chamber formed integrally thereof. In the embodiments of FIGS. 1 through 3, with particular reference to FIG. 3, the housing **20** may be provided by a standard bathtub spout plumbing fixture which is provided with a vent **14** and filling plug **15**. A ported partition **23** separates the spout chamber **21** and reservoir chamber **22**. Normally the water pipe in the plumbing system for the bathtub is run through the tub wall and screwed into the pipe threads at **24** provided in the ported partition **23** of a standard tub spout. In the preferred embodiment shown, such standard tub spout has a spout chamber **21** and is modified to provide an internal reservoir **22**. Reservoir **22** is formed within the housing **20** by inserting a water conduit or nipple **24** into the housing which is shorter than the housing and which is screwed into the threads **24** in the ported partition **23**. A coupling **25** is provided at the rear end or bell end **27** of the housing and serves to couple the nipple **25** with a shortened water conduit in the plumbing system protruding from the bathtub wall. An end washer **28** is welded at **29** and **30** to seal the reservoir chamber **22** at the rear or bell end **27** of the housing **20**. Thus an internal reservoir **22** is formed within the housing, or bathtub spout, by the housing **20**, partition **23**, conduit or nipple **25**, coupling **26** and end washer **28**. The liquid detergent **31** is therefore stored within the housing **20** and about the water conduit **25**.

Liquid dispensing means are provided, as indicated generally at **40**, which, in the preferred embodiment, comprises a right angle taped elbow **41**, a dispensing tube **42** and an inline dispenser control valve **43**. Tubing **42** and elbow **41** may be provided by sweating copper tubing and fittings together, as in the embodiment of FIGS. 1 through 3, or may be cast integrally with the housing **20**. The elbow **41** is tapered into the reservoir chamber **22** at a lower portion of the housing **20** near the bell end **27** and its upright leg is generally vertical, the other being generally horizontal. The liquid detergent is then dispensed from the bottom of the internal reservoir **22** by the forces due to gravity acting

thereon when the valve 43 is opened. The liquid detergent is thereby removed from within the housing and dispensed by the tubing 42 at a point below and spaced from the spout end 32 of the housing. It is essential that the liquid detergent 31 be dispensed into the stream of bath water flowing from the housing spout chamber 21 at a point therein outside of and spaced from the housing 20. The possibilities of cross-connections or back siphoning of liquid detergent into the water line is thereby obviated. Modern plumbing codes are then complied with and the liquid detergent is readily and easily dispensed into the stream of water for thorough mixing.

The dispensing means may be designed to provide a predetermined rate of fluid flow such that a generally ascertainable total volume of liquid detergent is dispensed during each normal tub filling operation, the valve 43 being opened and closed with the opening and closing of the bathtub water valves 13. Toward the end, it has been found that where a liquid detergent having a specific gravity of about 1.01 and a viscosity of about 1,630 centipoises at 25 degrees centigrade and about 200 centipoises at 93 degrees centigrade is employed, a 1/8 inch internal diameter copper tubing for tubing 42 provides just the required amount of bubble bath detergent during a tub filling operation, there being in all cases a sufficient amount of bubbles and an excessively wasteful amount in none. If a 1/16 internal diameter is employed, too little detergent flows through tub 42 during a normal tub filling period. If a 3/16 internal diameter is used, an excessive amount of detergent is used. Thus it has been determined that with such liquid detergents for bubble baths, the internal diameter of tub 42 should be between about 3/32 and about 5/32 inches for best results in gravity feeding of the detergent into the bath water as in the preferred exemplary embodiment shown. Since the viscosity of the liquid detergent changes markedly with its temperature, it can readily be seen that a relatively viscous detergent (high viscosity) may be employed where the reservoir 22 is formed internally of the housing surrounding the water conduit 25 which carries the warm bath water through the housing. The flow of warm bath water through the conduit 25 thus conditions the bubble bath detergent stored in reservoir 22 and facilitates flow of the liquid detergent by gravity through the tubing 42.

Tubing 42 is bent downwardly past the spout end 32, preferably being retained in a notch 44 in the housing 20, to open to the atmosphere at a point below and spaced from the spout chamber opening, as shown in FIG. 3.

From the foregoing detailed description, it can be seen that the combination dispenser and spout according to my invention may readily replace the standard bathtub spout fitting to furnish an integral water spout and bubble bath dispenser of outward appearance generally similar

to that of the standard spout. Liquid bubble bath soap or detergent is supplied periodically to the internal reservoir and is accurately dispensed into the stream of bath water under conditions preventing cross- connection or back siphoning. The integral provision of dispenser and spout not only provides a more compact and attractive fixture but allows the positioning of the liquid bubble bath detergent or soap within a reservoir surrounding the bath water conduit. The liquid bubble bath detergent or soap is thus warmed by the heat of the bath water flowing through the spout and becomes less viscous, thereby more easily flowing through the dispenser means due to the action thereon of the force of gravity.

While only a single exemplary embodiment of a combination dispenser and spout, acording to the invention, has been described in detail herein, it should be noted that various modifications, alterations and adaptations of the combination dispenser and spout may come within the scope of the invention which is described and limited only by the following claim.

I claim:

An integral liquid dispenser and spout adapted to dispense an additive liquid into a carrier liquid flowing from said spout, said additive liquid being stored within a portion of said spout and being dispensed by gravity into the stream of carrier liquid at a point therein spaced below said spout, said integral dispenser and spout comprising:

a chambered housing adapted to be fitted onto a supply tube of carrier liquid at one end and having an internal reservoir chamber and an internal spout chamber separated by a ported partition, said spout chamber having a discharge opening through said housing at a second end opposite said one end;

and conduit means extending from said one end of said housing through said reservoir chamber and opening into said spout chamber through said ported partition for conveying carrier liquid from said supply tube entirely through said reservoir chamber to said spout chamber without intermixing of said liquids; and

means for conveying said additive liquid from said reservoir chamber to a point in the stream of flow of said carrier liquid spaced from said discharge opening.

References Cited in the file of this patent

UNITED STATES PATENTS

955,418	Mikorey	Apr. 19, 1910
1,082,141	Sites	Dec. 23, 1913
1,679,561	Cantrell	Aug. 7, 1928
1,687,085	Dow	Oct. 9, 1928
2,462,752	Kotches et al.	Feb. 22, 1949
2,705,091	Marchand	Mar. 29, 1955