

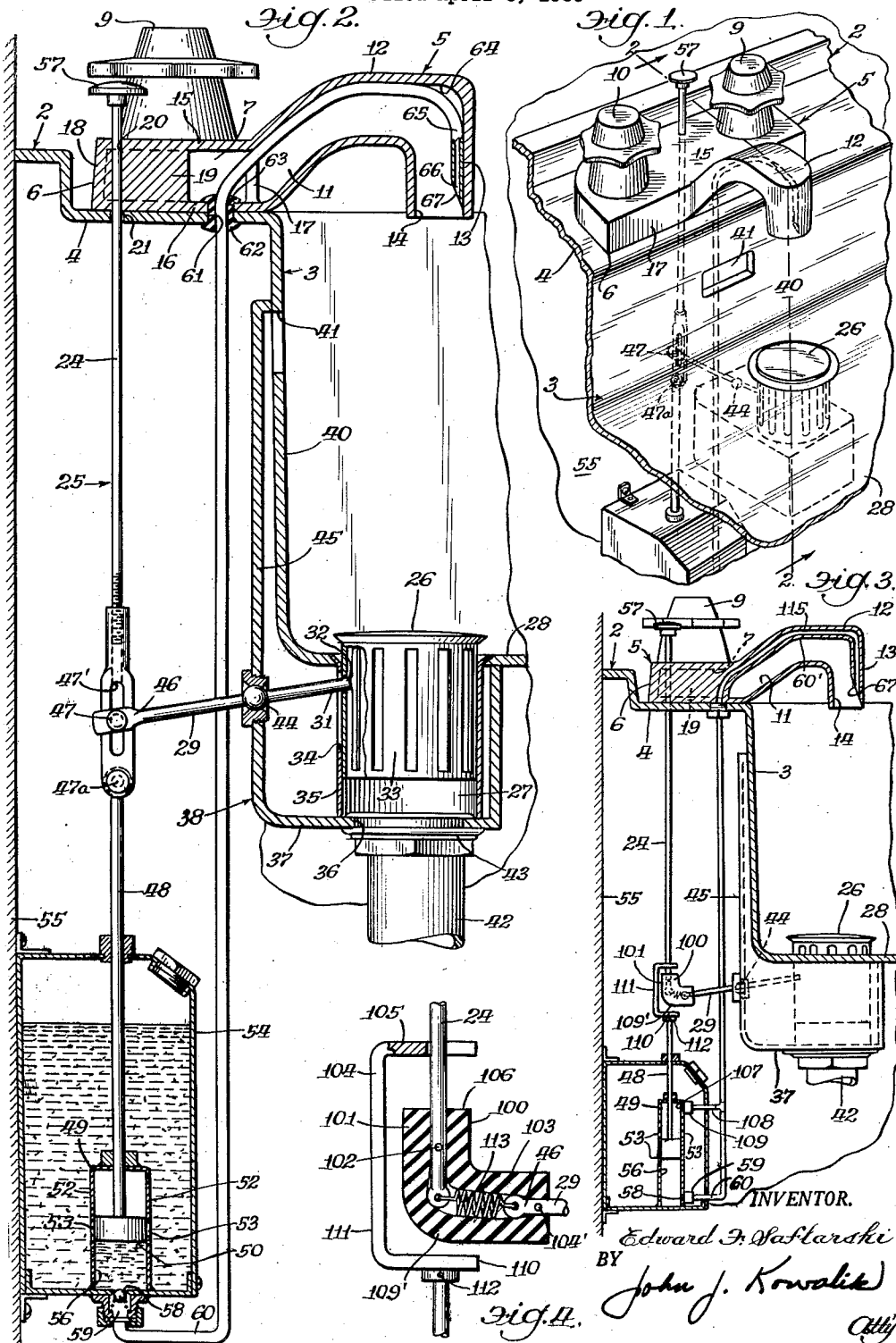
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COMBINED LAVATORY ACCESSORY AND SOAP DISPENSER

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3,018,489 COMBINED LAVATORY ACCESSORY AND SOAP DISPENSER

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This invention relates to a soap dispensing device and more specifically to a novel arrangement wherein the dispenser is integrated with the faucet structure and combined with the stopper linkage to actuate a pump mounted in a soap reservoir carried under the sink.

A general object of the invention is to provide an arrangement which is compact and simple to install in a conventional sink.

A more specific object of the invention is to provide a novel interconnection between the sink stopper operator and the ejection pump of the soap dispenser such that the stopper and the dispenser are selectively or conjunctively operable.

A different object of the invention is to provide a liquid soap ejector which is integrated with the spigot of the faucet and so arranged that the water flowing through the spigot serves to wash the discharge port of the ejector and to flush the excess normally remaining in the conduit which extends within the spigot.

Another object of the invention is to provide a soap dispenser which is part of a conventional sink fixture and does not clutter the arrangement by the addition of non-standard accessories which require special sink constructions.

These and other objects and advantages inherent in and encompassed by the invention will become more readily apparent from the following specification and drawings wherein:

FIGURE 1 is a fragmentary perspective view of a sink and faucet fixture incorporating one form of the invention;

FIGURE 2 is an enlarged sectional view taken substantially on the line 2-2 of FIGURE 1;

FIGURE 3 is a reduced cross-sectional view comparable to FIGURE 2 illustrating a modification of the invention, and

FIGURE 4 is a fragmentary enlarged side elevational view of the pump embodiment and stopper actuating mechanism of FIGURE 3.

Describing the invention in detail and having particular reference to FIGURES 1 and 2 of the drawings, there is illustrated a conventional lavatory 2 incorporating a bowl 3 which has a peripheral ledge 4 affording a mounting for the faucet fixture 5.

The fixture 5 comprises a body 6 which provides a mixing chamber 7 intermediate the hot and cold water valves 9 and 10, the chamber 7 communicating with a bore 11 of the spigot 12 which extends from the body 6 and distally terminates in a downwardly directed spout 13 having a discharge orifice 14 forming the terminus of the bore 11.

The body 6 intermediate the valves, comprises top, bottom and front and rear walls 15, 16, 17 and 18, respectively and opposite the spigot 12 is formed with a thick web 19 which is integral with walls 15, 16 and 18.

The walls 15 and 16 and the web 19 are provided with a vertical opening 20 therethrough which registers with opening 21 in the ledge 4. These openings admit a stem 24 of an operating linkage 25 for opening and closing a drain plug 26 which operates within a drain 27 formed in the bottom wall 28 of the basin 3.

The drain plug 26 is of conventional design and is actuated to open and closed positions by the rod 29 which functions as a lever and has its one or inner end 31 en-

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tered into an opening 32 in the peripheral wall column 33, the lever 29 extending through a vertically elongated slot 34 in a guide tube or sleeve 35 which surrounds the plug 26 and extends through the bottom wall 28 of the basin to the drain aperture 36 in the bottom wall 37 of the overflow housing 38 which is connected to the bottom and peripheral walls 28 and 40 respectively of the basin and serves to channel the overflow water in the basin through the overflow opening 41 in the wall 40 into the drain pipe 42 which connects to the orifice nipple 43.

The lever rod 29 is pivoted intermediate its ends via a ball joint 44 which mounts on the wall 45 of the overflow housing 38. The outer end 46 of lever 29 has a lost motion connection by a pin 47 to the lower end of the rod or operating stem 24 in slot 47' thereof.

In the instant embodiment, a pin 47a connects the stem 24 to the upper end of a plunger or actuator 48 of a pump 49 which includes a piston 50 connected to plunger 48 the piston being operative within a cylinder 52 which includes radial ports 53 which are opened to communication with the reservoir 54 mounted upon suitable wall structure 55 beneath the sink, the reservoir containing liquid soap which flows into the cylinder chamber 56 attendant to the piston being elevated above the ports 53 by elevating the stem 24 by the user grasping the handle 57 at the upper end of the stem 24. In this position of the stem the drain is closed in this embodiment of the invention. Upon depressing the stem 24 the plunger 48 is urged downwardly and moving the piston head 50 in closing position to the ports 53 and trapping a quantity of soap within the lower end of the cylinder chamber 56 and exhausting this quantity through the outlet port 58 in the cylinder 52 past the one way valve 59 in the line 60 which leads from port 58 upwardly through aperture 61 in the sink ledge 4, the seal 62 in aperture 63 in the bottom wall 16 of the faucet structure and along the top wall or roof portion 64 of the faucet spigot and terminating in a downturn portion 65 just short of the orifice 14.

The lower end of portion 65 is sheared diagonally to enlarge the mouth 66 and present a diagonal edge 67 to the water column to obtain a washing by the water and prevent clogging.

Embodiment of FIGURES 3 and 4

Referring now to the modification shown in FIGURES 3 and 4 wherein parts identical with those of the previous embodiment are identified by corresponding reference numerals, it will be seen that the connection or coupling in this instance between the lower end of stem 24 and the rod lever 29 is yieldable and takes the form of a tubular sleeve of elastomer material such as rubber, neoprene and the like and comprises an elbow 100 which has one end 101 sleeved or stretch-fitted over the lower end of the stem 24 and connected thereto by pin 102, the other end 103 being stretched over and connected by pin 104' to the outer end 46 of rod 29 which has been adjusted to extend a greater distance into the drain plug than in the previous modification to thus clear end 46 from the lower end of rod 24. The piston stem 48 is connected to a U-shaped coupling 104 which has an upper bifurcated leg 105 sleeved over the stem 24 above the upper edge 106 of the end 101 of coupling 100 by which leg 105 is engaged when the stem 24 is pulled upwardly beyond the normal range of operation of the stem 24 in opening and closing of the drain. The coupling elbow 100 is stretched and the plunger or actuator 48 is moved upwardly with piston 50 to discharge the trapped quantity of liquid soap between the closed upper end of the chamber 56 and the piston which forces the soap through the exhaust port 107 into branch line 108 and through one-way or check valve 109 into the line 60. Similarly on the down stroke of the stem 24, the underside 109' of

the elbow is caused to engage the lower leg 110 of the coupling 104, leg 110 being connected to leg 105 by the spanner 111 which parallels stem 24. The leg 110 is connected to the stem 48 by pin 112 and the operation of the pump is as previously described except that the coupling 100 is stretched to accommodate movement of the plunger beyond normal operating range so that with the drain open it can be further depressed to discharge the quantity of soap. A spring 113 is anchored at opposite ends to rod 29 and stem 24 to provide necessary strength more positive in action. In this embodiment, the roof structure 115 of the spigot is changed over the previous design and designed to provide an integral extension 60' of the duct or piping 60. In this embodiment either up or down movement of the stem 24 beyond normal operating range in opening and closing the drain, effects operation of the pump and discharge of the soap through the spigot. Thus a lost-motion connection is effected and the unit is usable with either type of drain operators. In other words either type closes the drain on the upstroke or downstroke and the soap ejector is usable with the bowl being filled without emptying the bowl or when the bowl is empty.

Having described the invention in detail to provide a full and complete disclosure, it will be understood that the same are only exemplary and that other forms of the invention will become readily apparent within the scope of the appended claims.

I claim:

1. In a lavatory having a wash bowl with a drain, a stopper therefor movable to open and closed positions for respectively opening and closing the drain, operating linkage for the stopper carried by the basin, means connecting the linkage to the stopper, and a faucet assembly supported from the lavatory and providing a spout extending over the bowl, a liquid-soap dispenser supported beneath the lavatory and comprising a reservoir and a pump connected with the reservoir to discharge liquid soap therefrom, conduit means extending from the pump and through the spout and having a discharge end at the discharge of the spout, and lost-motion connecting means between said operating linkage and said pump for operating the latter in response to movement of the former.

2. The invention according to claim 1 and said conduit means comprising a diagonal discharge orifice partially facing into said spout for washing action by water passing therethrough.

3. The invention according to claim 1 and said operating linkage including a vertically movable stem and said means connecting the linkage to the stopper comprising flexible means interconnecting the stem to the stopper, and said lost motion connecting means having an operating range actuating the stopper and a range moving said stem for operating the pump.

4. For a lavatory having a basin with a drain, a stopper for the drain movable to open and closed positions, operating linkage for the drain mounted on the lavatory and including up upright vertically movable stem, means extending between the stem and the stopper for operating the latter in pursuance to movement of the former, a soap dispenser, an actuator, and means connecting the stem to the actuator and said first-mentioned means com-

prising a lever engaging the stopper and pivoted on the lavatory, a pin pivotally connecting the stem to the lever, and said second-mentioned means having a plunger pivoted on the pin.

5. For a lavatory having a basin with a drain, a stopper for the drain movable to open and closed positions, operating linkage for the drain mounted on the lavatory and including up upright vertically movable stem, means extending between the stem and the stopper for operating the latter in pursuance to movement of the former, a soap dispenser, an actuator, and means connecting the stem to the actuator and said means extending between the stem and stopper comprising a resilient member, and said means connecting the stem with the actuator comprising a lost-motion connection between said stem and said actuator.

6. For a lavatory having a basin with a drain, a stopper for the drain movable to open and closed positions, operating linkage for the drain mounted on the lavatory and including up upright vertically movable stem, means extending between the stem and the stopper for operating the latter in pursuance to movement of the former, a soap dispenser, an actuator, and means connecting the stem to the actuator and said means between the stem and stopper comprising a resilient connection, and said means connecting the stem with the actuator comprising a U-shaped coupling having a part extending alongside said stem and a portion overlying the connection and another portion underlying the connection and disposed in the path of movement of the connection for engagement thereby as said stem is moved beyond a predetermined operating range.

7. In a lavatory having a basin with a drain and a stopper movable to open and close the drain, linkage for operating the stopper, and soap dispensing means operatively associated with the linkage for actuation thereby and means alternatively connecting the linkage with the stopper and the dispensing means.

8. The invention according to claim 7 wherein said linkage has parts having a position operative of the drain and another position operative of the dispensing means only.

9. The invention according to claim 7 and said linkage including a plurality of interconnected members, and said dispensing means including a part disposed in operative conjunction with at least one of said members to the exclusion of the other of the members.

10. The invention according to claim 7 and said linkage including a vertical member and a horizontal member, a resilient connection therebetween, said members movable beyond a first operating range through said resilient connection, and means connecting one of said members operatively with the dispenser in actuating relation thereto.

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