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PUSH BUTTON PUMP TYPE SOAP DISPENSER

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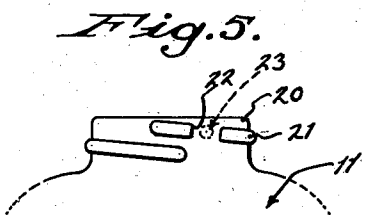
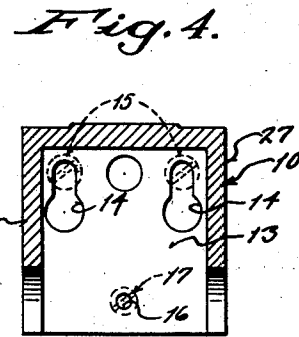
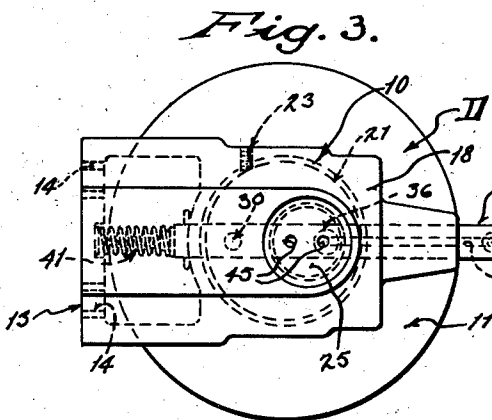
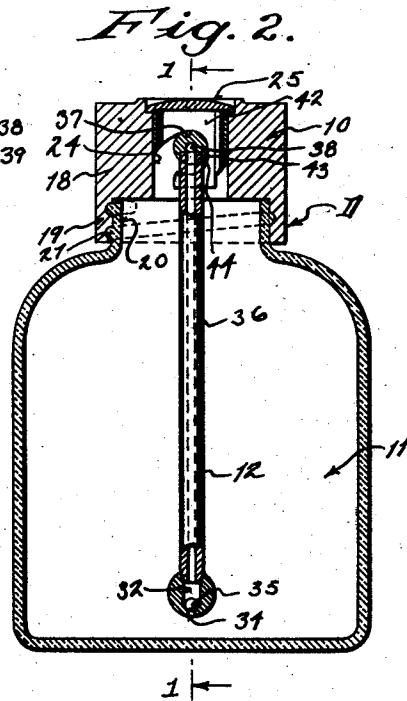
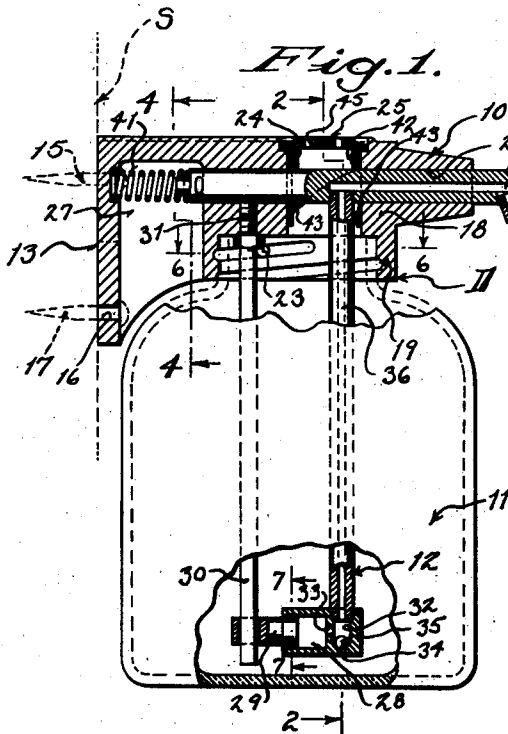
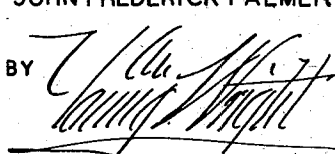


Fig. 7.

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PUSH-BUTTON PUMP TYPE SOAP DISPENSER

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6 Claims. (Cl. 222-340)

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This invention appertains to liquid dispensers and more particularly to a novel device for dispensing a measured quantity of liquid soap upon each operation thereof by a user.

One of the primary objects of my invention is to provide a liquid soap dispenser of the type embodying a supporting bracket and a bowl or jar for the soap connected with the bracket and having a novel pump mechanism for delivering the soap from the bowl directly into the hand of the user.

Another salient object of my invention is to provide a novel pump mechanism for liquid soap dispensers in which the necessity of packing washers, gaskets and the like is eliminated, thereby insuring the effective operation of the pump at all times.

A further object of my invention is to provide a novel pump mechanism for liquid soap dispensers in which the pump itself is immersed at all times in the liquid soap and in which the operating mechanism therefore includes a horizontally disposed sliding plunger carried directly by the bracket for the bowl, the plunger being movable inward toward the support on which the bracket is secured, whereby loosening of the bracket on the support is prevented, and whereby all strain on the bowl is eliminated.

Another further object of my invention is to provide novel means for delivering the soap through the operating plunger and into the hand of the user whereby the soap can be obtained by the operator with the use of one hand and with a direct inward push.

A still further object of my invention is to provide a novel means for filling the bowl or jar without necessitating the removal of the bowl or jar from the bracket, including a filling opening in the bracket and a novel locking closure plug for said opening.

A still further object of my invention is to provide a liquid soap dispenser which will be extremely durable and efficient in use, and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawing, in which drawing:

Figure 1 is a vertical sectional view through my improved liquid soap dispenser, the section being taken substantially on the line 1-1 of Figure 2, looking in the direction of the arrows.

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Figure 2 is a sectional view taken at right angles to Figure 1 and substantially on the line 2-2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a top plan view of my improved soap dispenser.

Figure 4 is a detail vertical sectional view taken on the line 4-4 of Figure 1, looking in the direction of the arrows and illustrating a part of the bracket.

Figure 5 is a fragmentary side elevational view of the upper end of the bowl or jar for the liquid soap and illustrating the novel means employed for holding the bowl in position on the bracket against accidental displacement, and unauthorized removal by mischievous persons.

Figure 6 is a detail fragmentary horizontal sectional view taken on the line 6-6 of Figure 1, looking in the direction of the arrows, also illustrating the means for detachably holding the bowl on the bracket against accidental displacement and removal by unauthorized persons, and

Figure 7 is a detail vertical sectional view through the pump mechanism taken substantially on the line 7-7 of Figure 1, looking in the direction of the arrows.

Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter D, generally indicates my novel soap dispenser. My soap dispenser D includes a novel supporting bracket 10, for the liquid soap bowl or jar 11, and my novel pump mechanism 12. The bracket 10 can be a casting or the like formed from any desired material possessing the necessary strength, and the same embodies a rear face plate 13 for connection with a wall or other suitable support S. This face plate 13 has formed therein keyhole slots 14 for the reception of fastening elements 15 secured in the wall or other support S. The lower end of the face plate can be provided with an opening 16 for the reception of a screw, nail or the like, 17, so that accidental displacement or removal of the bracket from the support S by unauthorized persons will be prevented. Extending forwardly from the face plate 13 is the body portion 18 of the bracket, and this body portion has formed thereon and depending therefrom, an internally threaded sleeve 19 for the reception of the neck 20 of the bowl or jar 11. The thread 21 formed on the neck of the bowl or jar 11 can be interrupted as at 22 and a machine screw 23 can be threaded into the bracket and into the inter-

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rupted portion of the thread 21 so as to prevent the accidental displacement, or removal by unauthorized persons, of the bowl 11 from the bracket. The bracket has formed therein a vertically disposed filling opening 24 which communicates with the interior of the sleeve 19, and consequently with the bowl 11. Hence, the bowl can be filled through this opening without the necessity of removing the bowl from the bracket. A novel closure plug 25 is provided for this opening, and this plug will be later described in detail. The body portion 18 of the bracket also has formed therein a centrally disposed horizontal bore 26 which bisects the opening 24. This bore 26 opens out both through the front and rear of the body portion of the bracket. If desired, the body portion 18 of the bracket can be reinforced by side walls 27 which join with the face plate 13.

The pump mechanism 12 includes a horizontally disposed pump cylinder 28, and this cylinder is adapted to slide back and forth on the pump piston 29. This pump piston is carried by a supporting rod 30, the upper end of which is threaded into or otherwise secured to the body 18 of the bracket 10 as at 31. The cylinder 28 has formed in the end wall thereof a valve chamber 32 and the cylinder has communication with the chamber by means of a port 33. The lower end of the chamber 32 has formed therein an inlet opening 34 which is adapted to communicate with the interior of the bowl 11. This inlet is normally closed by a ball check valve 35. Connected with the upper end of the chamber 32 is the pump tubing 36, and this tubing carries the pump cylinder 28.

Slidably mounted within the bore 26 formed in the body portion 18 of the bracket is the operating plunger 37 and the upper end of the pump tube 36 is threaded into or otherwise fastened to said pump plunger. This pump plunger has formed axially therein a soap passageway 38 and this passageway communicates with the interior of the pump tubing 36. As illustrated, the forward end of the passageway 38 opens out through the front end of the pump plunger and this end of the passageway is closed by a thumb piece 39. Directly in rear of the thumb piece, the pump plunger carries an outlet nipple 40 and this nipple also communicates with the soap passageway 38. An expansion spring 41 is employed for normally holding the operating plunger 37 forwardly and one end of the spring is connected with the face plate 13 of the bracket 10 and the other end of the spring is carried by said operating plunger.

In the use of my improved dispenser, the bowl 11 is filled to its desired height with soap and when a quantity of soap is desired, the operator pushes inwardly on the plunger 37, carrying the pump tubing 36 and the cylinder 28 therewith. The cylinder 28 will slide directly on the piston 29 and any liquid in the cylinder will be forced up through the tubing 36 through the passageway 38 of the plunger and out of the nipple 40. Upon release of the plunger, the spring 41 will return the plunger and the cylinder to its normal position, creating a suction within the cylinder 28. This will lift up the check valve 35 and permit the sucking in of a quantity of soap. Obviously, upon the pushing of the plunger 37 again, the valve 35 will be held on its seat and the liquid will again be forced up and out of the nipple.

The length of the stroke of the plunger will pre-determine the amount of liquid that can be dispensed in accordance with the amount that may be required.

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Referring back to the filling plug 25, it will be noted that the same includes a depending sleeve 42 and this sleeve has formed therein on opposite sides thereof spiral bayonet slots 43. In placing the plug in position, the slots are placed over the plunger 37 and upon the turning of the filling plug, the plunger 37 will ride into the recessed ends 44 of the bayonet slots 43. This will lock the plug in position and discourage the unauthorized removal thereof. The top wall of the filling plug can be provided with spanner wrench openings 45 to facilitate the renewal thereof by an attendant.

From the foregoing description, it can be seen that I have provided an especially simple and durable liquid soap dispenser in which the necessity of packing gaskets and the like is entirely eliminated. Therefore, it can be seen that there are no parts subject to great wear or which will have to be removed at stated periods of time.

Changes in details may be made without departing from the spirit or the scope of my invention, but what I claim as new is:

1. A liquid dispenser comprising a bracket, an open mouthed bowl secured to and depending from said bracket, an operating plunger slidably mounted in said bracket for horizontal movement back and forth toward and away from the rear end of the bracket, a stationary pump piston carried by the bracket and disposed in the bowl adjacent to the lower end thereof, a pump cylinder slidably mounted on the piston, said cylinder and piston being arranged in parallel relation to the plunger, an inlet check valve for the cylinder, rigid pump tubing connecting the cylinder with the operating plunger whereby upon movement of said plunger, the cylinder will be moved therewith, said plunger having a passageway communicating with the upper end of the tube, and an outlet nipple carried by the plunger and communicating with said passageway.

2. A liquid dispenser comprising a bracket, an open mouthed bowl secured to and depending from said bracket, an operating plunger slidably mounted in said bracket, for horizontal movement back and forth toward and away from the rear end of the bracket, a stationary pump piston carried by the bracket and disposed in the bowl adjacent to the lower end thereof, a pump cylinder slidably mounted on the piston, said cylinder and piston being arranged in parallel relation to the plunger, an inlet check valve for the cylinder, rigid pump tubing connecting the cylinder with the operating plunger whereby upon movement of said plunger, the cylinder will be moved therewith, said plunger having a passageway communicating with the upper end of the tube, an outlet nipple carried by the plunger and communicating with said passageway, and spring means normally holding the operating plunger in a forward position.

3. A liquid dispenser comprising a support having a depending sleeve, a bowl for liquid connected with said sleeve, an operating plunger slidably mounted in said support for movement in a horizontal plane toward and away from the rear end of the support, said plunger having an axial passageway opening out adjacent to the forward end thereof, a pump tube rigidly carried by said plunger and communicating with the passageway, a depending rod secured to said support and extending into the bowl, a piston carried by the lower end of the rod, a cylinder slidably mounted on the piston and carried by the lower end of the tube, said cylinder having a

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valve chamber in the outer end wall thereof, said chamber having communication with the interior of the cylinder and an inlet port, a check valve for said inlet port, said tube communicating with the chamber, and spring means normally urging the operating plunger in one direction.

4. A liquid dispenser comprising a support having a depending sleeve, a bowl for liquid connected with said sleeve, an operating plunger slidably mounted in said support for movement in a horizontal plane toward and away from the rear end of the support, said plunger having an axial passageway opening out adjacent to the forward end thereof, a pump tube rigidly carried by said plunger and communicating with the passageway, a depending rod secured to said support and extending into the bowl, a piston carried by the lower end of the rod, a cylinder slidably mounted on the piston and carried by the lower end of the tube, said cylinder having a valve chamber in the outer end wall thereof, said chamber having communication with the interior of the cylinder and an inlet port, a check valve for said inlet port, said tube communicating with the chamber, spring means normally urging the operating plunger in one direction, said support having a filling opening therein communicating with the sleeve and the bowl, and a removable plug for said filling opening.

5. In a liquid dispenser, a supporting bracket including a body portion and a depending sleeve thereon, a bowl for liquid detachably connected with said sleeve, said body portion having a vertical filling opening communicating with the sleeve and the bowl and a horizontally disposed bore bisecting said opening, an operating plunger slidably mounted in said bore and extending through said opening, having an axial passageway therein, opening out adjacent to the forward

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end of said plunger, a pump mechanism including a stationary piston carried by the support, a cylinder slidably mounted thereon and a pump tube carrying said cylinder and rigidly connected with said plunger and communicating with the passageway, a closure plug for said filling opening including a depending sleeve having spiral bayonet slots, said slots being adapted to receive and hook on said operating plunger.

6. A liquid dispenser comprising a support having a depending sleeve, a bowl for liquid connected with said sleeve, an operating plunger slidably mounted in said support for movement in a horizontal plane toward and away from the rear end of the support, said plunger having an axial passageway opening out adjacent to the forward end thereof, a pump tube rigidly carried by said plunger and communicating with the passageway, a depending rod secured to said support and extending into the bowl, a piston carried by the lower end of the rod, a cylinder slidably mounted on the piston and carried by the lower end of the tube, said cylinder having a valve chamber in the outer end wall thereof, said chamber having communication with the interior of the cylinder and an inlet port, a check valve for said inlet port, said tube communicating with the chamber, spring means normally urging the operating plunger in one direction, said support having a filling opening therein communicating with the sleeve and the bowl, a removable plug for said filling opening, said bowl having a threaded connection with the support, the threads on the bowl being interrupted, and a removable screw carried by the support threaded into said support for movement into the interrupted part of the thread.

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