

Feb. 25, 1958

P. G. HANLON

2,824,673

SOAP DISPENSER

Filed Aug. 6, 1956

2 Sheets-Sheet 1

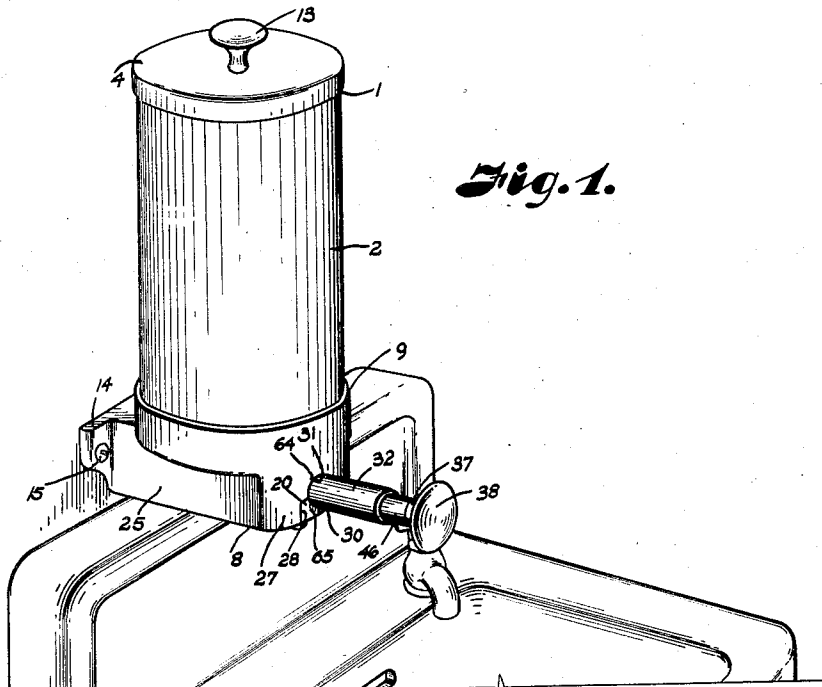


Fig. 1.

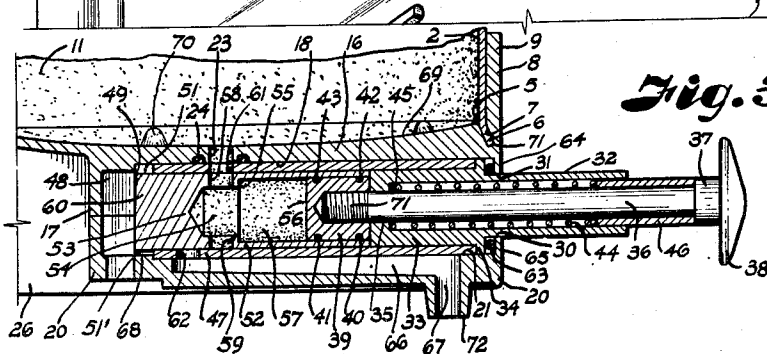


Fig. 3.

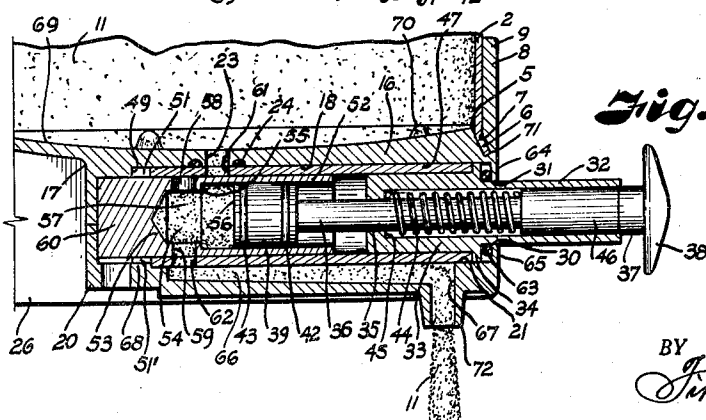


Fig. 4.

INVENTOR.
Patrick G. Hanlon.

BY
Joseph E. Gold
ATTORNEYS.

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P. G. HANLON

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2 Sheets-Sheet 2

Fig. 2.

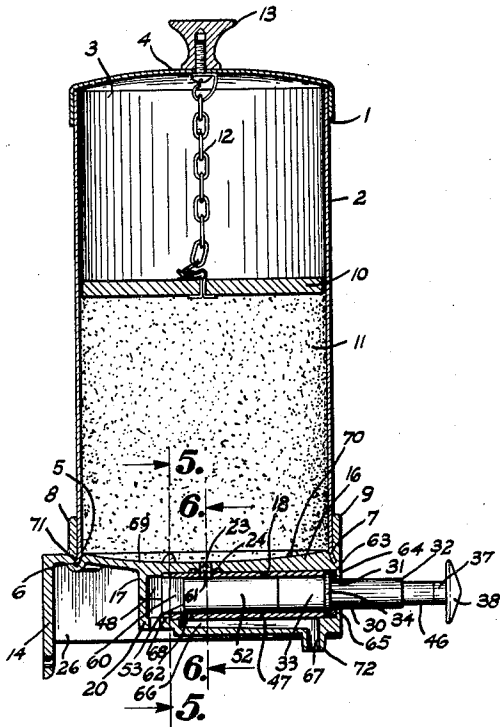


Fig. 5.

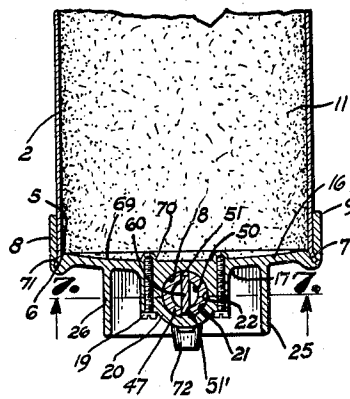


Fig. 6.

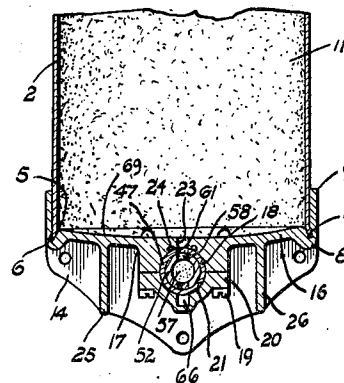


Fig. 7.

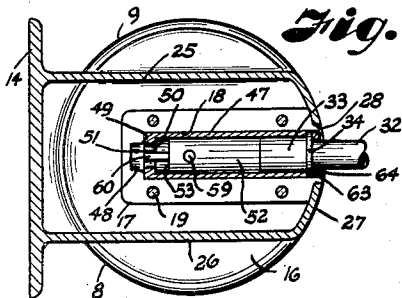
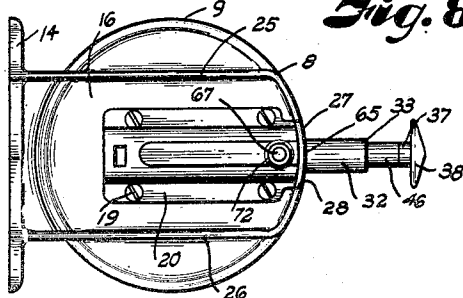


Fig. 8.



INVENTOR.
Patrick G. Hanlon.

BY
Irishburn & Gold
ATTORNEYS.

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2,824,673

SOAP DISPENSER

Patrick G. Hanlon, Kansas City, Kans.

Application August 6, 1956, Serial No. 602,180

9 Claims. (Cl. 222—256)

This invention relates to a dispenser for soap or the like of paste or semi-liquid form and is a continuation in part of my application for patent, Serial No. 478,286, filed December 29, 1954, now Patent No. 2,765,964.

It is the principal object of the present invention to provide a soap dispenser or the like of paste or semi-liquid form from a dispenser having a base provided with a cylinder in which a sleeve member is adapted to slidably engage and in which sleeve a plunger is adapted to reciprocate for forcing the soap from the container without the use of ball or other type valves; to provide for creating a vacuum in the sleeve member and cylinder for aid in pulling the soap from the container; to provide openings in the sleeve member in offset relation whereby the plunger will open one opening to receive a charge of soap from the container and close off the soap from the container while dispensing the soap from the cylinder; to provide a spring tension plunger having a piston on one end operable in the sleeve member; to provide means for preventing rotation of the sleeve member; to provide a base member having an annular groove of a larger diameter than the base of the container whereby the circumferential edge of the container is forced thereinto to retain the container on the base; to provide means for exerting pressure on the soap in the container; and to provide a device of this character simple and economical to manufacture.

In accomplishing these and other objects of the invention, I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of my soap dispenser shown attached to a support above a wash bowl.

Fig. 2 is a vertical cross section view through the container.

Fig. 3 is an enlarged cross sectional view particularly illustrating the plunger in position of loading of the soap in the cylinder.

Fig. 4 is a view similar to Fig. 3 but showing the piston in the cylinder forcing the soap through the discharge opening.

Fig. 5 is a cross sectional view taken on a line 5—5, Fig. 2.

Fig. 6 is a cross sectional view taken on a line 6—6, Fig. 2.

Fig. 7 is a cross sectional view taken on a line 7—7, Fig. 5.

Fig. 8 is a bottom plan view of the dispenser.

Referring more in detail to the drawings:

1 designates a dispenser for soap or the like embodying the features of my invention comprising a cylindrical housing or container 2 having an open top 3 and a cover 4. The bottom of the container 2 is also open as indicated at 5 and the circumferential edge 6 thereof is pressed into an annular groove 7 of a base member 8 having an upstanding circumferential boss 9 for embracing the lower side of the container 2 as best illustrated in Fig. 2.

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Cover 4 includes a follower 10 for the soap 11, the follower being attached to the cover by a chain 12, and the cover also includes a knob 13.

The follower plate 10 will exert a pressure on the soap 11 and dispense it as will later be shown.

The base includes a bracket 14 for fastening of the device to a wall or support by screws 15 as is the usual practice. Extending across the majority portion of the bottom 16 of the base is a longitudinal lug or rib 17 having a semi-circular groove 18. Secured to the rib 17 by set screws or the like 19 is a plate 20 having a longitudinal semi-circular groove 21 for mating with the semi-circular groove 18 in the base to provide a cylindrical compartment 22 in said base member. In the bottom 16 of the base member 8 is an opening 23 in substantially the center thereof forming a throat leading into the cylindrical compartment 22. The rib 17 is recessed around said opening 23 to receive resilient sealing ring or the like 24, the ring being of neoprene or other similar product. The ring will prevent leakage of the soap around the cylinder as will later be shown.

The bracket 14 is a part of longitudinally running flanges 25 and 26 formed integrally with the base member and curved as indicated at 27 having a cutout portion 28 to receive the end of the plate 20 which in turn has a cylindrical recess 30 aligning with a semi-circular recess 31 in the base to accommodate the reduced end 32 of a cylindrical sleeve member 33 having an annular flange 34 at the reduced portion which is of the same size as the cylindrical compartment 22. The inner end of the sleeve member 33 has an opening 35 for receiving a plunger 36 which extends through the sleeve member and on the outer end of which is a collar 37 and a knob 38. The plunger 36 has a piston 39 on its other end which is screw threadedly attached thereto. The piston has annular grooves 40 and 41 for receiving resilient rings or the like 42 and 43 such as neoprene, rubber or the like. Surrounding the plunger or shank 36 is a coil spring 44 having one end engaging against the shoulder 45 of the sleeve member 33 and its other end against a sleeve washer 46 which exerts pressure to hold the plunger 36 in an outward direction as indicated in Fig. 3.

Located within the cylindrical compartment 22 of the base is a sleeve member 47 having one end engaging against the annular flange 34 of the sleeve member 33. It will be noted the cylindrical compartment 22 has a reduced end as indicated at 48 forming an annular shoulder 49 against which the inner end of the sleeve member 47 abuts. The inner end of the sleeve 47 has an inwardly extending annular shoulder 50 and oppositely facing notches 51 and 51'. The piston 39 on the plunger 36 engages in a cylinder 52 which engages within the sleeve member 47. Cylinder 52 has a closed end 53 and a reduced portion 54 forming an annular shoulder 55 against which the end 56 of the piston is adapted to engage. The hollow portion of the cylinder 52 provides a compartment 57 and aligned openings 58 and 59 are provided in the thickened portion of the cylinder to provide for entry in dispensing of the soap to the compartment 57 as will later be described. The closed end 53 of the cylinder 52 has a flat extension member 60 which will align with the notches 51 and 51' in the end of the sleeve member 47 and will slide therein to prevent rotation of the cylinder 52 in the sleeve member 47. The sleeve member 47 is provided with opposite openings 61 and 62 in misalignment one with the other. The opening 61 is spaced farther from the notch 51 of the sleeve member 47 than the lower opening 62 from the notch 51'. A resilient ring 63 is provided between the shoulder 34 of the sleeve 33 and the end walls 64 and 65 of the grooves 18 and 21 to seal the dispenser mechanism in the base. Extending longitudinally in the bottom of the semi-cylindrical por-

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tion 21 of the plate member 20 is a longitudinal groove 66 leading to an opening 67 formed in the plate 20 near the forward end of the plate member as best illustrated in Figs. 3 and 4. Semi-cylindrical portion 21 is provided near the closed end with a small rim 68 below the flat extension 60 provided to engage in the notch 51' of the sleeve member 47 to prevent rotation of the sleeve member 47 in the compartment or cylindrical housing 22.

The base forms a bottom 69 for the compartment or container for the soap 11, and the bottom is provided with a plurality of nibs 70 upon which the follower plate 10 will rest when the soap is dispensed from the container. The bottom 69 is slightly shifted as illustrated in Fig. 2 so that the soap will substantially all be drained from the container.

In assembling a device constructed as described, the container 2 is pressed into the base 8 so that the lower circumferential edge 6 will be pressed into the annular groove 7 of the base to retain the same thereon. It will be noted that the annular groove 7 extends with its lower part slightly outwardly as indicated at 71 so that after pressing the container into the groove a better interlocking of the container with the base will be accomplished.

The sleeve 46, and thereafter the coil spring 44, are then placed over the shank 36. The shank 36, with the sleeve 46 and the spring 44 thereon, is then inserted in the sleeve 33 with the seal ring 63 on its reduced part 32 whereby the threaded end of the shank 36 will extend through the opening 35 in the sleeve 33 after which the piston 39 is threaded thereon, thus locking the shoulder 45 between the spring 44 and piston 39. The cylinder 52 is then placed over the piston 39 and its resilient rings 42 and 43 and then the sleeve member 47 is engaged over the cylinder 52 and the larger end of the sleeve 33 until the extension member 60 on the cylinder 52 engages in the notches 51 and 51' of the sleeve member 47 and the outer end of the sleeve member 47 contacts the annular flange 34 on sleeve 33 whereby the openings 58 in cylinder 52 and 61 in sleeve member 47 will come into alignment.

The assembled dispenser mechanism is then placed in the semi-circular groove 18 of the lug 17 whereby the seal ring 63 is between the front wall 64 and annular flange 34 and the aligned openings 58 and 61 will be in line with openings 23 in the bottom 16 of the base. Then the plate 20 is assembled over the sleeve and plunger assembly with the semi-circular groove 21 engaging over the lower portion of the sleeve member 47 and with the front wall 65 of the plate 20 engaging within the cutout portion 28 of the base wall 64, thus pressing the lower part of the seal ring 63 between wall 65 and lower portion of the annular flange 34. The plate 20 is then secured to the base or longitudinal rib 17 by set screws 19 and the device is ready for operation.

The follower plate 10 will rest on top of the soap 11 and create a slight pressure thereon. When the plunger with the piston member is urged outwardly by the coil spring 44, there will be a vacuum created in the compartment 57 which tends to draw the soap through the opening 23 in the bottom of the container, through the opening 61 in the cylindrical sleeve member 47 and through the opening 58 in cylinder 52 into the compartment 57 (Fig. 3).

To dispense the soap the knob 38 is pressed inwardly urging the piston 39 with the cylinder 52 which contains the compartment 57 forwardly within the sleeve member 47 thereby moving the flat extension 60 on the cylinder 52 through the notches 51 and 51' until the closed end 53 of the cylinder 52 engages the inner portion of the annular shoulder 50 on sleeve member 47 and stops the forward movement of the cylinder 52. In this position, the lower opening 59 in the cylinder 52 is then in alignment with the opening 62 in the cylinder or sleeve 47. Continued forward movement of the plunger and piston 39 within the cylinder 52 (Fig. 4) will then force the soap from the compartment 57 through the

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openings 59 and 62 to passageway 66. To repeat this movement, the forward pressure on the knob 38 and plunger 36 is released whereby the compressed spring will press against the sleeve 46 on the shaft or plunger 36 forcing the plunger back into a position as shown in Fig. 3. The cylinder 52 which engages over the piston 39 and resilient rings 42 and 43 will follow this movement whereby the opening 58 in the cylinder 52 will again be in alignment with the openings 23 and 61 to refill compartment 57 in cylinder 52 (Fig. 3). The above described movement of the plunger is continued until a sufficient amount of soap has passed through the passageway 66, opening 67 and a spout 72 to the user.

It will be obvious from the foregoing that I have provided an improved soap dispenser or the like wherein the soap will be dispensed from the container in measured amounts with few working parts and which eliminates valves as heretofore been used.

What I claim and desire to secure by Letters Patent is:

1. A dispenser of the character described comprising, a container for the soap having an open end, means in said container exerting pressure on said soap, a base having an outwardly flared groove therein, the open end of said container being pressed into said groove, said base being provided with a longitudinal cylindrical chamber therein, said chamber having an open end near one side of the container having an annular flange around said opening and having an opening in one side connecting with said container and a duct through which the soap is dispensed, a valve for dispensing said soap comprising, a sleeve member in said chamber one end of which is provided with an inwardly extending annular shoulder and having openings in opposite sides, said openings being offset with each other, a short sleeve having a closed end slidable in the sleeve member, said sleeve having a reduced portion in the closed end forming a compartment and having aligned openings through the sleeve and said compartment, a third sleeve engaging in the open end of the sleeve member and having an annular shoulder engaging against the end of the sleeve member, said third sleeve extending outwardly from one side edge of the container, sealing means between said annular shoulder and the annular flange around the opening in said base, the inner end of the third sleeve being reduced and having an opening in the inner end, a plunger having a threaded inner end slidable in said third sleeve, means in said third sleeve urging said plunger outwardly, a piston on said threaded end slidable in the second sleeve, sealing means on the piston, whereby movement of the piston outwardly will create a vacuum in the compartment in the second sleeve to assist in movement of the soap from the container in measured amounts to said compartment and movement of the piston inwardly will move the second sleeve inwardly along with the piston to close the opening to the container and continued inward movement of the piston will force the soap from the compartment through the lower opening and through the duct in said base.

2. A dispenser of the character described comprising, a container for the soap having an open end, means in said container exerting pressure on said soap, a base having an outwardly flared groove therein, the open end of said container being pressed into said groove, said base being provided with a longitudinal cylindrical chamber therein, said chamber having an open end near one side of the container having an annular flange around said opening and having an opening in one side connecting with said container and a duct through which the soap is dispensed from the chamber, a valve for dispensing said soap comprising, a sleeve member in said chamber one end of which is provided with an inwardly extending annular shoulder and oppositely facing notches and having openings in opposite sides near the notched end, said openings being offset with each other, a short sleeve having a closed end slidable in the sleeve member and having an extension

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thereon engaging in said notches, said sleeve having a reduced portion in the closed end forming a compartment and having aligned openings through the sleeve and said compartment, a third sleeve engaging in the open end of the sleeve member and having an annular shoulder engaging against the end of the sleeve member, said third sleeve having a reduced end extending outwardly from one side edge of the container, sealing means between said annular shoulder and the annular flange around the opening in said base, the inner end of the third sleeve being reduced and having an opening in the inner end, a plunger having a threaded inner end slidable in said third sleeve, means in said third sleeve urging said plunger outwardly, a piston on said threaded end slidable in the second sleeve, sealing means on the piston, whereby movement of the piston outwardly will create a vacuum in the compartment in the second sleeve to assist in movement of the soap from the container in measured amounts to said compartment and movement of the piston inwardly will move the second sleeve inwardly along with the piston to close the opening to the container and continued inward movement of the piston will force the soap from the compartment through the lower opening and through the duct in said base.

3. In combination with a container for soap having a base provided with a longitudinal cylindrical chamber in said base, said chamber having an open end near one side of the container having an opening in one side connecting with said container and a duct through which the soap is dispensed, a valve for dispensing said soap comprising, a sleeve member in said chamber one end of which is provided with oppositely facing notches and having openings in opposite sides near the notched end, said openings being offset with each other, a short sleeve having a closed end slidable in the sleeve member and having an extension thereon engaging in said notches, said sleeve having a reduced portion in the closed end forming a compartment and having aligned openings through the sleeve and said compartment, a third sleeve engaging in the open end of the sleeve member and having an annular shoulder engaging against the end of the sleeve member, said third sleeve having a reduced end extending outwardly from one side edge of the container, sealing means between said annular shoulder and said base, the inner end of the third sleeve being reduced and having an opening in the inner end, a plunger having a threaded inner end slidable in said third sleeve, means in said third sleeve urging said plunger outwardly, a piston on said threaded end slidable in the second sleeve, sealing means on the piston, whereby movement of the piston outwardly will create a vacuum in the compartment in the second sleeve to assist in movement of the soap from the container in measured amounts to said compartment and movement of the piston inwardly will move the second sleeve inwardly along with the piston to close the opening to the container and continued inward movement of the piston will force the soap from the compartment through the lower opening and through the duct in said base.

4. In combination with a container for soap having a base provided with a longitudinal cylindrical chamber in said base, said chamber having an open end near one side of the container having an opening in one side connecting with said container and a duct through which the soap is dispensed, a valve for dispensing said soap comprising, a sleeve member in said chamber one end of which is provided with openings in opposite sides near the inner end, said openings being offset with each other, a short sleeve having a closed end slidable in the sleeve member, means on said sleeve member and said sleeve to prevent rotation of said sleeve in said sleeve member, said sleeve having a reduced portion in the closed end forming a compartment and having aligned openings through the sleeve and said compartment, a third sleeve engaging in the open end of the sleeve member, said third sleeve having a reduced end extending outwardly

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from one side edge of the base of the container, the inner end of the third sleeve being reduced and having an opening in the inner end, a plunger having a threaded inner end slidable in said third sleeve, means in said third sleeve urging said plunger outwardly, a piston on said threaded end slidable in the second sleeve, sealing means on the piston, whereby movement of the piston outwardly will create a vacuum in the compartment in the second sleeve to assist in movement of the soap from the container in measured amounts to said compartment and movement of the piston inwardly will move the second sleeve inwardly along with the piston to close the opening to the container and continued inward movement of the piston will force the soap from the compartment through the lower opening and through the duct in said base.

5. In combination with a container for soap having a base provided with a longitudinal cylindrical chamber in said base, said chamber having an open end near one side of the container having an opening in one side connecting with said container and a duct through which the soap is dispensed, a valve for dispensing said soap comprising, a sleeve member in said chamber one end of which is provided with openings in opposite sides near the inner end, said openings being offset with each other, a short sleeve having a closed end slidable in the sleeve member, means on said sleeve member and said sleeve to prevent rotation of said sleeve in said sleeve member, said sleeve having a reduced portion in the closed end forming a compartment and having aligned openings through the sleeve and said compartment, a third sleeve engaging in the open end of the sleeve member and having an annular shoulder engaging against the end of the sleeve member, said third sleeve having a reduced end extending outwardly from one side edge of the container, sealing means between said annular shoulder and the annular flange around the opening in said base, the inner end of the third sleeve being reduced and having an opening in the inner end, a plunger having a threaded inner end slidable in said third sleeve, means in said third sleeve urging said plunger outwardly, a piston on said threaded end slidable in the second sleeve, sealing means on the piston, whereby movement of the piston outwardly will create a vacuum in the compartment in the second sleeve to assist in movement of the soap from the container in measured amounts to said compartment and movement of the piston inwardly will move the second sleeve inwardly along with the piston to close the opening to the container and continued inward movement of the piston will force the soap from the compartment through the lower opening and through the duct in said base.

6. In combination with a container for soap having a base provided with a longitudinal cylindrical chamber in said base, said chamber having an open end near one side of the container having an annular flange around said opening and having an opening in one side connecting with said container and a duct through which the soap is dispensed, a valve for dispensing said soap comprising, a sleeve member in said chamber one end of which is provided with an inwardly extending annular shoulder and oppositely facing notches and having openings in opposite sides near the notched ends, said openings being offset with each other, a short sleeve having a closed end slidable in the sleeve member and having an extension thereon engaging in said notches, said sleeve having a reduced portion in the closed end forming a compartment and having aligned openings through the sleeve and said compartment, a third sleeve engaging in the open end of the sleeve member and having an annular shoulder engaging against the end of the sleeve member, said third sleeve having a reduced end extending outwardly from one side edge of the base of the container, sealing means between said annular shoulder and the annular flange around the opening in said base, the inner end of the

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third sleeve being reduced and having an opening in the inner end, a plunger having a threaded inner end slidable in said third sleeve, means in said third sleeve urging said plunger outwardly, a piston on said threaded end slidable in the second sleeve, sealing means on the piston, whereby movement of the piston outwardly will create a vacuum in the compartment in the second sleeve to assist in movement of the soap from the container in measured amounts to said compartment and movement of the piston inwardly will move the second sleeve inwardly along with the piston to close the opening to the container and continued inward movement of the piston will force the soap from the compartment through the lower opening in the sleeve member and through the duct in said base.

7. In combination with a container for soap having a base provided with a longitudinal cylindrical chamber in said base, said chamber having an open end near one side of the container having an annular flange around said opening and having an opening in one side connecting with said container and a duct through which the soap is dispensed, a valve for dispensing said soap comprising, a sleeve member in said chamber one end of which is provided with an inwardly extending annular shoulder and oppositely facing notches and having openings in opposite sides near the notched ends, said openings being offset with each other, a short sleeve having a closed end slidable in the sleeve member and having an extension thereon engaging in said notches, said sleeve having a reduced portion in the closed end forming a compartment and having aligned openings through the sleeve and said compartment, a third sleeve engaging in the open end of the sleeve member and having an annular shoulder engaging against the end of the sleeve member, said third sleeve having a reduced end extending outwardly from one side edge of the base of the container, sealing means between said annular shoulder and the annular flange around the opening in said base, the inner end of the third sleeve being reduced and having an opening in the inner end, a plunger having a threaded inner end slidable in said third sleeve, means in said third sleeve urging said plunger outwardly, a piston on said threaded end slidable in the second sleeve, a spaced sealing ring on the piston, whereby movement of the piston outwardly will create a vacuum in the compartment in the second sleeve to assist in movement of the soap from the container in measured amounts to said compartment and movement of the piston inwardly will move the second sleeve inwardly along with the piston to close the opening to the container and continued inward movement of the piston will force the soap from the compartment through the lower opening in the sleeve member and through the duct in said base.

8. In a soap dispenser including a container having a base provided with a longitudinal cylindrical chamber in said base, said chamber having an open end near one side of the container having an opening in one side con-

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necting with said container and a duct through which the soap is dispensed from the chamber, a valve for dispensing said soap comprising, a sleeve member in said chamber one end of which is provided with an inwardly extending annular shoulder, said sleeve member having openings in opposite sides, said openings being offset with each other, a short sleeve having a closed end slidable in the sleeve member, cooperative means on the short sleeve and said sleeve member to hold said sleeves in alignment, said short sleeve having a reduced portion in the closed end forming a compartment and having aligned openings through the sleeve and said compartment, a third sleeve engaging in the open end of the sleeve member and having an annular shoulder engaging against the end of the sleeve member, said third sleeve having a reduced end extending outwardly from one side edge of the container, means cooperating with means on said base for sealing the open end of the chamber in said base, the inner end of the third sleeve being reduced and having an opening in the inner end, a plunger having a threaded inner end slidable in said third sleeve, means in said third sleeve urging said plunger outwardly, a piston on said threaded end slidable in the second sleeve whereby movement of the piston outwardly will create a vacuum in the compartment in the second sleeve to assist in movement of the soap from the container in measured amounts to said compartment and movement of the piston inwardly will move the second sleeve inwardly along with the piston to close the opening to the container and continued inward movement of the piston will force the soap from the compartment through the lower opening and through the duct in said base.

9. In combination with a container for soap having a base provided with a longitudinal cylindrical chamber in said base, said chamber having an open end near one side of the container and having a duct through which the soap is dispensed, valve means for dispensing said soap comprising, a sleeve member in said chamber having a port aligning with said duct and having a port in the opposite side offset longitudinally from the first port, a short sleeve having a closed end slidable in the sleeve member, said sleeve having a reduced portion in the closed end forming a compartment and having aligned openings through the sleeve and said compartment, and plunger means engaging in the open end of the chamber, including a piston and means for closing said first named port, whereby movement of the piston outwardly will create a vacuum in the compartment in the second sleeve to assist in movement of the soap from the container in measured amounts to said compartment and movement of the piston inwardly will move the second sleeve inwardly along with the piston to close the opening to the container and continued inward movement of the piston will force the soap from the compartment through the lower opening and through the duct in said base.

No references cited.