May 8, 1956 R. T. SUTTON 2,744,789

MEASURING SOAP DISPENSER FOR FLUID LINES

Filed March 26, 1954

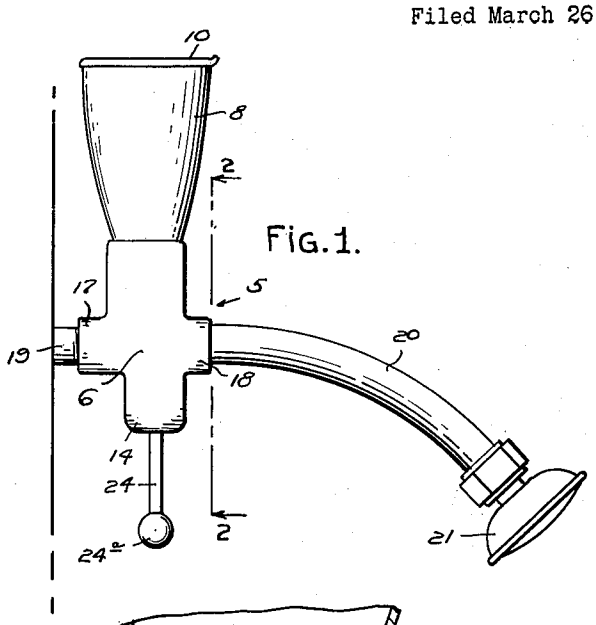


Fig. 1.

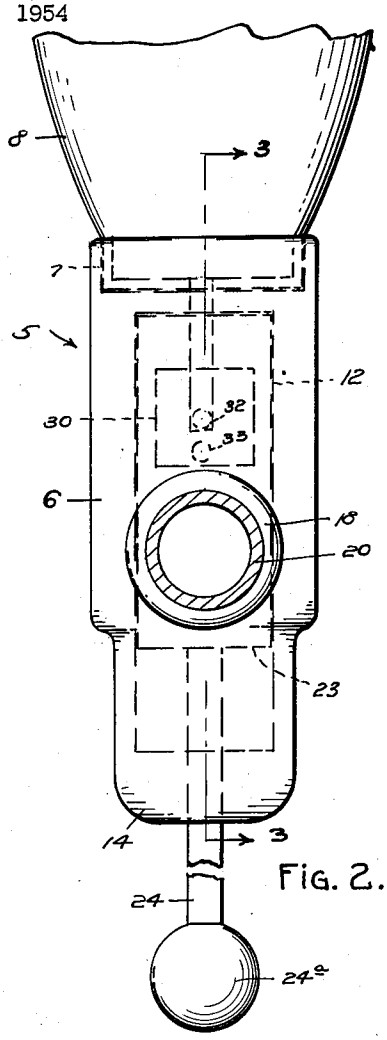


Fig. 2.

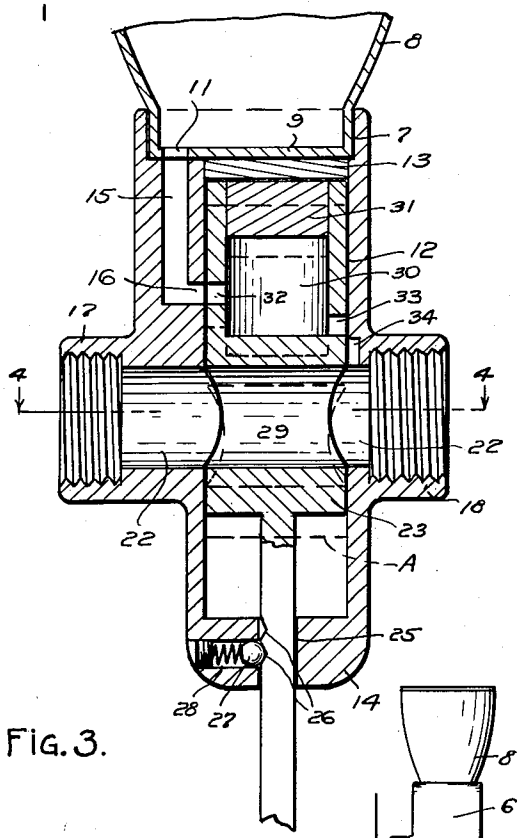


Fig. 3.

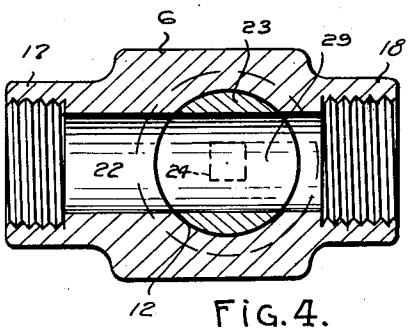


Fig. 4.

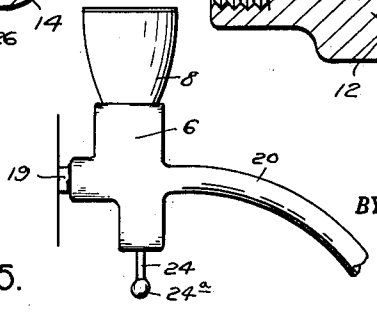


Fig. 5.

INVENTOR.
ROBERT T. SUTTON,
BY James H. Ryle
ATTORNEY.

United States Patent Office 2,744,789 Patented May 8, 1956

2,744,789

MEASURING SOAP DISPENSER FOR FLUID LINES

Robert T. Sutton, Fort Lauderdale, Fla.

Application March 26, 1954, Serial No. 418,891

4 Claims. (Cl. 299—84)

This invention relates to a dispenser for liquid products and primarily a dispenser for liquid soap or the like.

The invention has for its prime purpose a liquid soap dispenser in combination with a conventional shower spray head commonly disposed in bathrooms.

An object of the invention is to provide a novel form of liquid soap dispenser to be incorporated into the usual and well known outlet pipe that carries the spray head and with the dispenser being shiftable in a manner to dispense a predetermined quantity of liquid soap under pressure of the normal water supply to the spray head, and with the device being so constructed that, upon exhausting the predetermined supply of soap, the device is further shiftable to establish a full communication with the outlet water pipe, whereby the individual may first project a spray of water and soap upon himself prior to the establishment of the full water supply, thus permitting him to thoroughly wash or otherwise cleanse himself prior to the adjustment to the full flow of spray and rinse water.

The invention further contemplates a novel soap dispenser wherein the water supply for a shower head serves as a medium to force the soap from the device to be discharged from the shower head and means, after a rinsing operation, the device is shifted to a predetermined point to permit the drainage of the accumulated water within the soap compartment prior to a full shifting position to permit the soap compartment to be refilled for a subsequent operation.

Novel construction and arrangement of parts will be more readily understood during the course of the following description, reference being had to the accompanying drawings, wherein has been illustrated a preferred form of the device and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

Figure 1 is a side elevation of the device in use,

Figure 2 is an enlarged front elevation thereof,

Figure 3 is a central vertical sectional view taken substantially on line 3—3 of Figure 2,

Figure 4 is a horizontal section taken substantially on line 4—4 of Figure 3 and,

Figure 5 is a side elevation of a slightly modified form of the device.

Referring specifically to the drawings, the numeral 5 designates the device as a whole which consists substantially of a housing 6 of metal or other desirable material having an open upper end that is recessed inwardly at 7 to form a flat seat for a bowl-type receptacle 8 having a closed lower end 9 that has resting support within the recess 7. The bowl 8 may be formed of any desirable material, such as glass or plastic and of any desirable design, but for purpose of illustration the bowl 8 has been shown as upwardly flaring and formed open at its top, to be covered and uncovered by a removable lid 10 through the medium of which the supply of liquid soap may be replenished. The bottom 9 adjacent one side

thereof is apertured at 11 for a purpose to be presently described.

The housing 6 is provided with a vertically arranged and preferable cylindrical chamber 12, that normally extends into the recess 7. The chamber 12 at its upper end is permanently sealed by a plug 13, while the lower end of the chamber is closed by a head 14. The housing 6 is further provided with a port 15 that underlies the aperture 11 and with the port 15 at its lower end communicating with the chamber 12, as at 16. The housing 6 is further provided with diametrically oppositely arranged cylindrical extensions 17 and 18 that are internally threaded, as clearly shown in Figure 3 whereby the extension 17 will have threaded engagement with a water outlet pipe 19, while extension 18 has threaded engagement with the usual and well known pipe extension 20 that is normally curved downwardly and carries at its free end any well known form of spray head 21. The housing 6 is further apertured longitudinally as at 22 with the aperture 22 being substantially equal to the internal diameter of the pipe 19 and with the aperture 22 being in axial alignment with the cylindrical extensions 17 and 18.

Vertically shiftable within the chamber 12 is a valve head 23, conforming in cross-sectional shape to the chamber 12 and dimensioned to have a relatively snug sliding fit within the chamber. The valve 23 is vertically shiftable in the chamber by a valve rod 24 operating through a guide aperture 25 formed in the head 14. The rod 24 is preferably square in cross-section and has one of its faces notched as at 26 for engagement with a ball detent 27 positioned within an aperture 28 formed within the head 14. The detent 27 is of well known construction and functions to definitely position the valve 23 in either a loading position or in a drainage position. The valve 23 is provided with a preferably cylindrical transverse port 29 having a diameter substantially identical to the aperture 22, and it will be observed that, when the valve 23 is in its uppermost position, as shown in Figure 3, there will be a free and uninterrupted flow of water through the device from the pipe 19 to the spray head 21. The valve 23 adjacent its upper end is provided with a chamber 30, and this chamber is formed by drilling downwardly through the upper end of the valve 23 to a predetermined point above the port 29, after which the open upper end of the chamber 30 is permanently closed by a plug 31. The chamber 30 is proportioned to receive a predetermined quantity of liquid soap from the bowl 8. A port 32 is formed in the valve 23 at one side of the chamber 30, and this port 32, with the valve in the uppermost position, has full communication with the port 16, whereby the liquid soap will flow downwardly to fill the chamber 30. The chamber 30 upon its opposite side and adjacent its bottom is further ported at 33 to form both a discharge opening and a drainage opening. The port 33 with the valve in the dotted line position "A" in Figure 3 has communication with a by-pass port 34 formed within the wall of the chamber 12, and this port 34 has an overlap communication with the port 33 and extends downwardly to communicate with the aperture 22.

In the use of the device, it being understood that the housing 6 has been connected in the usual and well known spray outlet type, as shown in Figure 1 and, assuming that the bowl 8 has been filled with a liquid soap, the operator first adjusts the water supply in the usual manner and to the desired temperature and, grasping the knob 24a, elevates the valve 23 to its uppermost position, where it is held against accidental shifting by the detent 27 engaging within the lowermost notch 26. In this position, the water flows freely from the pipe 19 through the aperture 22 and port 29, pipe 20, and is

discharged from the spray head **21**. With the valve **23** in this uppermost position, the liquid soap flows downwardly through the aperture **11**, ports **15** and **16**, port **32**, and fills the chamber **30**. The soap will be held in the chamber so long as the valve is in the uppermost position, since the port **33** has shifted beyond the by-pass port **34**. Now when the individual has sufficiently wet himself, he pulls the rod **24** downwardly to shift the valve **23** to its lowermost position, where it rests upon the lower end of the chamber **12**. In this position, the ports **32** and **33** will be disposed within the line of flow of water through the aperture **22**, and this supply of water under pressure will pass through the port **32**, forcing the soap outwardly through the port **33** for discharging a mixture of soap and water to the pipe **20** and the spray head **21**, supplying a desired quantity of soap upon the body of the individual bathing. The valve **23** may be left in this position temporarily while the individual lathers or otherwise cleanses himself and, after such cleansing, the rod **24** is shifted upwardly until the uppermost notch **26** engages the detent **27** and the valve **23** then assumes the position A as in Figure 3, which position allows a considerable volume of water to flow through the device which volume of water creates a siphoning action through the by-pass port **34** and aligned port **33**, siphoning the water that has accumulated in the chamber **30** during the discharge of the soap. This siphoning action requires but two or three seconds after which the operator shifts the valve **23** to its uppermost position for establishing a full flow of water through the spray head **21** and, in this position, the port **33** has been closed and the port **32** has been moved to registry with the port **16**, thus permitting the chamber **30** to be again filled with the liquid soap preparatory to a further bathing operation. The bowl **8** may merely set within the recess **7**, as shown, or if desired, it may have a threaded engagement therewith. The housing **6** may be cast or molded in any desirable manner and of any desirable material, but preferably of a material having a finish corresponding to the usual spray pipes **20**.

It will be apparent from the foregoing that a very simple and novel form of liquid soap dispenser has been provided. The device is ornamental and readily adapts itself to the conventional and well known shower pipe installations now in use or to be installed. The use of such a dispenser is highly convenient and will result in a very considerable saving in the cost of soap, since the device is designed to dispense a predetermined quantity of soap which quantity has been determined as being adequate for an average shower bath. The device will avoid the well known waste with respect to soap in cake form that frequently is left either in the bath tub or in the usual water filled soap dishes. The device may be economically manufactured and is a distinct advance in the dispenser art. While the device has been illustrated for connection within the usual pipe lines, it may be found desirable to provide the housing with its integral extension **18** being further extended and downwardly curved to correspond to the usual pipe **20** upon which is supported the adjustable spray heads **21**.

It is to be understood that the invention is not limited to the precise construction shown, but that changes are contemplated as readily fall within the spirit of the invention as determined by the scope of the subjoined claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A measuring and dispensing device for liquid soap that is adapted to be mounted within a fluid line whereby fluid under pressure dispenses the soap for discharge from a discharge head, the device comprising a body portion that is provided with an elongated chamber for the sliding reception of a valve head, the body portion and the valve head being transversely apertured for the passage of fluid through the device, internally threaded extensions formed on the body that are concentric to the apertures and with the extensions being open and communicating with the apertures, the extensions having a threaded connection with an inlet and an outlet fluid line, the valve head provided with a measuring chamber for liquid soap to be dispensed, a reservoir for liquid soap that is supported upon the body and with the body being ported to conduct soap to the measuring chamber, the measuring chamber being ported upon opposite sides to form an inlet and an outlet for the soap, the valve head when shifted to a maximum upper position permitting soap to fill the measuring chamber and establishing a full flow of fluid through the apertures, the valve head when shifted to a maximum lower position serving to dispose the inlet and outlet ports of the measuring chamber in the line of flow of the fluid whereby the fluid under pressure will force the soap from its chamber to be discharged from the discharge head, the valve head when in an intermediate position again establishing a communication between the transverse apertures and disposing the outlet port of the measuring chamber in a position where the flow of fluid through the device will act to withdraw the water that has accumulated in the soap chamber as the soap is forced therefrom.

2. The device according to claim 1, wherein the soap reservoir is detachable connected at the upper end of the body portion, the reservoir having its lower end closed and provided with a feed opening that has communication with the soap conducting port, the body portion being further ported at one side of the elongated chamber and with the last named port communicating with the transverse aperture of the body and with the outlet port of the measuring chamber when the valve head is in an intermediate position and means to yieldably retain the valve head in either the intermediate or the uppermost position.

3. The device according to claim 1, wherein the body portion is formed integral and wherein the chamber and its supported valve head are vertically arranged and shiftable across and at a right angle to the flow of the fluid under pressure, the valve head being limited in its maximum upper and lower positions, an operating valve rod that is rigidly connected to the lower end of the valve head and which operates through an opening formed through a lower closed end of the body portion, the rod projecting below the body portion axially of the chamber and provided with an operating knob, the rod provided with notches in one side that are alternately engaged with a spring loaded detent, one of said notches and the detent serving to position the valve head in a position for draining the measuring chamber.

4. A dispensing device for dispensing a measured quantity of liquid soap under the influence of water under pressure, comprising an integral body portion that is vertically and cylindrically chambered for the vertical shifting support of a cylindrical valve body, the chamber being closed at its upper and lower ends, the body portion at its upper end being recessed for the seating reception of a reservoir for liquid soap and with the reservoir having a closed lower end that is apertured adjacent one side for the discharge of the soap to the valve, the body portion at diametrically opposite points in its length being provided with cylindrical open extensions that are internally threaded for threaded engagement with a water pipe and a discharge pipe, the body portion being transversely apertured throughout in axial alignment with the extensions, the valve body being transversely apertured to correspond to the aperture of the body portion for alternate alignment, the valve body adjacent its upper end being provided with a liquid soap measuring and dispensing chamber and with the chamber being ported at opposite sides through the sides of the valve body, the body portion provided with a port adjacent one side that communicates with the aperture of the reservoir and which establishes communication with one port of the measuring chamber when the valve

body is in an uppermost position to permit a flow of soap to the measuring chamber, the body portion adjacent its opposite side having its chamber wall cut away to form a drainage port that communicates with the transverse aperture and has overlapping communication with the opposite port of the measuring chamber when the valve is in an intermediate position, the valve body when in the lowermost position disposing the ports of the measuring chamber in the line of flow of the water to force the soap from the chamber to the discharge pipe, a square rod carried by the valve body co-axial thereto and that extends through a square opening formed in the lower closed end of the body portion and a spring loaded detent

ball that engages notches formed in the rod to position the valve body at its uppermost and intermediate positions.

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