March 26, 1957 J. M. LAPEYRE 2,786,605

TOOTHPASTE DISPENSER

Filed May 15, 1953

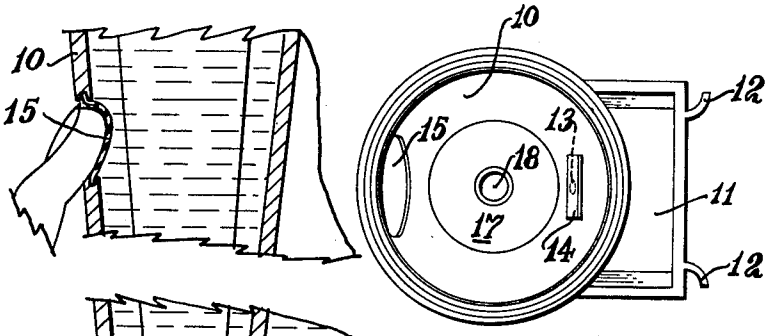



FIG. 3.

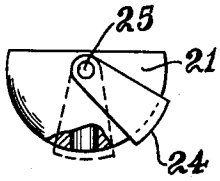



FIG. 6

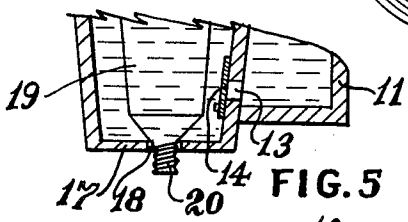



FIG. 5

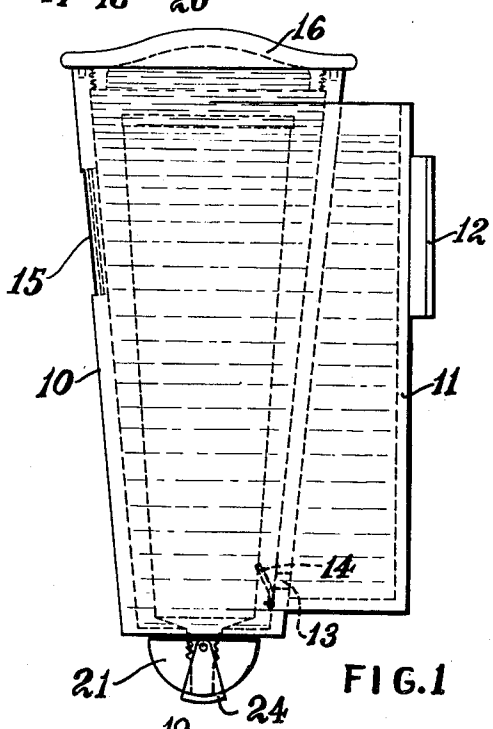



FIG. 1

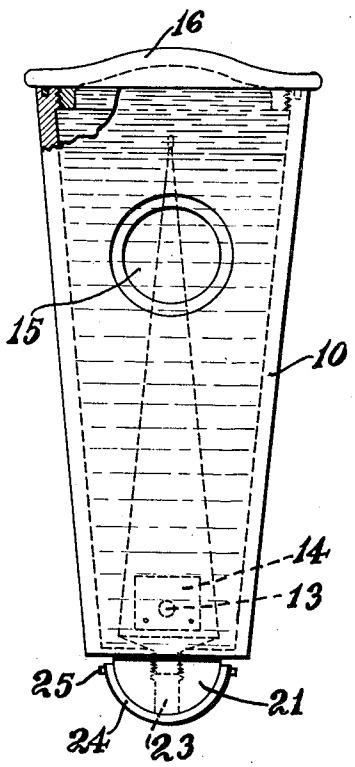



FIG. 2.

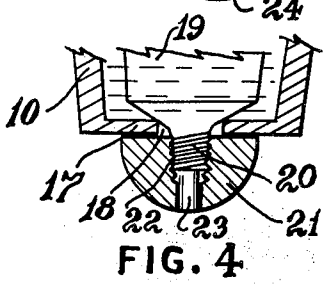



FIG. 4

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United States Patent Office 2,786,605
Patented Mar. 26, 1957



2,786,605

# TOOTHPASTE DISPENSER

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Application May 15, 1953, Serial No. 355,383
1 Claim. (Cl. 222—95)

The present invention relates to improvements in tooth paste dispensers and has for an object to provide a device for hydraulically acting upon the deformable walls of a tooth paste or like tube to squeeze the contents therefrom in a series of successive measured discharges adequate for the needs of each application of tooth paste.

Another object of the invention is to provide an improved tooth paste dispenser in the form of a simple hydraulic pump for progressively squeezing the deformable walls of the tube and for additionally controlling the expulsion and delivery of the contents of such tube by a finger-manipulated gate valve.

A further object of the invention resides in providing a compact form of dispenser for tooth paste and the like adapted to be supported at a convenient location in the bathroom or other desired locality in which water is immediately available for replenishment of the hydraulic system and wherein the tooth paste tubes may be readily loaded into the device and quickly and easily withdrawn and discarded.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claim appended hereto.

In the drawings, wherein like symbols refer to like or corresponding parts throughout the several views:

Figure 1 is a side elevational view of an improved tooth paste dispenser constructed in accordance with the present invention;

Figure 2 is a similar view taken at right angles to Figure 1 and with parts broken away and parts shown in section;

Figure 3 is a top plan view of the device with the cover removed;

Figure 4 is a fragmentary cross sectional view, taken on an enlarged scale, through the lower portion of the pressure chamber and gate cap;

Figure 5 is a fragmentary vertical sectional view, taken through the device, showing the diaphragm pump depressed and the check valve closed; and

Figure 6 is a side elevational view of the gate cap with the gate in open position.

Referring more particularly to the drawings, **10** designates a container or pressure chamber and **11** represents an adjoining reservoir open at its upper end for receiving a quantity of water or other hydraulic fluid.

The container **10** and reservoir **11** are united or combined and supported by brackets **12** or the like from a wall mounting support.

A port **13** establishes communication between the reservoir **11** and the container **10** at a low point in the system and such port is under the control of a flap or check valve **14** opening inwardly of the container **10**. A resilient pump diaphragm **15** is mounted in one wall of the pressure chamber **10** and is adapted to be depressed inwardly by the pressure of a finger of the operator. The container or pressure chamber **10** is closed at its upper portion by a screw or other cover **16**. In the lower portion of the container **10** is a bottom wall **17** having a round or other opening **18** for receiving freely therethrough the screw neck **20** of a collapsible inverted paste tube **19**. The screw cap is previously removed from the neck **20** so that a gate cap **21** having a screw socket **22** may be screwed upon the downwardly protruding screw neck **20**. The gate cap **21** is provided with a discharge orifice **23** normally closed by a swinging gate valve **24** hung from the pivots **25**.



In operation, a full tube **19** with its cap removed is inverted and inserted with its tube spout **20** downward into the container **10** after first removing the container cover **16**. As the tube **19** is lowered into the container **10** fully the tube spout **20** will protrude through the opening **18** of the container bottom **17** as shown clearly in Figure 5. Once the tube spout **20** arrives at this position, the gate cap **21** is screwed onto the threads of the tube spout or neck **20** sufficiently to pull the face or breast of the collapsible tube **19** firmly against the container bottom **17**. The container **10** is then filled with water. The water will be prevented from escape through the bottom opening **18** due to the fact that the face or breast of the tube **19** forms a seal over the opening **18** and against the bottom **17** of the container. With the container **10** filled with water the cover **16** is screwed back into place forming a hydraulic seal at the top end of the container or pressure chamber **10**. The reservoir **11** is then also filled with water by pouring same into the open upper end thereof.

To dispense paste from the collapsible tube **19**, it is only necessary to pump water from the reservoir **11** into the container or pressure chamber **10** under pressure sufficient to displace the paste from the volume of the container **19**. This pumping is accomplished by depressing or pushing upon the diaphragm **15** with the thumb or finger as indicated in Figure 5. When the resident diaphragm pump **15** is pushed inwardly the volume of the container **10** is proportionately reduced and the check valve flap **14** closes against its orifice **13** thereby stopping any flow of water from the container **10** to the reservoir **11**. This position of the parts is shown in Figure 5.

Since the only other opening from the container is by way of the tube spout **20**, the hydraulic pressure built up from the depression of the diaphragm **15** forces paste from the tube **10** and through the single opening or discharge aperture **23** of the gate cap **21**. As the diaphragm **15** is released, it returns to its original condition (Figure 1) due to the elasticity of the material from which it is made. In returning to its original undepressed condition, the diaphragm increases the volume of the container back to its original volume. When this occurs the check valve flap **14** opens and water is drawn from the reservoir **11** into the container **10**. The dispenser is now ready for another depression of the diaphragm **15**. Every depression of the diaphragm will result in the dispensing of a small amount of paste from the tube **19**. Since the pressure per square inch which is applied to the diaphragm is transmitted undiminished to the entire surface of the tube, complete evacuation of the tube is easily effected. The gate **24** automatically swings down by gravity to seal off the discharge aperture **23** when the dispenser is not in use. This gate valve **24** may be opened by a flip of the finger, the open position being shown in Figure 6, which permits the discharge of the tooth paste or other material. The gate valve **24** may be held open by one hand while the other hand is employed in operating diaphragm pump **15**.

Although I have disclosed herein the best form of the invention known to me at this time, I reserve the right to all such modifications and changes as may come within the scope of the following claim.

I claim:

For use with a filled collapsible tube, a material dispenser comprising a hydraulic container having an opening therethrough through which the contents of the tube may be expelled, said container being adapted to receive said tube and retain same with the discharge opening of the tube in communication with the container opening, a hydraulic fluid reservoir in communication with said hydraulic container, a check valve between said reservoir and container, means associated with said container for creating a hydraulic pressure therein to collapse the tube and expel the contents therefrom while causing said check valve to seat prohibiting hydraulic fluid from the



container bleeding off into the reservoir whereby upon removal of the application of pressure the check valve will unseat admitting a quantity of hydraulic fluid from the reservoir to the container equal in amount substantially to the volumetric quantity of material dispensed from the tube.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 1,715,335 | Cocks | May 28, 1929 |
| 2,041,252 | Leonard | May 19, 1936 |
| 2,608,320 | Harrison | Aug. 26, 1952 |