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(54) **SOAP DISPENSER**

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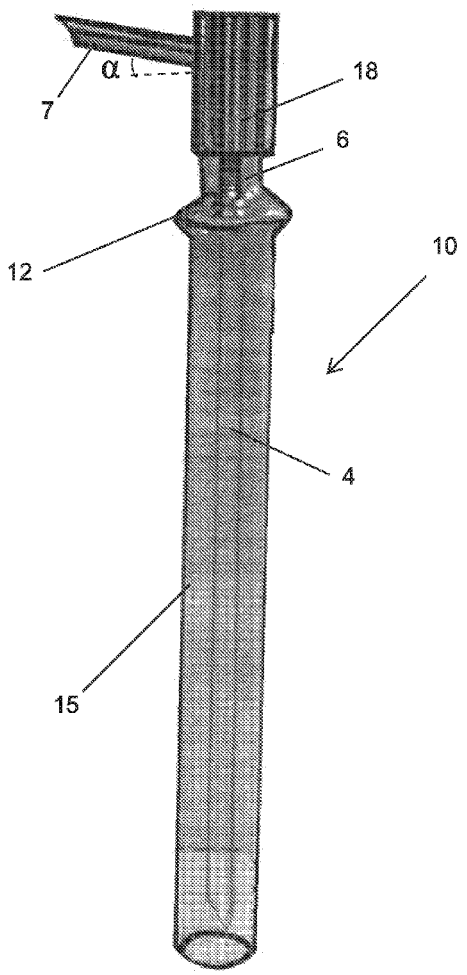
(57) **ABSTRACT**

The present invention provides a housingless liquid soap dispenser, comprising: a) an elongated chamber in which liquid soap is contained, wherein the length of the chamber is at least 25 cm and its width or diameter is ranging from 28-45 mm; b) a shoulder protruding laterally from the chamber at an upper end thereof; c) a neck portion extending upwardly from the shoulder; d) a manual pumping device fitted on top of the neck portion and in fluid communication with the chamber; and e) a discharge tube extending from the pumping device for dispensing a dose of liquid soap from the chamber. The shoulder has a slanted profile for enhancing the stability of the dispenser after its installation in removable abutting relation with, but not coupled to, a planar support surface of a countertop or a sink, such that the shoulder rests on top of the support surface while the chamber is inserted by a maximum extent through an aperture formed in the support surface.



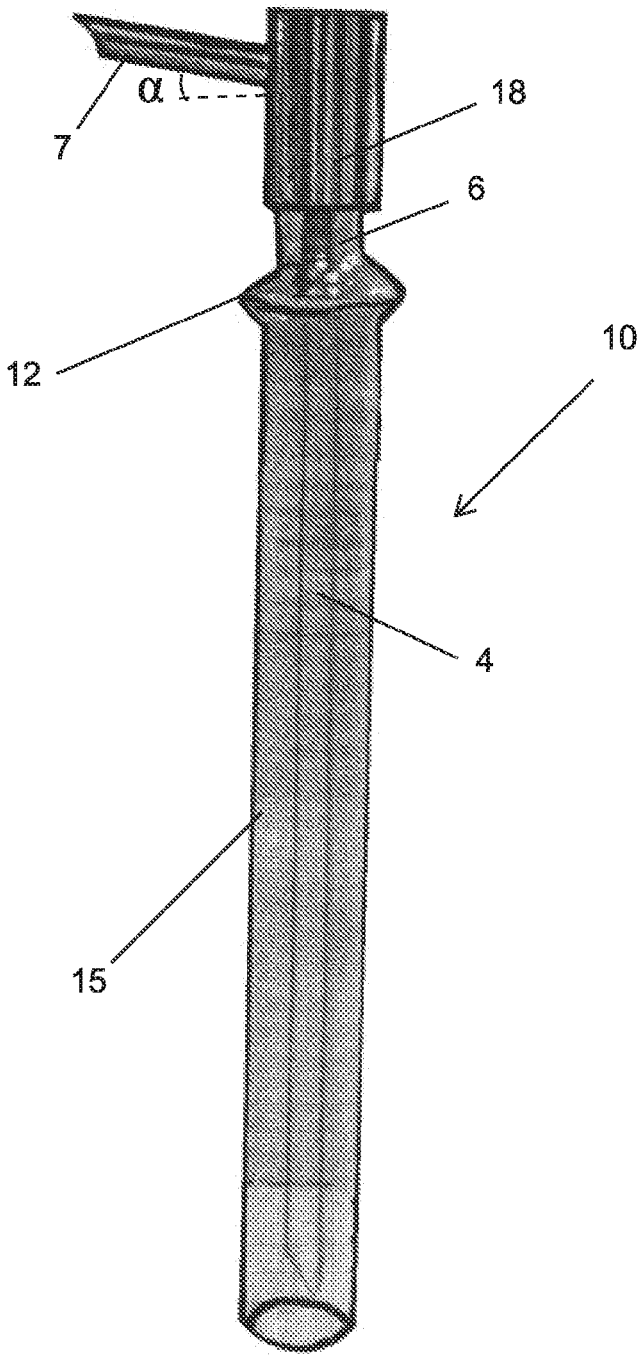


Fig. 1

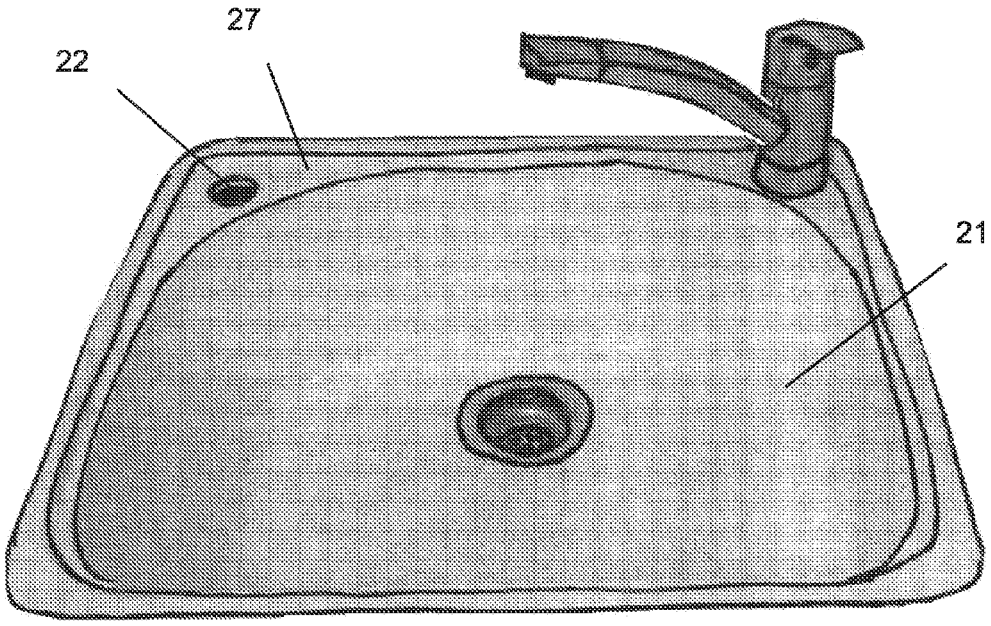


Fig. 2

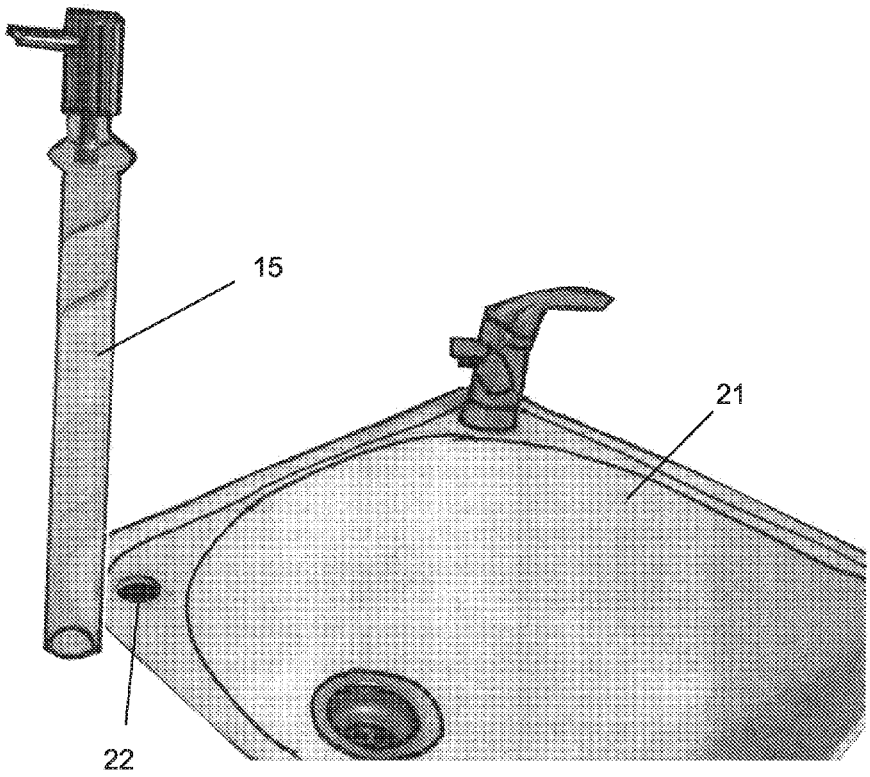


Fig. 3

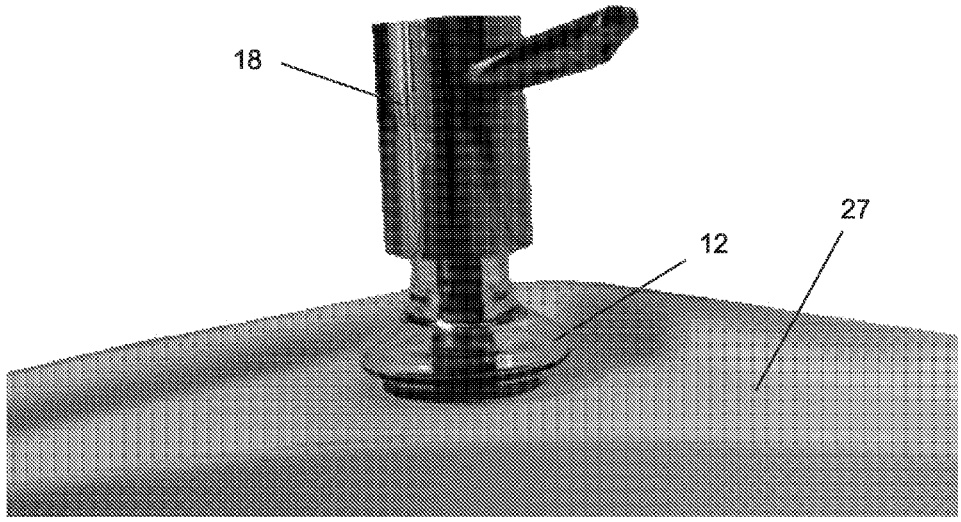


Fig. 4

SOAP DISPENSER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a Continuation-In-Part of PCT/IL2014/050980 filed Nov. 11, 2014, which claims priority to Israeli application No. 229429 filed Nov. 14, 2013, the disclosure of both applications being incorporated herein by reference in their entireties.

FIELD OF THE INVENTION

[0002] The present invention relates to the field of soap dispensers. More particularly, the invention relates to a disposable soap dispenser.

BACKGROUND OF THE INVENTION

[0003] Many disposable liquid soap dispensing units are known from the prior art. One type comprises an outlet nozzle located above a countertop or sink and a replaceable reservoir of liquid soap that is releasably connected to the dispensing mechanism below the sink. Such an arrangement is cumbersome while requiring one to bend below the sink in order to replace the reservoir, and is further prone to mechanical failure due to its many moving parts, rendering the dispensing unit useless.

[0004] In some prior art liquid soap dispensing units, such as U.S. Pat. Nos. 5,209,377, 5,350,087 and US 2010/0072228, the liquid soap container is disposed above a countertop; however, a fixed member with which the dispensing unit is connected is required, adding to the cost of the dispensing unit.

[0005] It is an object of the present invention to provide a replaceable and above-counter mountable liquid soap dispenser that can reliably dispense a desired dose of soap.

[0006] It is an additional object of the present invention to provide a liquid soap dispenser that does not require any housing member.

[0007] Other objects and advantages of the invention will become apparent as the description proceeds.

SUMMARY OF THE INVENTION

[0008] The present invention provides a housingless liquid soap dispenser, comprising a chamber in which liquid soap is contained, a shoulder protruding laterally from said chamber at an upper end thereof, a neck portion extending upwardly from said shoulder, a manual pumping device fitted on top of said neck portion and in fluid communication with said chamber, and a discharge tube extending from said pumping device for dispensing a dose of liquid soap from said chamber, wherein said shoulder is in removable abutting relation with, but not coupled to, a substantially planar support surface, while said chamber is inserted by a maximum extent through an aperture formed in said support surface.

[0009] The support surface, when the shoulder is in abutting relation therewith, applies a reactive force during application of a user initiated force to the pumping device. The user initiated force is therefore transmitted to the support surface, allowing the chamber to remain stationary while precluding the need of a separate housing.

[0010] The soap dispenser is above-counter mountable, and is replaceable upon raising the pumping device. It is easily manipulatable, with an elongated chamber length of no more than 55 cm and a chamber width ranging from 28 to 45 mm, for maximizing the amount of soap to be retained therewithin.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] In the drawings:

[0012] FIG. **1** is a side view of a liquid soap dispenser, according to one embodiment of the present invention;

[0013] FIG. **2** is a perspective view from above of a sink, in a surface of which is formed an aperture for receiving the soap dispenser of FIG. **1**;

[0014] FIG. **3** is a perspective view from above of the sink of FIG. **2**, showing the soap dispenser of FIG. **1** prior to being inserted within the aperture; and

[0015] FIG. **4** is an enlarged perspective view from the side of the soap dispenser of FIG. **1**, when in abutting relation with the sink of FIG. **2**.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0016] The present invention is a novel housingless liquid soap dispenser wherein the dispensing mechanism is in liquid communication with the soap container and is disposable.

[0017] FIG. **1** illustrates a disposable liquid soap dispenser according to one embodiment of the present invention, generally designated as numeral **10**. Dispenser **10** comprises elongated chamber **15**, e.g. of circular cross section, in which liquid soap is contained after having been factory injected therein, a shoulder **12** radially protruding from chamber **15** at an upper end thereof, a relatively narrow neck portion **6** extending upwardly from shoulder **12**, manual pumping device **18** fitted on top of neck portion **6**, and conduit **4** extending downwardly from pumping device **18** into chamber **15** and through which pressurized soap is drawn prior to being dispensed through discharge tube **7**.

[0018] Soap chamber **15** and pumping device **18** may be made of a commercially available and inexpensive plastic material, such as PET or polyethylene. Soap chamber **15** is preferably transparent or translucent in order to be able to view the liquid soap level. The wall thickness of chamber **15** ranges from 0.3-1.2 mm, and is preferably 0.5 mm.

[0019] As shown in FIGS. **2-4**, chamber **15** is insertable through an aperture **22** formed in a substantially planar surface **27** of a sink **21** as shown, or alternatively in a countertop. Aperture **22** is preferably shaped similarly to the cross section of chamber **15**. After chamber **15** has been inserted through aperture **22** to a fullest extent, shoulder **12** rests on top of surface **27**, in preparation for a soap dispensing operation. Since shoulder **12** having a slanted profile due to its conical-like form (as shown in FIG. **1**) and is in abutting relation with surface **27**, the latter applies a reactive force when a user initiated force is applied to pumping device **18**. Thus the user initiated force will be transmitted to surface **27**, allowing chamber **15** to remain stationary while precluding the need of a separate housing.

[0020] The bottom surface of shoulder **12** may be substantially planar, in order to increase contact between the shoulder and surface **27** and to thereby maximize transmission of the user initiated force to surface **27**. According to an embodiment of the invention, an elastic layer adapted to fit at least part of the bottom surface of shoulder **12** is provided. Such an elastic layer, which can be made of rubber, foam (e.g., double coated tape by 3M) may improve one or more of the following features:

[0021] creating an enhanced seal at the interface between the bottom surface of shoulder **12** and surface **27**;

[0022] preventing scratches or other damages to surface **27**;

[0023] enhancing the stability of the dispenser after the installation at the countertop or sink.

[0024] In order to replace the dispenser after all or most of the liquid soap has been dispensed, the dispenser is simply removed by raising it above surface **27** and a chamber of a different dispenser is lowered into aperture **22**. As it is inexpensively manufactured, the original dispenser may be discarded.

[0025] The dimensions of chamber **15**, i.e. a length of no more than 55 cm, e.g. ranging from 25-45 cm, and preferably 35 cm, and a width or diameter ranging from 28-45 mm, e.g. 34.9 mm, facilitate effortless manipulation thereof during a deployment or replacement procedure. Shoulder **12**, which is slightly wider than chamber **15** in order to enable the dispenser to be above-counter mountable, has a width or diameter ranging from 30-55 mm, e.g. 40 mm.

[0026] Discharge tube **7** may be slightly upwardly inclined with respect to a horizontal plane passing through the longitudinal axis of chamber **15**, to define an angle α, which is greater than 0 degrees and may range from 10-25 degrees. By virtue of such an upward inclination, any residual soap remaining in discharge tube **7** after a soap dispensing operation is urged to return gravitationally to chamber **15**. It will be appreciated, however, that dispenser **10** is also operable when discharge tube **7** is configured without an upward inclination, or even with a downward inclination.

[0027] While some embodiments of the invention have been described by way of illustration, it will be apparent that the invention can be carried out with many modifications, variations and adaptations, and with the use of numerous equivalents or alternative solutions that are within the scope of persons skilled in the art, without exceeding the scope of the claims.

1. A housingless liquid soap dispenser, comprising:

a) an elongated chamber in which liquid soap is contained, wherein the length of said chamber is at least 25 cm and its width or diameter is ranging from 28-45 mm;

b) a shoulder protruding laterally from said chamber at an upper end thereof,

c) a neck portion extending upwardly from said shoulder;

d) a manual pumping device fitted on top of said neck portion and in fluid communication with said chamber; and

e) a discharge tube extending from said pumping device for dispensing a dose of liquid soap from said chamber,

wherein said shoulder having a slanted profile for enhancing the stability of the dispenser after its installation in removable abutting relation with, but not coupled to, a planar support surface of a countertop or a sink, such that said shoulder rests on top of said support surface while said chamber is inserted by a maximum extent through an aperture formed in said support surface.

2. The soap dispenser according to claim **1**, wherein a bottom surface of the shoulder which is in abutting relation with the support surface is planar.

3. The soap dispenser according to claim **1**, further comprises an elastic layer adapted to fit at least part of the bottom surface of said shoulder, thereby allowing said elastic layer to create a seal at the interface between the bottom surface of the shoulder and the support surface.

4. The soap dispenser according to claim **1**, wherein the aperture is circular and the chamber is of circular cross section.

5. The soap dispenser according to claim **1**, wherein the length of the chamber is no more than 55 cm.

6. The soap dispenser according to claim **5**, wherein the length of the chamber ranges from 25 to 45 cm.

7. The soap dispenser according to claim **1**, wherein the shoulder has a width ranging from 30 to 55 mm.

8. The soap dispenser according to claim **1**, wherein a conduit through which pressurized soap is drawable extends downwardly from the pumping device into the chamber.

9. The soap dispenser according to claim **1**, wherein the soap chamber and pumping device are made of a disposable plastic material.

10. The soap dispenser according to claim **9**, wherein the soap chamber is transparent or translucent.

11. The soap dispenser according to claim **9**, wherein the soap chamber has a wall thickness ranging from 0.3 to 1.2 mm.

12. The soap dispenser according to claim **1**, wherein the discharge tube has an upward inclination, to urge any residual soap remaining in the discharge tube to return gravitationally to the chamber.

13. The soap dispenser according to claim **12**, wherein the discharge tube is angled with respect to a horizontal plane passing through the longitudinal axis of the chamber by an angle ranging from 10 to 25 degrees.

14. The soap dispenser according to claim **1**, which is replaceable upon raising the pumping device.

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