

Dec. 27, 1932.

L. THOMPSON

1,892,196

LIQUID DISPENSING DEVICE

Filed Sept. 27, 1929

2 Sheets-Sheet 1

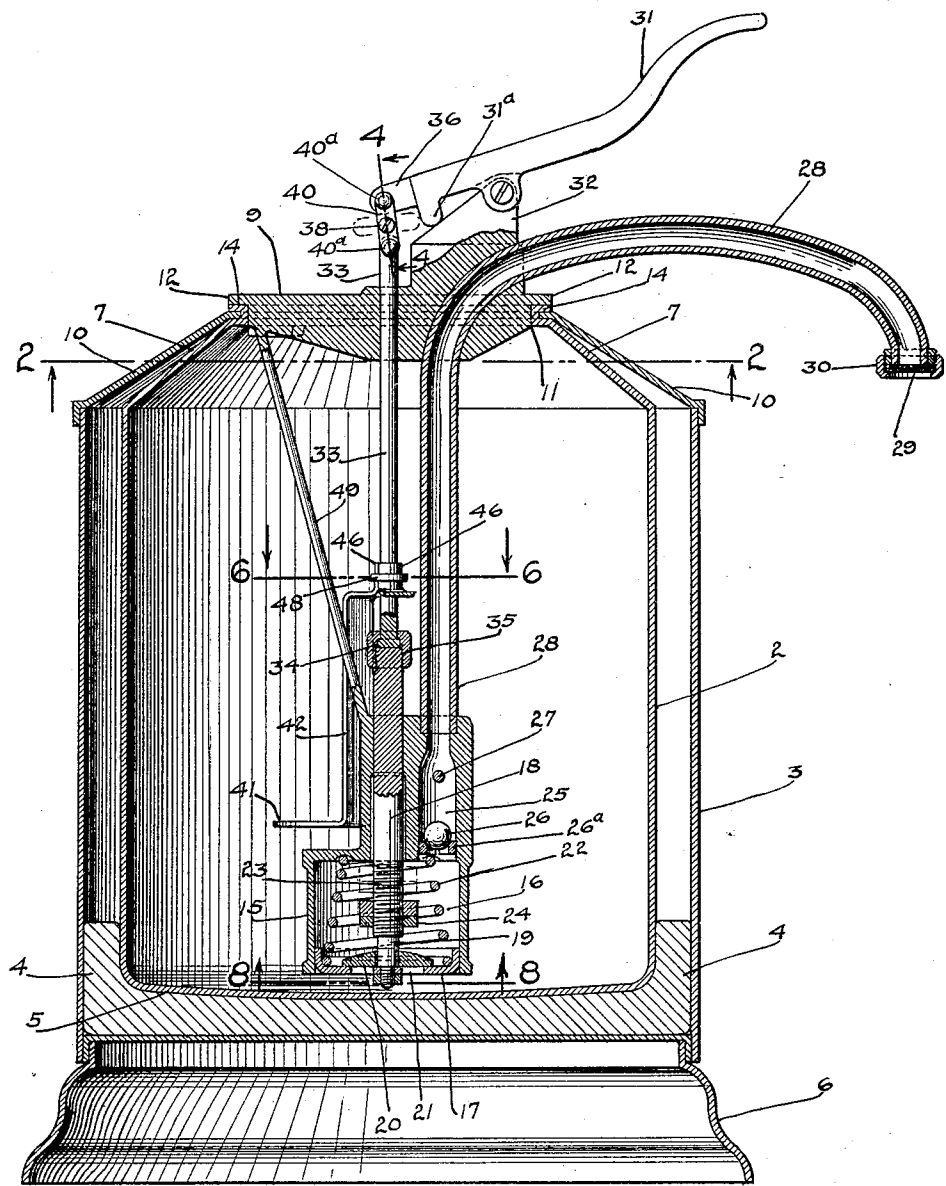


Fig. 1

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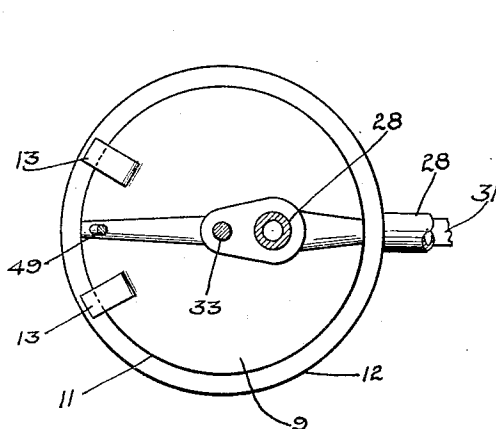


Fig. 2

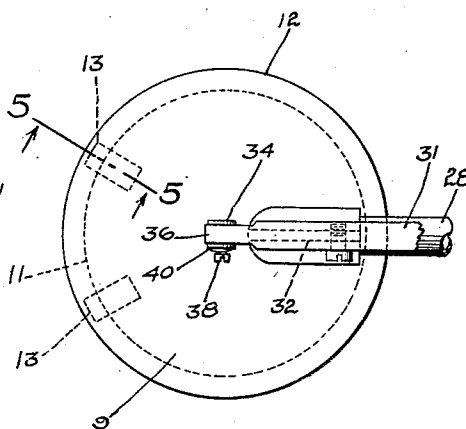


Fig. 3

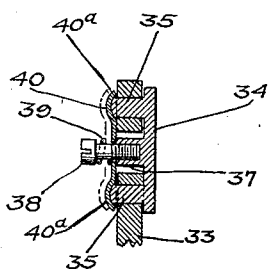


Fig. 4

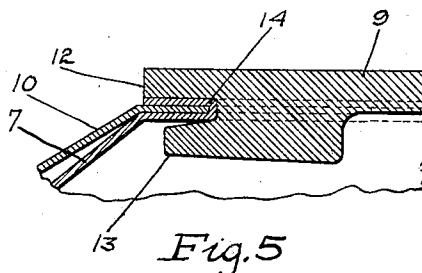


Fig. 5

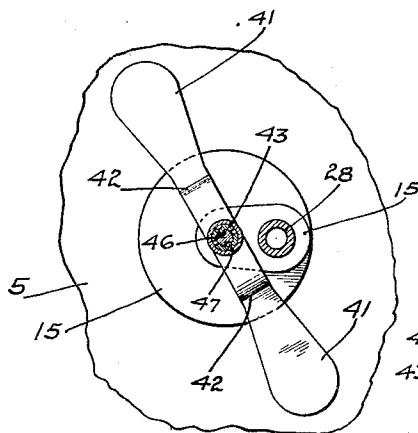


Fig. 6

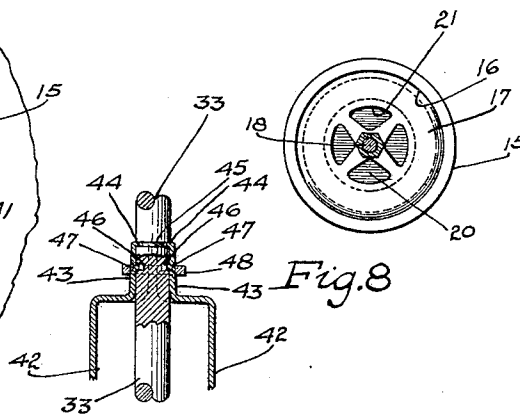


Fig. 7

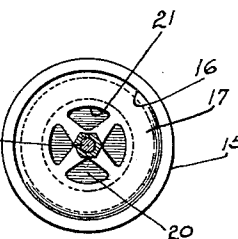


Fig. 8

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UNITED STATES PATENT OFFICE

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LIQUID DISPENSING DEVICE

Application filed September 27, 1929. Serial No. 395,634.

This invention relates to a device for dispensing liquids and more particularly to such a device adapted for use to dispense measured quantities of cream in a restaurant, and similar places.

An object of the invention is to provide a liquid dispenser comprising a receptacle provided with a closure having a pump suspended therefrom and positioned within the receptacle, and means being provided on said closure for operating the pump.

A further object is to provide a liquid dispenser including a pump having a chamber provided with an intake passage and an outlet passage, the latter communicating with a conduit having one end supported in said casing and extending upwardly and outwardly therefrom to provide a discharge for the pump and a plunger being reciprocally mounted in said chamber and provided with a stem movably having one end of a rod detachably secured thereto and provided at its upper end with suitable means for actuating it.

Features of the invention reside in the general construction of the pump and plunger which is such as to reduce the number of parts and joints to a minimum; in the means provided for adjusting the stroke of the plunger to regulate the quantity of liquid discharged from the pump at each stroke of the plunger; in the means provided for agitating the liquid and the means for detachably securing the agitators to the pump rod; in the construction of the link provided for detachably connecting the upper end of the pump rod to the operating lever; and, in the general construction of the pump as a whole, including the one-piece conduit which leads from the outlet passage of the pump through the closure and has its opposite end bent downwardly to provide a discharge spout for the pump.

Other objects of the invention will appear from the following description and accompanying drawings and will be pointed out in the annexed claims.

In the accompanying drawings, there has been disclosed a structure designed to carry out the various objects of the invention, but

it is to be understood that the invention is not confined to the exact features shown as various changes may be made within the scope of the claims which follow.

In the drawings:

Figure 1 is a vertical sectional view showing my improved liquid dispenser;

Figure 2 is a detail sectional view on the line 2—2 of Figure 1;

Figure 3 is a plan view of the receptacle closure;

Figure 4 is an enlarged detail sectional view on the line 4—4 of Figure 1;

Figure 5 is a detail sectional view on the line 5—5 of Figure 3;

Figure 6 is a detail sectional view on the line 6—6 of Figure 1, showing the agitators;

Figure 7 is a detail sectional view showing a manner of detachably securing the agitators to the pump rod; and

Figure 8 is a sectional view on the line 8—8 of Figure 1, showing the bottom of the pump.

In the selected embodiment of the invention here shown, there is illustrated in Figure 1, for purposes of disclosure, a receptacle comprising an inner lining 2 and an outer shell 3 spaced apart by a suitable material 4, as shown. The bottom wall 5 of the receptacle is preferably curved slightly downwardly as shown so that the liquid will drain to the center of the receptacle, from whence it may be drawn by means of the pump, which will subsequently be described. The receptacle is shown supported upon a suitable base 6.

The upper portion 7 of the wall of the lining 2 of the receptacle extends inwardly to provide a reduced opening 8 adapted to receive a closure 9, formed of a suitable material such for example, as cast metal. The shell 3 is provided at its upper end with a cone-shaped closing member 10 having its upper inner edge suitably interlocked with and secured to the upper edge of the wall portion 7 of the lining 2, as shown in Figures 1 and 5.

The closure 9 is provided with a cylindrical portion 11 overhung by an annular flange 12 adapted to be seated upon the upper portion of the receptacle wall portion 7. Spaced lugs 13 are provided on one side of the

closure 9 and have their terminals projecting beyond the cylindrical portion 11 and spaced from the flange 12 so that they may be inserted beneath the upper inturned portion 14 of the receptacle wall, as best shown in Figure 5. These lugs prevent the cover from tilting in one direction, when the pump is operated.

A feature of the invention resides in the general construction of the pump which, it will be noted, is suspended from the closure 9 and has no other connection with the walls of the receptacle, whereby it may be readily removed from the receptacle for cleaning, when necessary. The pump comprises a casing 15 defining a cylindrical chamber 16 adapted to receive a plunger 17, preferably of a suitable metal, shaped as shown in Figure 1. The plunger 17 is secured to the lower end of a stem 18 having a reduced portion 19, upon which a disk valve 20 is slidably mounted. A series of apertures 21 are provided in the plunger 17 adjacent to the stem 18, and these apertures are adapted to be closed by the disk 20, when the latter is in the position shown in Figure 1. A suitable spring 22 is located within the bore 16 of the casing and has one end bearing downwardly against the plunger 17, and its opposite end seated in a suitable retaining groove provided in the upper wall of the casing. This spring constantly urges the plunger downwardly to the position shown in Figure 1.

The stem 18 has a threaded portion 23 provided with suitable adjusting nuts 24. The position of these nuts upon the threaded portion 23 of the stem 18 regulates the quantity of liquid dispensed per stroke of the plunger 17.

An outlet passage 25 is provided in the upper wall of the pump casing 15 and has a suitable check valve 26 located therein for preventing the liquid pumped into the passage, from draining back into the pump chamber, when the plunger is at rest. A pin 27 limits the travel of the ball valve 26. The check valve 26 includes a removable seat 26a, preferably received in threaded engagement with the wall of the outlet passage 25.

A conduit 28 has one end secured in a casing 15 and communicates with the outlet passage 25. The conduit extends upwardly from the casing through the closure 9, thence outwardly and has its opposite end bent downwardly to provide a discharge spout for the pump. The conduit 28 is provided at its discharge end with a suitable screen 29 which prevents the liquid from splashing, and also tends to retain a portion of the liquid in the spout, when the pump is at rest. The conduit is formed from one continuous piece and is curved in such a manner as to eliminate as far as possible, all corners and crevices, whereby the outlet passage from the pump may be readily cleansed by simply unscrew-

ing the cap 30, securing the screen 29 to the discharge end of the conduit, and inserting a small flexible brush or other suitable cleaning instrument through the conduit.

The means for operating the plunger 17 consists of an operating lever 31, here shown pivotally mounted on a lug 32, preferably integrally formed with the closure 9. A rod 33 has its lower end detachably connected with the stem 18 by means of a coupling 34 received in threaded engagement with the upper end portion 35 of the stem 18 and engaged with a shoulder terminally provided on the rod 33. The upper end of the rod is connected to the lever 31 by means of a link 34 provided with laterally disposed pins 35, one of which is adapted to be received in an aperture provided on the upper end of the rod 33 and the other in an aperture provided in the end portion 36 of the lever 31. The link 34 has a centrally located boss 37 provided with a threaded socket adapted to receive a screw 38, upon which is mounted a suitable coil spring 39 having one end seated against the head of the screw 38 and its opposite end against a retaining plate 40, adapted to be engaged with the rounded terminals of the pins 35 as shown in Figure 4. The retaining plate 40 is formed with seats 40a adapted to receive the ends of the pins 35 to prevent disengagement of the coupling link 34 from the rod 33 and lever 31. To disconnect the lever 31 from the rod 33, the retaining plate 40 is relatively rotated upon the screw 38 to the dotted line position shown in Figure 1, whereupon the link may be removed to disconnect the lever 31 from the rod 33. The lever 31 has a projection 31a adapted to engage the lug 32 to provide a stop for the lever 31. The spring 22 normally holds the lever in the position shown in Figure 1, with the projection 31a engaged with the lug 32.

Another feature of the invention resides in the means provided for agitating the liquid in the receptacle each time the pump is operated. To thus agitate the liquid, suitable paddles or agitators 41 are secured to the rod 33 for operation therewith. Each paddle 41 is provided with an upright portion 42 terminating at its upper end in an offset portion 43, having an inwardly turned edge 44 adapted to be received in an annular groove 45 provided in the rod 33. The offset portion 43 of each paddle is shaped to conform to the curvature of the periphery of the rod 33. Diametrically spaced sockets 46 are provided in the periphery of the rod 33 adapted to receive small protuberances 47 formed in the offset portion 43 of each paddle 41. The portions 43 are secured to the rod 33 by a suitable retaining ring 48, as shown in Figure 7, which securely clamps the portions 43 against the rod, and thus cooperates with the annular groove 45 and sockets 46 to prevent relative movement of the paddles upon the rod

33, during operation of the pump. The paddles may be quickly detached from the rod by sliding the retaining ring upwardly on the rod.

5 The novel liquid dispenser featured in this invention has been found particularly useful in restaurants, cafés, and similar places for dispensing measured quantities of cream. The pump is so constructed that it may
10 readily be disassembled for cleaning by simply unscrewing the coupling 34 from the threaded terminal of the rod 33, after which the plunger may be withdrawn from the open end of the pump casing 15, when the closure 9, carrying with it the pump and its associated parts, is removed from the receptacle. The pump is rigidly suspended from the closure
15 by means of the conduit 28 and a brace member 49 shown in Figure 1. As shown in the drawings, the conduit 28 is preferably cast into the metal from which the closure is constructed so as to form in effect, an integral part thereof. By thus securing the conduit 28 in the closure, the conduit may be made
20 from one piece and shaped as shown, thereby eliminating joints and corners. When the plunger has been removed from the pump casing, the interior of the casing may readily be thoroly cleaned because of the absence of
30 sharp corners and crevices.

The plunger is also designed with this point in view so that it, too, may be readily cleaned. Because of the one-piece construction of the discharge conduit 28, it may be
35 quickly and conveniently cleaned by inserting a flexible brush therethrough. The screen 29 must, of course, be detached from the conduit when cleaning the latter with a brush.

40 In devices of this character, it is essential that the parts be so constructed that they may be conveniently cleansed and sterilized with a minimum of effort. The pump here shown adequately meets those requirements,
45 in that the parts have been reduced to a minimum and all sharp corners and angles within the pump substantially eliminated.

I claim as my invention:

1. A device for dispensing liquids, comprising a pump including a casing having
50 an open bottom to provide an intake passage, and having an outlet passage in its upper portion, a conduit having one end connected with said outlet passage and extending upwardly therefrom and curved outwardly and downwardly to provide a seamless discharge passage for the pump, a
55 valved plunger operatively mounted in said casing, a lever for operating said plunger, and means for regulating the quantity of liquid dispensed per stroke of the plunger.

2. A device for dispensing liquids, comprising a pump including a casing having
60 an intake passage and an outlet passage, a spring-actuated plunger in said casing pro-

vided with a check valve, said plunger having a stem provided with a threaded terminal, a rod detachably connected with said stem and having liquid-agitating paddles detachably mounted thereon, an operating lever for
70 the plunger, and a link for detachably connecting said lever with said rod, said link comprising pins engageable with said lever and rod, and a spring-actuated retaining plate for securing the link in position upon
75 the lever and rod.

3. In a device for dispensing liquid in measured quantities, a container, a closure therefor, a pump mounted in the container and comprising a casing having an open
80 bottom, the upper wall of said casing having a bore therein, a plunger rod mounted in said bore and having a valved plunger secured thereto and fitting within said casing, means received in threaded engagement with said
85 plunger rod within the casing by which the stroke of the plunger may be varied, said casing having a discharge opening in its upper wall provided with a ball check valve, a discharge conduit having one end secured
90 to said pump casing and having its intermediate portion secured to and supported in said closure, and means pivotally mounted upon said closure and detachably connected with said plunger rod and whereby the
95 plunger may be actuated to cause a portion of the liquid in said container to be discharged therefrom through said conduit.

4. In a device for dispensing liquid in measured quantities, a container, a closure therefor, a pump mounted in the container and comprising a casing having an open
100 bottom, the upper wall of said casing having a bore therein, a plunger rod mounted in said bore and having a valved plunger secured thereto and fitting within said casing, threaded means by which the stroke of the plunger may be varied, said casing having a discharge opening in its upper wall provided
105 with a ball check valve, a discharge conduit having one end secured to said pump casing and having its intermediate portion secured to and supported in said closure, and means pivotally mounted upon said closure and detachably connected with said plunger rod and whereby the plunger may be actuated
110 to cause a portion of the liquid in said container to be discharged therefrom through said conduit.

In witness whereof, I have hereunto set my hand this 21st day of September, 1929.

LYNN THOMPSON.