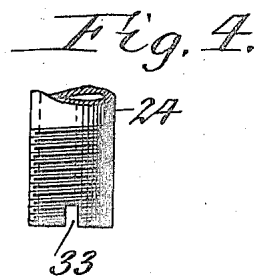
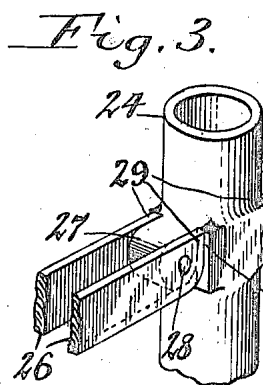
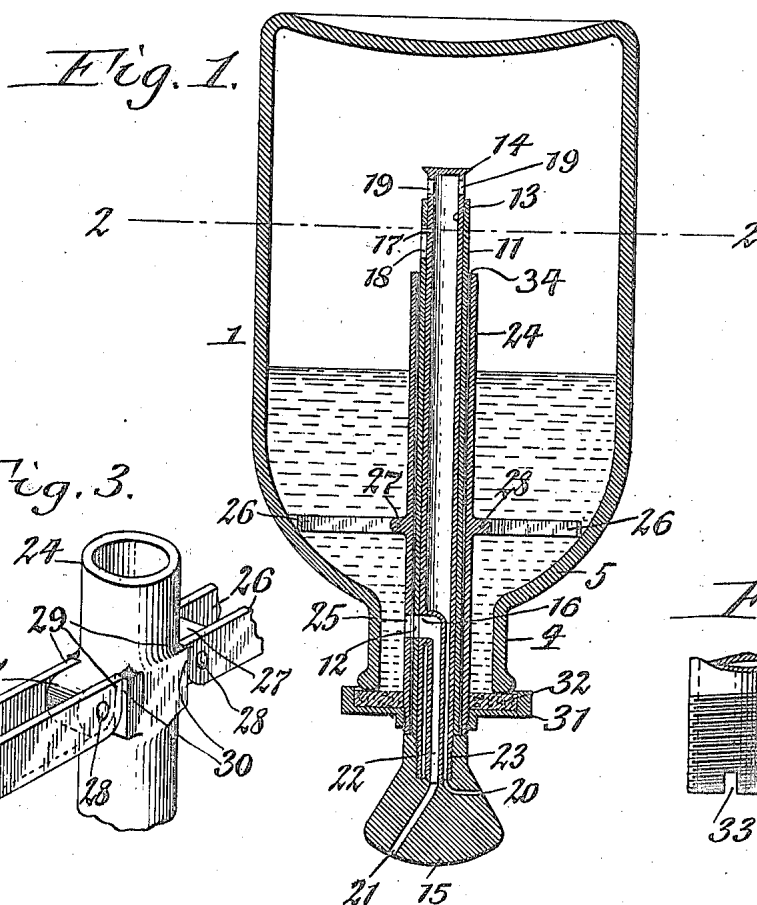
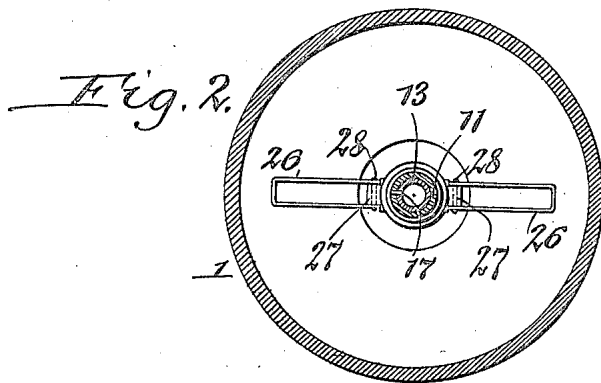


F. H. RANSOM, JR.
 DEVICE FOR DISPENSING LIQUID SOAP, &c.
 APPLICATION FILED JUNE 19, 1911.

1,165,711.

Patented Dec. 28, 1915.
 2 SHEETS—SHEET 1.



Witnesses:
 Alfred Borkenhagen.
 Emma M. Graham.

Inventor
 Frank H. Ransom, Jr.
 by Lieber & Popp
 Attorneys.

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Fig. 6.

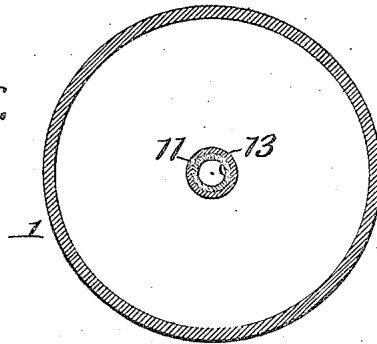


Fig. 7.

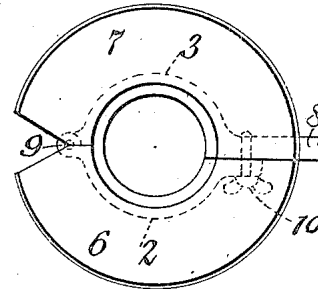


Fig. 5.

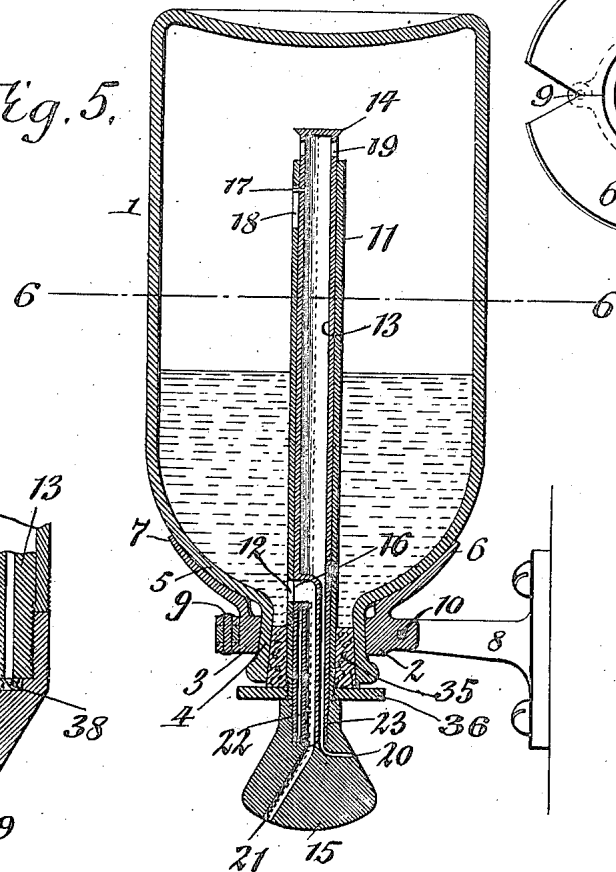
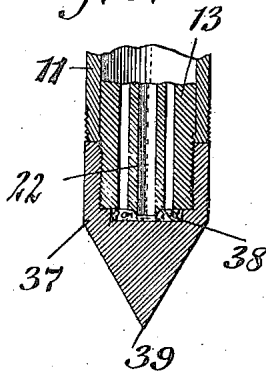


Fig. 8.



Witnesses:
 Alfred Borkenhagen,
 Emma M. Graham.

Inventor
 Frank H. Ransom, Jr.
 by Guyer Papp
 Attorneys.

UNITED STATES PATENT OFFICE.

FRANK H. RANSOM, JR., OF BUFFALO, NEW YORK.

DEVICE FOR DISPENSING LIQUID SOAP, &c.

1,165,711.

Specification of Letters Patent.

Patented Dec. 28, 1915.

Application filed June 19, 1911. Serial No. 634,100.

To all whom it may concern:

Be it known that I, FRANK H. RANSOM, Jr., a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Devices for Dispensing Liquid Soap, &c., of which the following is a specification.

This invention relates to a device for dispensing liquids and more particularly to a device for dispensing liquid soap.

It is the object of this invention to provide a dispensing device of this character which is comparatively simple and inexpensive in construction, which can be applied to bottles of ordinary construction, which is convenient in operation and which effectually prevents the liquid in the bottle from evaporating when the device is not in use. In the accompanying drawings consisting of 2 sheets: Figure 1 is a vertical section of one form of my improved liquid dispensing device. Fig. 2 is a horizontal section of the same in line 2—2, Fig. 1. Fig. 3 is a fragmentary perspective view showing part of the fastening for applying the dispensing device to a bottle. Fig. 4 is a fragmentary side elevation of the outer end of the supporting tube. Fig. 5 is a vertical section showing another form of my invention and one form of bracket for supporting the bottle containing my improved liquid dispensing device. Fig. 6 is a horizontal section in line 6—6, Fig. 5. Fig. 7 is a top plan view of the bracket for supporting the liquid reservoir. Fig. 8 is a fragmentary vertical section, on an enlarged scale, showing the means whereby the passages of the inner valve tube may be closed.

Similar letters of reference indicate corresponding parts throughout the several views.

1 represents a liquid reservoir or tank consisting preferably of an inverted bottle which may be constructed of any suitable material and design and which may also be supported by various means. The supporting means for this purpose which are shown in Figs. 5 and 7 of the drawings are satisfactory and comprise a divided clamping collar the sections 2, 3 of which embrace the neck 4 of the bottle, a dish-shaped socket which receives the breast 5 of the bottle and which is constructed of two sections 6, 7, formed respectively on the upperside of the clamping collars, and a laterally projecting

supporting arm 8 formed on one section of the clamping collar and adapted to be secured by screws or otherwise to a suitable support. The sections of the clamping collar are detachably connected so as to permit of introducing or removing the bottle therefrom, this detachable connection consisting preferably of a hinge 9 which pivotally connects one pair of corresponding ends of the clamping collar, and a clamping screw 10 connecting the other pair of corresponding ends.

11 represents an upright outer valve tube arranged vertically within the bottle, reservoir or tank and terminating at its upper end above the liquid level in the bottle while its lower end terminates below the lower end of the neck thereof. Near its lower end and within the bottle the outer or fixed valve tube is provided with a liquid discharge port or outlet opening 12.

Slidable vertically or lengthwise within the outer valve tube is an inner movable valve tube 13 which terminates at its upper end above the upper end of the outer tube while its lower end terminates below the lower end of the outer tube. The vertically reciprocating movement of the inner valve tube is limited by means of an annular collar or shoulder 14 formed at the upper end thereof and engaging with the upper end of the outer tube for limiting the descent of the inner tube and a weight handle 15 having the form of a pear-shaped knob secured to the lower end of the inner tube and forming a shoulder thereon which is adapted to engage with the lower end of the outer tube and limit the ascent of the inner tube. Near its lower end the inner valve tube is provided with a liquid outlet port or discharge opening 16 which is adapted to register with the liquid discharge opening of the outer tube when the inner tube is raised to its highest position and thereby permit the escape of liquid through said ports, said inner discharge port 16 being moved downwardly and out of register with the outer port 12 when the inner tube reaches its lowermost position, thereby cutting off the escape of liquid from the reservoir or bottle in this position of the inner tube. The inner and outer tubes are held against turning relatively to each other but are free to slide one upon the other for the purpose of bringing their liquid outlet ports into or out of register but preventing the same from becom-

ing displaced circumferentially relatively to each other. The preferred means for this purpose which are shown in the drawings consists of a pin 17 secured to the upper part of the inner tube and engaging with a longitudinal slot 18 formed in the adjacent part of the outer tube, as shown in Figs. 1 and 2. At the side of the upper end of the inner tube the same is provided with one or more air inlet openings or ports 19 which in the raised position of this tube are carried above the upper end of the outer tube and thus permit air to pass from the inner tube into the reservoir above the liquid, while upon lowering the inner tube the air ports are carried downwardly within the bore of the outer tube and closed.

The discharge of the liquid from the reservoir and the admission thereto of air above the liquid preferably takes place in the weighted handle or knob at the lower end of the inner tube. For this purpose this handle is provided with an air inlet passage 20 which opens at its outer end at the side of the knob while its inner end opens into the lower end of the inner valve tube adjacent to one side of the bore thereof and this handle is also provided with a liquid discharge passage 21 which opens at its outer end on the convex underside of the handle on one side of its center while its inner end terminates centrally relatively to the inner valve tube and at the lower end thereof. Communication is established between the inner end of the discharge passage and the inner discharge port 16 by means of a branch pipe or tube 22 arranged axially or concentrically within the inner valve tube and bearing at its lower end against the upper end of the handle so as to communicate with the liquid discharge passage 21 while its upper end is provided with a lateral turn whereby the same communicates with the inner liquid discharge port 16, as best shown in Fig. 1. The weight handle is preferably secured to the lower end of the inner valve tube by means of an internal screw threaded socket 23 arranged at the upper end of this handle and receiving the lower externally screw threaded end of the inner valve tube. A tight joint is produced between the lower end of the branch tube and the handle by tapering the lower end of this branch tube and engaging the same with a correspondingly shaped seat of the bottom of the socket in said handle. It follows from this construction that the handle may be screwed tightly upon the lower end of the inner valve tube and brought firmly into engagement with the branch tube 22 without requiring any special care for this purpose in the manufacture and assembling of these parts and still insure communication between the branch tube and the discharge passage and commu-

nication between the interior of the inner valve tube and the air inlet passage of the handle.

In the normal position of the handle and inner valve tube these parts are lowered by gravity thereby shutting off communication between the discharge ports 12, 16 and closing the air inlet port 19, whereby the admission of air into the reservoir above the liquid is prevented and the escape of liquid from the reservoir is likewise prevented.

When it is desired to obtain a quantity of the liquid from the reservoir the palm of the hand is placed against the underside of the handle and the latter is pressed upwardly by the hand until the inner valve tube reaches its highest position. When this occurs the air inlet port at the upper end of the inner valve tube is uncovered and the external atmosphere is permitted to pass successively to the air passage in the handle, the conduit within the inner valve tube and the outlet port of the inner tube into the reservoir above the liquid, thereby permitting the liquid to escape from the reservoir through the discharge ports 12, 16, branch tube 22 and delivery passage in the handle to the palm of the hand which has raised the handle. When sufficient liquid has been discharged in this manner the handle and associated parts are permitted to drop by gravity, thereby closing the air port at the top of the inlet tube and moving the discharge ports out of register with each other, whereby the outflow of liquid from the reservoir is arrested.

Various means may be provided for mounting this valve mechanism within the bottle. The means shown in Figs. 1, 2, 3 and 4 are designed more particularly for applying this dispensing device to a bottle which has no cork. The means for supporting the valve mechanism shown in Figs. 1 to 4 are constructed as follows: 24 represents a supporting tube or sleeve which receives the outer valve tube and is arranged in an upright position within the bottle. This supporting tube terminates at its lower end below the lower end of the neck of the bottle while its upper end terminates below the upper end of the outer valve tube. Near its lower end this supporting tube is provided with a discharge opening 25 which registers with the discharge port 12 of the outer valve tube. On diametrically opposite sides of the supporting tube and within the bottle the same is provided with two clamping or coupling arms 26 which bear at their outer extremities against the interior of the breast of the bottle. These arms are so constructed and attached to the supporting tube that they can be folded lengthwise against the tube to permit of passing the same through the neck of the bottle and introducing the same into the body of the

bottle and thereafter the clamping arms may be spread so as to project laterally from the supporting tube and engage with the inner side of the breast of the bottle.

5 For this purpose each of the arms is preferably constructed of U-form and its legs are pivotally connected at their ends with opposite sides of a laterally projecting lug 27 on the supporting tube by means of a
10 horizontal pin 28. These coupling or clamping arms are free to swing downwardly or outwardly against opposite sides of the supporting tube so as to permit of passing them with the tube through the
15 neck of the bottle into the body of the same and after these arms have passed inwardly beyond the breast of the bottle the same are turned outwardly into a position at right angles to the supporting tube, their movement in this direction being limited by
20 means of heels 29 formed on the coupling arms and bearing against the shoulders 30 on the adjacent part of the supporting tube. In their extended position the clamping or
25 coupling arms engage by their outer ends with the breast of the bottle and are held in this position by an outward pull on the supporting tube which is preferably produced by a screw nut 31 applied to the
30 externally screw threaded outer end of the supporting tube and bearing against the outer end of the neck of the bottle. A liquid tight joint is produced between this screw nut and the neck of the bottle by means of
35 a packing disk or washer 32 of cork or similar material which is interposed between the screw or clamping nut and the neck of the bottle, whereby the same also serves as a closure for this neck which effectually
40 prevents leakage.

The lower end of the supporting tube is provided with one or more notches 33, as shown in Fig. 4, so as to permit of applying a key or wrench to the supporting sleeve
45 for holding the same against turning while the clamping screw is turned thereon.

If desired a lining 34 of rubber or other suitable packing material may be interposed between the bore of the supporting
50 tube and the periphery of the outer valve tube, as shown in Fig. 1, so as to prevent leakage of liquid or air through the joint between the same.

If desired, the supporting tube and outer
55 valve tube may be constructed in one piece instead of being made of separate pieces, as shown in Fig. 1.

In the construction shown in Figs. 5 and 6, the outer valve tube is passed through a
30 central opening formed in a stopper 35 of cork which closes the neck of the bottle and a tight joint is produced between the outer valve tube and this cork by means of a clamping disk 36 applied to an external
35 screw thread on the lower end of the outer

tube and bearing against the outer end of the cork.

When shipping this liquid dispensing device in an assembled condition with a bottle containing a charge of liquid it is desirable
70 to close the liquid discharge and the air inlet of the same so as to prevent the escape of liquid and drying out of the same. For this purpose the handle is unscrewed from the inner valve tube during transportation
75 or storage and a cap 37 is screwed over the lower end of the inner tube which cap is provided on its inner side with a packing disk or washer 38 of cork or similar material which covers the lower end of the branch
80 liquid tube and the inner valve tube, as shown in Fig. 8. The outer side of this cap is also preferably pointed or tapered to a sharp point, as shown at 39 in Fig. 8, so that the same may be used as a tool for boring a
85 hole in the cork of a bottle for receiving the valve mechanism in case the dispensing device is put upon the market independently of a bottle.

It will be noted that this device promotes
90 cleanliness and reduces the liability of transmitting contagious diseases from one person to another to a minimum when used for dispensing liquid soap, inasmuch as each person only withdraws as much soap from
95 the reservoir as is required for personal use and none of it comes in contact with another person. Furthermore, this device is very simple in construction, so that it is not liable to get out of order and it is convenient in use inasmuch as but a single hand
100 is required for raising the valve and obtaining a discharge of liquid therefrom. Moreover the prompt closing of the air inlet and liquid discharge outlet of this dispensing device, after the desired quantity
105 has been withdrawn therefrom, renders the same economical in the use of the liquid and also prevents the supply within the bottle or reservoir from drying out or evaporating
110 when not in use.

I claim as my invention:

A liquid dispensing device comprising a liquid receptacle which is closed on all sides except at its lower end where the same is
115 provided with an opening, and a valve mechanism for controlling the discharge of liquid from said receptacle comprising an outer fixed tube extending upwardly through said opening and provided within the lower
120 part of the receptacle with a liquid outlet port, an inner vertically movable tube arranged within the outer tube and having a lower liquid outlet port which is adapted to register with the liquid outlet port in the
125 elevated position of the inner tube and also provided at its upper end with an air inlet port which in the last mentioned position of the same is adapted to open into the upper part of said receptacle, a branch tube
130

arranged within the lower part of said inner tube and communicating at its upper end with the liquid outlet port of the inner tube, and a handle mounted on the lower
5 end of the inner tube and having a convex underside, a liquid discharge passage which communicates at its upper end with the lower end of said branch tube while its lower end opens through the convex face of said
10 handle on one side of its center, and an air

passage which communicates at its upper end with the lower end of said inner tube while its lower end opens through the side of said handle above the convex face thereof.

Witness my hand this 25th day of May, 1911.

FRANK H. RANSOM, JR.

Witnesses:

E. M. GRAHAM,
ANNA HEIGIS.