

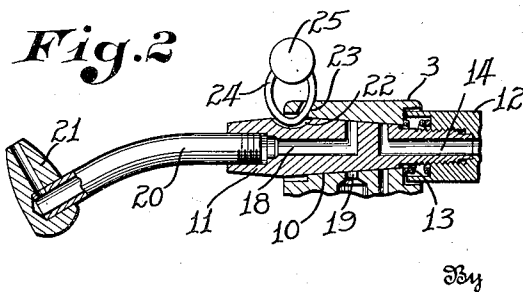
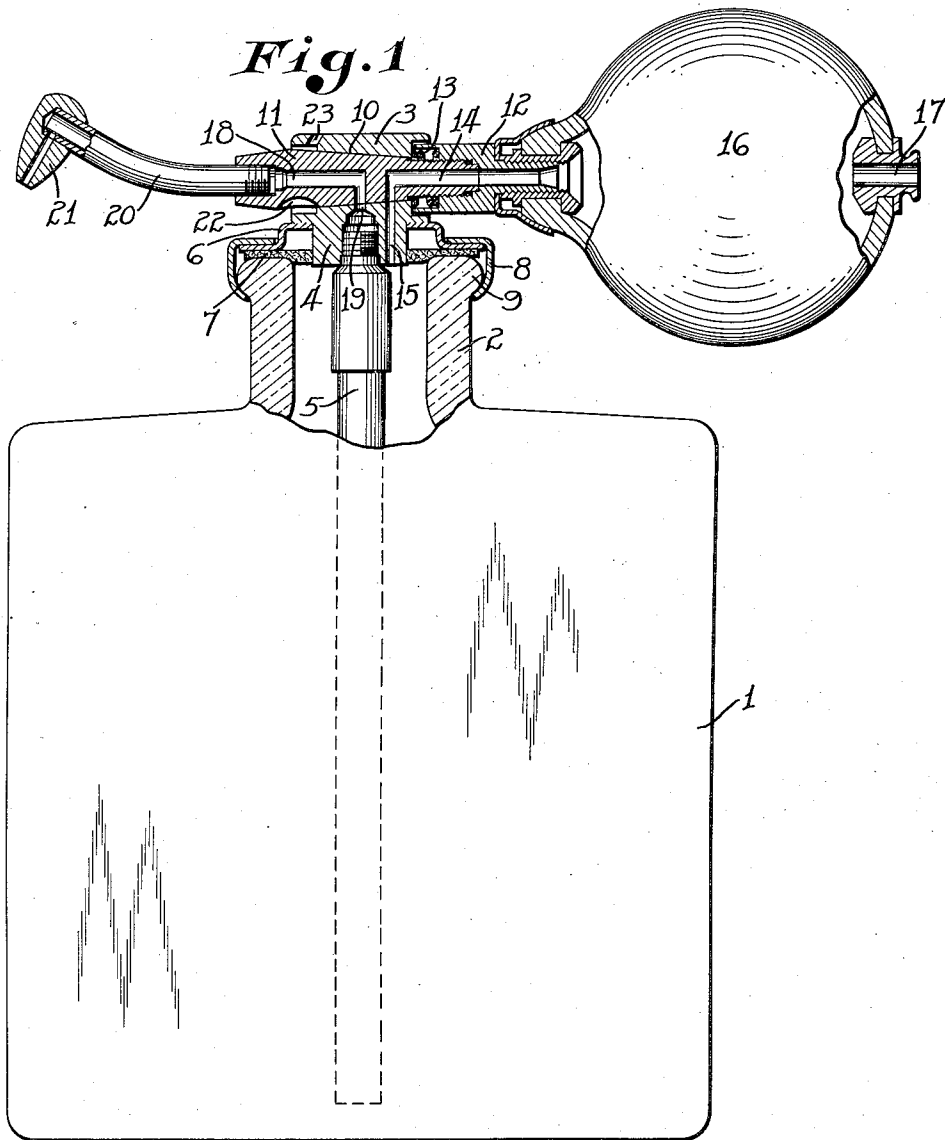
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LIQUID DISPENSER

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LIQUID DISPENSER

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3 Claims. (Cl. 221-76)

This invention relates to liquid-dispensing apparatus, and particularly to such an apparatus operable by air pressure to discharge a regulable quantity of liquid therefrom.

5 An object of the invention, among others, is the provision of a simple, inexpensive and improved device of this character, which may be filled with a liquid, such, for instance, as a perfume, by the distributor or manufacturer of such liquid, and
10 then sealed in a simple and effective manner against the discharge of a liquid until the seal has been broken, the seal being of a nature to prevent tampering with without detecting.

The invention is fully described in the following specification, and while in its broader aspect it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawing, in which—

15 Figure 1 is an elevation of a device embodying the invention with portions in central vertical section, and with the control parts in liquid-dispensing position, and Fig. 2 is a fragmentary view of the control parts partly in section and in closed or non-discharging position and sealed against
20 movement from such position.

Referring to the drawing, 1 designates a container for the liquid to be dispensed and which container, in the present instance, is in the form of a bottle having the open neck 2 extending from its top. The dispensing means embodying the invention includes a head 3 having, in the present instance, the reduced portion 4 projecting from its lower end and carrying a tube 5 for projecting down into the container 2 to near the bottom thereof. An annular base flange 6 of cup-form is fitted around the reduced portion 4 of the head and firmly secured to the adjacent outwardly shouldered portion of the head by electric welding, or in any other suitable manner, whereby the head and flange are rigidly connected in a manner to prevent leakage therebetween. The outer flared edge portion of the base 6 is adapted to seat on a washer 7 in opposition to the end of the container neck 2, and such gasket also preferably fits closely around the portion 4 of the head. The base 6 is clamped to the gasket 7 and container neck by an annular uniting member 8, which is L-shape in cross-section, and has one flange seating on the flared outer edge portion of the base 6, and its other flange embracing and rolled under a shouldered edge portion 9 of the neck, thus preventing removal of the head from the container neck except by destroying the clamping member 8.

55 The outer end portion of the head 3 is pro-

vided transversely therethrough with a valve-receiving opening 10, which is tapered, at least for a portion of its length, to receive the tapered portion of a plug-form of valve 11, which is mounted for rotary movements in the head opening. A heel-piece 12 is threaded on the rear end of the valve 11 without the head 3 and a coiled expansion spring 13 is disposed between the heel-piece and the head 3 in outward thrust contact with each, in encircling relation to the valve, and adapted to cooperate with the head and heel-piece to yieldingly retain the valve to its seat in the head opening.

The valve 11 is provided in its rear end portion with an air passage 14, which has its forward end angling laterally therefrom to have communication through a passage 15 in the head with the upper interior portion of the container 1 when the valve is in dispensing position, as shown in Fig. 1. The rear end of the passage 14 communicates through a registering passage in the heel-piece 12 with a source of controlled air pressure supply, which, in the present instance, is shown as comprising a compression bulb 16 having an air inlet and release passage 17 in the rear side thereof. The outer end portion of the valve 4 is provided with a liquid discharge passage 18 extending lengthwise thereof and having its inner end angled and adapted to communicate with the interior of the tube 5 through a passage 19 in the head 3 when the valve is in discharging position and when its air passage 14 is in communication with the head passage 15. In the present instance, the liquid discharge passage 18 is extended a desired distance from the valve by a tube 20, which is securely connected to the valve at the outlet end of the passage 18, and is provided at its outer end with a lateral projecting discharge nozzle 21 suitable for insertion into the mouth of a bottle into which liquid from the container 1 is to be discharged.

The valve 11 is provided in one side thereof, within at least a portion of the head bore 10, with a recess 22, which, when the valve is turned to inoperative position, or with its passages 14 and 18 out of register with the head passages 15 and 19, is adapted to register with an aperture 23 provided through the forward end wall of the head bore 10, so that a wire 24 may be passed through said aperture and the valve recess 22 to lock the valve against turning in the head. The ends of the wire 24 may be secured together by a lead seal 25 to prevent removal of the locking wire from the head and valve by unauthorized persons without detection.

In the use of this device, in the dispensing of liquids therefrom, it is necessary to first break the sealed locking means 24, 25, and remove it from locking engagement with the valve, and then to turn the valve to place its passages 14 and 18 into register with the head passages 15 and 19, which have communication with the interior of the container. This having been done, the operator places his thumb over the air inlet and exhaust passage 17 of the bulb 16, so as to close such passage, and then applies pressure through his thumb to the bulb to effect an inward compressing thereof to force air therefrom into the container and to thereby effect a discharging of liquid from the container through the pipe 14 and valve passages 18 and 20 and nozzle 21 into the receiving receptacle. As soon as a sufficient quantity of liquid has been discharged into the receiving receptacle, the operator uncovers the passage 17, thus permitting the air pressure in the container to be relieved and the bulb to expand to normal position. In this manner, the quantity of discharge of liquid from the dispensing device may be regulated to a nicety, and the valve may also be turned when desired to close both head passages 15 and 19 opening into the container, thus preventing leakage from the container either by way of evaporation, or otherwise, when the device is not in use in dispensing liquid. It is also apparent that, whenever desired, the valve may be locked against movement to open or dispensing position by simply placing a wire through the valve recess 22 and head aperture 23 and placing of a suitable seal on such wire.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

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

1. A liquid-dispensing device including a container, a head mounted on the container and having a valve-receiving opening and two passages leading therefrom into the container, one being a liquid passage and extending to near the bottom of the container, and one being an air pas-

sage and opening into the top of the container, a plug-type of valve mounted in said head opening and having a liquid discharge passage at one end and an air passage at its other end, both having their inner ends angled and adapted to communicate respectively with the liquid and air passages in said head when the valve is in operating position, and regulable means having communication with said valve air passage and operable to create air pressure in the container through said passage, and means having interengagement with the valve and head for locking the valve in inoperative position in the head.

2. In a liquid-dispensing device, a container having an opening in its top, a head mounted on the container in closing relation to its opening, a valve rotatably mounted in said head, said valve and head having an air passage and a liquid-discharge passage through portions thereof in communication with the interior of the container and having portions movable into and out of register by a turning of the valve in the head, an angular discharge tube carried by said valve, a discharge nozzle having a bore normal to the bore of said discharge tube whereby the flow from said container is directed downwardly and the nozzle stands in inverted position when said valve is closed, means for creating air pressure in the container through said air passage, and means for interengaging with said head and valve when in relative predetermined relation to lock the head and valve in such relation.

3. In a liquid-dispensing device, a container having an opening in its top portion, a head mounted on the container and closing said opening, a valve rotatably mounted in the head, said valve and head having an air passage and a liquid discharge passage in portions thereof and having communication with the interior of the container, said passages having portions movable into and out of register by a turning of the valve in the head, said valve and head having cut out portions adapted to register when said valve is in closed position, and a seal adapted to have interlocking engagement with said cut out portions of the valve and head to secure them in closed position.

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