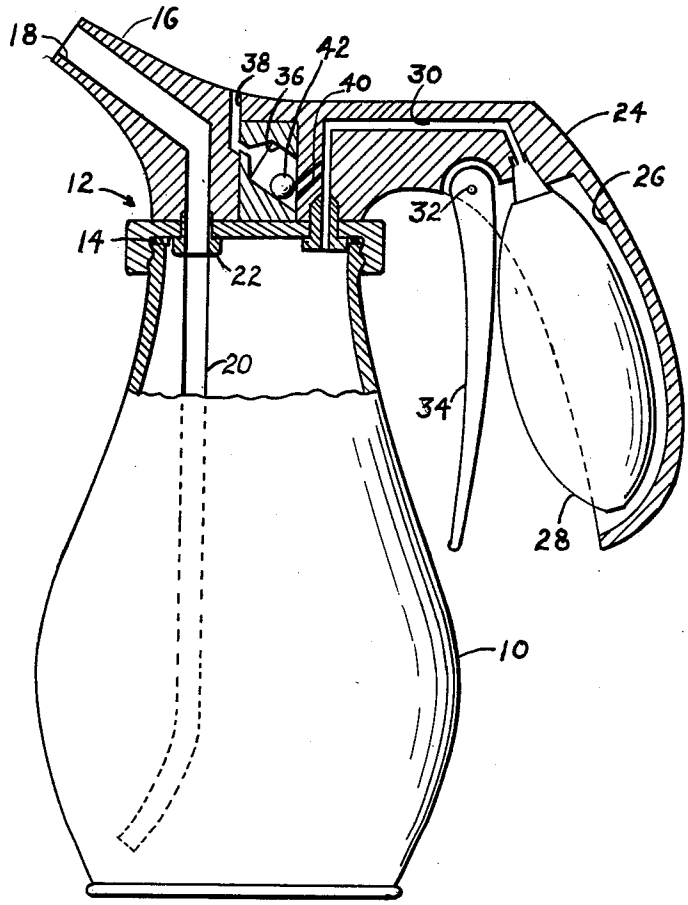
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DISPENSING DEVICE

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DISPENSING DEVICE

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This invention relates generally to dispensing devices for dispensing liquids and semi-liquids and has particular relation to such devices employing pump means for forcing the fluid from the container of the dispenser by means of air pressure.

It is the purpose of the invention to provide such a dispenser organization which is relatively simple and inexpensive and which operates in a manner so that it will not drip after the desired dispensing action is completed.

In accordance with the invention there is provided a container for the fluid that is to be dispensed and which has removably secured to its upper end a cover member. This cover member is provided with a laterally inclined spout which extends upwardly and laterally outward and through which the liquid of the container is to be dispensed. This spout communicates with the lower region of the container by means of a tube which extends downwardly from the spout. Also mounted on and forming part of the cover member is a suitable handle which is generally laterally opposite the spout and extends downwardly in spaced relation with the container. This handle has a generally hollow or recessed underportion within which is mounted a resilient bulb which is suitably valved so as to act as an air pump. This bulb communicates with the interior of the container by means of a suitable passage which extends through the cover member. Thus, by squeezing the bulb, air pressure is developed within the container and the fluid therein is forced out through the spout. In order to insure that dispensing of the fluid is positively stopped when desired there is provided in the cover member a suitable vent with the operation of the vent being controlled by the vertical disposition or attitude of the dispensing organization. The vent includes a series of connected passageways which establish communication through the cover member from the atmosphere to the interior of the container. One of these series of passageways is inclined in the same direction as the spout and has contained therein a ball valve with the upper end of this inclined passageway being in the form of a suitable valve seat. Through this arrangement, when the container is sufficiently tilted in the direction of the spout for dispensing the ball valve will seat and close the vent passage thereby allowing the pump to be effective to dispense fluid from the container. Upon moving the container back to its upright position however the ball valve will automatically unseat and thereby vent the container so as to positively stop the dispensing of fluid therefrom.

Accordingly, it is an object of this invention to provide an improved pump operated dispensing device which has an automatically operated vent to insure anti-drip action of the device.

Other and further objects of the invention will become apparent to those skilled in the art as the description proceeds.

With the aforementioned objects in view, the invention comprises an arrangement, construction and combination of the elements of the inventive operation in such a manner as to attain the results desired as hereinafter more particularly set forth in the following detailed description of an illustrative embodiment, said embodiment being shown by the accompayning drawing, wherein the single FIGURE is in the nature of a fragmentary vertical section through a dispenser which embodies the present invention.

Referring now to the drawing wherein like reference characters are used throughout to designate like elements, the illustrative and preferred embodiment of the organization depicted therein includes a container **10** for the liquid or semi-liquid which is to be dispensed. The upper end of container **10** is suitably threaded so as to receive, in a generally fluid-tight manner, cover member **12** with this cover member having complementary threads and with there being provided a suitable annular basket **14** between the end of the container and the cover member in order to insure fluid tightness. Extending upwardly and laterally outwardly from container **10** and forming part of the cover member is spout **16** which includes passageway **18** and which passageway effectively communicates with the lower end of the container. This is achieved by means of the downwardly extending pipe or conduit **20** which is connected at its upper end to cover member **12** by means of the connecting nipple **22**, with the lower end of conduit **20** being bent in the same general direction as the spout **16**.

Extending in a lateral direction, generally opposite that of spout **16** and downwardly in spaced relation with container **10** is handle **24** by means of which the dispensing device is manipulated. The back or rear side of this handle is provided with a recess **26** within which is mounted the resilient bulb **28**. This bulb has an inlet valve at its lower end and an outlet valve at its upper end so that it can act as a pump to force air into the container with the upper end of the bulb communicating with the upper end of the container interior through the passage **30** which extends through the cover member **12** as shown. Pivotally mounted to the cover member and about the axis **32** is the lever actuator **34** and the operation is such that by manually grasping handle **24** and squeezing actuator **34** to depress bulb **28** a pumping action is produced which forces air into the upper end of container **10** and accordingly forces the fluid from the container through conduit **20** and spout **16**.

This dispensing action through the manipulation lever **34** and pump **28** is had only when the dispensing device is tilted from the vertical position shown in the drawing to a dispensing position wherein the spout is generally aimed downwardly at the desired dispensing location. This is so because there is an automatic vent which is open when the dispensing device is in the upright position but automatically closes when the device assumes a dispensing attitude. This vent includes the valve chamber **36** which communicates at its upper end with the vertically disposed passageway **38** and at its lower end with passage **30** through the passageway **40**. Valve chamber **36** is inclined, as shown, generally in the same direction as the spout **16** and within the valve chamber is disposed a ball valve **42** which may be moved by gravity to and from an open and a closed position. The upper end of chamber **36** is suitably tapered, as indicated, so that when the dispensing device is tilted sufficiently for the ball to roll down into engagement with this tapered end it effectively seats therein forming a seal and effectively closing the vent passage. Upon returning the dispensing device to the generally upright position, the ball valve will fall from this tapered seat by means of gravity and occupy the position shown in the drawing wherein the vent passage is open. The inclination of valve chamber **36** is such that the valve **42** will move to the closed position when the dispensing device is tilted to what is a convenient and generally normal dispensing attitude. It is found that if the chamber is at an angle of about 60° with the vertical or container axis that this result is readily achieved and with satisfactory operation being had with an inclination to the container axis of between 30° and 70°. In any event the angular disposition of the valve chamber is such that con-

tainer 10 does not and need not occupy a horizontal position but remains at a substantial angle with respect to the horizontal during the dispensing operation. Having the container 10 in a horizontal position results in substantially losing control of the dispensing operation or in any event losing the precise control that is desired.

The passageway 18 of spout 16 and the valve chamber 36 lie in generally the same vertical plane with this plane also being generally centrally disposed with respect to the resilient bulb 28.

With the organization of the invention, when it is desired to dispense the fluid from the container 10 the device is tilted from the vertical position generally in the direction of spout 16 to a position where ball valve 48 seats on the tapered end of the valve chamber. Pump 28, through lever 34 is then actuated and by means of air pressure that is built up in the upper end of the container the fluid is forced from the container out of the spout. When it is desired to cease the dispensing operation the dispensing device is returned to its upright position whereupon ball valve 48 falls from the tapered end of the valve chamber opening the vent passage and quickly relieving the air pressure from container 10 whereby continued dispensing or dripping of the fluid from the spout is prevented.

While I have illustrated and described a preferred embodiment of my invention it is to be understood that such is merely illustrative and not restrictive and that variations and modifications may be made therein without departing from the spirit and scope of the invention. I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes as fall within the purview of my invention.

What is claimed is:

A dispensing device for fluids comprising a container having an opening at its upper end, a closure member for said opening removably secured to said upper end and

having an inclined spout extending laterally outwardly therefrom, a discharge tube extending downwardly from the spout into the lower region of the container, a handle integral with the upper portion of the closure laterally opposite said spout and extending downwardly therefrom in spaced relation with the container with the handle having a recess therein at its inwardly facing side, an air pump in the form of an expansible bulb disposed in the recess of said handle, passageway means extending through said member from the upper end of the container to the upper end of said bulb, said bulb having an inlet valve at its lower end and outlet valve at its upper end such that said bulb acts as a pump to force air into said container through said passageway means, a lever pivoted at its upper end to said member and disposed adjacent said bulb at the side remote from the handle, a vent passage in said closure extending from said passage to atmosphere and including a valve chamber inclined with respect to the axis of the container in the same direction as the spout and with the angular disposition of the chamber being substantially displaced from the vertical and the horizontal when the container is upright, a ball valve in said chamber, the upper end of the chamber having a valve seat with which said valve coacts to close said vent passage incident to tilting the container sufficiently from its upright position but short of the horizontal position, with the valve being moved by gravity away from the seat and to an open position when the container is vertical.

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