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B. F. CONNER
DISPENSING PACKAGE
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Fig. 1

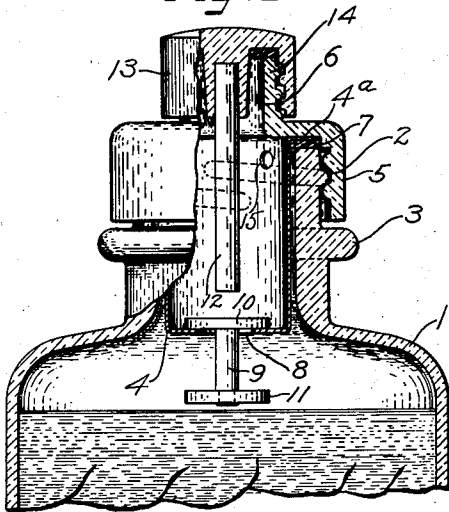


Fig. 2

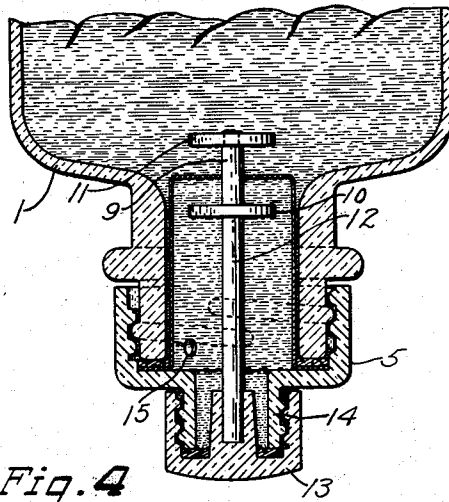


Fig. 4

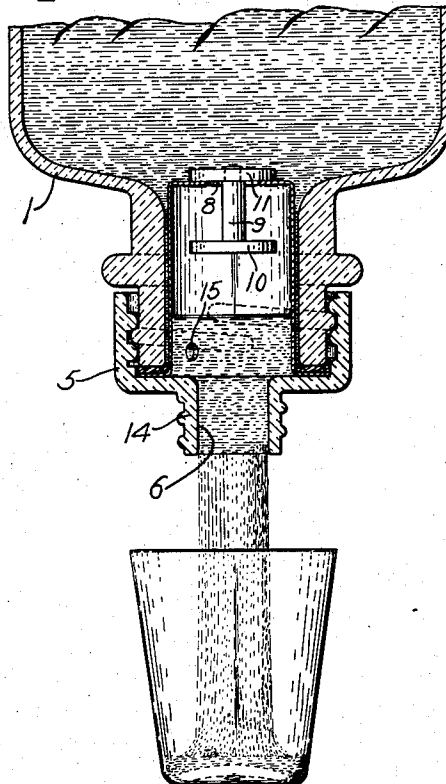
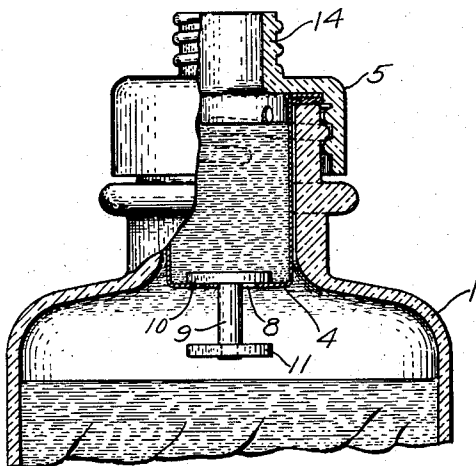


Fig. 3



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DISPENSING PACKAGE

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18 Claims. (Cl. 221—98)

The invention is particularly adapted to be embodied in a dispensing device adapted to be used with a glass bottle, but the invention is by no means so limited. The general object of the invention is to provide a dispensing package, whether or not including a glass bottle, which is inexpensive, convenient and reliable.

In accordance with the invention there is provided at the top of the bottle or other container a measuring cup which is automatically filled when the package is inverted and which retains a measured quantity of the contained liquid when the package is restored to upright position. Thereafter, by removing the closure at the top, the measured contents of the cup can be poured out without the escape of any additional contents of the container.

In the accompanying drawing I have shown the embodiment of the invention which I now deem preferable, but it will be understood that the drawing is intended for illustrative purposes only and is not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawing:

Fig. 1 is a combined elevational and central sectional view of a dispensing package embodying the invention.

Fig. 2 is a central sectional view of the dispensing package in inverted position.

Fig. 3 is a view similar to Fig. 1 but showing the measuring cup filled and omitting the closure at the top of the cup.

Fig. 4 is a central sectional view showing the package inverted with the contents of the cup being poured into a suitable receptacle.

Referring to the drawing, 1 represents the main container, which may be constructed in any of a variety of ways, but this main container may conveniently be a glass bottle and such a container is shown in the drawing. The bottle is provided with the usual external thread at 2 and is provided with an annular bead below the thread at 3.

Positioned at the top of the bottle and preferably in the mouth thereof is a measuring cup 4 which is open at the top. This cup 4 is of such size as to be adapted to receive and hold a predetermined quantity of liquid. I do not limit myself as to the manner of holding the cup 4, but preferably the said cup is provided at the top with an annular flange 4^a which extends over the top of the bottle. For holding the cup in place and for other purposes, as will presently

appear, there is provided an internally threaded cap 5 which engages the thread 2 on the bottle. The cap 5 has a central hole 6 therein. When the cap 5 is put in place and tightened the cup 4 is rigidly held in place. Preferably a suitable gasket 7 is interposed between the top of the bottle and the flange 4^a of the cup, thus preventing any possible leakage of liquid.

The cup 4 is provided near the bottom and preferably in the bottom wall thereof with a hole 8 which communicates with the interior of the container or bottle. Associated with the hole 8 are two valves, one of which is positioned to close the hole when the package is in upright position and is automatically movable to open the hole when the package is inverted. The other valve automatically tends to close the hole 8 when the package is inverted and preferably it is positioned to leave the hole open when the package is upright. As to the details of construction of these two valves, there may be variation, but I have found that a minimum of cost and a maximum of simplicity may be attained by providing a single valve unit comprising a stem 9 projecting through the hole 8 and also comprising two valve closures 10 and 11 rigidly secured to the stem 9 at the ends thereof. The described valve unit is freely movable by gravity, and with the package in upright position, as shown in Figs. 1 and 3, the upper valve closure 10 serves to close the opening 8. When the package is inverted, as shown in Fig. 4, the lower or second valve closure 11 tends to close the said hole 8.

In order to permit the cup 4 to be filled when the package is inverted, it is necessary to prevent the hole 8 from being closed by the second valve closure 11, and I therefore provide an element which normally serves to prevent the said closure from closing the said hole under such conditions. This element may be varied as to details, but I have found it preferable to provide a centrally disposed rod 12 rigidly secured to a closure 13 which normally closes the opening or hole 6 in the bottle engaging cap 5. Preferably the bottle engaging cap 5 has an externally threaded boss 14 in which the hole 6 is located and the closure 13 is in the form of an internally threaded cap engaging the threads on the boss 14. With the cap 13 and the rod 12 in position, as shown in Fig. 2, the rod engages the valve unit to hold the second closure 11 away from the hole 8 so that the hole remains open.

Preferably the cap 4 is provided with an additional auxiliary hole 15 which is near the top thereof when the package is in upright position

and which is near the bottom when the package is in inverted position, as shown in Fig. 2.

When it is desired to dispense a measured quantity or dose of liquid from the package the package is inverted to the position shown in Fig. 2. As already explained, the rod 12 prevents the valve closure 11 from closing the hole 8, and the liquid is free to enter and completely fill the measuring cup 4. The filling of the cup may be facilitated by providing the auxiliary hole 15 already mentioned, as with such a hole the liquid can flow in through the said hole and the entrapped air can pass outward and upward through the hole 8. However, it will be obvious that if the hole 8 is sufficiently large the hole 15 may be omitted, the liquid flowing downward and the air passing upward through the same hole.

After the cup 4 has been completely filled, as shown in Fig. 2, the package is then restored to its upright position, as shown in Fig. 3. The valve unit moves by gravity to a position wherein the hole 8 is closed by the valve closure 10, thus retaining the measured quantity of liquid in the cup 4, and then the closure cap 13 is removed, together with the rod 12 carried thereby. Thereafter the package can be again inverted, as shown in Fig. 4, and the contents of the cup 4 can be poured out into a suitable receptacle. It will be observed that with the cap 13 and the rod 12 removed, the valve closure 11 is no longer held out of engagement with the bottom of the cup but moves into such engagement and serves to close the hole 8. This prevents the liquid in the main container from flowing into the cup. With the package inverted, as shown in Fig. 4, no air can enter the bottle, and therefore little or no liquid will flow out through the small hole 15.

The measuring and dispensing steps that have been described can be repeated until the entire contents of the container have been dispensed. It will be observed, however, that the closure cap 13 and the rod 12 must be restored to position at the conclusion of each measuring and dispensing operation.

What I claim is:

1. The combination in a liquid dispensing package, of a main container, a measuring cup open at the top and positioned at the top of the container, means normally closing the open top of the cup but movable to open it, a valve normally positioned to close a hole near the bottom of the cup and communicating with the container, the said valve being automatically movable to open the said hole when the package is inverted, a second valve automatically tending to close a hole near the bottom of the cup when the package is inverted, and an element normally serving to prevent automatic closing of the second valve when the package is inverted, the said element being manually movable out of its normal relationship so as to permit such automatic closing.

2. The combination in a liquid dispensing package, of a main container, a measuring cup open at the top and positioned at the top of the container, the said cup having a hole near the bottom communicating with the container, means normally closing the open top of the cup but movable to open it, a valve normally positioned to close the bottom hole in the cup and automatically movable to open the said hole when the package is inverted, a second valve automatically tending to close the bottom hole in the cup when the package is inverted, and an element normally serving to prevent the second valve from closing

the bottom hole in the cup when the package is inverted, the said element being manually movable out of its normal relationship so as to permit the second valve to so close the said hole.

3. The combination in a liquid dispensing package, of a main container, a measuring cup open at the top and positioned at the top of the container, the said cup having a hole near the bottom and another filling hole near the top both communicating with the container, means normally closing the open top of the cup but movable to open it, a valve normally positioned to close the bottom hole in the cup and retain liquid therein when the package is upright and automatically movable to open the said hole and permit air to escape therethrough when the cup is being filled through the filling hole with the package inverted, a second valve automatically tending to close the bottom hole in the cup when the package is inverted, and an element normally serving to prevent the second valve from closing the said bottom hole when the package is inverted which element is manually movable out of its normal relationship so as to permit the second valve to automatically close the said hole and prevent the flow of liquid therethrough when the package is inverted.

4. In a liquid dispensing package, the combination of a main container, a measuring cup open at the top and positioned at the top of the container, the said cup having a hole in the bottom communicating with the container, means normally closing the open top of the cup but movable to open it, a valve unit freely movable by gravity and comprising a stem extending through the hole in the bottom of the cup and also comprising two valve closures rigidly secured to the stem at the ends thereof, the upper closure of the valve unit serving to close the said hole when the package is upright and the lower or second closure of the valve unit tending to close the said hole when the package is inverted, and an element normally serving when the package is inverted to prevent the valve unit from automatically moving to its hole closing position, the said element being manually movable out of its normal relationship so as to permit the valve unit to automatically move and close the said hole.

5. In a liquid dispensing package, the combination of a main container, a measuring cup open at the top and positioned at the top of the container, the said cup having a hole in the bottom and another filling hole near the top both communicating with the container, means normally closing the open top of the cup but movable to open it, a valve unit freely movable by gravity and comprising a stem extending through the hole in the bottom of the cup and also comprising two valve closures rigidly secured to the stem at the ends thereof, the upper closure of the valve unit serving to close the bottom hole in the cup and retain liquid therein when the package is upright and being automatically movable to open the hole and permit the escape of air therethrough when the cup is being filled through the filling hole with the package inverted and the lower or second closure of the valve unit tending to close the bottom hole in the cup when the package is inverted, and an element normally serving when the package is inverted to prevent the valve unit from automatically moving to its hole closing position which element is manually movable out of its normal relationship so as to permit the valve unit to so move and thus pre-

vent the flow through the hole of liquid from the container when the package is inverted and the cup is being emptied.

6. A liquid dispensing package comprising in combination, a main container, a measuring cup open at the top and positioned at the top of the container, the said cup having a hole near the bottom communicating with the container, a removable closure normally closing the open top of the cup, a valve normally positioned to close the bottom hole in the cup and automatically movable to open the said hole when the package is inverted, a second valve automatically tending to close the bottom hole in the cup when the package is inverted, and an element carried by the removable closure and normally serving to prevent the second valve from closing the bottom hole in the cup when the package is inverted with the closure in place.

7. A liquid dispensing package comprising in combination, a main container, a measuring cup open at the top and positioned at the top of the container, the said cup having a hole near the bottom and another hole near the top both communicating with the container, a removable closure normally closing the open top of the cup, a valve normally positioned to close the bottom hole in the cup and automatically movable to open the said hole and permit air to escape there-through when the package is inverted, a second valve automatically tending to close the bottom hole in the cup and prevent the flow of liquid therethrough when the package is inverted, and an element carried by the removable closure and normally serving to prevent the second valve from closing the bottom hole in the cup when the package is inverted with the closure in place.

8. A liquid dispensing package comprising in combination, a main container, a measuring cup open at the top and positioned at the top of the container, the said cup having a hole near the bottom communicating with the container, a removable threaded closure normally closing the open top of the cup, a valve normally positioned to close the bottom hole in the cup and automatically movable to open the said hole when the package is inverted, a second valve automatically tending to close the bottom hole in the cup when the package is inverted, and a central rod rigidly fixed to the threaded closure and normally serving to prevent the second valve from closing the bottom hole in the cup when the package is inverted with the closure in place.

9. In a liquid dispensing package, the combination of a main container, a measuring cup open at the top and positioned at the top of the container, the said cup having a hole in the bottom communicating with the container, a removable closure normally closing the open top of the cup, a valve unit freely movable by gravity and comprising a stem extending through the hole in the bottom of the cup and also comprising two valve closures rigidly secured to the stem at the ends thereof, the upper closure of the valve unit serving to close the said bottom hole when the package is upright and the lower or second closure of the valve unit tending to close the said hole when the package is inverted, and an element carried by the removable closure and normally serving when the package is inverted with the closure in place to prevent the valve unit from automatically moving to its hole closing position.

10. In a liquid dispensing package, the combination of a main container, a measuring cup open at the top and positioned at the top of the con-

tainer, the said cup having a hole in the bottom communicating with the container, a removable threaded closure normally closing the open top of the cup, a valve unit freely movable by gravity and comprising a stem extending through the hole in the bottom of the cup and also comprising two valve closures rigidly secured to the stem at the ends thereof, the upper closure of the valve unit serving to close the said hole when the package is upright and the lower or second closure of the valve unit tending to close the said hole when the package is inverted, and a central rod rigidly fixed to the threaded closure and normally directly engaging the valve unit to prevent it from automatically moving to its hole closing position when the package is inverted with the closure in place.

11. A liquid dispenser for use with a container such as a bottle and comprising in combination a measuring cup open at the top and adapted to be positioned at the mouth of the bottle, the said cup having a hole near the bottom adapted to communicate with the interior of the bottle, means normally closing the open top of the cup but movable to open it, a valve normally positioned to close the bottom hole in the cup and automatically movable to open the said hole when the dispenser is inverted, a second valve automatically tending to close the bottom hole in the cup when the dispenser is inverted, and an element normally serving to prevent the second valve from closing the bottom hole in the cup when the dispenser is inverted which element is manually movable out of its normal relationship so as to permit the second valve to so close the said hole.

12. A liquid dispenser for use with a container such as a bottle and comprising in combination a measuring cup open at the top and adapted to be positioned at the mouth of the bottle, the said cup having a hole in the bottom adapted to communicate with the interior of the bottle, means normally closing the open top of the cup but movable to open it, a valve unit freely movable by gravity and comprising a stem extending through the hole in the bottom of the cup and also comprising two valve closures rigidly secured to the stem at the ends thereof, the upper closure of the valve unit serving to close the said hole when the package is upright and the lower or second closure of the valve unit tending to close the said hole when the package is inverted, and an element normally serving when the dispenser is inverted to prevent the valve unit from automatically moving to its hole closing position, the said element being manually movable out of its normal relationship so as to permit the valve unit to automatically move and close the said hole.

13. A liquid dispenser for use with a container such as a bottle and comprising in combination a measuring cup open at the top and adapted to be positioned at the mouth of the bottle, the said cup having a hole near the bottom adapted to communicate with the interior of the bottle, a removable threaded closure normally closing the open top of the cup, a valve normally positioned to close the bottom hole in the cup and automatically movable to open the said hole when the dispenser is inverted, a second valve automatically tending to close the bottom hole in the cup when the dispenser is inverted, and a central rod rigidly fixed to the threaded closure and normally serving to prevent the second valve from closing the bottom hole in the cup when

the dispenser is inverted with the closure in place.

14. A liquid dispenser for use with a container such as a bottle and comprising in combination a measuring cup open at the top and adapted to be positioned at the mouth of the bottle, the said cup having a central hole in the bottom and another hole near the top both adapted to communicate with the interior of the bottle, a removable threaded closure normally closing the open top of the cup, a valve unit freely movable by gravity and comprising a stem extending through the hole in the bottom of the cup and also comprising two valve closures rigidly secured to the stem at the ends thereof, the upper closure of the valve unit serving to close the said hole when the package is upright and the lower or second closure of the valve unit tending to close the said hole when the package is inverted, and a central rod rigidly fixed to the threaded closure and normally directly engaging the valve unit to prevent it from automatically moving to its hole closing position when the dispenser is inverted with the closure in place.

15. A liquid dispensing package comprising in combination, a bottle, a measuring cup open at the top and positioned in the mouth of the bottle, the said cup having a hole near the bottom communicating with the interior of the bottle, an internally threaded cap engaging external threads on the bottle and serving to hold the measuring cup in place, the said cap having a central opening therein, a valve normally positioned to close the bottom hole in the cup and automatically movable to open the said hole when the package is inverted, a second valve automatically tending to close the bottom hole in the cup when the package is inverted, a removable closure for the central opening in the said bottle engaging cap, and an element carried by the said removable closure and normally projecting into the cup to prevent the second valve from closing the bottom hole in the cup when the package is inverted with the said closure in place.

16. A liquid dispensing package comprising in combination, a bottle, a measuring cup open at the top and positioned in the mouth of the bottle, the said cup having a hole near the bottom communicating with the interior of the bottle and having a peripheral flange extending over the top of the bottle, an internally threaded cap engaging external threads on the bottle and engaging the flange of the measuring cup to hold the said cup in place, the said cap having a central opening therein, a valve normally positioned to close the bottom hole in the cup and automatically movable to open the said hole when the package is inverted, a second valve automatically

tending to close the bottom hole in the cup when the package is inverted, a removable closure for the central opening in the said bottle engaging cap, and an element carried by the said removable closure and normally projecting into the cup to prevent the second valve from closing the bottom hole in the cup when the package is inverted with the said closure in place.

17. A liquid dispensing package comprising in combination, a bottle, a measuring cup open at the top and positioned in the mouth of the bottle, the said cup having a hole near the bottom communicating with the interior of the bottle, an internally threaded cap engaging external threads on the bottle and serving to hold the measuring cup in place, the said cap having a central externally threaded boss with an opening therein, a valve normally positioned to close the bottom hole in the cup and automatically movable to open the said hole when the package is inverted, a second valve automatically tending to close the bottom hole in the cup when the package is inverted, a removable internally threaded closure cap engaging the threaded boss of the said bottle engaging cap, and a central rod rigidly fixed to the last said closure cap and normally projecting into the cup to prevent the second valve from closing the bottom hole in the cup when the package is inverted with the said closure cap in place.

18. A liquid dispensing package comprising in combination, a bottle, a measuring cup open at the top and positioned in the mouth of the bottle, the said cup having a hole in the bottom communicating with the interior of the bottle, an internally threaded cap engaging external threads on the bottle and serving to hold the measuring cup in place, the said cap having a central externally threaded boss with an opening therein, a valve unit freely movable by gravity and comprising a stem extending through the hole in the bottom of the cup and also comprising two valve closures rigidly secured to the stem at the upper and lower ends thereof, the upper closure of the valve unit serving to close the said hole when the package is upright and the lower or second closure of the valve unit tending to close the said hole when the package is inverted, a removable internally threaded closure cap engaging the threaded boss of the said bottle engaging cap, and a central rod rigidly fixed to the last said closure cap and normally projecting into the cup to directly engage the valve unit to prevent it from closing the bottom hole in the cup when the package is inverted with the said closure cap in place.

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