```
Dec. 4, 1962
R. R. COX
\(3,066,819\)
FREE-POURING JUG
Filed July 20, 1961
```



3,066,819
FREE-POURENG JUG

Richard R. Cox, 4119 Hilicrast Road, Richmond 25, Va. Filed July 20, 1961, Ser. No. 125,419 3 Claims. (Cl. 215-1)

This invention relates generally to containers having relatively constricted pouring spouts, and, more particularly, to a jug type container provided with a hollow handle to afford an air intake, thereby eliminating the annoying gurgling sound and accompanying splashing or uneven dispensing of the contained liquid which usually occurs when pouring from bottles or jugs of this type.
It is a basic physical principle that when a liquid is dispensed from a bottle or other container, the space within the container which had been filled by the liquid must be replaced by air. Due to the narrowness of the neck or mouth of most bottles, it is virtually impossible to dispense the contained liquid with any degree of celerity without causing a "gurgling" sound and an accompanying splashing of the liquid. This is so because when poured in any but the slowest and most careful manner, the liquid tends to fill the entire narrow mouth and the incoming air is denied free passage into the bottle. The result is that the air is admitted sporadically in the form of large air bubbles which produce the gurgling sound and cause the accompanying splashing of the liquid. This problem is actually brought about by the formation of a partial vacuum behind the emerging liquid. Outside air in irregular puffs will then violently force its way up through the outflowing liquid in order to destroy the pockets of vacuum as they begin to form in the vacant space in the container. The splashing which accompanies this phenomenon, besides being both annoying and wasteful, can be dangerous when the contained liquid is a harmful one such as an acid or bleach.
The present invention is designed to eliminate the above-described annoying, wasteful, and sometimes dangerous characteristic of ordinary jug type vessels by the use of a "breathing" tube, extending internally and, as an integral part, of the container from a point inside the container adjacent the outer wall near the top thereof substantially in a plane through a pouring handle thereon to a point inside the mouth adjacent the outer wall at the top thereof in the same plane. Advantageously this passage may be inside a hollow pouring handle opening at its lower end into the bottle where the base of the handle is attached to the bottle and entering the mouth where the top of the handle is attached to the neck of the bottle. This passage through the hollow handle permits a free inflow of air without hinderance from the outflowing liquid. As soon as the inverted container is tilted so that the mouth is pointed in a downward direction thereby allowing the gravity flow of the liquid, the air is immediately sucked in through the breathing tube and a continuous, uninterrupted dispensing of the liquid is assured.
In order that the present invention may be more clearly understood, reference is now made to the accompanying drawings, showing how the breathing tube of my invention may be incorporated in the structure of a bottle, in which:
FIG. 1 is an elevation, partly in section, of an entire bottle, employing a hollow handle in accordance with the preferred form of my invention;
FIG. 2 is a similar elevation of a modified form of my invention;
FIG. 3 is a plan view of the mouth of a bottle according to either FIG. 1 or FIG. 2; and
FIG. 4 is a cross-sectional view taken on lines 4-4 of

FIG. 3 showing the neck and spout of the bottle with a cap thereon.
The invention can be appropriately used with any vessel 1 which has a small mouth or neck 2 . The neck 2 may be provided with exterior threads 3 to accommodate a screw-on type cap $3 a$, though any form of closure effectively sealing the periphery of the neck can be used. In the preferred form shown in FIG. 1, there is a breathing tube 4 which extends from the base 5 of the handle 6 through the hollow handle, and inside the neck 2 up to the rim 7 thereof. As the liquid flows out through the neck 1, the replacing air flows in through the breathing tube 4. It will be observed that the tube 4 enters the neck 2 below the rim 7 thereof and extends a short way at 8 parallel to the axis thereof and substantially in the plane of handle 6 , the entrance rim 9 of the tube 4 being substantially coplanar with the exit rim 7 of the neck 2. This insures complete separation of the entering stream of air and the exiting stream of liquid, especially when the bottle 1 is handled in the normal fashion with handle 6 above neck 2 when pouring.
An alternative form is shown in FIG. 2, working on the same principle. There the breathing tube lies on the inside surface of the bottle substantially coplanar with a solid exterior handle rather than passing through a hollow handle. The bottle $\mathbf{1 1}$ is provided with a breathing tube 12 running from its entrance rim 9 inside neek 2 and substantially coplanar with bottle neck exit rim 7 down the inside surface of the bottle 11 and ends at 13 . This position 13 is at the outer wall of the bottle 11 near the top thereof in the plane of exterior handle 14 and thus affords passage 12 the same functional advantages of passage 4 in the "through the handle" design of FIG. 1.

In FIG. 3 the relative location of the breathing tube entrance rim 9 with regard to the exit rim 7 and handle plane of the bottle can readily be seen. The separate apertures are both contained within the outer circular circumference of the threads 3 on the mouth 2. Having the tube opening within the effective seal provided on rim 7 is desirable because when the appropriate "screw-on" or other cap is in place, the air duct and the mouth are simultaneously covered.

This invention is so simple in structure and requires so small an amount of additional material of the same kind as is used in the container itself, in either form, that it can easily be incorporated in the manufacture of containers for liquids with very little additional expense. The vessel can be molded or shaped in conventional manner from any plastic material such as glass, earthenware, or the newer plastic materials, especially synthetic resins. Because of the simplicity of this invention, the possibilities of variation to accommodate different commercial uses is unlimited.

The exact size or shape of the vessel is not critical, as the invention can be incorporated into almost any container, but it is of special utility with the long-used bottle shape usually called a "jug." It should be understood that the particular embodiments of the invention, employed here for the purposes of illustration, do not in any way define the scope of this invention.

I claim:

1. A relatively deep and wide container having a relatively narrow spout extending upwardly from the top thereof, said spout ending in a uniplanar rim, a closure member for closing said spout, a compressible seal-forming element carried by said closure member for engaging and sealing said rim, first screw threads carried on the outer surface of the end portion of said spout and second screw threads carried by said closure member, said first and second screw threads coopeating to compress said seal-forming element against said rim, a handle affixed
to said container entirely below said first screw threads, and a breathing tube carried by said container having the initial portion of its entrance end within said spout reaching substantially to said rim and extending into said spout away from the rim and having the terminal portion of its exit end opening into said container at the inside near the top of the outer wall thereof, said entrance and exit ends lying substantially in the plane containing the spout axis and the handle.
2. A container, according to claim 1, wherein said spout is generally a circular cylinder and said breathing tube is generally a circular cylinder, said breathing tube being affixed along the inner side of said spout to occlude a portion of the interior of said cylindrical spout and to provide a generally crescent shaped orifice of said spout.
3. A relatively deep and wide circular cylindrical container having a relatively narrow circular cylindrical spout formed thereon and extending upwardly from the top thereof, said spout ending in a uniplanar rim, the longitudinal axis of the container being substantially the longitudinal axis of the spout, a hollow handle, one end of the handle formed on and opening into the container adjacent the top outer wall of the container, the other end of the handle formed on and opening into the spout at approximately midway between its base and rim, a member formed on the inside of the spout and providing a
passage-way along said spout, the lower end of the member being sealed to the side of the spout about the opening of the handle into the spout and providing a passageway coextensive with the passageway through the hollow 5 handle, the upper end of the member terminating in an opening laterally inwardly of the outer rim of the spout, the member and hollow handle providing a breathing tube extending from the rim of the spout to the top outer wall of the container, the longitudinal axis of the container and the longitudinal axis of the member and hollow handle lying in substantially the same plane, exterior screw threads formed about the outer end portion of the spout, a screw-type cap having screw threads formed in the outer wall thereof complementary to the screw threads formed about the outer end portion of the spout to removably secure the cap to the spout, and compressible sealing means to seal the cap to the rim of the spout when the cap is secured to the spout.

References Cited in the file of this patent UNITED STATES PATENTS
591,735 Brewer ......................- Oct. 12, 1897
649,394 Bonnette et al. .-...-........... May 8, 1900
763,973 Flynn -..-.................................... 1904

