Feb. 7, 1961 A. V. RICE 2,970,737

SELF-SEALING CONTAINER

Filed June 19, 1959

Fig 1.

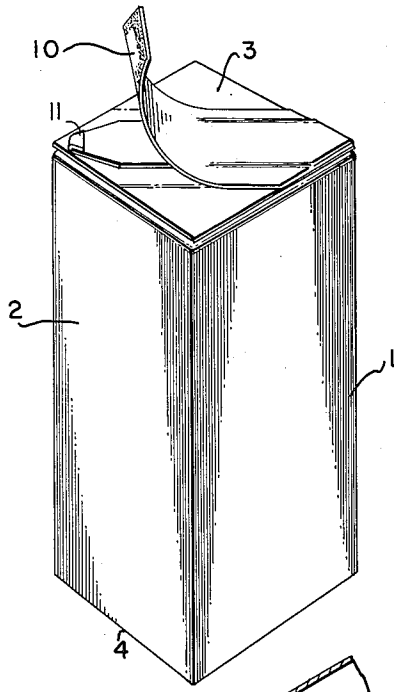


Fig 2.

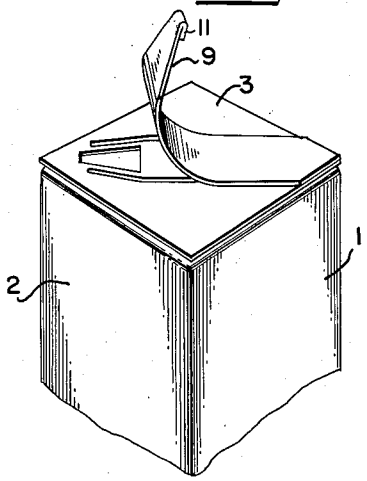


Fig 3.

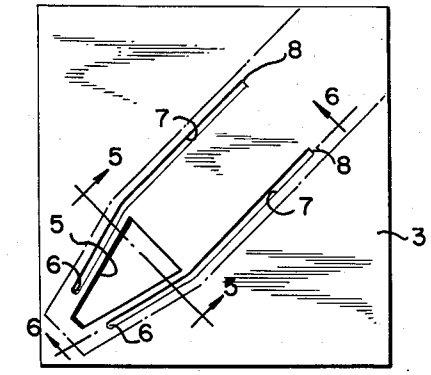


Fig 4

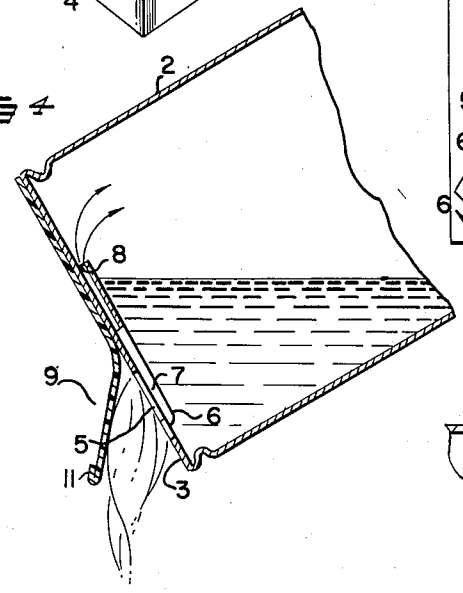


Fig 5.

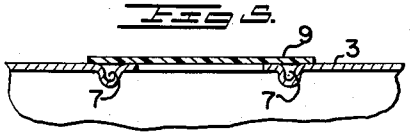
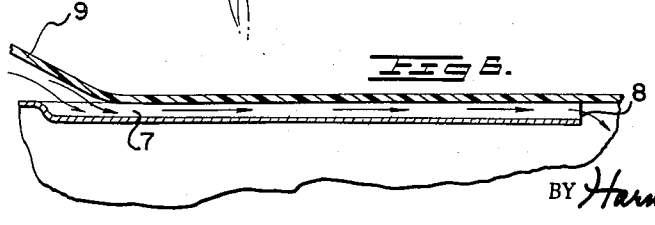


Fig 6.



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SELF-SEALING CONTAINER

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4 Claims. (Cl. 229—7)

This invention relates to improvements in closures for liquid dispensing containers.

The primary object of this invention is to provide a closure adapted to freely open when the container is tilted to a dispensing position and to freely close under the force of gravity when placed in a generally upright position.

Another object of this invention resides in a novel venting structure for a container as the liquid is being dispensed, thus assuring a smooth discharge of the material.

Another object of this invention is to provide an improved flexible closure flap for opening and sealing the dispensing opening of a container.

Another object of this invention is to provide a simple, inexpensive closure, which is easily produced without additional container costs.

With the above and other objects in view, which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts herein described and more particularly defined in the appended claims.

In the drawings forming part of the specification are illustrated the embodiments of this invention in which:

Figure 1 is a perspective view of the container comprising the invention showing a disposable, sanitary, secondary seal in a raised position and a flexible closure for the container in the closed position;

Figure 2 is a fragmentary perspective view of the container with the flexible closure for the container in an exaggerated open position with the disposable seal removed;

Figure 3 is a top plan view of the container illustrating the relationship of the dispensing opening and open channels, the flexible closure to overlie the opening being represented by phantom lines;

Figure 4 is a fragmentary sectioned view of the top portion of the container in a tilted attitude dispensing a liquid;

Figure 5 is a sectioned view along the lines 5—5 of Figure 3; and

Figure 6 is a sectioned view along the lines 6—6 of Figure 3.

Referring now particularly to the accompanying drawings, in which like numerals indicate like parts throughout the several views, the container 1 may be of any suitable or desirable form and may be of any desirable material, having side walls 2, a top closure 3, and a bottom closure 4. These closures may be of varied shapes or forms. For example, the container may be cylindrical instead of rectangular in section as illustrated.

The top closure 3 has a dispensing opening 5 spaced from the peripheral edge of the top 3 and as defined by the juncture of the top 3 and side walls 2. The dispensing opening 5 is illustrated as being generally triangular in form but other designs would be suitable. Adjacent to dispensing opening 5 are the first termini 6 of the integrally formed open channels 7 which run diagonally across top 3 to the position of the second termini 8.

A closure flap 9 formed from any thin flexible material extends diagonally across top 3, overlying dispensing opening 5, and channels 7. A substantial portion of closure flap 9 is secured as by an adhesive to top 3, forming and sealing the rearward portion of channels 7, the remaining portion of the closure flap 9 being free to swing to a dispensing position by the force of the liquid dispensed and its own weight when the container 1 is tilted and to swing to a closed position by gravity. In the closed position the dispensing opening 5, the forward portion of channels 7 and the first termini 6 are covered and sealed when container 1 is placed in a generally upright position. The forward lip of closure flap 9 has a stiffened portion 11 formed by turning a small portion of the closure flap 9 back and heat sealing to the top of the closure flap. Other means of stiffening the lip at 11 may be employed, such as adding an additional piece of material and attaching by an adhesive thereto. Stiffening the closure flap 9 at a point 11 insures the breaking of the liquid seal at all points along the forward portion of the closure flap 9 at the same time when the container 1 is placed in a dispensing attitude.

Over the top of the closure flap 9, at the time of shipping the container 1, is placed a disposable secondary, sanitary seal 10, the seal being of any suitable flexible plastic material and being secured along the peripheral edge thereof by an adhesive to the top wall 3 about the closure flap 9.

In operation, the disposable secondary sanitary seal 10 is removed and discarded. Container 1 is tilted to a dispensing position as in Figure 4 and closure flap 9 is opened by the pressure of the liquid dispensed through opening 5 and its own weight. As the liquid is dispensed, air enters first termini 6, passing through channels 7 and discharging at the second termini 8 into the interior of container 1 replacing the dispensed liquid and thereby allowing a smooth flow of liquid from the dispensing opening 5. In other words, the air entering the container through channels 7 breaks the vacuum normally created behind a liquid during a dispensing operation.

When the container 1 is returned to the upright position, the flexible closure flap 9 returns to a closed position by the force of gravity, overlaying the dispensing opening 5, the forward portion of channels 7 and first termini 6, thereby sealing the contents of container 1 from outside contamination.

It is realized that the invention is subject to many modifications well within the purview of this inventor and the scope of the appended claims.

I claim:

1. A container for liquids comprising top, bottom, and side walls, said top wall including a dispensing opening and at least one integrally formed open channel, with said channel being disposed with a first terminus adjacent the opening and a second terminus disposed at a position substantially removed from said opening, and a closure of flexible material secured to the top wall and overlaying said dispensing opening and said open channel thereby sealing the opening and said first channel terminus under the force of gravity in a generally upright attitude of the container and swinging to a dispensing position under the pressure of the liquid dispensed from the opening and its own weight when said container is tilted, with said channel directing air to the interior of the container behind the liquid during dispensing.

2. A liquid container comprising top, bottom, and side walls, said top wall including a dispensing opening, a plurality of integrally formed open channels, said channels having first termini adjacent to the dispensing opening and said channels being extended diagonally, and substantially parallel to each other across the top wall to a second termini at a position substantially removed from

said dispensing opening, and a flexible closure flap secured to the top wall, said flap permanently covering a portion of the channels and the second termini, and swinging to open and close the first termini and the dispensing opening depending on the attitude of the container.

3. A liquid container comprising top, bottom and side walls, said top wall including a dispensing opening and at least one integrally formed open channel with said channel being disposed with a first terminus adjacent the dispensing opening and a second terminus disposed at a position substantially removed from said opening, and a closure of flexible material extending diagonally across said top wall overlaying said dispensing opening and channel; a substantial portion of said closure being permanently secured to the top wall forming and sealing the rearward portion of said channel, the remaining portion of the flexible closure being free for swinging movement to overlay and seal the dispensing opening, the forward portion of said open channel, and the first terminus by gravity when said container is in a generally upright attitude, and swinging to a dispensing attitude under the pressure

of the liquid dispensed from the dispensing opening and its own weight when said container is tilted.

4. A liquid container comprising top, bottom, and side walls, said top wall including a dispensing opening, generally triangular in shape with a pouring lip formed at the apex of said triangular opening, a plurality of integrally formed open channels, said channels having first termini spaced from but adjacent to said pouring lip, and said channels extending from said first termini diagonally and substantially parallel to each other, across the top wall to second termini at a position substantially removed from said dispensing opening.

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