Abstract: A container mouth is plugged by an open-ended tubular shell, closable at the top by a hinged cap, whose interior is spanned by a membrane which is weakened along two closed lines defining two separate detachable wall portions. The larger of the two wall portions is rigid with the extremities of a ring-segmental tab which spacedly overlies the membrane within the shell and whose midpoint is integrally joined to the smaller wall portion whereby an upward pull upon the two halves of the tab simultaneously removes both wall portions to form a pouring aperture and an air inlet.
Our present invention relates to a closure for a bottle or other open-topped container whose contents, with the closure in place, can be removed only after a frangible seal in the closure has been broken.

The object of this invention is to provide an improved closure of this type, made preferably of elastomeric plastic material, in which two openings (respectively serving as a pouring outlet and as an air intake) can be formed by a single pull on a tab rising from the frangible seal.

This object is realized, pursuant to our invention, by the provision of a rupturable membrane spanning a tubular upright shell between its ends, the membrane being weakened along two closed lines defining two detachable wall portions of different size. The larger wall portion is connected with the ends of a loop-shaped tab spacedly overlying the membrane; the midpoint of the loop being similarly secured to the smaller wall portion whereby both portions can be torn out simultaneously by an upward pull on the two halves of the loop. The shell may be closed at the top by a hinged, cap-shaped lid overlying the tab prior to its removal.

Two embodiments of the invention are shown by way of example on the accompanying drawing, in which:

FIG. 1 is an axial sectional view showing a container, and a closure according to the invention inserted into the container mouth, its cap being shown in closed position;

FIG. 2 is an axial sectional view of the closure alone, shown in open position;

FIG. 3 is a top plan view showing the closure in the position of FIG. 2;

FIG. 4 is an axial sectional view taken through a bottle which has a closure according to the invention fitted to its neck;

FIG. 5 is a sectional view which is similar to FIG. 1 but with an outlet and an air inlet formed therein; and

FIG. 6 is a sectional view which is similar to FIG. 4 and shows the outlet and air-inlet openings formed therein.

The closure shown in FIGS. 1-3 and 5 comprises a shell 1, a transverse membrane 2 and a closure cap 3 of plastic material connected by an articulated joint 4 with the shell 1. The cap 3 is provided with a depending skirt 5, formed with sealing ribs 6 to engage the inner shell surface, and with an opening lug 7. The shell 1 has on top a sharp edge 8 which ensures the cutoff of the outflowing liquid and avoids undesirable leakage and dripping on the outside wall.

Along a sectorlike, closed line 9, where arcuate portion is curved about the closure axis 27, and along an eccentric circular line 10, the membrane 2 is formed with grooves 11 which weaken the membrane to facilitate the tearing off of the wall portions 15, 16 defined by these grooves so that an outlet opening for discharging the contents of the container 28 and an air-intake opening can be formed. The vertex of the larger, sectoral wall portion 15 points to the smaller, circular wall portion 16.

For a convenient detachment of the wall portions 15 and 16, an open tearing ring 17 is provided which is spaced from the membrane 2 and disposed inside the shell 1. The ring-segmental body of this tab 17 is firmly connected to the two wall portions 15, 16 by webs 18 and 19 which may be made integral with these portions. To facilitate the removal of the wall portions 15, 16, the webs 18, 19 are connected thereto in the vicinity of the grooves 11. More particularly, the webs 18 form the downwardly bent extremities of the tab whereas the web 19 extends from the midpoint of the ring segment. When a finger is slipped under the tearing ring 17 and the latter is suddenly pulled upward, the two wall portions 15, 16 are entirely torn off along the parting lines 9, 10 in the grooves 11 so that the outlet opening and the air inlet appear in their stead. This is shown in FIGS. 5 and 6. Beneath the vent opening, the membrane 2 is provided with a pipe 20 descending into the container 28; so that the closure can be used as a dispenser when the wall portions 15, 16 have been removed. This pipe 20 is of great importance for a calm flow of the contents of the container.

It will be understood that a unilateral pull can be applied to the tearing ring so that only one wall portion 15 or 16 is removed from the membrane.

The closure which consists preferably of elastic material has on the outer surface of its shell 1 a peripheral groove 21 which is used for a snap engagement with the rim 29 of the container mouth. A conical pilot surface 22 below the groove 21 facilitates the insertion of the closure into the rim 29 of the container 28.

The closure shown in FIGS. 4 and 6 is similarly designed but adapted to be mounted on a bottleneck 30. This closure has an inner annular retaining rib 23 for engaging the underside of a bead 24 on the outside of the bottle. The bead 24 may be spacedly overlaid a further bead 25 which obstructs the access to an annular lip 26 of the shell so that an unauthorized removal of the closure is rendered more difficult. Instead of one retaining rib 23, a plurality of such ribs may be provided next to one another.

For use as a dispenser, the closure may be provided with a spout 27, which is particularly advantageous when the dispenser is spaced from the rim of the container, e.g. mounted at the center thereof. This spout may be of any suitable shape.

FIG. 6 shows an embodiment of the closure in a position which enables an immediate decanting of the contents of the bottle. In the position shown in FIG. 5, the closure cap 3 must be moved first to the position shown in FIG. 2 to permit emptying the container 28.

What is claimed is:

1. A closure for a container having an open mouth, comprising:
   an open-ended tubular shell centered on a substantially vertical axis and provided at its lower end with a formation engageable with the container mouth;
   a rupturable membrane spanning the interior of said shell and forming a frangible seal, said membrane being provided along two closed lines with weakened zones defining two spaced-apart wall portions detachable from the remainder of the membrane; and
   a tab member with a loop-shaped body spacedly overlying said membrane within said shell, said body being connected at the extremities of the loop with one of said wall portions and at the midpoint of the loop with the other of said wall portions for simultaneous detachment thereof upon an upward pull on both halves of said body.

2. A closure as defined in claim 1 wherein said one of said wall portions is substantially larger than said other of said wall portions.

3. A closure as defined in claim 2 wherein said loop is a segment of a ring centered on said axis, said one of said wall portions being substantially sector shaped with an arcuate boundary centered on said axis and with a vertex pointing toward said other of said portions.

4. A closure as defined in claim 3 wherein said other of said portions is circular.

5. A closure as defined in claim 1, further comprising a hinged cap normally closing the top of said shell and encompassing said tab member.

6. A closure as defined in claim 5 wherein said cap is provided with a depending skirt fitting into the top of said shell above said membrane.

7. A closure as defined in claim 1 wherein said shell and said membrane consist of elastomeric plastic material.