DEVICE FOR PREVENTING RE-FILLING OF BOTTLES

Ottavio Ciucci, Rome, Italy, assignor to Aridante Vallani, Leopoldo Vallani, and Ottavio Ciucci, all of Rome, Italy

Application November 21, 1936, Serial No. 112,156
In Italy June 24, 1936

1 Claim.  (Cl. 215—23)

Subject matter of invention is an improved method and means for preventing bottles from being re-filled, in which a loose disk on a perforated diaphragm is acted upon, both when opening and closing the said diaphragm, by the weight of two heavy balls placed above and beneath the disk, the said parts being contained in different members which, connected together, are arranged in the neck of the bottle.

In order to prevent re-filling in any possible position of the bottle, and whatever the means used for tampering with the bottle may be, the improvement subject matter of invention comprises a float, preferably of glass, placed in a member arranged above the other members containing the loose disk and the ball which by its weight effects the opening of the closing disk on the perforated diaphragm.

For better understanding the invention the same is described with reference to the annexed drawing in which:

Fig. 1 shows the neck of the unrefillable bottle according to invention in position of closure, and Fig. 2 shows the bottle in inclined manner and open position for discharging contents of bottle.

In the drawing a is the ball for separating the loose disk b from the perforated diaphragm d whilst c is a ball which prevents the disk b from opening onto diaphragm d. Above the latter another aperture diaphragm e is provided which contains a ball f. The diaphragms d and e are provided with ridges having sloping inner edges so that the inner surfaces on which the balls a and c ride are conical shaped.

On the said diaphragm e the devices are arranged which form the improvements according to invention, comprising a hollow body i with ridges 2 and bottom rim 3 supporting a hemispheric float 4. The hollow body i is closed at the top by a perforated diaphragm 5 kept in place by perforated cover 6 which, in turn, is kept in position by tubular member 7 fixed to mouth of bottle. Cover 6 has holes 6' in a staggered relation with holes 5' of diaphragm 5 in order to prevent tapping.

Tubular member 7 is fixed in place by means of a resilient expandable ring 9 inserted into a groove half of which is in an emery-ground part of the mouth of the bottle, and the other half on the other surface of member 7.

The elastic expandable ring 9 may be of any suitable material and shape.

Owing to tight closure of rim 10 of member 7 in the interior of mouth of bottle, ring 9 is completely separated from the liquid and its vapours.

By the above described device re-filling of bottle by whatever means is made impossible. When the neck of the bottle is in the inclined position as shown in Fig. 2 the hemispheric float 4 is acted upon by the pressure of the liquid which may flow through the opening of member 7 and the holes of the diaphragm 5 into the interior of hollow body 1 so that it is raised and shifted onto rim 3 to close its hole and thus prevent liquid from entering the bottle.

The above described device provides further means in addition to float 4 for preventing the refilling of a bottle. For example if the arrangement is inclined as shown in Fig. 2 and immersed in liquid and then turned towards the position illustrated in Fig. 1, the balls a and c will roll towards the positions shown in Fig. 1 before the neck of the bottle becomes horizontal in its upward swinging movement because of the conical surfaces on which the balls a and c ride. The disk d is thus closed before the neck of the bottle becomes horizontal or the fluid entering position of the neck.

The above described form of realization of invention is given by way of example, but by no means indicative of invention as to structural modifications of same within its scope.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

In a device for rendering a bottle non-refillable, a glass cylindrical shaped member positioned within the neck of the bottle, a rim carried by the lower end of said member, said rim having a flat surface positioned towards the top of the bottle neck, a hollow glass hemispherical shaped float within said member having the flat surface thereof positioned to face said rim, a diaphragm having openings therein extending across said cylindrical member above said float, the diaphragm being of said hemispherical float being such as to permit limited lateral movement thereof within said cylindrical shaped member and the radial dimension of the arcuate shaped portion of the hemispherical shaped float being slightly less than the distance between said rim and said diaphragm so as to permit limited bodily movement of the float in a longitudinal direction with respect to said cylindrical shaped member, whereby the float will permit fluid to move out of the bottle and prevent fluid from entering the bottle by having such incoming fluid force the flat surface of the float into engagement with the flat surface of said rim.

OTTAVIO CIUCCI.