June 22, 1943. J. M. LEATHERMAN 2,322,527

BOTTLE CLOSURE

Filed May 11, 1940

Fig.-1

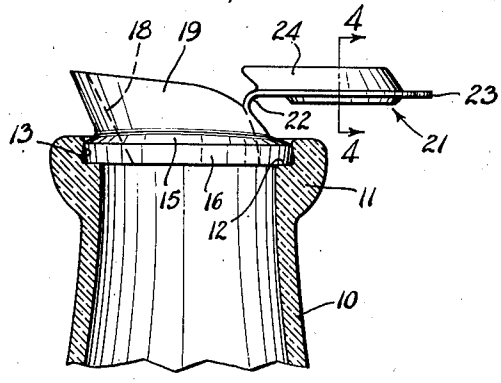


Fig.-2

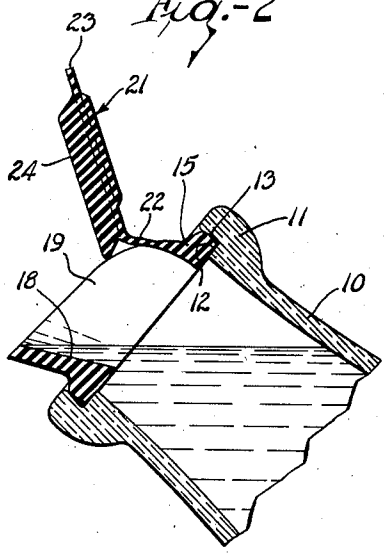


Fig.-3

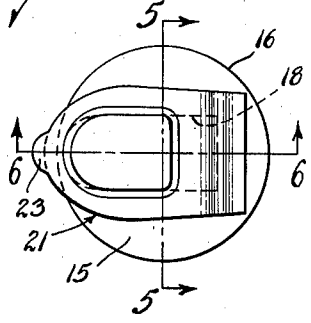


Fig.-5

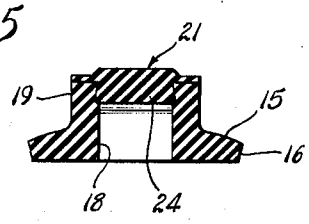


Fig.-6

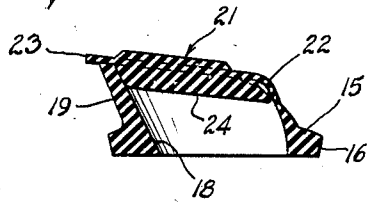
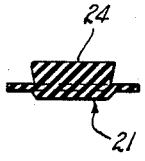


Fig.-4



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BOTTLE CLOSURE

Jerry M. Leatherman, Akron, Ohio

Application May 11, 1940, Serial No. 334,588

4 Claims. (Cl. 215—73)

This invention relates to bottle closures, and more especially it relates to bottle closures formed with a delivery orifice and pouring spout, and including a cover or lid for said delivery orifice.

The closure is especially adapted for use upon milk bottles, where is replaces the paper cap with which milk bottles usually are provided. The provision of a pouring spout prevents the milk from trickling down the side of the bottle, and the provision of a lid assures that the contents of the bottle will not be contaminated by dirt or insects that otherwise might enter the bottle.

The chief objects of the invention are to provide a bottle closure of the character mentioned whereof the cover or lid will remain open in all positions of the bottle during use, yet which readily may be retained in closed position; to provide simplicity of construction; to provide a closure that readily may be cleaned; to provide a delivery orifice of such size and shape as to admit air to the bottle during pouring adequate to replace the liquid as the latter is being poured; to provide for facile attachment of the closure to a bottle; and to embody a closure of the character mentioned in a one-piece structure. Other objects will be manifest as the description proceeds.

Of the accompanying drawing:

Figure 1 is a side elevation of the improved closure, and a bottle to which it is operatively applied, the latter being shown in section and the cover or lid of the closure being in open position;

Figure 2 is a diametric section through the closure and bottle on which it is mounted, the latter being in tilted, pouring position;

Figure 3 is a plan view of the closure with the lid in closed position;

Figure 4 is a section of the lid on the line 4—4 of Fig. 1;

Figure 5 is a transverse section of the closure on the line 5—5 of Figure 3; and

Figure 6 is a section on the line 6—6 of Fig. 3.

Referring to the drawing, particularly Figs. 1 and 2 thereof, the numeral 10 designates the upper portion of a conventional milk bottle having a mouth rim or bead 11 provided with a shoulder or seat 12 for the usual paper or cardboard cap (not shown) said seat 12 being encompassed by the usual upstanding peripheral wall 13 that is slightly smaller at its top than at its juncture with the said seat, so as better to retain a cap mounted on the latter. The present invention consists of a closure designed to be substituted for the usual paper bottle cap, when the bottle is in domestic use.

Said closure consists of a one-piece structure of resilient and flexible rubber composition, and comprises a circular base portion 15, the peripheral face 16 of which is of somewhat less height than the wall 13 of the bottle, said peripheral face tapering slightly toward the bottom face of the closure. The diameter of the peripheral face is such that it has a force fit into the bottle opening where it rests upon the seat 12, its perimeter 16 being slightly deformed by the slightly overhanging wall 13 of the bottle, the arrangement being such that the closure is firmly retained in place on the bottle during use, but readily may be removed therefrom when desired.

The closure body 15 is formed with an opening 18 therein that is centrally disposed and is of substantially greater length than width, one end of said opening being arcuate. Surrounding said opening 18 is an upwardly extending wall 19 that constitutes a pouring spout, said wall being perpendicular to the plane of the base 15 at the sides of the opening, as shown in Fig. 5, and being obliquely disposed at the arcuate end of the opening so that its upper extremity or lip projects beyond and overhangs the peripheral face 16 of the closure, as is shown in Figs. 1, 2 and 6. Rearwardly of the said overhanging lip, the upper margin of the wall 19 slopes slightly downwardly, and at the opposite extremity of the opening 18 the said wall curves sharply downwardly to its juncture with the body 15. The upper end or free margin of the spout defines a dispensing aperture for the contents of a bottle.

At the rear of the spout 19, that is, the end thereof remote from the overhanging lip, the wall of the spout at the top thereof is integrally formed with a cover or lid that is designated as a whole by the numeral 21, the wall and lid being connected by a relatively thin web of material 22 that constitutes a hinge for said lid. The marginal contour of said lid is substantially the same as the shape of the spout 19 so that in the closed position of the lid it will overlie the latter with its margin flush with the sides thereof. The free end of the lid, however, is formed with a tab 23 that will project beyond the pouring spout and constitute a finger grip for lifting the lid from closed to open position. One face of the lid 21 is formed centrally with a boss 24 of the same general shape as the dispensing aperture in the spout 19, said boss being designed to enter or telescope with said opening in the closed position of the lid. The opposite lateral marginal faces of the boss 24 are slightly sloped or undercut, and the greatest width of the boss is slightly greater than the width of the spout.

Thus the closing of the lid **21** upon the spout requires that the boss **24** be forced into the dispensing aperture of the spout, with the result that there is a slight deformation of the lateral margins of the boss, or confronting surfaces of the spout, or both, as is clearly shown in Fig. 5. The arrangement is such as to effect a mechanical interlock of the boss and spout that functions firmly to retain the lid in closed position, when desired, without other latching means. The end face of the boss **24** adjacent the hinge **22** is more deeply undercut than the lateral faces of the boss, and the opposite end face of the boss is beveled, both of said end faces being adapted to make face to face contact with complementally sloped surfaces of the dispensing aperture, as shown in Fig. 6.

As previously stated, the improved closure is a one-piece structure of resilient rubber composition. It is vulcanized in a mold in the usual manner, which mold gives it the normal shape shown in Fig. 1. Thus it will be apparent that in the closed position of the lid the hinge portion **22** is placed under stress. Once the lid is opened, the resistance to stress of the hinge **22** will prevent the lid from closing, notwithstanding tilting of the bottle when the content of the latter is being poured therefrom. Furthermore, even though through long use the hinge weakens to such an extent as no longer to be able to hold the lid in open position, said lid still will not close when the bottle is tilted since the boss **24** is too wide to enter the dispensing aperture of the spout without being forced therein, and the lid will be held open by reason of the rear corners of the boss bearing against the margin of the spout **19** as shown in Fig. 2.

Because of the elongated shape of the opening **18** of the closure, an adequately large stream of liquid may be poured therethrough without utilizing the entire capacity of the same, thereby leaving ample space in the opening for air to enter the bottle to replace the liquid removed therefrom, without interfering with the free flow of the liquid. This feature of the invention will be apparent by reference to Fig. 2.

The closure may be made of white rubber, or it may be be made in pastel shades if desired. The closure is of simple construction, and is readily washed to maintain its sanitary condition. Being made of rubber, it will not absorb moisture or odors. The closure is easily attached to and detached from a bottle, and achieves the other advantages set out in the foregoing statement of objects.

Modification may be resorted to without departing from the spirit of the invention, or the scope thereof as defined by the appended claims.

What is claimed is:

1. A bottle closure of the character described comprising a body structure of deformable material having an opening formed therein and having an upwardly extending unconfined wall surrounding said opening and constituting a spout, the free marginal portion of the latter defining a dispensing aperture, a lid for covering the dispensing aperture in said spout, hinge means connecting the lid locally to the margin of the spout and normally urging the lid to open position, and a boss on one face of said lid, said boss being receivable in the dispensing aperture of the spout and being of such size and shape with relation to the spout as to have a force fit in the latter solely at two opposite local regions thereof.

2. A combination as defined in claim 1 wherein the body structure, lid, and hinge is a one-piece structure of resilient rubber composition.

3. A bottle closure of the character described consisting of a one-piece structure of resilient composition comprising a body structure having an opening formed therein and having an upwardly extending unconfined wall surrounding said opening and constituting a spout, the free marginal portion of the latter defining a dispensing aperture that is elongated so as to have greater length than width, a lid for covering the dispensing aperture in said spout, a hinge connecting one end of said lid to the spout at one end of the dispensing aperture therein, said hinge normally urging the lid to open position, and a boss on one face of said lid receivable in the dispensing aperture in the free end of the spout, the width of the boss between the lateral marginal faces thereof being greater than the width of the dispensing aperture in the spout so that the lid is retained in closed position by local interengagement of boss and spout.

4. A combination as defined in claim 3 in which the lateral marginal faces of the boss are undercut whereby a mechanical interlock of the boss and spout is effected when the lid is closed.

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