March 12, 1946. G. L. MOORE 2,396,337

BOTTLE AND CLOSURE THEREFOR

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Fig. 1

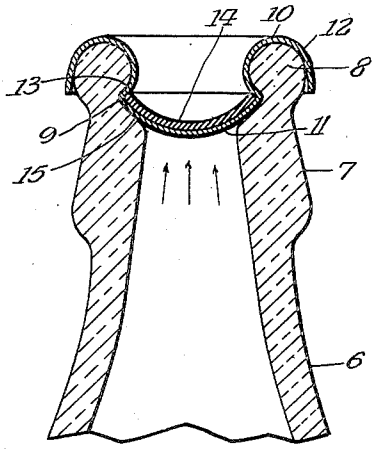
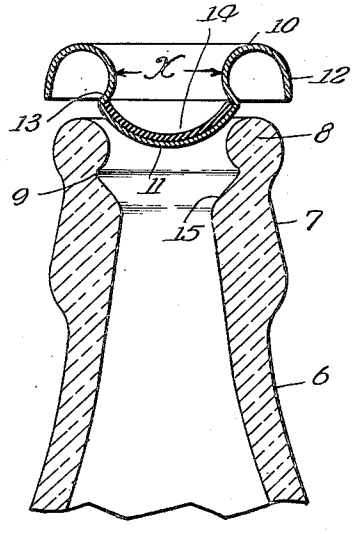


Fig. 2



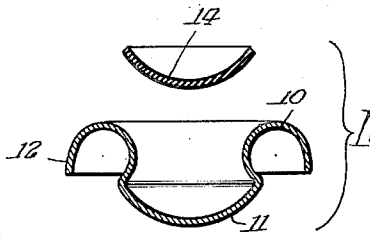


Fig. 3

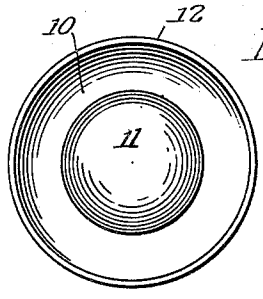
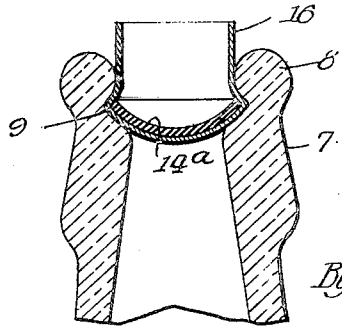


Fig. 4

Fig. 5



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BOTTLE AND CLOSURE THEREFOR

George Lee Moore, Chicago, Ill.

Application November 20, 1942, Serial No. 466,246

3 Claims. (Cl. 215—38)

This invention relates to bottles or receptacles intended for general purposes, but is particularly directed to means for closing bottles containing liquids under pressure or such as beer, soda, ginger ale, or the like. Heretofore such bottles have commonly been closed with metallic caps or seals.

One of the principal objects of the present invention is to provide a bottle having a closure preferably formed of non-metallic material.

Other objects are to provide an improved bottle with a closure which may be readily and cheaply made and easily applied; to provide a closure which will form a secure seal and which will also protect the end of the bottle; to provide a closure having a closing and covering portion with means for fastening the same in position which closure will become more tightly seated as the internal pressure becomes greater; to provide a container closure which may be made of paper, fibrous material, plastics, rubberized material, or any other suitable material; and to provide such other advantages and improvements as will appear more fully from the following description:

In the accompanying drawing illustrating this invention,

Fig. 1 is a vertical sectional view of the upper portion of a bottle, with my improved closure applied thereto;

Fig. 2 is a sectional view showing the closure in position to be inserted in the bottle;

Fig. 3 is a sectional detail of the closure cap or cover and the fastening disc;

Fig. 4 is a bottom plan view of the closure; and

Fig. 5 is a sectional view similar to Fig. 1 showing a modified form of the construction.

As shown in the drawing, 6 represents a container or receptacle such as a bottle having a neck portion 7 terminating in an outwardly projecting bead 8 such as usually provided for a crown cork and seal closure or other metallic cap. The bottle also has an inner groove 9 adjacent to the end for receiving the closure.

The closure comprises a cap or cover 10 which may be formed of any suitable material, preferably parchment paper or other paper, impregnated to make it impervious to the material to be placed in the bottle. This cap may also be waxed or coated to further insure a tight closure and close contact or sealing with the bottle. The cap has a central concavo-convex portion 11 with an outwardly extending curved flange or lip 12 which is adapted to fit closely over the end of the bottle. The inner diameter of the flange or bead 12 as indicated at X is less than the outer diameter of the central portion, these parts being joined by a re-entrant angle forming an annular shoulder 13. This shoulder and adjacent parts will fit closely within the groove 9 as shown in Fig. 1.

This combined closure and cap is securely fastened in position by an auxiliary closing and locking disc 14 which is also preferably made of non-metallic material such as paper, cardboard, pasteboard, plastic, or other material which will have a sufficient degree of resiliency. The disc 14 is also concavo-convex in cross section and is complementary to the outer surface of the cover 11 as shown in Fig. 2. The edges are preferably substantially radial in order to secure a good locking effect.

When the bottle is to be closed, the closure is applied thereto as indicated in Fig. 2, and a central portion is pushed down into the neck until the edge or shoulder 13 engages with the groove 9. The disc is of sufficiently large diameter so that it will require pressure to cause it to pass the narrow end portion of the neck and so that it will expand and remain under tension after the closure is seated in the groove. The neck is preferably provided with an annular shoulder 15 below the groove in order to prevent the possibility of the closure being pushed or driven in too far.

When the closure has been applied as shown in Fig. 1, it will be seen that the end of the bottle is fully protected against contamination, and it will also be noted that the central cover portion 11 and disc 14 are formed in the nature of an arch with the adjacent wall of the groove as an abutment. Pressure exerted upon the closure as indicated by the arrows tends to flatten the arch or disc and therefore increases the pressure against the bottom of the groove and making the closure still more tight and effective.

In the modified form shown in Fig. 5, the cover 16 is in the form of a small paper cup which is forced into closing position by means of a locking disc 14a as above described. In both forms of the invention as shown, the bottle or container may be opened by grasping one edge of the cover or closure and pulling on it sufficiently to unseat the disc and coacting portion, whereupon the closure may be removed from the neck. This will avoid the necessity of using a bottle opener and will tend to prevent damage often caused by attempting to remove bottle caps when no opener is available.

While I have shown a preferred form of bottle and closure as adapted for beer bottles, or the like, it will be readily apparent that my invention may also be utilized for closing various containers, and therefore I do not wish to have the same lim-

ited to the particular construction shown and described, except as specified in the following claims in which I claim:

1. In combination, a bottle having a neck terminating in an outwardly projecting bead and having an inwardly facing annular groove adjacent to the end of the neck with its upper wall facing downwardly and inwardly to form an annular abutment, a closure comprising a cap formed of paper, having a central concavo-convex portion with an outwardly extending curved flange fitting closely over said bead, the inner diameter of the flange being less than the outer diameter of the concavo-convex portion, said cap fitting closely within the end of the bottle with the edge of the concavo-convex portion fitting within the groove, and an auxiliary concavo-convex closing and locking disc formed of thin, flexible material in said central portion, said disc being of sufficiently large diameter so that pressure is required to insert it in the neck of the bottle and so that it will expand and remain under tension after the closure is seated in said groove and the curved flange portion of the cap serving to protect the end of the bottle and as a means for readily removing the cap and disc from the bottle.

2. A bottle having a neck portion with an annular groove on the inside thereof adjacent to the open end which is defined by converging upper and lower shoulders, and a closure therefor formed of thin pliant material having a concavo-convex central portion fitting closely within the groove with its peripheral surfaces engaging with said shoulders in the bottle and having a curved outwardly extending flange portion engaging with the end of the neck and serving as a means for opening the bottle and a concavo-convex locking disc formed of relatively heavy pliable material fitting within the central portion of the closure and conforming closely thereto, the edges of the locking disc being substantially at right angles to the adjacent surface of the shoulder, the arrangement being such that pressure within the bottle will tend to make the closure fit tightly and prevent leakage, substantially as described.

3. The combination of a bottle having an elongated neck with a bead around the end thereof and having an annular groove in the neck defined by a downwardly and inwardly facing upper wall portion and an upwardly and inwardly facing lower portion which provides a seat, a cap having a central concavo-convex portion resting on the seat with its outer periphery fitting closely within the groove and having a skirt portion engaging with the bead, and a thin, flexible locking disc complementary to and fitting closely within the central portion of the cap, the outer periphery of said locking disc fitting closely within the groove and tending to press the adjacent portion of the cap against the upper wall of the groove and forming a supporting arch for the central portion of the cap, the arrangement being such that pressure exerted from within the bottle will tend to expand the central portion of the cap and the locking disc and force the outer peripheral portions against the arch foundation provided by the downwardly and inwardly facing wall of the groove and said skirt portion of the cap serving as means for opening the bottle.

GEORGE LEE MOORE.