April 17, 1956 J. B. BIEDERMAN 2,742,172

BOTTLE STOPPER

Filed June 8, 1953

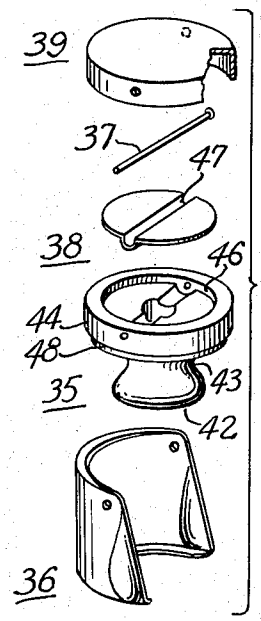


Fig. 5.

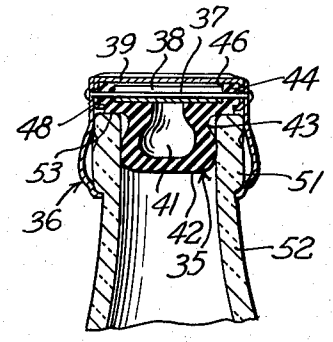


Fig. 4.

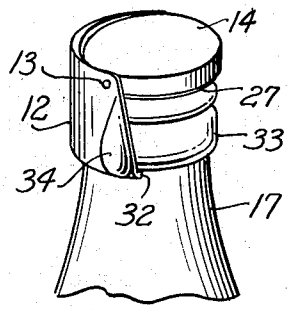


Fig. 1.

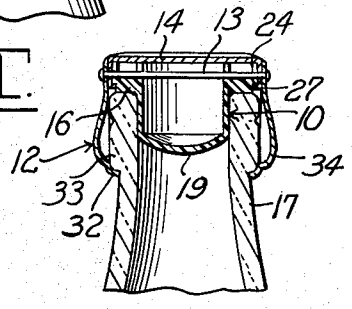


Fig. 2.

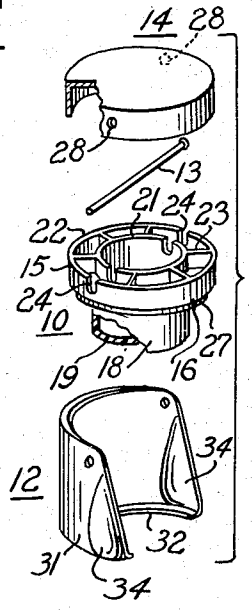


Fig. 3.

INVENTOR.
JOSEPH B. BIEDERMAN
BY Zugelter & Zugelter
Attys.

United States Patent Office 2,742,172 Patented Apr. 17, 1956

2,742,172

BOTTLE STOPPER

Joseph B. Biederman, Cincinnati, Ohio

Application June 8, 1953, Serial No. 360,226

3 Claims. (Cl. 215—87)

This invention relates to a removable closure for a bottle, and more particularly, to a sealing closure for a bottle containing a carbonated beverage or the like.

An object of this invention is to provide a removable and re-usable closure for a bottle which forms a double seal to prevent escape of carbonation.

A further object of this invention is to provide a closure member of this type having a hollow plug which fits into the neck of a bottle and which is deformable by pressure inside the neck of the bottle to cause the plug to firmly engage the inside of the neck.

A further object of this invention is to provide a closure member of this type having a cap integral with the plug which cap has a flange adapted to engage flush with the lip at the mouth of the bottle.

A further object of this invention is to provide a closure of this type having a second cap of rigid material disposed over the first cap, the second cap receiving a pivot pin for securing a clamp member which is adapted to hold the cap flange in engagement with the lip.

From the following description and the accompanying drawing, the above and other objects and features of the invention will be apparent to those having ordinary skill in the art to which it pertains.

In the drawing:

Figure 1 is a perspective view showing a bottle provided with a closure member constructed in accordance with an embodiment of this invention;

Fig. 2 is a view in transverse section of the bottle and closure member illustrated in Fig. 1;

Fig. 3 is an exploded view of the closure member shown in Figs. 1 and 2;

Fig. 4 is a view in transverse section showing a bottle and a closure member constructed in accordance with another embodiment of this invention; and

Fig. 5 is an exploded view of the closure member illustrated in Fig. 4.

In the following detailed description and the drawing, like reference characters indicate like parts.

The closure member illustrated in Figs. 1–3 inclusive includes a one-piece body **10**, a clamp member **12**, a pivot pin **13**, and an outer cap member **14**.

The body is formed of a polyethylene resin material or other suitable deformable elastomeric material. The body includes a cylindrical cap portion **15** having a flange **16** which overlies the lip of the mouth of a bottle **17** (Fig. 2) and a cylindrical hollow plug **18** which fits inside the mouth of the bottle. The inner or lower end of the plug is closed by an inner wall **19** while the outer or upper end of the plug is open. As shown, the wall **19** is bowed inwardly of the bottle.

The plug portion fits tightly within the neck of the bottle **17** as indicated in Fig. 2, and pressure inside the bottle causes the walls of the plug portion to expand and firmly engage the interior of the bottle.

As shown in Fig. 1, the upper portion of the cap **16** of the body includes spaced inner and outer wall members indicated at **21** and **22**, respectively, which are separated

by ribs **23**. The inner and outer wall members **21** and **22** are slotted as indicated at **24** to receive the pivot pin **13**.

The cap portion **15** is covered by the outer cover or cap member **14**. The cap **14** is of inverted cup shape, and the edge or skirt of the outer cap **14** is peened under a shoulder **27** on the cap of the body to form a lip which engages the shoulder so that the inner and outer caps are firmly secured together. The cap **14** is formed of metal or other rigid material. The pivot pin **13** projects through openings **28** in the outer cap **14** and through the slots **24** of the inner or body cap **15**.

The clamp member **12** is pivotally mounted on the pivot pin **13**. The clamp member **12** has a trough-shaped skirt **31**, provided with a flange **32**, for gripping the bottle neck at the bead **33** thereof to secure the closure to the bottle, as indicated in Fig. 2. Finger grips **34** are provided at opposite edges of the trough-shaped skirt for use in swinging the clamp member into and out of engagement with the bottle neck.

The device illustrated in Figs. 4 and 5 includes a one-piece body **35**, a clamp member **36**, a pivot pin **37**, a pivot pin support plate **38** and an outer cap **39**.

The body **35** is formed of rubber or the like and, as shown in Fig. 4, has a bottle-shaped opening **41** in a lower or plug portion **42** thereof. The plug portion has a constricted neck or groove **43** adjacent an upper or cap portion **44**. The plate **38** rests on top of the plug portion and inside a bore **46** in the cap portion of the closure member. A diametrically extending groove **47** in the plate **38** receives the pivot pin **37**. The outer cap **39** covers the inner or body cap portion **44** and the edges of the outer cap **39** are peened under a shoulder **48** of the inner cap to secure the inner and outer caps together.

The clamping member **36** is similar in construction to the clamping member of the device illustrated in Figs. 1 and 3, and clamping member **36** is pivotally mounted on the pivot pin **37** and can swing into engagement with the bead **51** at the neck of the bottle **52** to hold the closure member with the flange **53** of the inner cap portion firmly in engagement with the lip of the mouth of the bottle.

Pressure inside the bottle **52** forces the wall of the portion of the plug **41** inboard of the groove **43** firmly into engagement with the neck of the bottle to form a seal between the plug and the inside of the bottle. A second seal is formed where the flange **53** engages the lip of the bottle.

Each of the devices illustrated in the drawing and described above provides a firm double seal including a seal at the flange of the inner cap portion and a second seal between the plug portion and the interior of the neck of the bottle.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A closure for a bottle comprising a member of elastomeric material, said member having a hollow plug closed at its inner end and open at its outer end, and a cap integral with the plug, said cap having a flange adapted to engage flush with the lip of the mouth of the bottle, a second cap disposed over the first cap, the second cap having a skirt that is peened under the first cap to secure the same thereto, a clamp member for said closure and a one-piece pivot pin projecting transversely of the caps above the bottle-engaging flange and projecting through the sides of the clamp member for pivotally securing the clamp member to the first and second caps and locking the caps against relative turning, said clamp member including a trough-shaped skirt provided with means for gripping the bottle neck to secure the closure to the bottle.

2. A removable closure for a bottle which comprises a one-piece body of elastomeric material comprising a hollow plug adapted to be received in the neck of a bottle

and a cylindrical cap portion for overlying the mouth of the bottle, the cap portion having an axial bore in the end thereof remote from the plug, a plate received in said bore, said plate having a diametrically extending groove, an inverted cup-shaped member of rigid material overlying the sides of the cap portion and the end of the cap portion remote from the plug, an inwardly turned lip on the edge of the cup-shaped member, there being a shoulder on the cap portion engaging said lip to hold the cup-shaped member firmly in position on the cap portion, a pivot pin received in the groove of the plate and projecting through the sides of the cup-shaped member, and a U-shaped member pivotally mounted on said pivot pin, there being a flange on the U-shaped member remote from the pivot pin and engageable with the bead at the mouth of the bottle to lock the cap portion against the mouth of the bottle, the plug portion being deformable by pressure inside the bottle to firmly engage the inside of the neck of the bottle.

3. A removable closure for a bottle which comprises a one-piece body of elastomeric material comprising a hollow plug having an annular wall for engaging the inside of the neck of the bottle and an integral end wall, and an annular cap portion of greater diameter than the plug integrally formed with the open end of the plug, said cap

portion having a bottle-engaging flange adjacent the plug and a shoulder spaced from the bottle-engaging flange, a rigid cover member overlying the sides and the end of the cap portion remote from the plug, there being an inwardly turned lip on the edge of the cover member engaging said shoulder to hold the cover member and the cap portion in assembled relation, a one-piece pivot pin projecting transversely of the cap portion and the cover member and through the sides of the cover member above the bottle-engaging flange to lock the cover member and the cap portion against relative turning, and a U-shaped member pivotally mounted on said pivot pin, there being a flange on the U-shaped member remote from the pivot pin and engageable with the bead at the mouth of the bottle to lock the cap portion against the mouth of the bottle.

References Cited in the file of this patent

UNITED STATES PATENTS

978,449	Harrison	Dec. 13, 1910
2,266,270	Roth	Dec. 16, 1941
2,433,972	Anderberg	Jan. 6, 1948