

⑫ **EUROPEAN PATENT SPECIFICATION**

- ④⑤ Date of publication of patent specification: **25.07.84**      ⑤① Int. Cl.<sup>3</sup>: **B 65 D 55/16, B 65 D 39/00**  
②① Application number: **82300107.8**  
②② Date of filing: **08.01.82**

---

⑤④ **Method and apparatus for stoppering modified bottles with a one-piece corking means.**

---

③⑩ Priority: **09.01.81 US 223894**

④③ Date of publication of application:  
**21.07.82 Bulletin 82/29**

④⑤ Publication of the grant of the patent:  
**25.07.84 Bulletin 84/30**

⑤④ Designated Contracting States:  
**DE FR GB IT**

⑤⑥ References cited:  
**CH - A - 295 001**  
**DE - A - 1 200 857**  
**FR - A - 2 329 536**  
**US - A - 3 145 872**  
**US - A - 3 269 575**

⑦③ Proprietor: **MONARCH WINE CO., INC.**  
**4500 Second Avenue**  
**Brooklyn New York 11232 (US)**

⑦② Inventor: **Zaltsman, Efim**  
**2034 Ralph Avenue**  
**Brooklyn New York 11234 (US)**

⑦④ Representative: **Brown, David Alan et al.**  
**MATHYS & SQUIRE 10 Fleet Street**  
**London EC4Y 1AY (GB)**

---

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European patent convention).

---

## Description

### Background of the Invention

#### Field of the Invention

The present invention generally relates to stoppering bottles with pressurized, carbonated, water-based liquid contents.

#### Description of the Prior Art

It long has been recognized that bottles with pressurized, carbonated contents present a hazard. When these bottles are opened by a user, oftentimes the cork will be ejected from the bottle with a degree of force capable of causing injury to people. Facial and eye injuries have been known to occur with a cork is propelled out of a bottle with considerable force.

A number of different closure arrangements for bottles with pressurized, carbonated contents have been utilized in the prior art. United States patent specification 3,986,627 describes a stoppering system for bottles and discloses a cap portion which is attached to a securing ring on the bottle through a flexible bridging member. The cap portion is not inserted into the neck of the bottle. United States patent specification 4,054,221 also discloses a capping device in which the cap is attached to a ring on the bottle by a strap portion. This patent, as did the foregoing discloses a stoppering device that is not inserted into the neck of the bottle. United States patent specification 773,345 discloses a multi-part stoppering system in which the cork portion is attached to a loop around the bottle neck via a chain or wire.

United States patent specification 1,265,263 discloses a stoppering system in which a cork portion is secured to a bottle via a rope or wire loop system. This is a multi-part device.

British patent specification No. 1526/ discloses a multi-part corking device in which the cork is secured to the bottle via a chain. West German patent specification No. 2,200,857 also discloses a multi-part corking device in which the cork portion is secured to the bottle neck via a tether. Swiss patent specification No. 338,108 discloses a bottle stoppering system in which a cap portion is secured to a bottle via a tether. This stoppering system utilizes a capping, and not a corking device. The tether extends horizontally outward of the outer surface of the bottle. The corking device is of a one-piece plastic construction.

Although all of these closure arrangements appear to be satisfactory for their intended purposes, they have drawbacks for use in stoppering bottles with pressurized, carbonated, water-based liquid contents. Due to the existence of an outwardly extending tether on some of the prior art arrangements, wiring of the bottles after corking is difficult. It is also difficult to pack large numbers of stoppered bottles.

In the prior art arrangements that have multi-part corking portions, problems arise in assembly and inventory which add to the total cost of stoppering the bottles.

#### Summary of the Invention

It is an object of the present invention to provide a closure arrangement for stoppering of bottles with pressurized, carbonated, water-based liquid contents which is not subject to the drawbacks of the prior art closures.

This invention provides, for stoppering a bottle with pressurized carbonated water-based liquid contents, a corking means including a stopper having a generally circularly cylindrical portion insertable with frictional engagement into the mouth of the bottle, a flexible elongated tether, means for attaching the tether adjacent one end thereof to the stopper, means for attaching the tether to the bottle remote from its attachment to the stopper, the tether being long enough to permit the stopper to be withdrawn from the mouth of the bottle while an end of the tether is connected to the bottle and to be moved far enough away from the mouth of the bottle to permit pouring of the liquid contents from the mouth, characterised in that the stopper, the tether and both attaching means are moulded in one piece of plastics, the tether in its as-moulded state having a length substantially greater than the distance in a straight line between the two ends of the tether and the tether in its as-moulded state and in its state as the stopper is initially inserted in the bottle not projecting radially beyond the stopper.

The feature that the tether does not project radially beyond the stopper, in its as-moulded state and in its state as the stopper is initially inserted into the bottle, facilitates wiring of the bottles, which is standard practice for bottles with pressurized contents, and also facilitates the storing of large numbers of stoppered bottles. The connection between the stopper and the bottle provided by the flexible tether in its unfolded condition prevents possible injury from a stopper forcefully propelled out of a bottle.

In one form of the invention, for stoppering a bottle having an annular flange below the mouth of the bottle, the means for attaching the tether to the bottle comprises an elastomeric ring moulded in one piece with the tether, the ring having an internal diameter slightly less than the external diameter of the flange so that the ring can be forced down over the flange, expanding as it does so and constricting after it has passed the flange, whereby to captively retain the ring to the bottle, the bottle having a shape and size below the flange which is less than the diameter of the outer diameter of the flange, but which at a greater distance below the flange exceeds the outer diameter of the flange, the tether being long enough to permit the stopper to be withdrawn from the mouth of the bottle while the ring remains captive on the bottle.

Preferably, the ring is supported in a certain position with respect to the stopper by at least one frangible bridge interconnecting the two. The frangible bridges hold the parts of the corking means in proper alignment with one another before assembly on the bottle.

Advantageously, at least two frangible bridges connect at least two spaced points on the tether to the ring and to the stopper.

This invention also includes a corking means as defined above in combination with a bottle having a second annular flange below the first annular flange, the outer diameter of the first annular flange being slightly greater than that of the second annular flange.

Preferably, the inner diameter of the ring is slightly smaller than the outer diameter of the second annular flange by an amount less than that between said ring and the first annular flange to allow the annular ring to be reversely releasable from its position between the two flanges by manual pressure in a downward direction thus forcing the ring further downward on the bottle.

In one method of stoppering a bottle with a corking means in accordance with the invention, the cylindrical portion of the stopper is driven into the mouth of the bottle and after the stopper is thus driven, the ring is driven down over the flange on the neck of the bottle.

Where the corking means has a ring connected to the stopper by at least one frangible bridge, to hold the parts in proper alignment before assembly on the bottle, the cylindrical portion of the stopper is driven into the mouth of the bottle and after the stopper is thus driven, the ring is driven down over the flange on the neck of the bottle while concomitantly rupturing at least one bridge.

The invention also includes a bottle for use with a corking means as defined above, the bottle having a neck with a finish which includes a first annular flange and a second annular flange closely spaced together axially, both said flanges being below but near the mouth of the bottle, characterised in that the outer diameter of the first flange closest to the mouth of the bottle is slightly larger than the inner diameter of the ring so that the ring can be pushed down over the first flange expanding as it does so and constricting after it passes such first flange and is able to be pushed manually over the second flange, the second flange having a diameter which is smaller than that of the first flange, being large enough to check downward movement of the ring but small enough to permit the ring to be pushed manually over it.

The invention thus provides a closure arrangement for stoppering bottles which is inexpensive and efficient, and which allows stoppering of bottles by unskilled labourers. The corking means is in one piece and therefore capable of being easily inventoried.

One embodiment of the invention will now be described with reference to the accompany-

ing drawings, in which:—

FIG. 1 is a perspective view of the corking means, one of the components of the present invention, said means being shown prior to assembly on the bottle.

FIG. 2 is a sectional view taken substantially along the line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken substantially along the line 3—3 of FIG. 1;

FIG. 4 is a partially broken away front view of an apparatus for stoppering bottles in accordance with the present invention;

FIG. 5 is a perspective view of the corking means of the present invention after it is in place on the bottle of the present invention;

FIG. 6 is a sectional view taken substantially along the line 6—6 of FIG. 5;

FIG. 7 is a sectional view taken substantially along the line 7—7 of FIG. 5;

FIG. 8 is a sectional view taken substantially along the line 8—8 of FIG. 5; and

FIG. 9 is a front view of the corking means and bottle of the present invention after the bottle has been uncorked.

#### Detailed description of the preferred embodiments

Referring now in detail to the drawings, the reference numeral 10 denotes the corking means of the present invention.

As best seen in FIGS. 4 and 9, the corking means 10 is used to stopper bottles 12 with pressurized, carbonated, water-based liquid contents. The bottles 12 are discussed in detail hereinafter but generally consist of a body portion (not pictured); an elongated neck portion 14 with two annular flanges 16, 18 thereon; and a mouth portion 20, the flanges being parallel to one another, close to one another and near the mouth portion.

The corking means 10 is a one-piece moulded plastic unit constructed of elastomeric material. Preferably the corking means is constructed of a high density polyethylene, but any other appropriate elastomeric material may be used.

As best seen in FIGS. 1—3 the corking means includes an elongated stopper 22. The stopper 22 is capable of being inserted with frictional engagement into the mouth portion 20 of the bottle 12. The stopper 22 is generally cylindrical. As best seen in FIG. 9, in a preferred embodiment, the stopper portion has on it a plurality of integral concentric annular ribs 24. The ribs 24 increase the amount of friction between the stopper 22 and the mouth portion 20 thereby providing a tighter closure for the bottle 12. They also improve the seal effected by the stopper.

The corking means 10 also has an enlarged head portion 26 which is integral to the stopper 22. The head is provided with evenly spaced longitudinal wedges 28. The wedges 28 provide a user with a better grip on the head portion 26 at the time the corking means 10 is removed

from the bottle 12.

The corking means 10 is further provided with an annular circumferential ring 30. The annular circumferential ring 30 is dimensioned and shaped for snug reception between the two annular flanges 16, 18 of the neck portion 14 of the bottle 12. The annular circumferential ring is positioned and spaced below the head portion 26 and is concentric with the stopper 22; it is parallel to the lower surface of the head portion and perpendicular to the longitudinal axis of the stopper.

The corking means 10 has a flexible, slender elongated tether 32. One end 34 of the tether 32 is integrally connected to the bottom of the head portion 26 and the other end 36 of the tether 32 is integrally connected to the top of the annular circumferential ring 30. The tether 32 is in a folded state before the corking means 10 is inserted in the bottle 12. In other words, the length of the folded tether 32 is substantially greater than the distance between ends 34 and 36. The tether 32 serves to join the head 26 to the ring 30. The reaches of the folded tether are disposed in the space between the head and the ring and are oriented circumferentially of the longitudinal axis of the stopper at a radius approximately to that of the ring.

Prior to insertion in the bottle, the corking means includes a plurality of frangible bridges 38 which connect the bottom of the head 26 to the top of the ring 30. The frangible bridges break when the annular ring 30 is forced between the two flanges 16, 18 as best shown in FIGs. 5, 6, 7, and 9.

The bottle 12 whose contents are pressurized and carbonated as mentioned heretofore has a mouth portion 20, a body portion (not depicted) and a neck portion 14 with two annular flanges 16 and 18 thereon.

The two annular flanges 16 and 18 are relatively axially proximate. Further, flanges 16 and 18 are circumferential and squat. The flanges 16 and 18 are spaced apart longitudinally of the neck portion 14 and lie adjacent to the mouth portion 20.

The bottle 12 may be made of any appropriate material. As the bottle will contain pressurized, carbonated contents, the bottle 12 must be constructed so that it can withstand the pressure of the contents. Further as the contents of the bottle will usually be champagne, the bottle in a preferred embodiment is made of a coloured glass and is shaped and constructed to augment the feelings of celebration and wealth that people usually associate with champagne consumption.

The diameter of the upper annular neck flange 16 is slightly greater than the diameter of the lower annular neck flange 18. Further, the inner diameter of the annular ring 30 is slightly smaller than the outer diameter of the upper annular neck flange 16. In a preferred embodiment the outer diameter of the upper

annular neck flange 16 is about one millimeter more than the outer diameter of the lower annular neck flange 18 and the inner diameter of the annular ring 30 is about 1.5 millimeters less than the outer diameter of the upper annular neck flange 16. The inner diameter of the annular ring 30 is slightly smaller than the outer diameter of the lower annular neck flange 16. In the preferred embodiment as above described, this respective dimensioning of the two annular neck flanges 16 and 18 and the annular ring 30 permits the annular ring 30 to be pushed down mechanically over the upper neck flange, expanding as it does so, and then constrict and come to rest between the two neck flanges 16 and 18 and further permits the annular ring 30 to be reversibly releasable from its position between the two flanges 16 and 18 by manual pressure in a downward direction to expand over the lower neck flange. This is desirable to facilitate pouring of the bottle contents after removal of the stopper from the bottle 12.

The neck portion 14 of the bottle 12 is straight in shape for a few inches and then flares outwardly at a small angle. In a preferred embodiment the neck portion 14 is straight for approximately two to three inches below the mouth and then flares outwardly approximately  $2^{\circ}$ — $3^{\circ}$ .

The flexible tether 32 is approximately 1/16 of an inch (1.6 mm) to a side in square cross-section providing a proper amount of flexibility for said tether to perform all of the functions required of it.

As the corking means 10 is assembled with the bottle 12, various changes occur in some of its component parts.

As best seen in FIGs. 5, 6, 7, the frangible bridges 38 are broken when the corking means is assembled with the bottle. The frangible bridges will stretch and break when the annular ring 30 is forced down between the two annular flanges 16 and 18 inasmuch as the axial distance between the head and ring of the corking means as moulded is less than the distance between these elements as mounted on the bottle. This leaves the flexible tether 32 as the sole connection between the annular ring 30 and the head portion 26.

As the corking means 10 is positioned on the bottle 12, the flexible tether 32 partially unfolds.

Due to the material and dimensions of said flexible tether 32 it is capable of the aforementioned partial unfolding during placement of the corking means 10 on the bottle 12.

Additionally, as best seen in FIG. 9, the flexible tether 32 is capable of additional unfolding when the corking means 10 is removed from the bottle 12 prior to pouring of the contents of the bottle. In this manner the flexible tether 32 continuously provides a means for joining together the head portion 26 and the annular ring 30. The flexible tether retains the corking means 10 attached to the

bottle 12 when the bottle is open and thus prevents the injuries that might occur when the cork of the bottle with pressurized contents is propelled from such a bottle.

The flexible tether 32 in its unfolded condition is of sufficient length to allow the corking means 10 to be so placed in relationship to the bottle that the corking means 10 does not interfere with the decanting of the bottle contents.

In its folded and also in its partially unfolded condition, the flexible tether 32 extends circumferentially below the head 26 and does not extend beyond the external peripheries of said head 26 and said annular ring 30. This is particularly advantageous in that it prevents interference by the tether 32 with the wire 40 that is wrapped about the bottle 12 after the corking means is positioned therein.

Wrapping of bottles which contain champagne with wire 40 is a standard practice for both safety and aesthetic reasons. It is thus important that the corking means 10 contains no elements which would interfere with the placement of the wire 40 about the closed bottle.

The corking means 10 may, in addition to the parts heretofore described, contain at least one frangible connecting element (E) for connecting the flexible tether 32 to at least one other element of the corking means 10. In a preferred embodiment the corking means has three such frangible connecting elements, connecting the tether 32 to the annular ring 30, the frangible bridges 38 and the head 26. Although all of the parts of the corking means will stay in proper alignment to each other without these frangible connecting elements, the frangible connecting elements provide, if desired, extra stability to the corking means 10 and further provide additional means to keep all other elements of said corking means in proper alignment to one another prior to assembly with the bottle.

As can be seen from FIG. 4, the present invention provides both a method of and apparatus for stoppering bottles 12 with pressurized, carbonated, water-based contents.

The bottle provided in the method of this invention, is the bottle 12, heretofore described. The corking means 10 heretofore described is also provided, as moulded, for stoppering the bottle. In accordance with the method of the present invention, the stopper portion 22 of the corking means is inserted into the mouth portion 20 of the bottle 12, and the annular ring 30 is concomitantly forced downward until it engages the neck of the bottle between the two annular flanges 16, 18. The wire 40, then is wrapped around the corking means and the bottle. The wire contains a seal (not depicted) to indicate that the bottle has not been opened previously. As is standard in the bottling of champagne and sparkling wines, the corked and wired bottle may be wrapped with a foil-type paper (not depicted).

The wire 40 used for wrapping the corked bottle is a thin soft steel wire which is standard in the art.

5 An apparatus 41 to stoppering the bottle 12 with the corking means 10 also is provided.

10 The apparatus includes a locating means 42 for holding the as-moulded corking means 10 in proper position and orientation above an open bottle 12 with the stopper directed downwardly directly above the bottle mouth. The locating means may be any appropriate means for so holding the corking means in place. Appropriately it may include plates capable of moving outwardly away from the centre of the corking means 10 to allow the corking means to be positioned in the bottle.

15 The apparatus 41 further includes a ram 44 for driving the stopper portion 22 into the mouth portion 20 of the bottle 12 and for concomitantly forcing the annular ring 30 between the two annular flanges 16, 18. In a preferred embodiment, there are two auxiliary driving means, namely a sleeve 46 and a plunger 48.

20 The plunger 48 is attached to the ram by a resilient lost motion means 50 which in a preferred embodiment is a compressible spring for yieldingly driving the stopper portion 22 into the mouth portion 20 of the bottle. The spring is used because after the stopper portion 22 is driven into the mouth 20 by the plunger 48, the sleeve 46 continues to move downwardly, forcing the annular ring 30 between and over the annular flange 16 to come to rest between the flanges 16, 18. The plunger 48 drives the stoppering portion 22 into the mouth portion 20 a split-second before the sleeve 46 forces the annular ring 30 between the flanges 16, 18. The frangible bridges 38 and elements E break as the sleeve forces the annular ring between the annular flanges 16, 18.

30 The sleeve 46 is dimensioned, shaped and guided to accurately drive the annular ring 30 into position, and the plunger 48 is dimensioned, shaped and guided for accurate driving of the stoppering portion 22 into the mouth portion 20.

#### Claims

50 1. For stoppering a bottle with pressurized carbonated water-based liquid contents, a corking means (10) including a stopper (22, 26) having a generally circularly cylindrical portion (22) insertable with frictional engagement into the mouth (20) of the bottle (12), a flexible elongated tether (32), means for attaching the tether (32) adjacent one end thereof to the stopper (22, 26), means for attaching the tether (32) to the bottle (12) remote from its attachment to the stopper (22, 26), the tether (32) being long enough to permit the stopper (22, 26) to be withdrawn from the mouth (20) of the bottle (12) while an end of the tether is connected to the bottle and to be moved far enough away from the mouth of the bottle to

permit pouring of the liquid contents from the mouth, characterised in that the stopper (22), the tether (32) and both attaching means are moulded in one piece of plastics, the tether (32) in its as-moulded state having a length substantially greater than the distance in a straight line between the two ends of the tether and the tether (32) in its as-moulded state and in its state as the stopper (22, 26) is initially inserted in the bottle (12) not projecting radially beyond the stopper.

2. A corking means as claimed in claim 1, characterised in that at least one frangible bridge (E) connects a point on the tether (32) to at least one other element of the corking means.

3. A corking means as claimed in claim 2, characterised in that a plurality of frangible bridges (E) connect spaced points on the tether (32) to a plurality of other elements on the corking means.

4. A corking means as claimed in any one of claims 1 to 3, and for stoppering a bottle (12) having an annular flange (16) below the mouth (20) of the bottle, characterised in that the means for attaching the tether (32) to the bottle (12) comprises an elastomeric ring (30) moulded in one piece with the tether, the ring (30) having an internal diameter slightly less than the external diameter of the flange (16) so that the ring (30) can be forced down over the flange (16), expanding as it does so and constricting after it has passed the flange (16), whereby to captively retain the ring (30) to the bottle (12), the bottle having a shape and size below the flange (16) which is less than the diameter of the outer diameter of the flange (16), but which at a greater distance below the flange (16) exceeds the outer diameter of the flange, the tether (32) being long enough to permit the stopper (22, 26) to be withdrawn from the mouth (20) of the bottle (12) while the ring (30) remains captive on the bottle.

5. A corking means as claimed in claim 4, characterised in that the ring (30) is supported in a certain position with respect to the stopper (22, 26) by at least one frangible bridge (38) interconnecting the two.

6. A corking means as claimed in claim 4 or claim 5, characterised in that at least two frangible bridges (E) connect at least two spaced points on the tether (32) to the ring (30) and to the stopper (22, 26).

7. A corking means as claimed in any one of claims 4 to 6, in combination with a bottle (12) having a second annular flange (18) below the first annular flange (16), the outer diameter of the first annular flange (16) being slightly greater than that of the second annular flange (18).

8. A combination as claimed in claim 7, characterised in that the outer diameter of the first annular flange (16) is about 1 mm greater than the outer diameter of the second annular flange (18).

9. A combination as claimed in claim 7 or

claim 8, characterised in that the inner diameter of the ring (30) is slightly smaller than the outer diameter of the second annular flange (18) by an amount less than that between said ring (30) and the first annular flange (18) to allow the annular ring (30) to be reversely releasable from its position between the two flanges by manual pressure in a downward direction thus forcing the ring (30) further downward on the bottle (12).

10. A method of stoppering a bottle with a corking means as claimed in any one of claims 4 to 9, characterised in that the cylindrical portion (22) of the stopper is driven into the mouth (20) of the bottle (12) and after the stopper is thus driven, the ring (30) is driven down over the flange (16) on the neck of the bottle.

11. A method of stoppering a bottle with a corking means as claimed in claim 5, characterised in that the cylindrical portion (22) of the stopper is driven into the mouth (20) of the bottle (12) and after the stopper is thus driven, the ring (30) is driven down over the flange (16) on the neck of the bottle (12) while concomitantly rupturing at least one bridge (38).

12. Apparatus for stoppering a bottle with a corking means as claimed in claim 4, the apparatus comprising first driving means (48) for driving the cylindrical portion (22) of the stopper into the mouth (20) of the bottle (12) and second driving means (48) for driving the elastomeric ring (30) over the flange (16) on the neck of the bottle after the cylindrical portion of the stopper has been driven into the mouth of the bottle.

13. A bottle for use with a corking means as claimed in claim 7, said bottle (12) having a neck (14) with a finish which includes a first annular flange (16) and a second annular flange (18) closely spaced together axially, both said flanges being below but near the mouth (20) of the bottle, characterised in that the outer diameter of the first flange (16) closest to the mouth (20) of the bottle (12) is slightly larger than the inner diameter of the ring (30) so that the ring (30) can be pushed down over the first flange (16) expanding as it does so and constricting after it passes such first flange (16) and is able to be pushed manually over the second flange (18), the second flange (18) having a diameter which is smaller than that of the first flange (16), being large enough to check downward movement of the ring (30) but small enough to permit the ring to be pushed manually over it.

## Revendications

1. Pour boucher une bouteille dont le contenu liquide aqueux contient du gaz carbonique sous pression, un dispositif de bouchage (10) comprenant un bouchon (22, 26) qui possède une partie cylindrique (22), de section circulaire dans son ensemble, sus-

ceptible d'être introduite avec un contact à friction dans l'embouchure (20) de la bouteille (12), une bride allongée souple (32), un moyen pour attacher au bouchon (22, 26) la bride (32) au voisinage de l'une des extrémités de celle-ci, un moyen pour attacher à la bouteille (12) la bride (32) à l'écart de son attache au bouchon (22, 26), la bride (32) étant suffisamment longue pour permettre au bouchon (22, 26) d'être enlevé de l'embouchure (20) de la bouteille (12) alors qu'une extrémité de la bride est reliée à la bouteille et d'être éloigné suffisamment loin de l'embouchure de la bouteille pour permettre au contenu liquide d'être versé par l'embouchure, caractérisé en ce que le bouchon (22), la bride (32) et les deux moyens d'attache sont moulés en une seule pièce de matière plastique, la bride (32), en son état venant de moulage, ayant une longueur nettement plus grande que la distance en ligne droite entre les deux extrémités de la bride et la bride (32), dans son état venant de moulage et dans l'état qu'elle possède lorsque le bouchon (22, 26) est introduit initialement dans la bouteille (12), ne se présentant pas radialement en saillie au-delà du bouchon.

2. Dispositif de bouchage selon la revendication 1, caractérisé en ce qu'au moins un pont (E), susceptible d'être rompu, relie un point de la bride (32) à au moins un autre élément du dispositif de bouchage.

3. Dispositif de bouchage selon la revendication 2, caractérisé en ce que plusieurs ponts (E), susceptibles d'être rompus, relient des points espacés de la bride (32) à plusieurs autres éléments du dispositif de bouchage.

4. Dispositif de bouchage selon l'une quelconque des revendications 1 à 3, pour boucher une bouteille (12) munie d'une bague annulaire (16) au-dessous de l'embouchure (20) de la bouteille, caractérisé en ce que le moyen pour attacher la bride (32) à la bouteille (12) comprend un anneau élastomérique (30) moulé en une seule pièce avec la bride, l'anneau (30) ayant un diamètre intérieur légèrement plus petit que le diamètre extérieur de la bague (16) de sorte que l'anneau (30) peut être enfoncé de haut en bas au-delà de la bague (16), en se dilatant lorsqu'il franchit la bague (16) et en se contractant lorsqu'il a dépassé celle-ci, l'anneau (30) se trouvant ainsi maintenu à demeure sur la bouteille (12), la bouteille ayant au-dessous de la bague (16) une forme et une dimension qui sont plus petites que le diamètre extérieur de la bague (16) mais qui, à plus grande distance au-dessous de la bague (16), sont supérieures au diamètre extérieur de la bague, la bride (32) étant suffisamment longue pour permettre au bouchon (22, 26) d'être enlevé de l'embouchure (20) de la bouteille (12) alors que l'anneau (30) reste maintenu à demeure sur la bouteille.

5. Dispositif de bouchage selon la revendication 4, caractérisé en ce que l'anneau (30) est supporté en une certaine position par

rapport au bouchon (22, 26) par au moins un pont (38) les reliant l'un à l'autre et susceptible d'être rompu.

6. Dispositif de bouchage selon la revendication 4 ou la revendication 5, caractérisé en ce qu'au moins deux ponts (E), susceptibles d'être rompus, relient au moins deux points espacés de la bride (32) à l'anneau (30) et au bouchon (22, 26).

7. Dispositif de bouchage selon l'une quelconque des revendications 4 à 6, en combinaison avec une bouteille (12) munie d'une deuxième bague annulaire (18) au-dessous de la première bague annulaire (16), le diamètre extérieur de la première bague annulaire (16) étant légèrement plus grand que celui de la deuxième bague annulaire (18).

8. Combinaison selon la revendication 7, caractérisée en ce que le diamètre extérieur de la première bague annulaire (16) est supérieur d'environ 1 mm au diamètre extérieur de la deuxième bague annulaire (18).

9. Combinaison selon la revendication 7 ou la revendication 8, caractérisée en ce que le diamètre intérieur de l'anneau (30) est légèrement plus petit que le diamètre extérieur de la deuxième bague annulaire (18), d'une quantité moindre que celle entre ledit anneau (30) et la première bague annulaire (16), pour permettre à l'anneau (30) d'être dégagé de façon réversible de sa position entre les deux bagues par une pression manuelle exercée de haut en bas, ce qui enfonce l'anneau (30) plus loin vers le bas sur la bouteille (12).

10. Procédé pour boucher une bouteille avec un dispositif de bouchage selon l'une quelconque des revendications 4 à 9, caractérisé en ce qu'on enfonce la partie cylindrique (22) du bouchon dans l'embouchure (20) de la bouteille (12) et, une fois le bouchon ainsi enfoncé, on enfonce l'anneau (30) de haut en bas par dessus la bague (16) ménagée sur la col de la bouteille.

11. Procédé pour boucher une bouteille avec un dispositif de bouchage selon la revendication 5, caractérisé en ce qu'on enfonce la partie cylindrique (22) du bouchon dans l'embouchure (20) de la bouteille (12) et, une fois le bouchon ainsi enfoncé, on enfonce l'anneau (30) de haut en bas par dessus la bague (16) ménagée sur le col de la bouteille (12), tout en rompant en même temps au moins un pont (38).

12. Appareil pour boucher une bouteille avec un dispositif de bouchage selon la revendication 4, l'appareil comprenant un premier moyen d'entraînement (48) pour enfoncer la partie cylindrique (22) du bouchon dans l'embouchure (20) de la bouteille (12) et un deuxième moyen d'entraînement (46) pour enfoncer l'anneau élastomérique (30) par dessus la bague (16) ménagée sur la col de la bouteille après que la partie cylindrique du bouchon a été enfoncée dans l'embouchure de la bouteille.

13. Bouteille à utiliser avec un dispositif de bouchage selon la revendication 7, ladite

bouteille (12) possédant un col (14) avec un façonnage qui comprend une première bague annulaire (16) et une deuxième bague annulaire (18) situées axialement à faible distance l'une de l'autre, les deux dites bagues étant situées au-dessous mais près de l'embouchure (20) de la bouteille, caractérisée en ce que le diamètre extérieur de la première bague (16) la plus proche de l'embouchure (20) de la bouteille (12) est légèrement plus grand que le diamètre intérieur de l'anneau (30) si bien que l'anneau (30) peut être poussé de haut en bas par dessus la première bague (16), en se dilatant lorsqu'il franchit cette première bague (16) et en se contractant lorsqu'il a dépassé cette première bague (16), et est capable d'être poussé manuellement par dessus la deuxième bague (18), la deuxième bague (18) ayant un diamètre qui est plus petit que celui de la première bague (16) en étant suffisamment grand pour empêcher la descente de l'anneau (30) mais suffisamment petit pour permettre à l'anneau d'être poussé manuellement par dessus.

#### Patentansprüche

1. Vorrichtung zum Verschließen von Flaschen für auf Wasserbasis hergestellte kohlen säurehaltige Getränke, bestehend aus einer Verkorkung (10) mit einem Stopfen (22, 26) mit einem im wesentlichen kreiszylindrischen Abschnitt (22), der mit Reibungseingriff in die Öffnung (20) der Flasche einsetzbar ist, einem flexiblen langgestreckten Bändchen (32), einer Befestigung für das eine Ende des Bändchens (32) am Stopfen (22, 26), einer Halterung zum Befestigen des Bändchens an dem am Stopfen (22, 26) abgelengenen Ende mit der Flasche (12), wobei das Bändchen (32) lang genug ist, um den Stopfen (22, 26) von der Öffnung (20) der Flasche (12) abnehmen zu können, während das andere Ende des Bändchens an der Flasche befestigt bleibt, wobei der Stopfen (22, 26) noch so weit von der Flaschenöffnung weg bewegbar ist, um das Ausgießen der Flüssigkeit aus der Flaschenmündung zu ermöglichen, dadurch gekennzeichnet, daß der Stopfen (22), das Bändchen (32) und beide Befestigungen einteilig aus Plastik hergestellt sind, wobei das Bändchen (32) in seinem durch die Form festgelegten Zustand erheblich länger ist als ein gradliniger Abstand zwischen den zwei Enden des Bändchens, und das Bändchen ferner in seinem durch die Form festgelegten und beim ersten Einsetzen des Stopfens (22, 26) in die Flasche (12) vorhandenen Zustand nicht radial über den Stopfen hinausragt.

2. Verkorkung nach Anspruch 1, dadurch gekennzeichnet, daß zumindest ein zerbrechlicher Steg (E) einen Punkt des Bändchens mit einem anderen Teil der Verkorkung verbindet.

3. Verkorkung nach Anspruch 2, dadurch gekennzeichnet, daß mehrere zerbrechliche Stege (E) die auseinanderliegenden Punkte auf

dem Bändchen (32) mit mehreren anderen Teilen der Verkorkung verbinden.

4. Verkorkung nach Anspruch 1 bis 3 sowie eine Vorrichtung zum Verschließen von Flaschen (12) mit einem Ringflansch (16) unterhalb der Flaschenöffnung (20) dadurch gekennzeichnet, daß die Befestigung für das eine Ende des Bändchens (32) mit der Flasche (12) aus einem elastomeren Ring (30), der mit dem Bändchen einteilig geformt ist, besteht, wobei dieser Ring einen Innendurchmesser aufweist, der geringfügig kleiner ist als der Außendurchmesser des Flansches (16), so daß der Ring (30) über den Flansch (16) hinweg heruntergedrückt werden kann, wobei er sich zuerst ausdehnt und dann wieder zusammenzieht, nachdem er den Flansch (16) passiert hat, um hierdurch den Ring (30) mit der Flasche (12) bleibend zu befestigen, wobei die Flasche unterhalb des Flansches (16) ihrer Form und Größe nach einen geringeren Durchmesser hat als der Durchmesser des Außendurchmessers des Flansches (16), welcher aber bei größerem Abstand unterhalb des Flansches (16) den Außendurchmesser des Flansches übersteigt, wobei das Bändchen (32) lang genug ist, um den Stopfen (22, 26) aus dem Hals (20) der Flasche (2) herauszuziehen, während der Ring (30) von der Flasche gehalten bleibt.

5. Verkorkung nach Anspruch 4, dadurch gekennzeichnet, daß der Ring (30) in einer bestimmten Stellung zum Stopfen (22, 26) durch mindestens einen zerbrechlichen Steg (38), welcher beide verbindet, gehalten wird.

6. Verkorkung nach Anspruch 4 oder 5, dadurch gekennzeichnet, daß mindestens zwei zerbrechliche Stege (E) mindestens zwei auseinanderliegende Stellen des Bändchens (32) mit dem Ring (30) und dem Stopfen (22, 26) verbinden.

7. Verkorkung nach Anspruch 4 bis 6 für eine Flasche (12), welche einen zweiten Ringflansch (18) unterhalb des ersten Ringflansches (16) aufweist, wobei der Außendurchmesser des ersten Ringflansches (16) geringfügig größer ist als der des zweiten Ringflansches (18).

8. Verkorkung nach Anspruch 7, dadurch gekennzeichnet, daß der Außendurchmesser des ersten Ringflansches (16) etwa 1 mm größer ist als der Außendurchmesser des zweiten Ringflansches (18).

9. Verkorkung nach Anspruch 7 oder 8, dadurch gekennzeichnet, daß der Innendurchmesser des Ringes (30) geringfügig kleiner ist als der Außendurchmesser des zweiten Ringflansches (18), wobei diese Durchmesser-differenz kleiner ist als die zwischen Ring (30) und erstem Ringflansch (16), damit man den Ringkörper (30) aus seiner Lage zwischen den beiden Flanschen durch manuell nach unten gerichteten Druck befreien kann, um dadurch der Ring (30) weiter über die Flasche (12) nach unten zu drücken.

10. Verfahren zum Verschließen von Flaschen mit einer Verkorkung nach Anspruch

4 bis 9, dadurch gekennzeichnet, daß der zylindrische Abschnitt (22) des Stopfens in den Hals (20) der Flasche eingetrieben wird und daß der Ring (30), nachdem der Stopfen, wie vorerwähnt, in die Flasche eingetrieben wurde, über den Flaschenhals befindet, hinweggedrückt wird.

11. Verfahren zum Verschließen von Flaschen mit einer Verkorkung nach Anspruch 5, dadurch gekennzeichnet, daß der zylindrische Abschnitt (22) des Stopfens in den Hals (20) der Flasche (12) eingetrieben wird und daß der Ring (30) anschließend über den Flansch (16) am Flaschenhals hinweg eingetrieben und gleichzeitig mindestens einen Steg (38) zerreißen wird.

12. Vorrichtung zum Verschließen von Flaschen mit einer Verkorkung nach Anspruch 4, gekennzeichnet durch eine erste Andruckvorrichtung (48), um den zylinderförmigen Abschnitt (22) des Stopfens in den Hals (20) der Flasche (12) einzudrücken und durch eine zweite Andruckvorrichtung (46) um den elastomeren Ring (30) über den Flansch (16) am Flaschenhals zu drücken, nachdem der zylinderförmige Abschnitt des Stopfens in die

Flaschenöffnung eingedrückt worden ist.

13. Flasche mit einer Verkorkung nach Anspruch 7, wobei die vorerwähnte Flasche (12) mit einem Hals (14) ausgestattet ist, der aus einem ersten Ringflansch (16) und einem zweiten Ringflansch (18) besteht, welche in axialer Richtung eng beieinanderliegen, wobei diese Flanschen unterhalb, doch nicht an der Öffnung (20) der Flasche angebracht sind, dadurch gekennzeichnet, daß der Außendurchmesser des ersten Flansches (16), der am dichtesten zur Öffnung (20) der Flasche (12) liegt, größer ist als der Innendurchmesser des Ringes (30), so daß der Ring (30) über den ersten Flansch (16) gezogen werden kann, indem er sich zuerst ausweitet und dann, nachdem er über den vorerwähnten Flansch (16) gezogen wurde, zusammenzieht, so daß er manuell über den zweiten Flansch (18) gezogen werden kann, wobei der zweite Flansch (18) einen Durchmesser aufweist, der kleiner ist als der des ersten Flansches (16) und genügend groß, um die Abwärtsbewegung des Ringes (30) zu verhindern, aber klein genug, um den Ring manuell über diesen zweiten Flansch zu ziehen.

5

10

15

20

25

30

35

40

45

50

55

60

65

FIG. 1

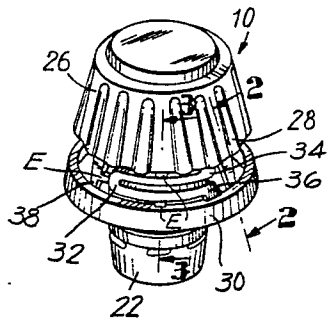


FIG. 2

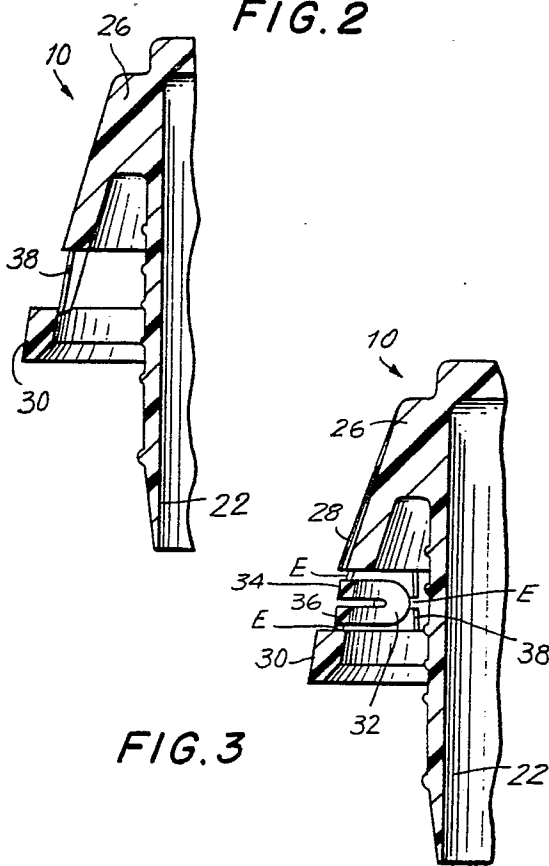


FIG. 3

FIG. 4

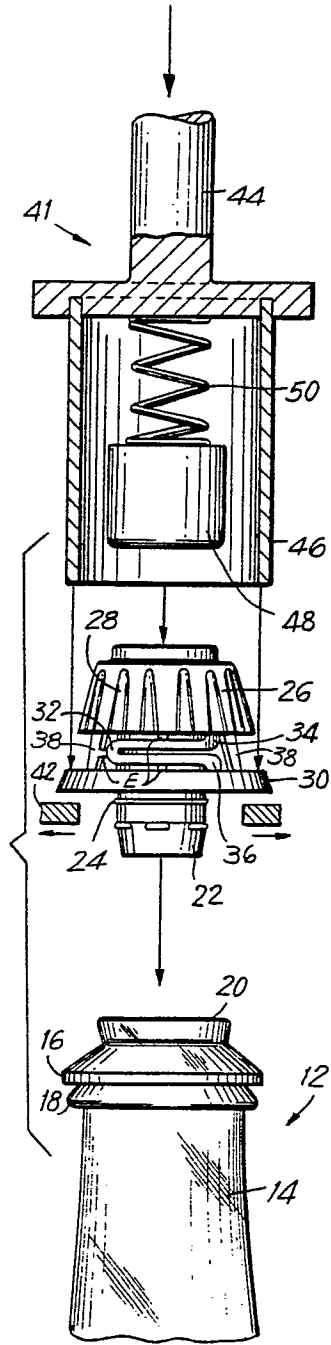


FIG. 5

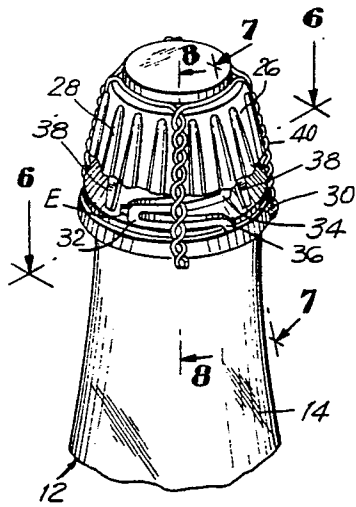


FIG. 6

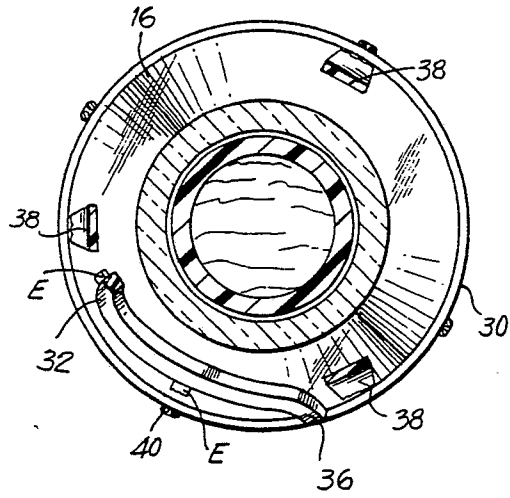


FIG. 7

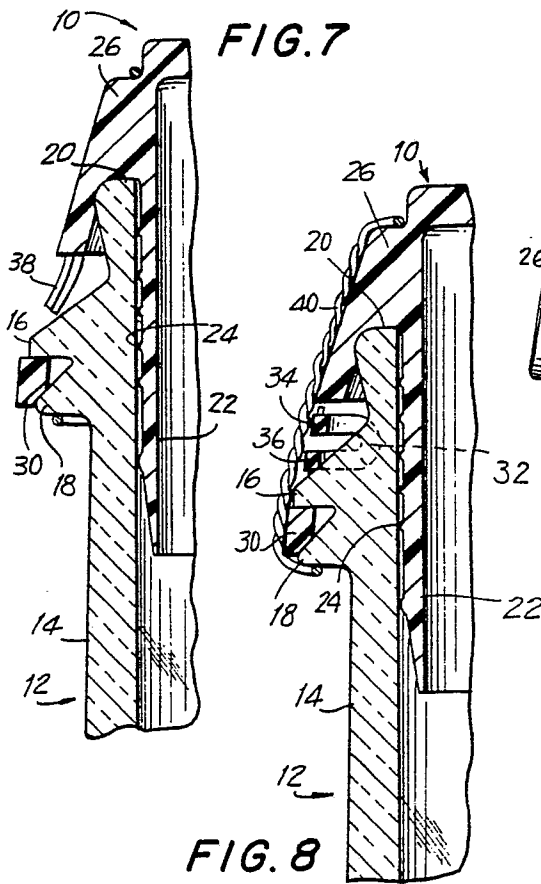


FIG. 9

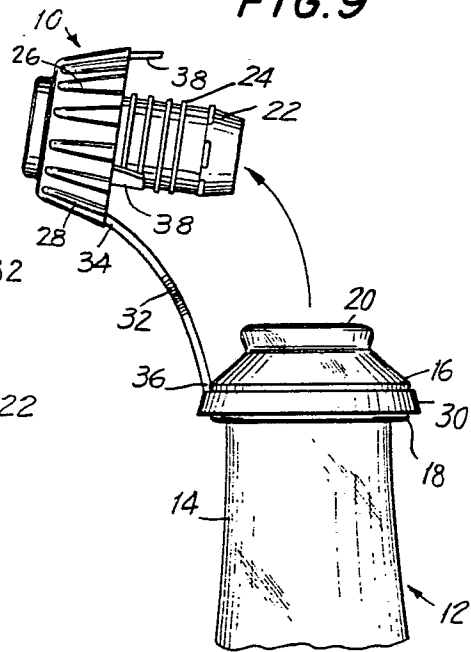


FIG. 8