April 8, 1947. M. FEBBRARO 2,418,630

BOTTLE CLOSURE

Filed Jan. 1, 1944

Fig. 1.

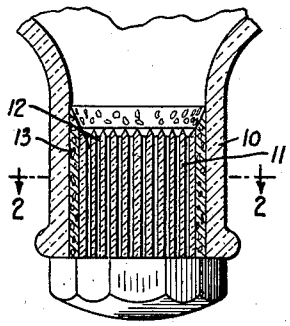
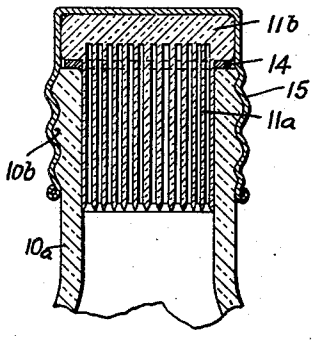


Fig. 3.



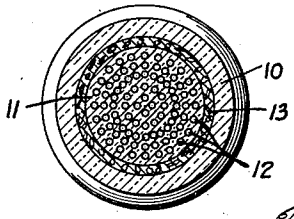


Fig. 2.

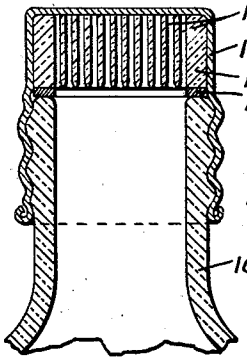


Fig. 4.

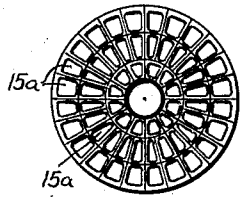


Fig. 5.

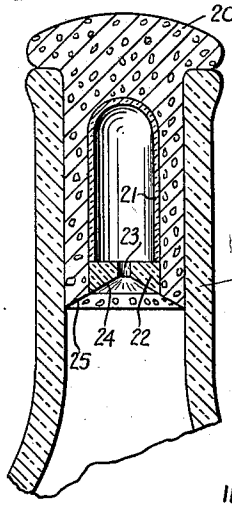


Fig. 8.

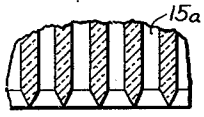


Fig. 6.

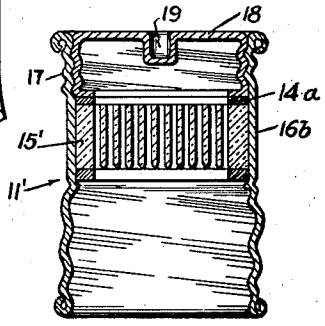


Fig. 7.

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BOTTLE CLOSURE

Mario Febbraro, Union City, N. J.

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3 Claims. (Cl. 215—47)

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This invention relates to the entrapment and removal of sediment settling out from aging and aged spirituous liquors and sparkling wines, etc., and more particularly to the provision of a simple little device for accomplishing this result.

In preparing sparkling beverages, aging is required, but in the aging process sediment forms. Therefore, it has been the ancient practice to place the bottle in a horizontal position, turn it frequently while lying in this position, and gradually elevate the bottle with occasional turnings, until the bottle reached the vertical inverted position, so that the sediment may accumulate upon the inner face of the usual stopper or cork. This is not only a very slow procedure but requires great skill and dexterity. Furthermore, after aging has been completed, great care must be exercised in removing the stopper from the bottle so that no or as little as possible of the accumulated sediment will fall back into the liquid contents when it is righted.

According to my invention, the bottle may be put in a vertical inverted position after a shorter period of aging, and the bottle righted after aging has run its course, without danger of the sediment falling back into the liquor. This is accomplished by entrapping the sediment while the bottle is in an inclined or vertical position, inverted, but in a wholly novel manner.

My new expedient partakes of a stopper or closure having a cylindrical body with a preferably relatively great number of restricted blind bores in communication with the inside of the bottle. When the stopper is inserted into the bottle or the closure tightly applied and the filled bottle is inverted or placed in an inclined position with the stopper or closure assuming a lower position than the longitudinal axis of the bottle, the liquid contents, of course, enter the bores and fill them up. The accumulation of sediment in the bores increases as aging proceeds and displaces the liquid therefrom. When the inverted bottle is righted, the sediment remains and adheres to the walls of the bores or is entrapped.

Specific embodiments of this concept are illustrated in the accompanying sheet of drawings, wherein:

Fig. 1 is an elevation, partly in section, showing one form which my invention may take as applied to a bottle.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a vertical section of a modified form of my invention, shown as applied to a bottle.

Fig. 4 is a vertical section of still another modification.

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Fig. 5 is a bottom view of stopper having polygonal bores.

Fig. 6 is an enlarged fragmentary vertical section of any of the stoppers shown, and showing the tapered ends of the walls surrounding the various bores.

Fig. 7 is a vertical sectional view of still another modification.

Fig. 8 is a vertical sectional view of still another modification.

Referring now more particularly to Figs. 1 and 2, the same shows the neck part 10 of a bottle in which the wine or liquor to be aged is contained. Inserted in the top of said bottle is a stopper 11, which may be of glass, ceramic or other suitable material. The said stopper consists of a knurled or polygonal head and a cylindrical body portion, the latter of which is provided with a plurality of preferably restricted blind bores 12 in open communication with the inside of the bottle. About the cylindrical body portion of said stopper is a sleeve 13, which may be of cork or other suitable material, and is used to provide an air-tight closure.

In the modified arrangement illustrated in Fig. 3, the outer wall of the upper part of the bottle neck 10*a* is screwthreaded as at 10*b*. The cylindrical body portion of stopper 11*a* may be of substantially the same diameter as the internal diameter of the neck of the bottle and an hermetic seal effected by the use of a gasket 14 of cork, rubber or other suitable material, disposed between the top of the bottle neck and the head 11*b*. Adapted to be brought into thread engagement with the threads 10*b* of the bottle neck 10*a* is a cap 15, which may be of metal, plastics or other suitable material. The cap 15 may be tightly turned down so as to effect a really effective hermetic seal between the head of the stopper and the top of the neck. Here, too, the cylindrical body portion of the stopper is provided, preferably, with a plurality of restricted blind or blinded bores.

In Fig. 4, the stopper takes the form of a closure assembly consisting of a cylindrical disk 15' provided with bores 15*a*, and which is substantially of the same diameter as the internal diameter of the screw cap 15*a* in which it is disposed. Disk 15' is supported on top of the neck of the bottle and here, also, a gasket 14 is employed between the bottom of said disk and the top of the bottle neck to provide a hermetic seal when the cap is in full engagement with the threaded portion of the bottle neck.

The bores, instead of being round as shown in Fig. 2, may be square, hexagonal or other polyg-

onal form, for instance as illustrated in Fig. 5. There appears to be an advantage in the use of polygonal bores in that the sediment seems to cling to corners better.

Spacing between said bores should be close and the diameters of the bores around .075 inch for optimum results. However, there is nothing essentially critical about the number and spacing of the bores, nor their diameters. Consequently, I am not to be restricted to the spacing, numbers and diameters of the bores shown or suggested.

In Fig. 6 is shown a typical cross-section to illustrate how the walls surrounding the bores are tapered to avoid presenting to the liquid, and hence to the sediment, any flat surfaces to impede the entrance of the sediment to the bores.

In Fig. 7, there is shown a further modification of the device. In this instance, the disk 15' may be positioned intermediate the ends of the outer shell of the screw cap 16*b*, the upper portion of said shell being provided with screw threads 17 and receptive of a removable closure member 18 which may be securely screwed down onto a gasket 14*a* disposed on top of the disk 15', the member 18 being provided with a polygonal depression 19 receptive of a similarly shaped implement (not shown), for securing or removing the member 18 in an obvious manner. The member 18 may be hollow as shown in Fig. 7, in which case, it may serve as a trap for the sediment, or it may be solid; but in either case it is removable so that if desired, access may be had to the top of disk 15' to clean the bores if it be desired to re-use the stopper or screw cap 11'.

In Fig. 8, there is shown a further modification of the device. In this instance, a conventional cork stopper 20 may be provided with a sediment trap comprised of a cylindrical tube 21 closed at one end and made of glass, plastics, waterproofed paper or any other suitable material. The open end of tube 21 may be closed by a disk 22 which may equal the outer diameter of the tube 21 and which may be arranged in the bore of stopper 20 to abut the end of the tube. The disk 22 may be of any suitable rigid material as of refractory material, ceramic or plastics or fibre, etc., and is provided with a bore or aperture 23 relatively smaller than the inside diameter of the tube 21 and preferably of the order of .075 inch, which bore communicates at its lower end with a frustoconical or funnel-like opening 24, the walls of which constitute a continuation of the tapered end 25 of the stopper 20. It will be apparent that when a container having a closure of the character described, is inverted, the sediment present or formed in the contained liquid, will gradually settle downwardly upon the sloping side of the funnel-shaped passageway and along the sides through the aperture 23 and into the tube 21 there to be retained. While the invention has been described with respect to its use in connection with aging liquors and other beverages, it is obvious that it may be used with equal advantage for entrapping sediment settling out of any sediment-containing liquid.

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

1. In combination, a beverage bottle and a sediment entrapping member, said member comprising a stopper for the bottle and having a plurality of relatively restricted blind bores in communication with the inside of said bottle, the diameter of said bores being approximately .075 of an inch whereby when the bottle is inverted the bores receive and retain sediment settling out of beverage contained in said bottle, and a resilient sleeve on said member forming an air-tight seal between the member and the inside of the neck of the bottle.

2. The combination of a beverage container and a sediment-entrapping member therein, said member having a plurality of relatively restricted blind bores in communication with the inside of the container, the diameter of said bores being in the neighborhood of .075 of an inch whereby when the container is disposed with the openings of the bores facing upwardly, the bores receive and retain sediment settling out of beverage contained in said container.

3. In combination, a beverage bottle and a sediment-entrapping member, said member having a plurality of relatively restricted blind bores in communication with the inside of said bottle, the diameter of said bores being in the neighborhood of .075 of an inch, whereby when the bottle is inverted, the bores receive and retain sediment settling out of beverage contained in said bottle, and a resilient element forming an air-tight seal between said member and said bottle.

MARIO FEBBRARO.

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