

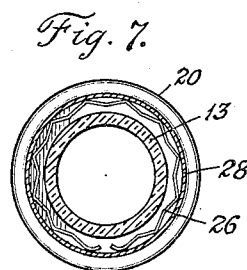
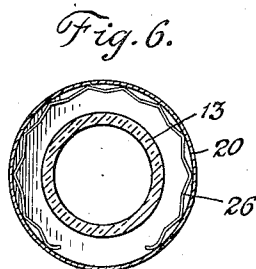
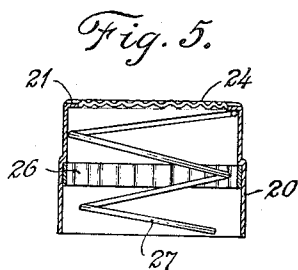
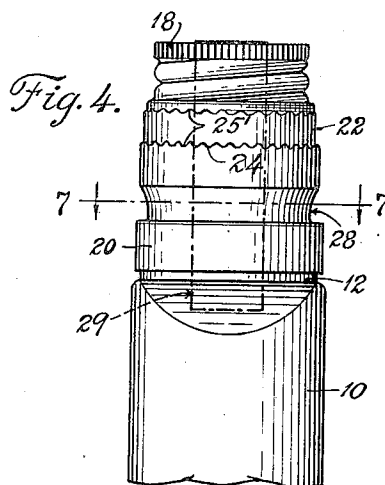
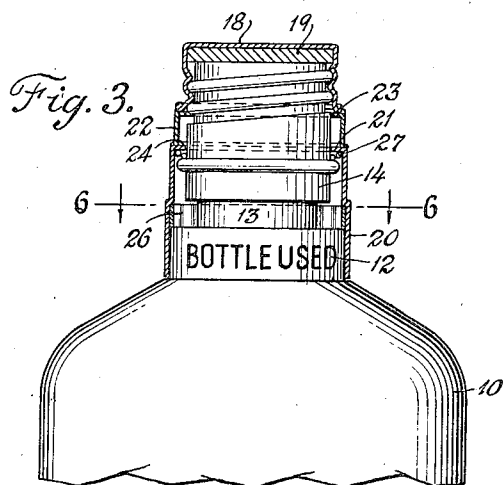
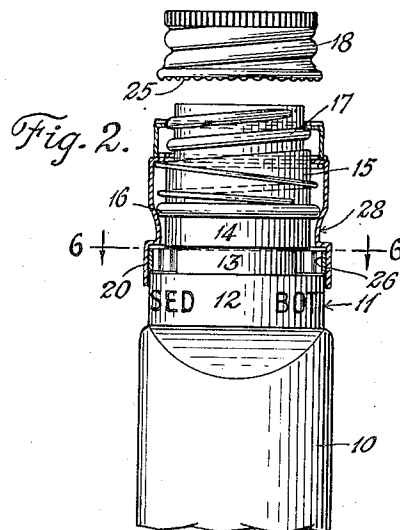
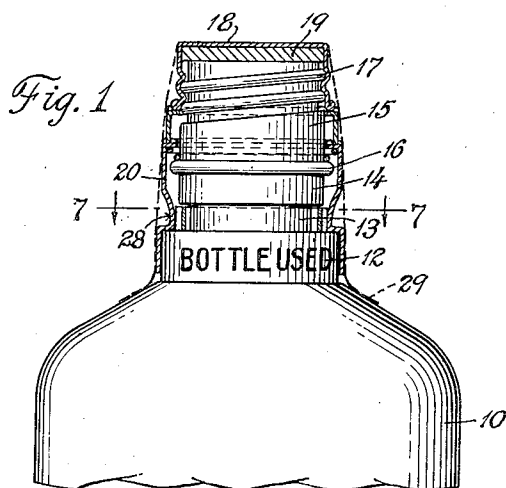
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M. SAMBURG

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BOTTLE CLOSURE

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INVENTOR
MAURICE SAMBURG
BY
Lickelbach & Hirschman
ATTORNEYS

UNITED STATES PATENT OFFICE

2,201,791

BOTTLE CLOSURE

Maurice Samburg, New York, N. Y.

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20 Claims. (Cl. 215—7)

The invention relates to a closure structure for bottles and the like, particularly glass bottles conventionally used as containers for the retailing of spiritual liquors or other liquids, for instance perfumes and the like.

Distillers of liquor who bottle and market such beverages, and perfume manufacturers selling high-priced perfumes, under trade-marks of considerable value and whose products are identified by the public by such trade-mark or a distinctive label, are faced with the serious problem of preventing or discouraging the refilling of bottles in which their products were originally sold, by unscrupulous persons, with products of inferior quality or of a different brand. For instance, manufacturers are subject to the loss of valuable good will and a considerable amount of business by the illegal practice of unscrupulous persons in refilling the bottles of the manufacturer after the original contents thereof have been dispensed, for instance in the case of spiritual liquors, one form of such practice being for the unscrupulous person to buy a quantity of empty bottles of a particular brand of liquor or of a particular distiller and to refill them with a product of inferior quality and therefore of cheaper price, and to recap and resell such bottles thus filled. Loss of a large amount of revenue from taxes by governments, both state and federal, is also incurred when such practice is carried out, as no stamp or band evidencing the payment of the required excise tax is usually affixed to such refilled container.

One of the objects of the present invention is to prevent and, at least in a great measure, discourage this practice by providing a bottle for such merchandise which, as soon as it has been opened, and whether or not any portion of its contents has been dispensed, indicates the fact that the bottle has been opened by the appearance of a legend, for instance, the words "Bottle opened" upon a non-removable portion of a closure structure provided upon the bottle. Thus, in accordance with my invention, I provide a construction of bottle closure which is tamper-proof to the extent that as soon as the bottle has been opened, for instance by the removal of the original cap therefrom, the closure member has been so affected as to bring into clear view of any one thereafter handling the bottle, and therefore of a purchaser or a consumer, a legend clearly indicating that the container is no longer in its original condition, in which it was shipped from the establishment of the distiller, and that at least there has been an opportunity for some

one to have removed a part of the original content of the liquid or all of such contents and to have replaced the same with some other liquid.

In accordance with my invention, I accomplish this object by providing a container, such as a glass bottle, with a construction of the neck of the glass bottle which has been slightly modified from the conventional glass neck of a bottle, so as to be adapted to receive and have applied thereto a closure structure, including a cap, so designed and having elements so cooperatively inter-related as to cause an immediate indication, once the cap has been unscrewed, of the fact that the bottle has been opened. In this manner, any one thereafter handling the bottle so opened is immediately apprised of the fact by the appearance of an informative legend upon the glass neck of the bottle and which legend may not be brought thereafter by any operation of the closure structure or any element thereof to an invisible or hidden condition. In other words, my novel construction of closure structure provides an insurance that once the bottle has been opened such fact becomes permanently evident to a prospective consumer or purchaser, and any refilling of the bottle with liquid of inferior quality or of a different origin would immediately be brought to the attention of such user or purchaser.

In its broadest aspect, my novel closure structure comprises a metal ring or band applied to a portion of the neck of the bottle so as to overlie, and therefore completely hide from view, the legend upon the bottle neck indicating that the bottle has been opened. This metallic ring or band is surmounted by a sleeve which is in turn surmounted by the conventional threaded type of metallic cap. Within the band surrounding the lowermost portion of the bottle neck, which carries the aforesaid legend, there is positioned an expansible corrugated ring type of spring, and within the closure structure, anchored between a bead extending from a portion of the bottle neck and a flange extending inwardly from the upper edge of the sleeve, there is positioned a coil spring. When the conventional cap is unscrewed from the neck of the bottle, the coil spring expands and causes the sleeve and metallic band to move upwardly along the bottle neck until the legend is completely uncovered and brought into view. Means are provided, as by pressing in a portion of the peripheral surface of the band above the corrugated ring type of spring, to prevent, once the band has moved upwardly, such band being again moved back to its original position to overlie,

and therefore hide, the legend. Upon the upward movement of the band, the corrugated ring spring expands to a substantial contact with the inner peripheral surface of the band, and by reason of its vertical width abuts against the pressed-in portion of the band and prevents the latter from movement downwardly along the bottle neck.

Various features of construction making my novel closure structure commercially feasible are also embodied in its fabrication and application, and these specific features of novelty will be more particularly pointed out in conjunction with the following description of a particular embodiment of my invention.

Such specific embodiment of my invention is illustrated in the accompanying drawing, in which Fig. 1 is a front view of the upper portion of a bottle showing my novel closure structure in vertical section; Fig. 2 is a side view of the closure structure positioned upon the bottle neck with the cap removed from the remainder of the closure and the latter in the position thereof assumed when the bottle has been opened; Fig. 3 is a view similar to Fig. 1 but showing the condition of the closure structure before the operation of indenting a portion of its peripheral surface; Fig. 4 is a side view of the closure structure during the operation of removing the cap therefrom and before the lower portion of the closure has been permitted to move upwardly by the action of the spring to uncover the legend, upon the bottle neck, indicating that the bottle has been opened; Fig. 5 is a vertical section through the body of the closure structure not including the cap; Fig. 6 is a section on the line 6—6 of Figs. 2 and 3; and Fig. 7 is a section on the line 7—7 of Figs. 1 and 4.

Referring more particularly to the drawing, in which similar reference characters identify similar parts in the several views, 10 designates the body of a glass bottle or container having an integral neck 11 formed of a plurality of sections 12, 13, 14 and 15. Section 12 of the neck is that immediately adjacent the body of the bottle or container; section 13 is the immediately adjacent section of smaller diameter; section 14 is the next adjacent section of slightly greater diameter than section 13; and section 15 is the topmost section of slightly smaller diameter than section 14. The section 14 is provided substantially at its mid-portion with a circular bead 16; the conventional threading 17 being provided about the periphery of the section 15, adapted to be cooperatively engaged by the threading of a metal cap 18 provided upon its internal surface with the conventional cork or composition sealing disc 19.

The body of my novel closure structure comprises a ring member or band 20 seated at its lower end upon the bottle neck section 12, its upper portion extending upwardly slightly beyond the bead 16, such upper portion terminating in an upwardly extending flange 21, the diameter of the band being reduced at a point intermediate its ends to indicate the point at which the band is to be pressed in or indented for the purpose hereinafter described. Upon this flange is adapted to be seated a second element of my closure structure, namely a ring or sleeve 22 likewise having an inwardly extending flange 23. The upper portion of the band 20 at the flange 21 thereof is corrugated as at 24 for a purpose hereinafter described. The sleeve 22 is similarly provided, at both its upper and lower peripheral edges with corrugations 25, the latter cooperat-

ing with corrugations 25 provided upon the lower peripheral edge of the cap 18.

Surrounding the narrow section 13 of the bottle neck is a split ring spring 26 of a vertical width slightly less than the depth of such narrow section. This ring spring is formed in a plurality of corrugations, as clearly illustrated in Figs. 6 and 7, being expansible and compressible within its surrounding section 13 of the bottle neck as the spring is a split ring, compression and expansion of the spring being permitted by the extent of the separation of its two free ends.

Maintained between the upper surface of the bead 16 and the lower surface of the flange 21 of the band 20 is a compression type of spring 27 which is held under compression when the closure structure is first applied to the container, and is effective, by its expansion, when the cap 18 is removed from the container, to cause the band 20 to move upwardly along the bottle neck and expose a suitable legend, for instance, the legend "Bottle used" etched, imprinted or otherwise applied to the peripheral surface of the container neck section 12, as shown in Figs. 1 to 3.

In assembling or applying my novel closure structure to the neck of the container, when the container has been filled, the corrugated spring 26 is first placed in position, in its fully expanded condition, about the narrow section 13 of the bottle neck, the spring 27 placed in position upon the bead 16, and the band 20 is then placed over the container neck so as to have the flange 21 thereof compress the coil spring 27. Thereafter, a suitable tool is applied to the midsection of the band 20 as indicated at the shoulder formed by the reduction in diameter of the band, to indent or press in such midsection to the extent indicated at 28, in Figs. 1 and 2. This indentation of the midsection of the band 20 will cause a contraction of the corrugated spring 26 to the extent shown in Fig. 7. The sleeve 22 is then applied, setting the same upon the flange 21 of the ring 20, with the corrugations along the lower periphery of the sleeve cooperatively engaging the corrugations of the upper peripheral edge of the band 20. The cap 18 is then screwed onto the threads of the section 15 of the bottle neck with the corrugations 25 of the cap in cooperative engagement with the corrugations 25' along the upper peripheral edge of the sleeve 22. The conventional revenue stamp or strip 29 is then applied to the container in the usual manner by pasting one end portion thereof to the body of the bottle near the neck, passing the strip over the cap and then pasting the other end of the strip upon the opposite side of the container body.

Having now described the mode of application of my novel closure structure to a container which has been filled with its original contents, the manner in which the closure, when the cap has been removed from the container, indicates such fact and therefore that the bottle may not contain all or even part of its original contents, is as follows:

Upon breaking the seal constituted by the revenue stamp or strip, or even without such breaking, when the cap 18 is rotated counterclockwise upon the threads 17, the meshings of the corrugations between the lower peripheral edge of the cap and the upper peripheral edge of the sleeve 22, and the corrugations between the lower peripheral edge of the sleeve and the corrugations on the band, will cause the entire closure structure to rotate as a unit. The coil

spring 27 will then expand, carrying with it the sleeve and band 20, which elements will move upwardly along the neck of the container until the indentation 28 comes into abutting relation with the bead 16. This upward movement of the ring 20 will be just sufficient to expose the legend "Bottle used" or any other legend of similar connotation throughout the peripheral surface of the bottle neck section 12. As soon as the upper limit of the movement of the band 20 has thus been reached, the corrugated ring spring 26 will expand to its position shown in Figs. 2 and 6, taking the position below the shoulder formed by the indentation 28. Upon the attainment, by the corrugated ring spring of this position, it is impossible to depress the band 20 or the sleeve 22 by any manipulation thereof or by any attempt at the replacement of the cap 18. The sleeve 22 may then be removed and disposed of, the uppermost section of the neck of the container extending beyond the flange 21 and carrying the thread 17, being sufficient to permit the replacement of the cap 18 upon the bottle neck, so as to effect a closure of the container after removal of a portion of its contents. Under no circumstances, however, may such cap be rotated to a sufficient extent to cause the sleeve 22, if replaced, and the band 20 to be again depressed so as to have the latter cover the legend appearing upon the lowermost section of the bottle neck.

My novel closure structure, therefore, constitutes an effective means of indicating that the container has been tampered with or has been opened and insures the consumer against fraudulent replenishment of the contents of the container by an inferior grade of product or, as a matter of fact, of any liquid not originally contained in the bottle when it was filled by the distiller or perfume manufacturer.

In the application of the revenue stamp of strip, it is quite possible and as a matter of fact usual, to apply such revenue stamp or strip to the bottle and its neck in such manner that the stamp or strip is adhesively secured not only to the bottle body and to the cap, but also to the neck of the bottle. When a bottle carrying a closure structure of my novel form has applied thereto such a revenue stamp or strip, the stamp may be adhesively secured intentionally or otherwise to the opposite surfaces of the band 20, as shown in Fig. 1. If this should occur, the adhesively applied stamp or strip may prevent such band from moving upwardly even after the cap has been removed from the bottle neck. It is therefore essential to provide a structure which will force the rotation of the entire closure structure about the neck when the bottle is sought to be opened. For this reason, I have provided my novel closure structure with the corrugations along the bottom peripheral edge of the cap, along the upper and lower peripheral edges of the sleeve member, and along the upper peripheral edge of the band. By providing these corrugations, which in the closed condition of the bottle are intermeshed, when the cap alone is sought to be rotated, it will carry with it automatically the sleeve and the band, thereby insuring the breaking or fracture of the revenue stamp or strip and eliminating the possibility that the adhesive connection between the bottle body and the band, by means of such revenue stamp or strip, will prevent the band and the sleeve from moving upwardly when the cap has been removed from the bottle neck.

While it is obvious that the above described construction, i. e. involving the corrugation of

the peripheral edges of the cap, sleeve, and band is not essential to the satisfactory operation of my novel closure structure, it is described in detail both with respect to function and advantages as the provision thereof enhances the commercial practicability of my closure structure. It is obvious that various modifications and changes, particularly in the arrangement, structure and configuration of the several parts of my novel construction, may be made without departing from my invention. Thus, in place of the coil spring 27, used in the specific illustrated embodiment of my invention, there may be used any compressible spring, for instance, a flat spring bent along its extent out of a single plane. Also, instead of a circumferential indentation of the band 20, the same effect may be secured by means of two or more surface indentations, not extending substantially circumferentially of the band.

It will be noted also, that one important feature of my novel construction of closure structure resides in the fact that the entire combination of band, compressible spring, and corrugated spring is capable of application to the bottle as a unit, i. e. in a single operation, the assembly of the elements being carried out separately and not as a part of the bottling operation. Obviously, also, in supplying such assembled unit, ready for application to a filled container, the operation of indenting the band may be dispensed with by substituting some other form of retaining means for the expanded corrugated ring spring. Similarly, some other form of cap or closure element may be substituted for the screw cap described and illustrated, for instance a stopper of cork or composition material with a head suitably configured to provide abutment for the flange of the sleeve or band.

I claim:

1. A closure structure for a container having a neck, comprising a band surrounding the neck, the neck having a circumferential groove and being provided with a symbol indicating that the bottle has been opened and covered by said band in one position thereof, means for causing movement of the band along the container neck to uncover said symbol, and means for preventing the retrograde movement of said band upon said neck.

2. A closure structure for a container having a neck, comprising a band surrounding the neck, the neck being provided with a symbol indicating that the bottle has been opened, on the container neck and covered by said band in one position thereof, a cap for said container, spring means for causing the movement of the band along the container neck to uncover said symbol when the cap is rotated, and means for preventing the retrograde movement of said band upon said neck.

3. A closure structure for a container having a neck, comprising a band surrounding the neck, the neck being provided with a symbol indicating that the bottle has been opened, on the container neck and covered by said band in one position thereof, a sleeve surmounting said band, a cap for the container, means for causing the movement of the band and sleeve along the container neck to cause the band to uncover said symbol, and means for preventing the retrograde movement of said band upon said neck.

4. A closure structure for a container having an elongated neck, comprising a band, means for causing the movement of the band along the container neck, and means for preventing the

retrograde movement of said band upon said neck.

5 5. A closure structure for a container having an elongated neck, comprising a band surrounding the neck, a sleeve surmounting said band, a cap for the container, means for causing the movement of the band along the container neck and means for preventing the retrograde movement of said band upon said neck.

10 6. A closure structure for a container having an elongated neck, comprising a band surrounding the neck, a sleeve surmounting said band, a cap for the container, a spring for causing the movement of the band along the container neck when said cap has been removed, and means for preventing the retrograde movement of said band upon said neck, said means comprising a circumferential indentation upon the band and a spring abutting said indentation.

20 7. A closure structure for a container having an elongated neck, comprising a band surrounding the neck, a sleeve surmounting said band, a cap for the container, a symbol on the container neck covered by said band in one position thereof, means for causing the movement of the band along the container neck to uncover said symbol to indicate that the bottle has been opened, said means comprising a coil spring controlled by said sleeve, and means for preventing the retrograde movement of said band upon said neck, comprising a circumferential indentation upon the band and a split corrugated ring spring abutting said indentation in its expanded condition.

35 8. A closure structure for a container comprising a band, a split corrugated type of ring spring within said band, said band having an intermediate portion thereof pressed inwardly to constitute an abutment for the upper edge of said corrugated ring spring, a sleeve surmounting said band and having its upper peripheral edge turned inwardly to constitute a flange, a coil spring the expansion of which is governed by said flange, and a threaded cap surmounting said sleeve.

45 9. A closure structure for a container having an elongated neck, comprising a band surrounding a section of said neck, a split corrugated type of ring spring surrounding a portion of the section of the neck which the band overlies, said section of the neck being provided with a legend indicating that the bottle has been opened, said band having an intermediate portion thereof pressed inwardly to constitute an abutment for the upper edge of said corrugated ring spring, a sleeve surmounting said band and having its upper peripheral edge turned inwardly to constitute a flange, a bead upon said container neck, a coil spring positioned between said bead and said flange, and a threaded cap surmounting said sleeve.

60 10. A closure structure as claimed in claim 2, in which the band, at its upper peripheral edge, and the cap at its lower peripheral edge, is provided with corrugations.

65 11. A closure structure as claimed in claim 3, in which the band, at its upper peripheral edge, the sleeve at its upper and lower peripheral edges, and the cap at its lower peripheral edge, is provided with corrugations.

70 12. A closure structure as claimed in claim 8, in which the band, at its upper peripheral edge, the sleeve at its upper and lower peripheral edges, and the cap at its lower peripheral edge, is provided with corrugations.

13. A closure structure as claimed in claim 9, in which the band, at its upper peripheral edge, the sleeve at its upper and lower peripheral edges, and the cap at its lower peripheral edge, is provided with corrugations.

5 14. In a closure structure for a container having a neck, a band surrounding a section of said neck, an expansible spring surrounding a portion of the section of the neck, which the band overlies, said band having at least a portion thereof pressed inwardly to constitute an abutment for said spring in its expanded condition, and a threaded cap upon the end portion of the said container neck.

15 15. In a closure structure for a container having a neck, a band surrounding a section of said neck, an expansible spring surrounding a portion of the section of the neck which the band overlies, said section of the neck being provided with a legend indicating that the bottle has been opened, said band having at least a portion thereof intermediate to its ends pressed inwardly to constitute an abutment for said spring in its expanded condition, a sleeve surmounting said band, a flange extending inwardly from the upper end of said band, a bead upon said container neck, a compressible spring positioned between said bead and said flange, and a threaded cap surmounting said sleeve.

30 16. In a closure structure for a container having a neck, a band surrounding a section of said neck, an expansible corrugated spring surrounding a portion of the section of the neck which the band overlies, said section of the neck being provided with a legend indicating that the bottle has been opened, said band having at least a portion thereof intermediate its ends pressed inwardly to constitute an abutment for said spring in its expanded condition, a sleeve surmounting said band, a flange extending inwardly from the upper end of said band, a bead upon said container neck, a compressible coil spring positioned between said bead and said flange, and a threaded cap surmounting said sleeve.

45 17. A closure for a container having an elongated neck, comprising a unitary structure having a band provided with a flange extending inwardly at its upper end, an expansible spring within the band, said band having an intermediate portion thereof pressed inwardly to constitute an abutment for said spring in its expanded condition, and a compression spring positioned within the band and abutting said flange.

55 18. A closure for a container having an elongated neck, comprising a unitary structure having a band provided with a flange extending inwardly at its upper end, a split corrugated type of ring spring within the band, said band having an intermediate portion thereof pressed inwardly to constitute an abutment for said spring in its expanded condition, and a coil spring positioned within the band and abutting said flange.

65 19. The combination, with a container having an elongated neck, a section of the neck having a circumferential groove and being provided with a legend indicating that the container has been opened, of a band surrounding said section of the neck, means surrounding a portion of the section of the neck which the band overlies to cause movement of the band along said neck, when restraint upon said band is removed, means for limiting the upward movement of said band

upon said neck, a sleeve surmounting said band, and a threaded cap surmounting said sleeve.

20. In combination, with a container having an elongated neck, a section of the neck being provided with a legend indicating that the container has been opened, a circumferential bead on said neck above said legend, a band surrounding said neck section, said band having its upper peripheral edge turned inwardly to
10 constitute a flange, a compression spring extend-

ing between said bead and flange and effective, upon its expansion, to move said band upwardly along the container neck, to uncover the legend, an expansible spring within the band adapted to expand upon such upward movement of the band, means upon said band to prevent its retrograde movement along the neck, said means abutting the expanded spring, and a closure cap upon the end of the container neck.

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