March 20, 1962 A. PANCRAZI 3,025,990

PLASTIC CLOSURE MEMBERS FOR CHAMPAGNE BOTTLES

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FIG. 3.

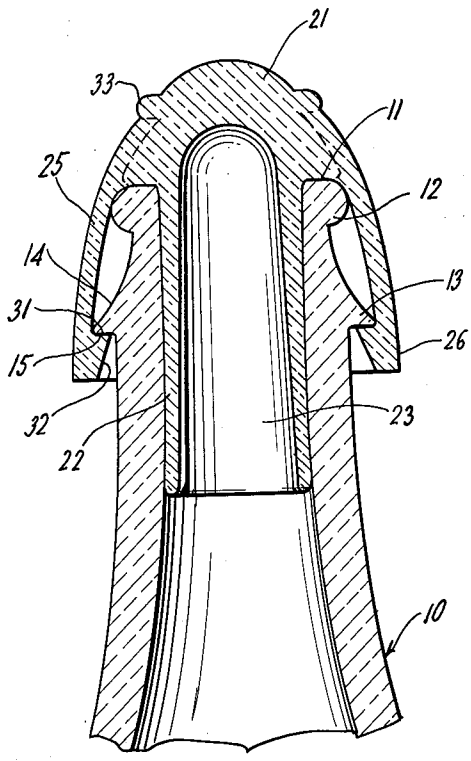
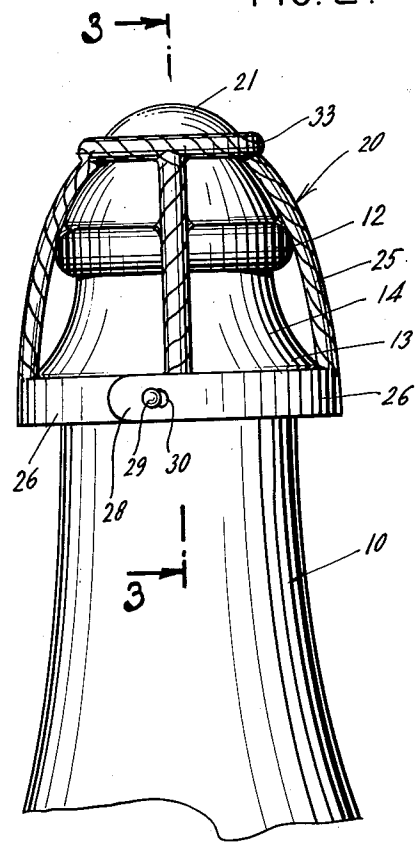


FIG. 2.



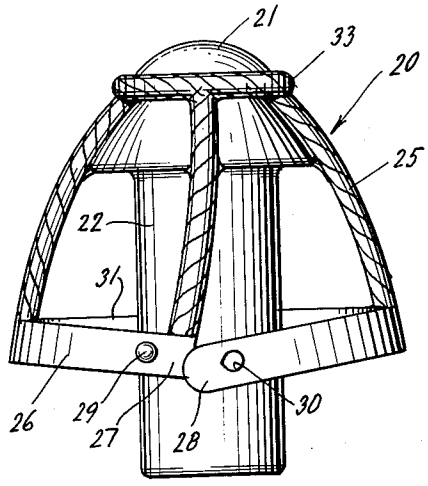


FIG. 1.

INVENTOR.
ALEX PANCRAZI
BY Blum, Moscovitz, Friedman & Blum
ATTORNEYS

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FIG. 4.

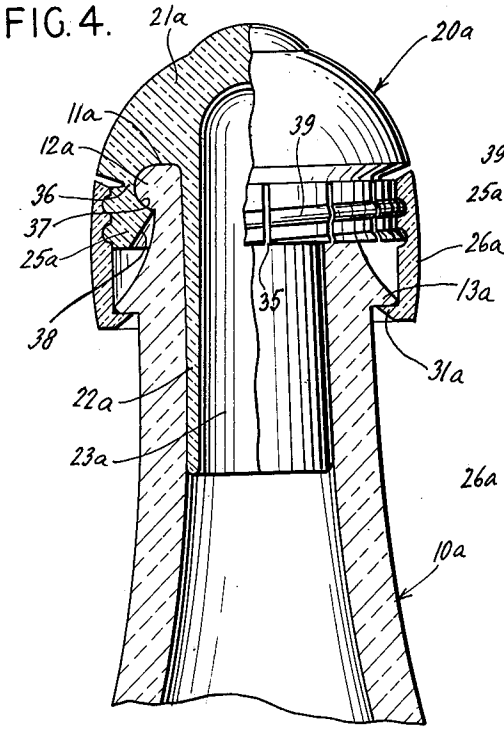
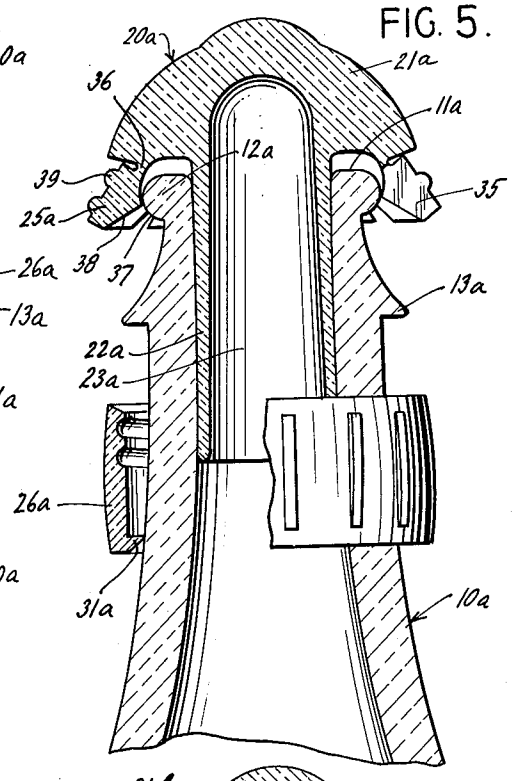


FIG. 5.



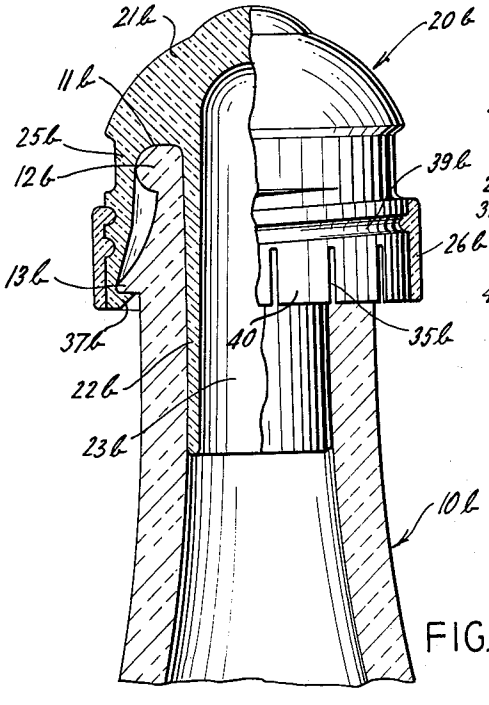


FIG. 6.

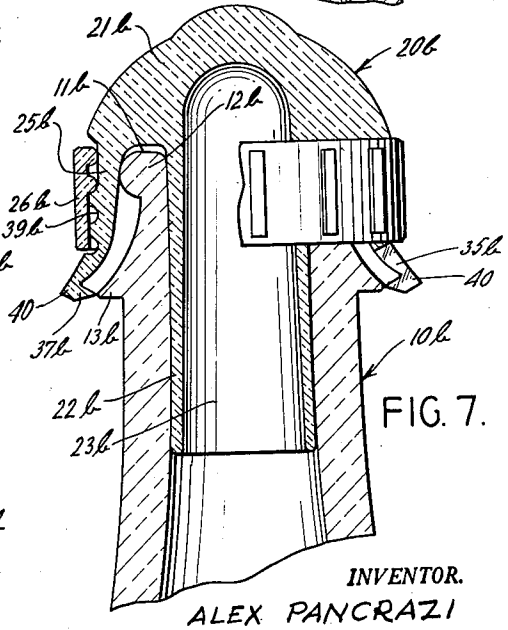


FIG. 7.

INVENTOR.
ALEX PANCRAZI
BY Blum, Moscovitz, Friedman & Blum
ATTORNEYS

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PLASTIC CLOSURE MEMBERS FOR CHAMPAGNE BOTTLES

Alex Pancrazi, Palisades Park, N.J., assignor to Sparkle-Top Corporation, New York, N.Y., a corporation of New York

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8 Claims. (Cl. 215—47)

This invention relates generally to bottle closures, and is especially concerned with reusable closures adapted to withstand substantial pressure from within a bottle.

While the device of the present invention has been primarily developed for use in conjunction with conventional champagne bottles, and will be illustrated and described hereinafter with particular reference thereto, it is appreciated that the teachings of the present invention are capable of many varied applications, all of which are intended to be comprehended herein.

It is one object of the present invention to provide a bottle closure which is highly effective as a prime seal, neat and attractive in appearance, and which can be quickly and easily applied to and removed from its closing relation with a bottle.

It is still another object of the present invention to provide a bottle closure of the type described which is capable of use and repeated reuse, by simple manual operation, without the need for special skill, or tools.

It is still another object of the present invention to provide a bottle closure having the advantageous characteristics mentioned in the preceding paragraphs which is extremely simple in structure, durable and reliable in operation, and capable of economic mass production for sale and use at a reasonable price.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described.

In the drawings:

FIGURE 1 is an elevational view showing a bottle closure of the present invention apart from a bottle;

FIGURE 2 is an elevational view showing the bottle closure of FIGURE 1 in closing relation with a bottle, the lower part of the bottle being broken away to conserve drawing space;

FIGURE 3 is a sectional elevational view taken substantially along the line 3—3 of FIGURE 2;

FIGURE 4 is an elevational view, partly in section showing a slightly modified form of bottle closure of the present invention in closing relation with a bottle neck;

FIGURE 5 is a sectional elevational view showing the closure of FIGURE 4 being removed from the bottle;

FIGURE 6 is an elevational view, partly in section showing another embodiment of bottle closure constructed in accordance with the teachings of the present invention, in closing relation with respect to a bottle; and

FIGURE 7 is an elevational view, partly in section, showing the closure of FIGURE 6 being removed from its closing relation with a bottle.

Referring now more particularly to the drawings, and more specifically to FIGURES 1–3 thereof, a bottle neck is there generally designated **10**, and extends upwardly, terminating in an upwardly facing annular surface or mouth **11**. Formed integral with and extending circumferentially about the bottle neck **10** contiguous to the mouth **11** is a bead **12** of outwardly convex, generally semicircular configuration. Spaced below the bead **12**, the bottle neck **10** is provided with an integral, circumferentially extending external shoulder **13**. The shoulder may be formed by an arcuate, downwardly and outwardly flaring external surface **14**, which intersects with a generally flat radially outwardly extending, annular surface **15**. The annular surface **15** defines the downwardly facing, underside of the shoulder **13**.

The bottle construction described hereinbefore is conventional in champagne bottles, and is shown for purposes of illustration, without limiting intent.

In FIGURE 1 is shown a bottle closure of the present invention, generally designated **20**, apart from a bottle. The bottle closure **20** is shown in closing relation with respect to the bottle neck **10** in FIGURES 2 and 3. The closure **20** is preferably integrally fabricated of resilient plastic, such as polyethylene or the like, and includes a top portion or head **21** adapted to seat on the upper end or mouth **11** of the bottle neck **10**. An integral plug or insert **22** depends centrally from the underside of the head **21**, entering downward through the mouth **11** into snug conforming engagement within the bottle neck. The insert or plug **22** is interiorly hollow, as at **23**, the hollow or bore **23** opening downward into the bottle neck **10** and extending upward into and terminating short of the upper end of the head **21**. By reason of the elongate interior hollow or bore **23**, the insert or plug **22** is of generally tubular configuration and adapted to receive gas under pressure from the body of the bottle.

Depending integrally from the head **21**, at circumferentially spaced locations thereabout, are a plurality of flexible, elongate elements **25**. The elongate elements **25** depend from the head **21** outward of the bead **12** and downward beyond the shoulder **13**. A generally circular, open band **26** extends circumferentially about the bottle neck **10** and is integrally joined at spaced locations to the lower ends of depending elements **25**. The open band **26** includes a pair of end portions **27** and **28** adapted to overlap and provide with mating fastener elements, such as a button or protuberance **29** on the end **27**, and a socket or opening **30** on the end **28** adapted to releasably receive the button. The band **26** is provided with an annular, generally horizontal upwardly facing surface **31**, and has its inner surface **32** undercut to slope or flare downwardly and outwardly.

If desired, an external integral bead **33** may be provided about the head **21**, and the depending elements **25** extended vertically upward to meet the bead **33**, so that the bead **33** and elements **25** combine to simulate the wirework of a conventional champagne-bottle closure.

In the closed condition of FIGURES 2 and 3, it is seen that the band **26** is suspended by the depending elements **25** and the undersurface of the head **21** is held firmly seated on the mouth **11** by means of the depending elements and the band. That is, the depending elements **25** and band **26** combine to define means for holding the head in its bottle-closing condition. The band **26** has its upper surface **31** in abutting engagement with the underside **15** of the shoulder **13**; and, the band is connected to the head **21** by the elements **25**, so that the head may not be removed unless the band is opened, as by disengagement of the fastener elements **29** and **30**. Further, the fluid pressure interiorly of the hollow **23** serves to distend the walls of the tubular insert **22** forcibly against the internal surface of the bottle neck, to more effectively seal the bottle.

After the closure **20** has been removed by opening the band **26** and withdrawing the insert **22** from the bottle neck, it may be quickly and easily replaced by simple reversal of this procedure. That is, reinsertion of the insert into the bottle neck, and fastening of the ends of band **26** with the band in the above-described abutting engagement with the shoulder **13**.

In the embodiment of FIGURES 4 and 5, there is shown a bottle neck **10***a* which may be identical to the

bottle neck 10 of FIGURES 1–3, and a modified form of closure 20*a*. The closure 20*a* is also preferably fabricated of flexible resilient material, such as polyethylene plastic, and includes an upper part or head 21*a* seated on the bottle mouth 11*a*, and a hollow tubular insert or plug 22*a* depending centrally from the head interiorly of the bottle neck. The interior 23*a* of the insert 22*a* opens downward into the bottle 10*a*, and has its upper end closed in the head 21*a*.

Depending from the head 21*a*, outward of and below the bottle bead 12*a* are a plurality of circumferentially arranged elements 25*a*. The depending elements 25*a* are arranged closely together about the entire circumference of the head 21*a*, each adjacent pair of depending elements being spaced apart by a downwardly opening slot 35. Hence, the depending elements 25*a* may be considered as a circumferential skirt interrupted at a plurality of circumferentially spaced locations by the slots 35. It will be noted that the depending elements 25*a* terminate at their lower ends vertically spaced between the bead 12*a* and shoulder 13*a*. The depending elements 25*a* are integral with the head 21*a* and each connected to the head by a reduced portion 36, which affords flexibility to the depending elements for swinging movement of the latter relative to the head, as between the positions of FIGURES 4 and 5. The inner surface of each depending element 25*a* is arcuately concave, as at 37, for conforming, embracing engagement with the adjacent portion of bead 12*a* upon inward swinging movement of the depending element; and, below the concave inner-surface portion 37, the inner surface of the depending element flares downward and outward, as at 38. Provided exteriorly on the skirt defined by the plurality of depending elements 25*a* are external screw threads 39. The screw threads 39 are, of course, interrupted by the slots 35.

Circumposed about the bottle neck 10 is an annular member or band 26*a* having its lower edge provided with an internal annular flange 31*a*. The upper internal region of band 26*a* is provided with internal screw threads configured for threaded engagement with the screw threads 39. In the closed condition of FIGURE 4, it is apparent that the depending elements 25*a* are swung inward to embracingly engage the bead 12*a*; and, that the band 26*a* is circumposed about and in threaded engagement with the depending elements, while the internal flange 31 of the band abuttingly engages the undersurface of the shoulder 13*a*. Thus, the flange 31*a* is drawn tightly up against the shoulder 13*a*, and the depending elements 25*a* are positively maintained in embracing engagement with the bead 12*a*.

In order to remove the closure 20*a* from its closed condition, it is only necessary to unscrew the band 26*a*, moving the latter vertically downward out of threaded engagement with the depending elements 25*a*, and out of abutting engagement with the shoulder 13*a*. As seen in FIGURE 5, the band 26*a* is entirely released from the remainder of the closure, and the head 21*a* has been drawn partially upward or outward, the depending elements 25*a* flexing freely outward to ride over the bead 12*a* and permit withdrawal of the closure. Of course, the closure may be resealed by reinsertion of the plug 22*a*, and upward screwing action of the band 26*a* about the depending elements 25*a* and into abutting engagement with the shoulder 13*a*.

Another slightly modified embodiment is shown in FIGURES 6 and 7, wherein a closure, generally designated 20*b* is provided on a bottle neck 10*b*. The bottle neck may be substantially identical to that of the hereinbefore described embodiments.

The closure 20*b* is also preferably fabricated of polyethylene plastic, or material having similar resilient characteristics, and includes a head 21*b* seated on the upper end or mouth 11*b* of the bottle neck. A tubular insert or plug 22*b* depends centrally from the head 21*b* into the bottle neck 10*b*, and is provided with an internal hollow or bore 23*b* opening downward into the bottle and extending upward to a closed end in the head 21*b*.

Depending from the head 21*b* exteriorly about the bead 12*b* is a skirt element 25*b* which has its lower edge extending below the underside of shoulder 13*b*. The lower region of the skirt element 25*b*, adjacent to the shoulder 13*b*, is interrupted by a plurality of circumferentially spaced slots 35*b*, to define between each adjacent pair of slots a depending finger element 40. Extending interiorly about the lower-edge region of the skirt element 25*b*, and specifically about the interior of the lower ends of the finger elements 40, is an internal lip or flange 37*b*, which, is of course, interrupted by the slots 35*b*. Exteriorly of the depending skirt element 25*b* are provided screw threads 39*b*.

An annular element or band 26*b* is circumposed about the depending skirt element 25*b*, and configured for threaded engagement therewith so as to move vertically along the depending skirt element between the lower position of FIGURE 6 and upper position of FIGURE 7.

In the lower position of FIGURE 6, it will be observed that the band 26*b* retains the flexible depending finger elements 40 inward, with the internal flange 37*b* in abutting engagement with the underside of shoulder 13*b*. Thus, the closure 20*b* is positively retained in closed condition on the bottle neck 10*b*.

In order to open the bottle and remove the closure 20*b*, it is only necessary to screw the band 26*b* upward, to the position shown in FIGURE 7, whereupon the depending finger elements 40 may be swung outward from their abutting engagement with the underside of shoulder 13*b* to release the closure for withdrawal from the bottle neck. Replacement of the closure is accomplished by mere reversal of this procedure, namely insertion of the plug 22*b* to seat the head 21*b* on the mouth 11*b*, and downward screwing of the cap 26*b* to retain the depending finger elements 40 inward with the flange 37*b* abutting the underside of the shoulder 13*b*.

From the foregoing, it is seen that the present invention provides a bottle closure which fully accomplishes its intended objects and is well adapted to meet practical conditions of manufacture and use.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention and scope of the appended claims.

What is claimed is:

1. A closure for the mouth of a bottle neck having an external bead about the mouth and an external shoulder about the neck spaced below the bead, said closure comprising a head conformably engageable on said mouth, and holding means depending from said head and extending circumferentially about said neck, said holding means being formed with internal upwardly facing flange means for releasable abutting engagement with the underside of said shoulder to removably retain said head in position on said mouth, said holding means comprising a plurality of flexible elements depending from said head at spaced locations thereabout, and an annular band carried by said depending elements, said internal flange means being formed on said band for removable abutting engagement with the underside of said shoulder.

2. A closure according to claim 1, said band being open, and fastener means on said band for releasably closing the latter in said abutting engagement.

3. A closure according to claim 1, said flexible depending elements being configured for engagement with the underside of said bead, said band being removably circumposed about and in threaded engagement with said depending elements for retaining the latter in engagement with said bead and holding said head firmly on said mouth.

4. A closure for the mouth of a bottle neck having an external bead about the mouth and an external shoulder

about the neck spaced below the bead, said closure comprising a head conformably engageable on said mouth, and holding means depending from said head and extending circumferentially about said neck, said holding means being formed with internal upwardly facing flange means for releasable abutting engagement with the underside of said shoulder to removably retain said head in position on said mouth, said holding means comprising a plurality of flexible elements depending from said head at spaced locations thereabout, said internal flange means being formed on said depending elements for abutting engagement with the underside of said shoulder, and an annular band removably circumposed about and in threaded engagement with said depending elements for retaining the latter in engagement with said shoulder to hold said head firmly on said mouth.

5. A closure for the mouth of a bottle neck having an external bead about the mouth and an external shoulder about the neck spaced below the bead, said closure comprising an insert engageable in the bottle neck, a head on the insert engageable over the bottle mouth, and holding means connected to said head and depending therefrom, said holding means comprising internal upwardly facing flange means for releasable abutting engagement with the underside of said shoulder to removably retain said insert and head in position on said bottle neck, a plurality of flexible elements depending from said head at spaced locations thereabout, and an annular band carried by said depending elements, said internal flange means being formed on said band for releasable abutting engagement with the undeside of said shoulder.

6. A closure according to claim 5, said insert being hollow and opening downward into said neck for receiving fluid pressure to increase sealing action of said insert in said neck.

7. A closure according to claim 5, said depending elements being configured for abutting engagement with the underside of said bead, and said band being removably circumposed about and in threaded engagement with said depending elements for retaining the latter in engagement with said bead to hold said head and insert firmly on said bottle neck.

8. A closure according to claim 7, said insert being hollow and opening downward into said neck for receiving fluid pressure to increase sealing action of said insert in said neck.

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