Dec. 7, 1954 S. W. MENEFEE 2,696,319

BOTTLE CLOSURE

Filed March 28, 1952

Fig. 1

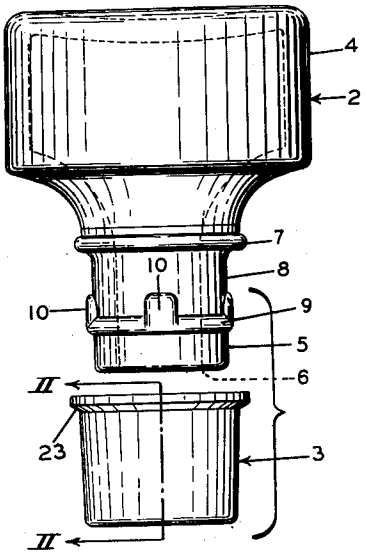


Fig. 2

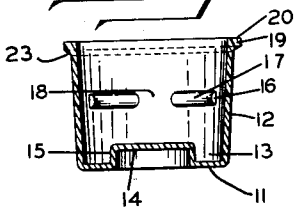
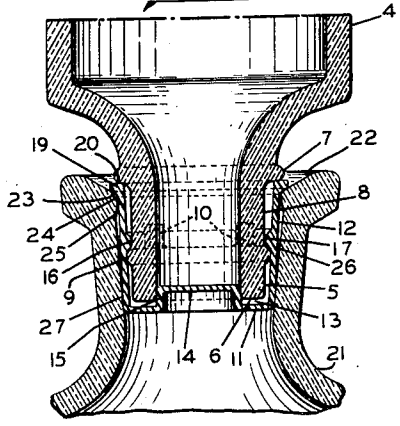


Fig. 3



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BOTTLE CLOSURE

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3 Claims. (Cl. 215—48)

The present invention relates to a bottle closure and is concerned more particularly with a decorative stopper-type closure.

In the packaging of many products, it is desirable to provide the consumer with an attractive stopper top which generally matches the design of the bottle or other container to be closed. This is particularly true of alcoholic beverages where the bottle is frequently designed in the shape of a decanter and a decorative stopper top is provided to match the decanter design of the bottle. Common practice is to provide a primary seal for the decanter, such as a cork stopper, and to furnish the consumer with a decorative closure as an adjunct which may be inserted after the cork stopper has been removed. The decorative stopper tops are frequently formed of glass which is pressed to the desired shape. A satisfactory seal can be made between the inner neck of the bottle and the shank of the stopper by grinding the two surfaces simultaneously as is sometimes done with laboratory and druggists' bottles, but this is very expensive, and for most products the cost is not justifiable.

Another practice has been to provide a glass stopper top with a shell cork positioned on a projecting boss provided on the outer end thereof. The cork is dimensioned to be received within the neck of the container and effect a seal therewith. Cork tends to become discolored when in contact with certain beverages, particularly wines; and since the contents of the decanter may frequently not be consumed upon initial opening, such discoloration is objectionable to some bottles of beverages.

Efforts have been made to provide glass stopper tops with sealing members of polyethylene or similar light-colored or colorless resinous materials, employing them in much the same manner as the shell cork. It has been found that while such stoppers are resistant to discoloration they frequently are difficult to insert and remove, and if made with minimum tolerances to permit easy insertion and removal they fail to provide the desired seal.

An object of the present invention is to provide a bottle closure having a stopper top or holder member which may be formed of glass or other material of a similar nature and a sealing portion or member of polyethylene or similar material attached to the holder and constructed and arranged with respect thereto to provide a satisfactory seal which may be readily inserted and removed from containers such as glass bottles varying within commercial glass finish tolerances.

A further object of the invention is to provide a closure including a stopper top or holder member and a sealing member, with the sealing member attached to the holder member, with substantially the entire skirt of the sealing member disposed radially outwardly with respect to the holder member and displaceable radially toward said holder member to provide for limited constriction of the sealing member as the closure is forced into sealing position and also to accommodate any irregularity which may exist in the glass container to be closed.

Other objects of the invention will be apparent from a consideration of the following description of an embodiment of my invention which is illustrated in the attached drawing, in which:

Figure 1 is an exploded view of the bottle stopper of this invention;

Figure 2 is a sectional view taken on the line II—II of Figure 1; and

Figure 3 is a partial sectional view of the bottle closure of this invention mounted in a conventional cork finish neck of a bottle.

Referring to the drawing, the bottle closure includes a holder member **2** and a sealing member **3**. The holder comprises a top portion **4** and a base portion **5**. As indicated in the drawing, the holder is preferably formed of blown glass and is hollow on the inside and terminates in an open annular end portion **6**. The holder may be made solid, using conventional glass-pressing equipment. Also, materials other than glass may be used. A substantially circumferentially directed shoulder bead **7** projects from the holder between the top portion **4** and the base portion **5** and extends radially beyond the surface **8** of the substantially cylindrical base portion **5**. A circumferentially directed locking bead **9** projects from the base portion **5** intermediate the shoulder bead **7** and the end portion **6**. Preferably, one or more axially directed locking beads **10** are provided which project from the substantially cylindrical surface **8** and preferably merge in with the circumferentially directed bead **9**. In the embodiment shown in the drawing there are four axially directed locking beads **10**. If the frictional grip between the holder member and the sealing member be adequate to prevent relative rotation of the parts, as will be more fully hereinafter discussed, the axially directed locking bead or beads may be eliminated. While it is preferred to have the locking beads **9** and **10** project from the cylindrical base portion **5**, recesses may be provided instead to receive complementary beads on the sealing member. The essential requirement is that there be complementary interlocking surfaces on the holder and sealing member to hold the parts in the desired spaced relationship, as will be more fully hereinafter described.

The sealing member comprises an open-ended, cup-shaped piece having a bottom wall **11** and a skirt **12** which projects upwardly and outwardly from the bottom wall as shown in Figure 2. The bottom wall **11** is constructed to interengage with the holder member **2**; and, in the embodiment illustrated where the holder **2** is in the form of a hollow glass element, an annular recess **13** is provided in the sealing member and is preferably formed by molding the sealing member with an upwardly disposed recess **14** in the bottom thereof, the annular side wall **15** of which cooperates with the substantially cylindrical skirt **12** and the bottom wall **11** to define the annular recess **13**. If the holder is formed of a solid piece with a projecting boss, the lower wall **11** will be suitably formed to interengage therewith as by the provision of an upwardly projecting flange in the lower wall **11** which will receive the projecting boss. Many modifications of the interengaging parts are possible. In the embodiment illustrated, a discontinuous bead **16** is formed on the inner surface of the skirt of the sealing member and projects inwardly therefrom a distance sufficient to bring the innermost surface **17** thereof closely adjacent to or into engagement with the cylindrical portion **8** of the holder above the locking bead **9** when the parts are assembled as shown in Figure 3. The spaces **18** between the discontinuous portions of the bead **16** are of a width sufficient to accommodate the axially directed locking beads **10** of the holder **2**. The upper edge of the skirt **12** terminates in a flange **19** which has an annular surface **20** which lies in engagement with the shoulder bead **7**, as shown in Figure 3, and limits axial movement of the sealing member with respect to the holder in an upward direction, the discontinuous bead **16** engaging above the circumferentially disposed locking bead **9**, as mentioned previously, and limiting axial movement of the sealing member with respect to the holder in the opposite direction. The axially directed locking beads **10** which lie in engagement with the terminal edges of the sections of beads **16** on the inner surface of the sealing member prevent any relative rotary motion of the sealing member with respect to the holder member. Frequently, stoppers are withdrawn by imparting a rotary motion thereto while exerting a pull thereon. It is desirable, therefore, to provide against any relative rotation between the stopper top and sealing member during removal.

It will be noted by reference to Figure 3 that the open annular end portion **6** of the holder **2** engages the wall **15** of the sealing member; and where the frictional engagement there and at the locking bead **9** and shoulder

bead **7** is adequate, the axially directed locking beads **10** may be eliminated, although their use is preferred. If it is desired, a single bead may be provided.

The open end portion **6** of the holder **2** is spaced from the inner surface of the bottom wall **11** of the sealing member, providing for limited compression of the sealing member in a generally axial direction. The inner surface of the skirt **12** is spaced from the cylindrical portion **8** of the holder throughout substantially the full length of the skirt, except in the zone where the locking beads **9** and **10** on the holder and the segments of bead **16** on the sealing member interengage. This provides for deformability in the sealing member through the whole of the skirt excepting only at the interengaging surfaces referred to.

The container **21** may have a conventional cork neck finish so that the bottler may use a cork stopper as the initial seal. Such a finish is shown in Figure 3 and includes a lip **22** which tapers into the open mouth of the receptacle and against which the lower surface **23** of the flange **19** of the sealing member may engage when the closure is in sealing position. There may be a slight constriction as shown at **24**, and a "blow back" recess **25** may occur between the constriction **24** and the tapered inner surface **26**. This "blow back" is not fully controllable and varies with different outside neck finishes and other variable factors. It is desirable with cork stoppers to provide such a constriction, for the cork is compressed upon insertion into the neck but instantly reexpands to assume the contour of the inner neck surface, and the constriction serves to hold the cork against dislodgment, providing a better seal. The closure of this invention may be readily inserted into a conventional cork neck finish glass bottle and removed therefrom with relative ease, for the sealing member is free for radial compression both above and below the bead **16** which is so disposed that when the stopper is inserted in a conventional cork neck finish bottle it will lie in the "blow back" zone if one exists. In any event, the sealing member is so dimensioned that the skirt portion **12** at the bead **16** will pass beyond the constriction **24**. Radial compression of the sealing member above the bead **16** in the zone of the constriction and radial compression of the sealing member below the bead **16** in the tapered zone **27** of the interior of the bottle neck effect an adequate seal, even though the dimensions of the bottle may vary within the usual commercial tolerances. The wall of the sealing member need not be very thick; a relatively thin wall will enhance the deformation quality of the sealing member and insure good conformity with the bottle neck, even though the same be slightly out of round or otherwise deformed.

Where the container is to be filled with liquid for transportation, it is preferred to use a primary seal such as a cork in the container and supply the closure as a separate item to be inserted upon removal of the cork. The closure will provide an adequate seal for home use but might be inadequate for sealing the container for transportation where the containers may become inverted and rough handling is frequently encountered.

I claim:

1. A bottle closure consisting essentially of a resilient sealing member and a holder for said member to which said member is affixed and held against dislodgement therefrom; said holder comprising a top portion and a base portion of hollow, substantially cylindrical form terminating in an open annular end portion, a substantially circumferentially directed shoulder bead projecting from said holder between said top portion and said base portion and extending radially beyond the surface of said substantially cylindrical base portion, and a substantially circumferentially directed locking bead projecting from said base portion intermediate said shoulder bead and said open annular end portion; said sealing member comprising an open-ended, cup-shaped member having a bottom wall and a skirt projecting therefrom with an annular groove in the bottom thereof into which is disposed the open annular end portion of said holder, a bead projecting inwardly from the skirt of said sealing member lying in engagement with said cylindrical surface of said base portion of said holder above said circumferentially directed locking bead on said holder, spacing said skirt portion radially from the surface of said holder thereabove and therebelow and limiting axial movement of said sealing member with respect to said holder in one direction, and a flange surrounding the open end of said sealing member and lying in engagement with said shoulder bead and limiting axial movement of said sealing member with respect to said holder in the opposite direction.

2. A bottle closure consisting essentially of a resilient sealing member and a holder for said member to which said member is affixed and held against dislodgement therefrom; said holder comprising a top portion and a base portion of hollow, substantially cylindrical form terminating in an open annular end portion, a substantially circumferentially directed shoulder bead projecting from said holder between said top portion and said base portion and extending radially beyond the surface of said substantially cylindrical base portion, a circumferentially directed locking bead projecting from said base portion intermediate said shoulder bead and said open annular end portion, and an axially directed locking bead projecting from said base portion; said sealing member comprising an open-ended, cup-shaped member having a bottom wall and a skirt projecting therefrom with an annular groove in the bottom thereof into which is disposed the open annular end portion of said holder, a discontinuous bead projecting inwardly from the skirt of said sealing member lying in engagement with said cylindrical surface of said base portion of said holder, with said axially directed locking bead disposed in abutting relationship with respect thereto, said discontinuous bead spacing said skirt portion radially from the surface of said holder thereabove and therebelow and limiting axial movement of said sealing member with respect to said holder in one direction, and a flange surrounding the open end of said sealing member and lying in engagement with said shoulder bead and limiting axial movement of said sealing member with respect to said holder in the opposite direction.

3. A bottle closure consisting essentially of a resilient sealing member and a holder for said member to which said member is affixed and held against dislodgment therefrom; said holder comprising a top portion and a base portion; said sealing member comprising an open-ended, cup-shaped member having a bottom wall and a skirt projecting therefrom into which said base portion of said holder is telescoped, the skirt being spaced outwardly away from the base portion of the holder in a sealing zone extending from the open end of the sealing member toward the bottom wall thereof to provide a free space between said sealing member and said holder in said sealing zone into which said sealing member may be deformed upon insertion of the closure into a container to be sealed; and complementary interlocking surfaces on said holder and said sealing member below said sealing zone mechanically locking the parts against relative movement both axially and circumferentially.

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