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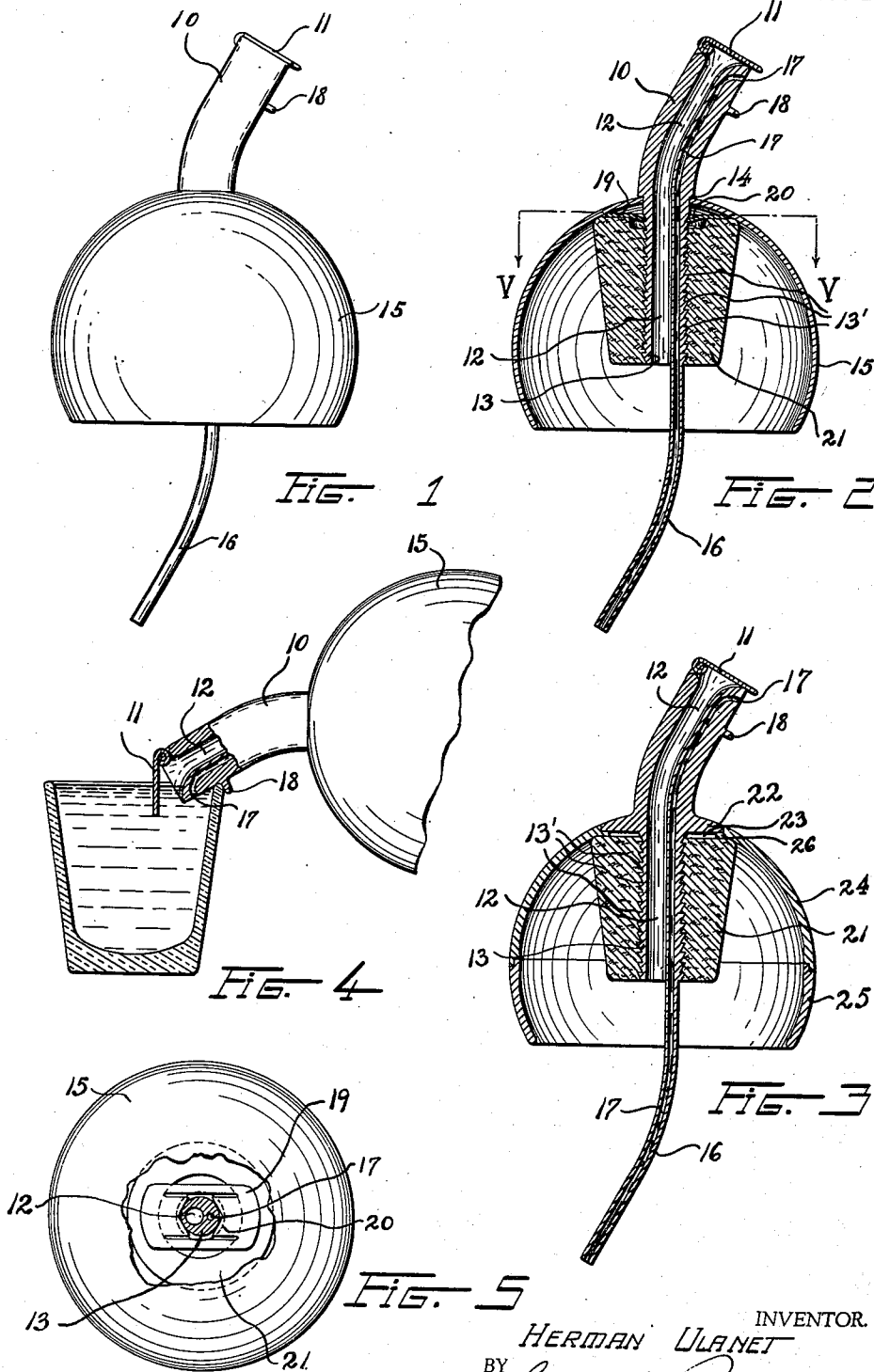
H. ULANET

2,281,642

DISPENSING BOTTLE AND CLOSURE DEVICE

Filed Aug. 2, 1940

2 Sheets-Sheet 1



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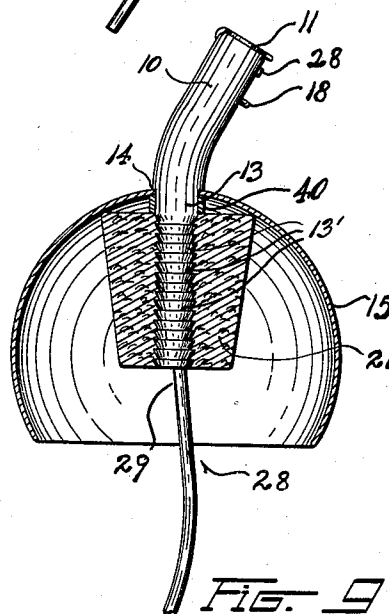
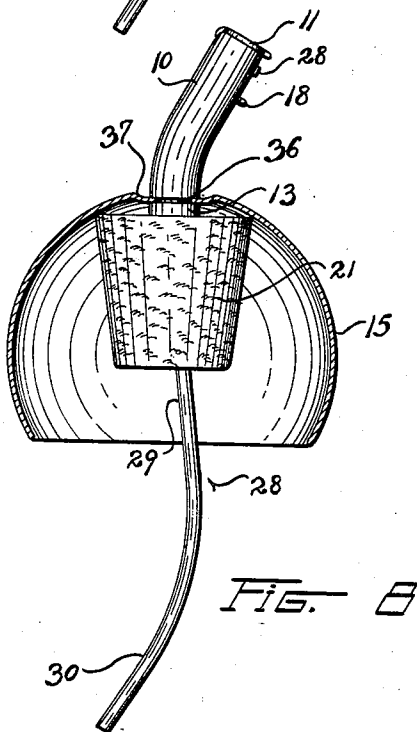
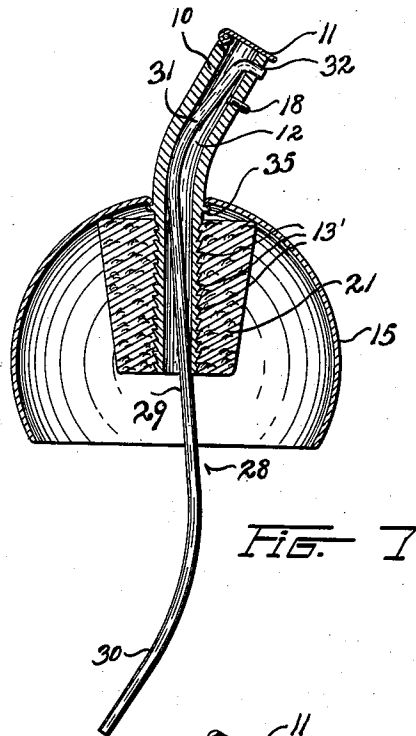
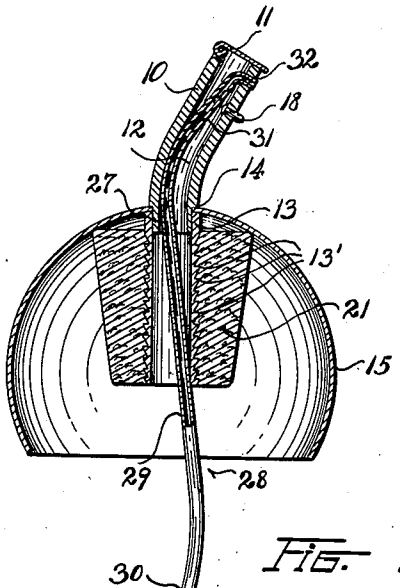
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DISPENSING BOTTLE AND CLOSURE DEVICE

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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DISPENSING AND BOTTLE CLOSURE DEVICE

Herman Ulanet, Newark, N. J.

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5 Claims. (Cl. 215-79)

This invention relates to combined dispensing and bottle closure devices having a plurality of passages, one adapted to admit air to the bottle upon the flow of liquid from the bottle through the other passage, and the other adapted to permit the flow of liquid therethrough.

One of the objects of the invention is to provide dispensing and bottle closure devices which are more efficient than those heretofore proposed.

Another object of the invention is to provide dispensing and bottle closure devices which may be readily manufactured at a relatively low cost.

Another object of the invention is to provide dispensing and bottle closure devices which will automatically prevent spill-overs in the course of filling glasses with liquid.

Another object of the invention is to provide dispensing bottle closure devices whose separate parts may be easily produced and readily assembled.

These and other objects of the invention will be readily apparent from the following description to the drawings, wherein:

Fig. 1 is a view in side elevation of a dispensing and bottle closure device embodying the invention.

Fig. 2 is a vertical sectional view of the device shown in Fig. 1.

Fig. 3 is a vertical sectional view similar to Fig. 2 and illustrates a modification of the device shown in Fig. 2.

Fig. 4 illustrates the relative position of the device and glass receiving the liquid therefrom and illustrates the manner of operation thereof to prevent spill-over.

Fig. 5 is a cross-sectional view taken on line V-V of Fig. 2 in the direction of the arrows, with part of the dome or globe broken away.

Fig. 6 is a vertical sectional view similar to Figs. 2 and 3, and illustrates a modification of the devices shown in Figs. 2 and 3.

Fig. 7 is a vertical sectional view similar to Fig. 6 and illustrates a modification of the devices shown in Figs. 2, 3 and 6.

Fig. 8 is a view in side elevation, with the globe or dome in vertical section, and illustrates a modification of the devices shown in Figs. 2, 3, 6 and 7.

Fig. 9 is a view partly in side elevation and partly in vertical section and illustrates a further modification of the devices shown.

According to my invention and as shown in Fig. 1, the dispensing and bottle closure device or pourer comprises a spout 10 curved slightly at its lower end. The spout is preferably of rec-

tangular cross section whose outer face is disposed in a plane inclined with respect to its lengthwise center line. The top side of the spout 10 has hinged thereto a cover 11 which, due to the inclination of the outer end face of spout 10, rests in closed position when the spout 10 is in its upright position and closes the relatively large opening 12 throughout the length of spout 10. Because the cover 11 is hinged to the top side of spout 10 and is disposed at the inclination as shown, the cover 11 will automatically swing to open position as shown in Fig. 4 upon tipping or canting of spout 10 for pouring and will automatically swing back to closed position when the spout 10 is returned to its upright position as shown in Figs. 1 and 2.

The spout 10 has a hollow shank 13 integral therewith and depending therefrom. The shank 13 may be cylindrical and has an enlarged opening therethrough communicating with opening 12 in spout 10 and may be regarded as a continuation of said opening 12 and therefore bears the same reference character 12. The shank 13 has a plurality of circumferential recesses therein to provide a plurality of upwardly directed retaining or locking teeth 13'. The outside diameter of shank 13 is preferably less than the distance between the opposite sides of spout 10 to provide shoulder 14 which locates a globe or dome 15 and assists in locking said dome to the spout 10 and shank 13. Integral with the shank 13 at its lower extremity and extending downwardly therefrom is an extension 16 of relatively small cross sectional area. The extension 16 besides extending downwardly away from the shank 13 extends towards and beyond the vertical center line of shank 13 in a smooth wide curve. An opening 17, serving as an air vent, of relatively small cross sectional area extends from the extremity of the free end of extension 16, through said extension 16, shank 13 and spout 10 and terminates at the underside of spout 10 near and slightly below the discharge end thereof. Located a small distance below the extremity of the vent 17 in the spout is a small boss, projection, stop or fulcrum 18 which may rest on the lip of a glass receiving the liquid through opening 12 of spout 10. As can be readily seen from an inspection of Fig. 4, with the spout 10 in pouring position, the lip of the glass located in the saddle between fulcrum 18 and the underside of spout 10, the cover 11 in open position, as the liquid in the glass approaches the upper edge of the glass the liquid seals the vent 17 to automatically prevent the flow of liquid through open-

ing 12 of spout 10. This, of course, prevents spill-overs when the attention of the person pouring the liquid is not directed to pouring operation. This automatic manner of preventing spill-overs is important notwithstanding the fact that each spill-over may in itself represent but a small amount of liquid, but when the quantity of spill-over is multiplied by the number of spill-overs in the course of filling many glasses, it has been found to be of considerable amount which represents a substantial loss when converted into dollars and cents.

The spout 10, shank 13 and extension 14 may be made up in the form of a single unitary element of a plastic composition such as Lucite or the like. This unitary single element may be made up by casting the element in two halves, one being shown in Fig. 2, and these two halves may be fused together or secured together by means of an appropriate adhesive.

The single unitary element may be readily assembled with the dome 15 which may be composed of any desired material such as a plastic or metal and of any desired contour and as shown being a hollow sphere having its lower quarter segment cut away and having an opening in its top of the same cross sectional dimensions as the shank 13. The single unitary element is combined with the dome by inserting the extension 16 and shank 13 downwardly through the opening in top of dome 15 until the shoulder 14 firmly bears against the outer surface of dome 15. The dome or cap 15 may be locked in position against shoulder 14 by a demountable spring lock washer 19 having spring arms 20 adapted to be pushed upwardly along the teeth of the shank and to have their inner edges rest between two teeth with the outer end edges of the washer bearing against the under face of the dome 15 to maintain firmly said cap 15 against shoulder 14. A cork 21 having therethrough an opening whose diameter is slightly less than the diameter of the shank teeth is forced up along the shank until the top face thereof bears against the lock washer 19 and the stopper or cork 21 is locked to the shank 13 by the teeth 13'. It is within the scope of this invention to eliminate the lock washer 19 from use if desired and in this case, the stopper 21 itself may be forced upwardly against the interior of the cap 15 to lock to cap 15 to the spout 10 and shank 13. As shown the dome 15 preferably extends material below the lower edge of stopper 21 in order to protect in transit the stopper if any of the devices are assembled as shown in the drawings and so shipped. The diameter of the cap 15 throughout most of its height is materially greater than the greatest diameter of stopper 21 so that the neck of the bottle into which the stopper is to be inserted may be accommodated and protected by cap 15.

The modification shown in Fig. 3 discloses a single unitary element comprising spout 10, circumferentially serrated or toothed shank 13 and extension 16 similar in all respects to the corresponding unitary element shown in Fig. 2 except that the spout 10 has a relatively wide flange 22 integral therewith at the lower end of the spout 10. The flange 22 has a lower flat annular face 23 and the upper face thereof is the top part of the cap 15. The remainder of cap 15 as shown in Fig. 3 is in two sections 24 and 25, with section 24 having an annular underlip 26 defining a circular shoulder in which rests the outer edge of flange 22. The lower end of element 24 and the upper end of element 25 are grooved to provide

the interfitting groove and tongue arrangement. The single unitary element comprising spout 10, serrated shank 13, extension 16 and flange 22 may be composed of a plastic material and may be manufactured in the same manner as the unitary element shown in Fig. 2. It will also be noted that said unit may be used separately and without the use of the dome member. The elements 24 and 25 may be secured to each other and element 24 may be secured to flange 22 by a suitable adhesive and these two elements 24 and 25 may also be composed of plastic material. The stopper or cork 21 may be forced on to shank 13 and the upper face thereof pressed against the under face of lip 26 to force and aid in maintaining element 24 in position and locked to flange 22.

The modification shown in Fig. 6 is similar to the devices shown in Fig. 2, except that the spout 10 is separate from the shank 13 and has a short cylindrical sleeve 27 depending therefrom below the shoulder 14. The neck or sleeve 27 is inserted through the opening in the top of cap 15 and the shoulder 14 rests thereon. In this modification the inner diameter of shank 13 is equal to or very slightly less than the external diameter of sleeve 27. The shank 13 is forced upwardly on the sleeve 27 and against the under face of cap 15 to make a tight joint between sleeve 27 and shank 13 and to firmly lock the cap between the shank 13 and shoulder 15. The spout 10 has a small opening in the underside thereof adjacent the upper extremity thereof to accommodate one end of a vent tube 28 which corresponds in function to the vent 17 of the devices shown in Figs. 2 and 3. Located below said opening is another small opening accommodating the fulcrum pin or boss 18 rigidly locked therein by friction. The vent tube 28 is substantially straight along the length of its mid-section 29. The lower part 30 is curved in one direction from the mid-section 29 and the upper part 31 is curved in the opposite direction from the mid-section 29, with the curve in the upper section approximating the curve of the inner surface of the upper side of spout 10. The upper end of the upper part 31 is bent downwardly and is of short length as shown at 32. In this modification shown in Fig. 6 and in the modification shown in Figs. 7, 8 and 9, I prefer that all the parts with the exception of the stopper 21 be composed of metal. In order to assemble the vent tube 28 to the spout 10 and shank 13, all that need be done is to insert the upper part 31 thereof up through shank 13 and into spout 10 and adjusting the position of end 32 until it is opposite the small opening thereof whereupon it will snap therein and the vent 28 will be in the position as shown in Figs. 6 and 7 with the curved portion of the upper part 31 bearing against the curved part of the inner face of the upper side of spout 10, and the middle part of mid section 29 bearing against the lower end of shank 13. The vent 28 is preferably of spring metal so that it may be readily forced to the position described and will automatically be retained in this position by its own force at the three points set forth. In order to remove the vent 28 from the spout 10 all that need be done is to press the tip 32 inwardly beyond the opening in spout 10 and withdraw the vent.

In the modification shown in Fig. 7, the spout 10 and shank 13 are integral, but the spout 10 at the juncture therebetween has integral therewith a narrow flange 35 on which is located that

portion of cap 15 adjacent the opening in the top thereof. The outer edges of the flange and the top of cap 15 are turned respectively upwardly and downwardly to join and anchor the cap 15 to the spout 10 and shank 13.

In the modification shown in Fig. 8 there is a circular slot 36 at the juncture between spout 10 and shank 13. Said shank 13 is forced downwardly through the opening in the top of the cap 15 until the edge of the cap 15 is adjacent slot 36 when it will automatically snap into said slot 36 or may be forced therein by flattening out the upper part of the cap as shown at 37.

Still another modification, as shown in Fig. 9, is similar to the spout and shank assembly, with shoulder 14 as shown in Fig. 2. The cap 15 is locked to the shank 13 and spout 10 by uniting the shank 13 through the opening in the top of the cap 15 until shoulder 14 rests on cap 15. Thereafter a narrow ring 40 is pushed upwardly on shank 13 until it bears against the lower face of cap 15. The ring 40 frictionally engages the shank 13 and makes a tight fit thereon to lock the cap 15 to the shank 13 and spout 10.

In the devices shown in Figs. 6, 7, 8 and 9, the stopper or cork 21 may be mounted on the shank 13 in the manner heretofore set forth. It is within the scope of this invention to provide dispensing and closure devices other than the specific embodiments shown by the combination of any of the parts shown. Although the invention has been described with particularity, it is not to be limited to the exact construction shown because the same is subject to changes and modifications within its scope.

I claim:

1. A liquid dispensing closure device comprising, a spout having a dependent exteriorly roughened shank provided with a shoulder at the juncture thereof with said spout, a hollow cap perforated to receive said shank and abut said shoulder, a perforate lock washer engageable over said shank and against the interior of said cap, said washer having resilient gripper means to grip the roughened exterior of said shank to hold said washer against displacement from supporting engagement with said cap, and a stopper body affixed to and around said shank below said washer and within said cap.

2. A liquid dispensing closure device comprising, a spout having a dependent exteriorly roughened shank provided with a shoulder at the juncture thereof with said spout, said spout and shank having a liquid passage and a separate air vent means extending through said passage, said air vent means having an extension to position its intake end substantially beyond the intake end of said passage and having its outlet end terminating laterally at the underside of said spout adjacent the discharge end of said pas-

sage, a hollow cap perforated to receive said shank and abut said shoulder, a perforate lock washer engageable over said shank and against the interior of said cap, said washer having resilient gripper means to grip the roughened exterior of said shank to hold said washer against displacement from supporting engagement with said cap, and a stopper body affixed to and around said shank below said washer and within said cap.

3. In a liquid dispensing closure device as defined in claim 2 wherein said spout is provided on its underside with an angular glass lip engaging stop projection spaced from its discharge end and adjacently below the outlet of said air vent means.

4. A liquid dispensing closure device comprising a spout having a dependent shank provided with a shoulder at the juncture thereof with said spout, a hollow cap perforated to receive said shank and abut said shoulder, said shank having external annular teeth spaced along the length thereof, a perforate lock washer engageable over said shank and against the interior of said cap, said washer having opposed inwardly directed spring arms adapted to selectively engage said shank teeth to hold the washer against displacement from supporting engagement with said cap, and a stopper body having an axial bore to receive said toothed shank whereby to affix the same to and around the latter and within said cap.

5. A liquid dispensing closure device comprising, a spout having a dependent shank provided with a shoulder at the juncture thereof with said spout, said spout and shank having a liquid passage and a separate air vent means extending through said passage, said air vent means having an extension to position its intake end substantially beyond the intake end of said passage and having its outlet end terminating laterally at the under side of said spout adjacent the discharge end of said passage, an angular glass lip engaging stop projection spaced from the discharge end of said spout and adjacently below the outlet of said vent means, a hollow cap perforated to receive said shank and abut said shoulder, said shank having external annular undercut teeth spaced along the length thereof, a perforate lock washer engageable over said shank and against the interior of said cap, said washer having opposed inwardly directed spring arms adapted to selectively engage said shank teeth to hold the washer against displacement from supporting engagement with said cap, and a stopper body having an axial bore to receive said toothed shank whereby to affix the same to and around the latter and within said cap.

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