COMBINED CLOSURE AND DECANTING DEVICE FOR LIQUID CONTAINERS

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The object of the present invention is to provide a simple and efficient device of the nature indicated comprising a puncturable plug or closure, a valve member for said closure and a spout movable with said valve member, these parts being so constructed and arranged that when the spout is moved into a decanting position it automatically uncovers an outlet opening which is formed by the user in the plug or closure, thus allowing the contents to be decanted, whilst the return motion of the spout into its normal position causes the valve to tightly close or cover the aforesaid outlet opening and thus prevent further escape of the liquid from the container, evaporation of the liquid, and the entrance of foreign matter into the container.

A further object of the invention is to provide a closure and decanting device of the nature indicated which enables liquid to be effectively decanted at a comparatively fast rate, and which has means for positively excluding dust, rain or other foreign matter from lodging upon said spout and associated parts, and from gaining access to the container.

The above and other objects of the invention, and the various features thereof will, however, be more fully referred to in the following description which relates to several constructional embodiments of the invention.

Referring to the drawings which form part of this specification—

Figure 1 is a longitudinal section of a combined closure and decanting device according to one embodiment of the invention. Figure 2 is an external front view of the device as seen in Figure 1. Figure 3 is a longitudinal section of another and preferred constructional form of the device operatively applied to a liquid container which is indicated by relatively thin lines.

Figure 4 is a cross sectional view taken on the line IV—IV in Figure 3. Figure 5 is a plan view of Figure 3 in which the spout and valve members are shown in a decanting position. A cap which fits over the valve is omitted from this figure. Figure 6 is a plan view similar to Figure 5, but in which the spout and the valve are shown in a normal or closed position. Figure 7 is a reduced side view partly in section and illustrating a further modified construction of the device.

Figure 8 is a sectional elevation of a modified form of closure or plug of the device.

A device in accordance with this invention includes a thin metal plug or closure 2, of substantially cylindrical or cup shape, which is adapted to be tightly fixed or sealed within an outlet nipple or opening 3 formed in the top of a liquid container 4 preferably adjacent a corner or side edge thereof. The plug may have, at its top, an outstanding flange 6, the peripheral edge of which may be bevelled or dished so that it fits snugly within a gutter 7 formed in the top 8 of the container, for the reception of soldering material whereby the plug may be effectively secured in position. The flange 6 of the plug may also have an indication mark 9 or the like, as seen in Figures 5 and 6, adapted to point towards the adjacent corner of the container 4 when the plug is assembled in proper position.

The plug normally seals the outlet opening of the container, and provision is made whereby the purchaser or ultimate user of the container may readily form an outlet opening to permit egress of the liquid from the container. Various constructions may be adopted for the formation of such an outlet opening, which is indicated by the reference 10 in Figures 5 and 6. For instance, as seen in Figures 1 and 8, the bottom 11 of the plug may be formed with an aperture 12 which is offset from the centre, this aperture being normally closed by a sealing member 13 which is readily puncturable or displacable to thereby form the required outlet opening 10, with the aid of a suitable tool or instrument. This sealing member may extend upwardly against the 110
sides of the plug which it tightly grips or to which it may be secured in any suitable manner. According to the construction illustrated in Figure 3, the bottom of the plug is formed with an indented or weakened portion 16, in a position where the requisite outlet opening 10 is to be formed so that the user may form the opening by piercing the weakened portion of the plug bottom. To prevent the outlet opening 10 from being extended beyond certain limits, the plug bottom 11 may be provided with an expressed bead or rib 17 as seen in Figures 3 and 4 which extends around the zone of the opening 10. This bead or rib in addition to limiting the extent of the outlet opening strengthens the plug bottom so that it is protected against distortion during formation of the opening. The weakened portion 16 of the plug bottom 11 (or the sealing member 13) may be marked or embossed with appropriate words such as “Puncture” or “Push in” which are aligned with an outlet port which is formed in the bottom of a valve member when the spout is in a decanting position as seen in Figure 5.

The sealing plug or closure 2 provides a socket or bearing for rotatably accommodating a valve member 21 which is carried by, and depends from the inner end of, a spout 22. This valve is also preferably of substantially cup formation and is a close rotary fit within the plug. The upstanding sides of the plug and the valve member may be provided with co-aligned circular inwardly expressed beads 23, 24, which permit the valve and the spout to be turned or rotated, but prevent vertical movement of such parts relative to the plug 2. These beads are formed after the valve member has been placed within the plug. The upper edges of the aforesaid sealing member or strip 13 may be pressed into the annular groove formed in the plug 2 as seen in Figures 1 and 2.

In the construction seen in Figure 8, which illustrates a preferred construction, the plug 2 is provided in its side with a series of internal circumferentially spaced beads or projections 25 say for example three in number, instead of an endless bead as in the preceding figures. The valve member 21 however has an endless bead 24 as before described and illustrated. This construction permits of the plug 2 being placed within the outlet opening 3 of the container and fixed thereto before the valve 21 is inserted within the plug. An operator may thus have access to the plug for soldering purposes without any interference from the spout 22 and, by the use of a circular soldering iron or tool may speedily and effectively fix the plug in position in one operation. After the plug has been fixed in position the valve member 21 may be inserted in the plug and pressed or snapped home so that the aforesaid circumferentially spaced beads or projections 25 engage in the circular bead 23 of the valve member.

The sealing member 13 which normally closes the opening 10 in the plug bottom 11 may be a close fit around the lower part of the plug whereby inadvertent displacement of the sealing member is prevented but whereby the said member may be completely disengaged from the plug by downward pressure on the portion of the sealing member which is aligned with the opening 12 in the plug bottom.

The valve member 21 has a bottom 26 provided with a port 27 which is offset from the centre. The arrangement of parts is such that the turning of the spout 22 into a decanting position, wherein it projects outwardly beyond the container 4, as seen in Figure 5, brings the outlet openings 10 and 27 of the plug 2 and the valve 21 into registry, whilst when the spout member is moved into its normal position wherein it extends inwardly across the top of the container as seen in Figure 6, the outlet opening 10 in the plug is automatically closed by the bottom 26 of the valve member 21.

The spout member may, if desired, be of open top formation as seen in Figures 1 and 2, but in the preferred form of the invention, the spout is of substantially tubular form or, in other words, it is closed at its top by a hood or roof piece 31 as seen in Figures 3 to 6 or Figure 7. By employing a closed top spout, overflowing or wastage of the liquid during decanting is prevented, and the liquid may be decanted at a relatively rapid rate and effectively directed by the spout according to requirements. Furthermore, the hood over the top of the spout prevents dust, rain or other foreign matter from lodging in the spout, and the valve member also as seen in Figures 3 to 6. By forming an opening 22 in the spout top or hood 31, as seen in Figures 3 to 6, and providing a removable cap 33 therefor as seen in Figures 3 and 4, access may be readily had to the valve 21 and the plug 2 if, and when desired, whilst under normal conditions the cap prevents rain, dust and other foreign matter from collecting within the spout and the valve, or from entering the container. Contamination of the liquid is thus avoided.

For convenience of manufacture, the spout may be formed of upper and lower sheet metal sections 36, 37, which are united to each other at their lower and upper edges. The spout sections are preferably united by a seamed or crimped joint as illustrated, but they may be welded or soldered if so desired. The top of the spout is preferably flat and the access opening 32 formed there-in for the cap 33 may be surrounded by a
flange 38 and said cap may have a co-acting flange 39 to enable it to be securely, but detachably, retained within the opening.

The valve member may, if desired, be formed integral with the lower section of the spout, but in most instances it will be found advisable for the valve member to be formed separately and made a tight fit within a depending annular portion 41 of the spout adjacent the inner end thereof.

According to the modification illustrated in Figure 7 the top or roof 31 of the spout 22 need not extend above the valve member 21, and in this instance, of course, the afore-said access opening 32 and cap 33 will not be required.

It will be evident that, in addition to the advantages herein referred to, the device will also serve as a deterrent against persons gaining, or attempting to gain, access to the interior of the container during the period between which it is filled and sealed by the oil company or other wholesaler, and delivered to the actual user. Access to the container can only be obtained by puncturing or forcing the sealed plug or sealing strip, so that any attempt to tamper with the contents of the container will be readily apparent.

Having now described our invention what we claim as new and desire to secure by Letters Patent is:

1. A combined closure and decanting device for liquid containers, comprising in combination, a cup-like plug adapted to be made a fixture in an opening in the top of a liquid container, a cup-like valve member rotatably mounted on said plug and provided in its bottom with an outlet port which by rotation of said valve member may be brought into or out of registry with an outlet opening in the bottom of said plug, a spout outstanding from said valve member and movable therewith, a roof or hood extending across the top of said spout and the top of said valve member, said roof being provided with an access opening which is in vertical alignment with said valve member, and a removable cap for said access opening.

2. A combined closure and decanting device for liquid containers, comprising in combination, a cup-like plug adapted to be made a fixture in an opening in the top of a liquid container, a cup-like valve member rotatably accommodated by said plug and provided in its bottom with an outlet port which, by rotation of said valve member, may be brought into or out of registry with an outlet opening in the bottom of said plug, a spout outstanding from said valve member and movable therewith, said spout being formed of upper and lower sections which are united at their lower and upper edges, said upper section extending completely across said spout and said valve member and being provided with an access opening which is in vertical alignment with said valve member, and a removable cap for said access opening.

In testimony whereof we affix our signatures:

S. W. GADSDEN.
NORMAN C. GADSDEN.
CHARLES HAROLD TOPHAM.