COMBINED PLASTIC CLOSURE AND POURING SPOUT

Alberto Bertolli, Lucca, Italy, assignor to Francesco Bertolli S.p.A., Lucca, Italy, a corporation of Italy

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ABSTRACT OF THE DISCLOSURE

A combined plastic closure and pouring spout in one single piece which frictionally fits over the upstanding neck of a metal container. The body of the closure has a central opening therethrough and a cover carries a depending plug portion which can resiliently seal the central opening when the cover is in closed position. A plastic ribbon integrally connects the cover to the body of the closure to form an attaching hinge means.

This invention relates generally to dispensing closures and more particularly it relates to an integral dispensing unit fabricated of plastic in one single piece and including both a closure portion and a pouring spout which can be frictionally attached to an upstanding neck on a metal container.

It is a common and highly desirable practice to package certain types of liquid products in metal containers or cans. Such containers can withstand rough handling as is often encountered during shipping and storing operations, can be quickly, easily and inexpensively produced, and serve to hermetically seal the contents therewith from air and from light.

One common type of metallic container which was utilized for packaging products of this type had a completely flat top and bottom end wall, and while containers of this type were very easy to produce, store, stack and handle, the only way to dispense the products from containers of this type was to punch one or more holes into the top end wall of the container. However, once such puncturing of the end wall occurred, there was no practical way to close the dispensing opening thus formed and unless all of the product from the container was used at once, there was the possibility for air or dust to enter the container and to alter the flavor of the contents therein. Also, the end wall itself tended to collect dust and dirt which often mixed with the product being dispensed, thereby altering its flavor.

To overcome these difficulties, two different proposals or suggestions were advanced in the prior art. One such suggestion was to provide a threaded upstanding neck on one of the end walls of the container and to use a screw-type cap to seal the same. It was found, however, that when this proposal was utilized for liquid type products, it was not altogether satisfactory since the screw cap often loosened during handling and shipping and the contents of the container tended to leak out. Also, to properly thread the container neck and to provide a screw cap having compatible threads and a proper sealing gasket therewithin substantially increased the cost of the container. The other proposal advanced in the prior art was to package such products in glass bottles or containers. Glass bottles proved to be more expensive than other metal containers even though more practical and more adaptable for a tamper-proof seal and easier pouring facilities, also in view of its wider construction and flexibility.

Finally, in an endeavor to overcome some of the aforementioned difficulties, certain types of pouring devices were developed and were utilized in conjunction with metal containers, but these prior art pouring devices were themselves subject to certain deficiencies. Many of these prior art pouring devices did not provide a completely air tight closure of the container and as a result, air came into contact with the product and either altered its flavor characteristics or completely spoiled the product. Also, such prior art pouring devices were often complicated in design and expensive to produce. Additionally, some of these prior art pouring devices, as, for example, the axially telescoping type, could not properly be utilized with small containers. Still others prevented the containers from being stacked one upon the other, and virtually all of these prior art pouring devices lacked the provision of a pouring spout by which dispensing of the contents from the container could be readily directed and controlled.

With the foregoing in mind, it is, therefore, an object of the present invention to overcome the difficulties, deficiencies and shortcomings encountered in the prior art and to provide in their stead a new and improved closure and dispensing device.

Another object of the present invention is to provide a combination closure and pouring spout which can readily be utilized on all different types of metal containers in order to facilitate the dispensing of liquid products therefrom.

Another object of the present invention is to provide a combined plastic closure and pouring spout which can be integrally manufactured in a relatively inexpensive manner, yet which provides a highly useful and easily manipulated arrangement which can be quickly and easily coupled with any conventional metallic container.

Another object of the present invention is to provide a combination closure and pouring device which permits ready dispensing of the contents from one container into another container, without the need for a funnel or the like, which can be utilized with all different sizes and shapes of metallic containers, hermetically seals the contents thereof.

Another object of the present invention is to provide a combined closure and pouring spout which can be readily rotated to any desired position and which can permit containers to be stacked one upon the other.

Other objects, advantages and salient features of the present invention will become apparent from the following detailed description, which, taken in conjunction with the annexed drawings, discloses a preferred embodiment thereof.

The foregoing objects are attained by providing a combined plastic closure and pouring spout which includes an annular body having a central opening therein, a pouring spout extending from one side of the body, a cover having a plug portion adapted to seal the central opening, and an integral ribbon extending between the cover and the body to form a flexible hinge in one single piece. The body itself can be frictionally mounted on the upstanding neck of a metallic container and so long as the cover remains closed, the contents of the container will be hermetically isolated from the outside. However, when the cover is manually or digitally swung open, the container may be tipped and the contents thereof will pour out through the central opening and the pouring spout.

Referring now to the drawings: FIGURE 1 is a top view of one embodiment of the combined closure and pouring spout of the present invention attached to a container of which only a fragmentary part is shown;

FIGURE 2 is a sectional view taken substantially along the line 2—2 of FIGURE 1;

FIGURE 3 is an enlarged fragmentary sectional view of a portion of the combined closure and pouring spout of FIGURES 1 and 2;
FIGURE 4 is a sectional view taken substantially along the line 4—4 of FIGURE 1;

FIGURE 5 is a top plan view similar to that shown in FIGURE 1 but disclosing a modified form of closure and pouring spout;

FIGURE 6 is a sectional view taken substantially along the line 6—6 of FIGURE 5;

FIGURE 7 is an enlarged fragmentary sectional view of the closure and pouring spout of FIGURES 5 and 6;

FIGURE 8 is a sectional view taken substantially along the line 8—8 of FIGURE 7;

FIGURE 9 is a sectional view of a modified form of closure and pouring spout;

FIGURE 10 is an enlarged fragmentary sectional view of the modified closure and pouring spout of FIGURE 9.

Referring now to FIGURES 1 and 2, the plastic closure and pouring spout of the present invention is generally designated 10 and it will be seen that the same is mounted on a metallic container generally designated 12. As is conventional with containers of this type, the container 12 includes a side wall 14 and a top wall 16 which are joined together by a conventional double seam 18 extending about the periphery thereof. An upstanding metal neck 20 is formed on the top wall 16 in an upwardly extending and circularly extending fashion. The thickness of the neck 20 is substantially the thickness of the metallic material utilized to form the top wall 16 and the neck 20 serves to circumscribe and define a dispensing opening 22 through which the product within the container 12 can be dispensed.

The combined closure and pouring spout 10 is formed entirely as an integral unit fabricated of a suitable resilient plastic material such as polyethylene or the like and it includes an annular body 24 having an outer circular wall 26 and an inner circular wall 28 which circumscribes and defines a central opening 30 extending through the body 24 in communication with the container neck aperture or opening 22. The body 24 also includes a flat bottom wall or surface 32 and a flat top wall or surface 34. The inner wall 28 extends radially outwardly near the top thereof to provide a stepped shoulder 36 and a further wall portion 38 extends between the shoulder 36 and the top surface 34.

An annular groove or channel means 40 extends upwardly from the bottom surface 32 to provide an accommodating space for receiving the neck 20 of the container. The outer wall 42 of the channel means is substantially parallel with the inner wall portion 38. The end wall of the channel is formed by a very short wall portion 44 substantially parallel with the shoulder 36 but spaced downwardly therefrom. The inner wall 46 of the channel means 40 converges angularly toward the outer wall 42 thereof, then merges back inwardly in an acutely or radially curved portion 48. This converging relationship of the channel walls 42 and 46 causes the channel to have a restricted portion having a thickness narrower than the thickness of the metallic material of the neck 20. As a result, when the neck 20 is inserted into the channel means 40, a slight deformation of the plastic material will occur and the body 24 will be tightly frictionally fitted upon the neck in a manner which is hermetic. Nevertheless, because there is no fixed interengagement between the body 24 and the neck 20, it is possible to freely rotate the device 10 upon the neck through a complete 360° rotation.

A pouring spout means generally designated 50 extends integrally from one side of the body 24. This pouring spout means in the embodiment of FIGURES 1 through 4 includes a pair of tapering bottom walls 52 which extend inwardly and downwardly toward one another and meet at an apex line 54. The spout also includes a pair of upstanding side walls 56, one extending upwardly from the outer edge of each bottom wall 52, with each side wall 56 having a substantially flat top surface 58. The spout itself is slightly inclined upwardly, as can be seen in FIGURE 2, and the top surfaces 58 of the spout side walls merge smoothly into the top surface 34 of the body. The bottom walls 52 of the spout merge smoothly into the shoulder portion 36 of the body.

The closure and pouring spout 10 also includes a cover generally designated 60. A plastic ribbon 62 extends integrally between one edge of the cover 60 and the upper surface of the body 24, with the hinge being axially aligned with and offset approximately 180° from the pouring spout 50. As can best be seen from FIGURES 2 and 3, one surface of the hinge 62 is substantially aligned with the top surface 34 of the body, and this surface merges with the cover 60 slightly below the top thereof. The outer surface of the hinge 62 extends from substantially the top surface of the cover to a point along the side of the body 24 slightly beneath the top thereof. The thickness of the material of the hinge is thin enough to provide for ready flexibility and when the cover is in the closed position shown in FIGURE 2, the hinge itself forms a slight loop. However, when the cover is swung open, the inherent resiliency of the hinge 62 assures that the cover will be maintained substantially in the position shown in dotted lines in FIGURE 2. The cover includes a rounded plug portion 64 extending from the bottom wall including a side wall 66 having a size and shape which frictionally fits within the central opening 30 when the cover is closed. A bottom wall 68 extends across the side walls 66 at the bottom thereof to thus form a seal for the central opening 30 and the dispensing opening 22. The tight frictional fit between the side walls 66 of the cover and the inner walls 28 of the body assures that no passage of air or liquid can occur when the cover is closed. The underside of the cover surrounding the plug portion 64 is a flat surface 70, which, when the cover is closed, abuts against the top surface 34 of the body. A small tab 72 is provided on the cover opposite to the side carrying the hinge 62, and this tab facilitates digital raising and lowering of the cover. For ease of manufacture and for a saving in material, the center of the plug portion 64 can be hollowed out or recessed, as shown at 74.

In use, the closure and pouring spout 10 is applied to the container 12 by positioning the groove or channel 40 above the neck 20 and by pushing the same downwardly until the bottom surface 22 of the body contacts the top surface of the container top wall 16. At this point, the container neck 20 will be engaged within the channel means 40. When the cover 60 is swung closed, the walls 66 of the plug portion frictionally engage with the inner walls 28 of the body portion and the wall 68 of the plug portion extends completely across and blocks the opening 30. It will be seen that in closed position, the surface 68 is substantially coextensive with the bottom surface 32 of the plug body, and hence is substantially coextensive with the top surface 32 of the container upper end wall 16. The inherent flexibility of plastic material from which the device is fabricated and the tight frictional fit between the parts assures that there can be no leakage whatsoever, either between the body and the neck or through the opening in the body. Thus, the contents of the container are maintained is absolutely hermetic condition. This hermetic condition can be maintained even though the entire closure and pouring spout can be rotated to any desired position. In the position shown in solid lines in FIGURE 1, the closure and pouring spout is over the upper end wall 16. By providing a bottom wall on the container 12 which is recessed slightly deeper than the top wall thereof, it is thus possible to stack the containers one upon the other with the spout 50 positioned in this manner. However, when it is desired to use the spout, the same can be rotated to the position shown in dotted lines in FIGURE 1 where at the outer end thereof extends beyond the perimeter or double seam 18 of the
container. Then, the cover 60 can be manually opened to remove the plug portion 64 from the opening 30. At this point, if the container is tipped in the direction of the plug portion 64, the liquid will pour out through the opening 22 in the neck, through the central opening 30 of the closure body, and through the pouring spout 50. When tipping or tilting of the container is again set on a flat surface, any excess contents in the spout 50 will pour back, thereby blocking the opening 30 due to the inclination of the container. Then, the cover 60 can again be closed and the contents of the container will once more be hermetically sealed.

Referring now to the modified form of the invention shown in FIGURES 5-8, it can be seen that the container neck is formed in a different manner. Instead of merely providing an upwardly circular wall to form the neck, the entire upper end wall is formed or stamped to form a modified type of neck. Such a modified neck includes a conical wall portion 80 which merges into a vertical wall portion 82, then extends outwardly into an arcuately curved portion 84 which finally blends into a laterally extending top surface 86 substantially parallel with, but spaced above, the top surface of the upper end wall 16. A dispensing aperture or opening 88 is shown in the top wall 86 and this opening can be preformed when the container is manufactured or alternatively, the top wall 86 can initially be imperforate and the opening 88 can be punched therein by the user at the time it is desired to dispense contents from the container.

In this embodiment of the invention, the annular body is generally designated 24' and the same includes the circular outer wall 26 and the opposed lower and upper surfaces 32 and 34 respectively. However, the inner wall of the modified body 24' is modified in a manner which can best be understood by reference to FIGURE 7. In such figure, the inner wall 28 is discontinuous and includes three separated inner wall portions designated 28a, 28b, and 28c. The portion 28a is disposed closest to the bottom surface 32 of the body and is joined therewith by an outwardly extending conical wall 90. Between the portions 28a and 28b, an arcuately curved groove type portion 92 is provided, with the curvature of this portion corresponding substantially with the curvature 84 of the container neck. Between the portions 28b and 28c, a further groove 94 is formed, with this groove having an outer wall substantially concentric with the inner wall portions 28b and 28c. Finally, between the wall portions 28c and the upper surface 34 of the body, an offset wall portion 96 is provided with the wall portion 96 being substantially in alignment with the outer wall of the groove 94.

As can best be seen from FIGURE 6, the body 24' is applied to the modified container neck merely by snapping the same frictionally thereover, and when so applied, the portion 28a frictionally engages with the portion 82 of the neck and the annular groove 92 in the body frictionally engages with the curved portion 84 of the neck. This type of frictional engagement provides a hermetic seal between the body and the neck, yet permits the body to be rotated to any desired position. The modified cover 60' is connected with the modified body 24' by a hinge 62 similar to that previously described. The plug portion 64' depending from the underside of the cover 60' includes a depending wall portion 98 having an outwardly directed flange portion 100 at the bottom thereof. The flange portion 100 is sized and shaped to fit tightly within the groove 94 of the body and the wall 98 is sized and shaped to frictionally engage with the inner wall portion 28c of the body. Thus, when the cover is swung closed, the flange portion 100 is received within the opening; the cover portion being at least partially insertable within a container neck so as to deform radially inwardly an intermediate portion of said inner portion when said annular body is applied to said upwardly cylindrical neck and thereby provide a longitudinally extending circumferential bulge portion in the wall of said central delivery opening and plug member being deformable with said longitudinally extending radial bulge tending to deform said bulge outwardly; whereby the connection that occurs between said intermediate longitudinally extending portion, said longitudinally extending circumferential bulge portion and the outer wall of said plug...
member provides a tight seal between the inner wall of said channel and the inner surface of said upstanding cylindrical neck; said second portion being at least partially engageable around a container neck and resiliently sealing against an outer surface of a container neck.

2. A plastic closure as defined in claim 1 wherein a plastic ribbon integrally extends between said cover and said body to form a flexible hinge which permits said cover to be swung toward and away from said body so that said plug member can seal and unseal said opening.

3. A plastic closure member as defined in claim 1 wherein an elongated spout extends integrally from one side of said body to form a pouring channel which facilitates pouring of the contents of a container.

4. A plastic closure member as defined in claim 3 wherein a plastic ribbon extends between said cover and said body to form a flexible hinge which permits said cover to be swung toward and away from said body so that said plug member can seal and unseal said opening.

5. A plastic closure as defined in claim 1 wherein said body has a generally flat top surface and wherein the underside of said cover surrounding said plug portion is flat and abuts against said body top wall when the cover is swung closed.

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SAMUEL F. COLEMAN, Primary Examiner
NORMAN L. STACK, Jr., Assistant Examiner

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