

LID FOR BEVERAGE CONTAINER

This invention generally relates to covers for use in combination with beverage containers. More particularly, this invention relates to lids that have a pivotable cover for releasably sealing liquids within a beverage container.

Background of the Invention

Beverage containers having lids are well known in the art. Generally, beverage containers include a bottom surface and upward extending walls that terminate at an opening oppositely disposed from the bottom surface.

Containers of the above mentioned character allow fluids to be retained therein and accessed through the opening. Although containers adequately retain liquids, it has often been desirable to secure liquids within containers in a manner that isolates the contents. To do so, lids have often been employed such that the contents of the containers are isolated from the external environment. Sealing the containers prevents the undesirable escape or spillage of the retained liquids. Also, a properly secured lid allows the liquids to be sealed from external contaminants found in the users environment.

Although containers of the above mentioned sort provide a mechanism for retaining liquids therein with increased security, manipulation of the lid is often complex and does not lend itself to simple actuation. Users who desire access to the fluid contained within the container are often required to manipulate cumbersome mechanisms. Although for most users, operation of such devices is merely time consuming. For many users such as disabled, elderly or

juvenile users operation of such devices is exceptionally complex and may ultimately result in frustrating access to the contents whatsoever.

In order to overcome the above disadvantages several lids have been suggested. For instance U.S. Patent No. 4,792,083 to Yassur discloses a drinking tube for use in combination with a beverage container of the type having a cover with a sealing tear-out tab which may be pulled to rupture the closure. Once ruptured, access is provided through the opening to the contents of the container. Such lids include a drinking tube that is attached to the lid by a flexible member which biases the tube against the lid. Once the tear-out tab is removed from the container, the drinking tube pivots outward for operation by the user.

Although the above mentioned devices address some of the drawbacks found in beverage containers, they also have several drawbacks as well. Namely, the device to Yassur is suggested as being usable only once. The tear-out tab can only be removed from the lid once. Secondly, once opened, the opening allows communication between the environment and the liquid retained within the container without the possibility of reclosure once opened. Therefore, after the user has actuated the tear-out tab, the user must make use of the entire contents of the container or else risk spillage or external contamination. Finally, removing the liquid through the use of a drinking straw may be desirable when operated by a single user. Yet, when it is contemplated that the device is to be used by several

operators, such a mechanism for removal of the liquid from the container is undesirable and unsanitary.

Other devices have been suggested to advance the art. For instance, U.S. Patent No. 4,993,603 to Polhemus teaches food storage containers which include a lid having an open position and a closed position. When in a closed position, a plug disposed on the lid is sized to conform with the opening in the container to provide a seal. When in an open position, the contents may be poured by tilting the container such that the liquid passes out of the container and over the pour spout. The underside of the lid has a generally angular shape with a downwardly extending apex.

While the device taught by Polhemus advances the art, it too has drawbacks. First, the device provides a single cap that spans the entire top portion of the container. Although this arrangement allows the container to be sealed, the cap to Polhemus is only retained in the closed configuration by frictional engagement between a bead means on the plug and a recessed groove on the entire opening of the container. One skilled in the art can best appreciate that the above device would not be capable of resisting pressure upon the container caused by a violent impact such as dropping the container or otherwise jarring the lid since the bead/groove member must seal the entire top portion of the container. Other than the bead/groove mechanism there is no other positive attachment between the lid and the container. Further, since the cap spans the entire top portion of the container, the contents may almost immediately be released once opened.

In addition, the device to Polhemus does not provide any mechanism for covering the spout. Although such devices would prevent the fluid retained within the container from contacting the outside environment, these devices do not enclose the pour spout from contacting outside contaminants. Accordingly, any contaminants that may have collected on the spout while in use may contact the fluid when it is flowed over the pour spout.

Other various lids have been suggested such as U.S. Patent No. 5,579,961 to Zimmerman. Zimmerman teaches a container top including a rotatable member fitted on a container having a pour spout. The rotatable member includes a plug that closes an opening defined by a tubular wall. The rotatable member is pivoted about a pair of projection pins that snap into a pair of recesses. The rotatable member is reciprocally maintained in either an open position or a closed position by frictional engagement between a rear skirt on the rotatable member and a cam surface on the cover.

While the device to Zimmerman has advanced the art, these devices have several shortcomings. First, the cover to Zimmerman is attached merely by the frictional engagement between the cap and the container. Secondly, as in the previous devices, the device to Zimmerman permits contact between the outside environment and the pour spout. Thereby, fluids poured over the pour spout are likely to contact contaminants that have collected on the pour spout. Finally, the device to Zimmerman is designed to be actuated by depressing either the forward or rearward portions of the

rotatable member. The pins that attach the container top are distanced at the outer peripheral surface of the rotatable member. Although the rotatable member may pivot about the projection pins, the location of the pins at alternate outward surfaces of the rotatable member may lead to undue stresses in the rotatable member. Since the rotatable member is designed to be actuated by depressing the rotatable member, stresses realized by the rotatable member may cause the rotatable member to camber. As a result, the rotatable member may either begin to crack or cause the projecting pins to be broken or otherwise detached from the rotatable member.

As can be seen from the above further advances would be desirable in the art. One skilled in the art can best appreciate that it would be desirable to have a lid which is capable of reliably retaining a liquid within a beverage container thus reducing the opportunity of unanticipated spillage of liquids. It also would be desirable to have a lid that minimizes undesirable contact of the liquid with environmental contaminants. Further, it would be desirable to have a cover that secures the liquid within the container while also being actuatable to release the retained fluid from the container in a simple and uncomplicated manner. Finally, it would also be desirable that such a device be designed to withstand stresses realized during ordinary usage such that the service life of the lid is increased.

Summary of the Invention

It is an object of this invention to provide a lid for a beverage container that securely attaches to a container such that fluids are sealed within the container.

It is a further object of this invention that such lid include a member capable of releasing the liquid from the container in an uncomplicated manner.

It is still a further object of this invention that such a member be capable of controlling and directing the liquid as released.

It is an additional object of this invention to provide a lid that reduces the interaction between fluid retained within the container with environmental contaminants.

It is yet another object of this invention to provide a lid having increased service life.

The present invention provides a novel lid for releasably sealing a fluid within a beverage container. Containers for use with beverages are well known in the art. Generally, beverage containers include a bottom portion which have upward extending side walls. The side walls terminate at an opening which is oppositely disposed from the bottom portion. Containers of the above mentioned sort are commonly used to retain and store liquids.

The novel lid of this invention includes a cap that has an upper surface and an aperture therethrough. The aperture allows for access to the contents of the container by the user. The cap further includes a peripheral edge that surrounds the upper surface. Extending from the peripheral edge is a pour spout. The pour spout includes a lip that extends beyond the peripheral edge of the cap.

The cap is secured to the container by a mechanism designed for such purposes. In a preferred embodiment, this may be achieved by threading on the lid corresponding to threading on the container side walls. However, one skilled in the art can best appreciate that other securement mechanisms could be employed without detracting from the novel aspects of this invention.

The lid of this invention further includes a cover that releasably seals the aperture of the cover. One novel aspect of this lid is that the cover is sized to extend over and enclose the pour spout. Another novel aspect of this invention is that the cover is attached to the cap with a rocker member that allows the cover to be rocked between an open position and a closed position.

As can be best appreciated by one skilled in the art, the lid allows the user to securely seal a fluid within the container by attaching the lid to the container. Once attached, the lid not only seals the liquid within the container, it also allows the user an uncomplicated manner for accessing the fluid by operation of the cover between the opened and closed positions. In the opened position the user can pour the fluid from the container in a controlled manner since the container includes a pour spout. Therefore, the liquid may be accurately directed into another container such as a glass, cup or the like.

Another novel aspect of this invention is that the cover is sized to enclose the pour spout when in the closed position. Therefore, not only is the fluid protected from contaminants, but the pour spout is also isolated from

environmental contaminants so that the liquid from the container will not contact the contaminants when the liquid passes over the pour spout. Yet another novel aspect of this invention is the rocker mechanism which interconnects the cover to the cap. Advantageously, the cover snaps into association with the cap thus preventing the user from misplacing the cover. Further, use of a rocker mechanism allows for the user to easily access the contents of the container while also allowing the user to quickly access the contents merely by actuating the novel rocker mechanism of the present invention.

Other objects and advantages of this invention will be better appreciated from the following detailed description.

Brief Description Of The Drawings

The above and other advantages of this invention will become more apparent from the following description taken in conjunction with the accompanying drawings, in which:

Figure 1 shows a perspective view of the lid with the cover in a closed position;

Figure 2 shows a perspective view of the lid with the cover in an open position;

Figure 3 shows a top plan view of the lid with the cover in the closed position;

Figure 4 shows a rear elevational view with the cover in an open position;

Figure 5 shows a side cross-section of the lid along line 5--5;

Figure 6 shows a side cross-section of the lid along line 6--6; and

Figure 7 shows a side cross-section of the lid along line 7--7.

Detailed Description of the Invention

A lid (10) is provided which simplifies the procedure for accessing the contents of a container while also allowing the container to be reliably sealed. As best appreciated with reference to Figures 1 and 2, the present invention includes a cap (12) which includes an upper surface (14) having an aperture (16) therethrough. The cap (12) further includes a peripheral edge (18) that encompasses the upper surface (14).

As seen in Figure 4, preferably, the upper surface (14) is generally dome shaped and declines towards the peripheral edge (18) of the lid (10). Preferably, the peripheral edge is a radiused portion (20) that interconnects the upper surface (14) to a peripheral collar (22). Furthermore, as seen in Figure 5, the peripheral collar (22) has an inner surface (24) which includes a threaded portion (26). As is well known by those skilled in the art, the cap (12) can be received by a container, not shown, that has a corresponding threaded portion. In accordance with the unique aspects of this invention, the cap (12) may be secured to the container through a variety of attachment mechanisms other than through threaded portions without detracting from the novel aspects of this invention.

The cap (12) also has a lower surface (28) and a ring portion (30) disposed thereon. The ring portion (30) and inner surface (32) of the peripheral collar (22) traps the side walls of the container therebetween. When the cap (12) of this invention is attached to a container, the engagement of the inner surface (32) of the peripheral collar (22) and the ring portion (30) acts to provide a liquid tight joint between the lid (10) and the container.

The lid (10) also includes a cover (34) for sealing the aperture (16). In particular, the cap (12) includes an elongate body (36) having a front wall portion (38) and an oppositely disposed rear wall portion (40) along a longitudinal axis of the elongate body (36). The elongate body (36) further includes a pair of oppositely disposed side wall portions (42, 44) such that the cover (34) provides a chamber (46) bounded by the elongate body (36) and the front wall portion (38), rear wall portion (40) and the side walls (42, 44).

In a preferred embodiment, the elongate body (36) of the cover (34) is enclosed by the front wall portion (38), the rear wall portion (40) and the side wall portions (42, 44) with a radiused portion (48) therebetween. Further, the elongate body (36) includes a forward portion (50) and a rearward portion (52). The rearward portion (52) generally slopes towards the median portion (54) of the cover (34). Disposed on the rearward portion (52) is a plurality of gripping ribs (56) such that the user can easily actuate the rearward portion (52) of the cover (34). In contrast, the

forward portion (50) of the elongate body (36) is generally dome-shaped.

One novel aspect of this invention is a rocker mechanism which allows the cover (34) to be rotated between an open position, as shown in Figure 2, and a closed position, as shown in Figure 1. In a preferred embodiment, the rocker mechanism is a pivot member (58) coupled to a lug member (60). Most preferably, as best appreciated with reference to Figure 2 and Figure 5, the pivot member (58) is a pair of pivot posts (62, 64) disposed on an inner surface of the side wall portions (40, 42). The cap (12) includes a pair of lug members (66, 68) that correspond to the pair of pivot posts (62, 64) such that the pivot post (62) is received in the lug (66) and the pivot post (64) is received in the lug (68). As such, the cover (34) is securely fastened to the cap (12).

With reference to Figure 7, the elongate body (36) includes a plug (70). The plug (70) is sized to be receivable within the aperture (16) so that when the cover (34) is in the closed position the plug (70) is disposed within the aperture (16). To ensure that the plug (70) adequately seals the aperture (16), the plug includes an annular groove (72) and a corresponding annular bead (74) on the aperture (16). Accordingly, when the cover (34) is in a closed position, the annular groove (72) is engaged in said annular bead (74) such that the aperture (16) is sealed. Furthermore, inadvertent opening of the container is guarded against due the frictional engagement of the annular bead (74) to the annular groove (72) when in the closed position.

In order to provide the cover (34) with an increased degree of rotation, the cap (12) includes an arcuate recessed portion (76) and an abutment portion (78). Accordingly, the cap (12) is free to rotate until the rear wall portion (40) abuts the abutment wall (78) thereby preventing over rotation and damage to the cover (34). The rear wall portion (40) includes a first knuckle (80) and the arcuate recessed portion (76) includes a corresponding second knuckle (82) which defines a pit (84). As can be best appreciated with reference to Figure 5 and Figure 6, the arcuate recessed portion (76) has a globally arcuate shape allowing the unobstructed rotation of the rearward portion (52) as the cover (34) is pivoted about the pivot posts (62, 64). The cover (34) is secured in the open position once the rear wall portion (40) is rotated adjacent the abutment portion (78). The cover (34) is secured in the open position by frictional engagement between the first knuckle (80) and the second knuckle (82). Once in the open position, the plug (70) is removed from contact with the aperture (16) and retained in the open position thereby preventing undesirable closure of the cover (34).

As best appreciated with reference to Figure 2 and Figure 6, the cap (12) of this invention includes a pour spout (86) on the upper surface (14) of the cap (12). More specifically, the pour spout (86) of this invention includes a concave channel portion (88) extending from the aperture (16) and terminating at a lip (90). As seen in Figure 2, the lip (90) extends beyond the peripheral collar (22) of the cap (12). Further, the plug includes a U-shaped flange

(92) extending normal to the upper surface (14) thereby isolating the concave channel (88) from the remainder of the cap (12). The pour spout (86) has a peripheral shape which corresponds to the shape of the forward portion (50) of the elongate body (36). Further, the front wall (38), and the side walls (42, 44) extend around the pour spout (86) to close-off the pour spout from the surrounding environment. Therefore, in addition to the container being sealed by the plug (70), the pour spout (86) is also sealed off from interaction with the environment.

In a preferred embodiment, the peripheral collar (22) generally tapers inward and includes a plurality of inward steps. As shown in Figure 7, the peripheral collar (22) is shown as having a first inward step (94) and a second inward step (96). Along with the tapering of the peripheral collar (22), the inward steps (94, 96) reduce the cross-section of the collar thereby reducing material usage and provide a smooth transition between the side walls of the container, not shown, and the lid of this invention. In an alternate embodiment, the peripheral collar may have a knurled surface or other equivalent member well known in the art to allow the user to easily grasp the cap (12).

In accordance with this invention, the lid of this invention may be manufactured from polypropylene plastic. However, other various materials may be substituted while still embodying this invention's novel aspects. Further, the lid may be assembled from two components namely the cap (12) and the cover (34) with all of the other components herein described being integrally formed. However, it will

be appreciated that the above invention could be assembled from separate components that are affixed together without departing from the novel aspects of this invention.

In use, the operator of this invention can introduce a fluid into a container either before or after attaching the lid (10) of this invention to the container. The lid (10) is then attached to the container via screwing the lid (10) into secure attachment with the container. Alternatively, this invention contemplates that various other attachment mechanisms between the lid and the container may be employed. Once attached, the lid (10) provides a fluid-tight seal between the container and the lid (10).

The operator may utilize the invention by an uncomplicated operation of the cover (34). When the user desires the cap (12) to be in the closed position, the user simply will depress the forward portion (50) thereby pivoting the cover (34) forward until the annular groove (72) on the plug (70) is engaged by the annular bead (74) on the aperture (16). In the closed position, the plug (70) seals the fluid contained within the container. In addition, the front wall portion (38) and the side wall portions (42, 44) encompass and isolate the pour spout (86).

In this way, the fluid itself and the surface which the fluid will contact when poured from the container, the pour spout (86) is isolated from environmental contaminants.

When the user desires to the cover (34) to assume the open position such that the fluid retained within the container is accessible, the operator merely needs to depress the rearward portion (52) of the cover (34) such

that the elongate body (36) rotates about the pivot posts (62, 64). Successful depression is enhanced by the incorporation of the plurality of gripping ribs (56). The elongate member is retained in the open position by frictional engagement between the first knuckle (80) on the rearward portion (52) and the second knuckle (82) on the arcuate recessed portion (76). At this point, the operator may safely pour fluid from the container without the cover (34) interfering with the fluid as it flows from the lid (10).

From the above one can appreciate that the disclosed invention has several advantages. One such advantage is that the lid (10) of this invention allows fluid to be securely retained within the container once the cover is rotated into the closed position. As such, the fluid is sealed from harmful contaminants or from undesirable spillage. In addition, the pour spout (86) is also isolated from the external environment due to the unique design of the cover (34) which isolates the pour spout (86) from the environment as well as the fluid itself. Alternatively, when the operator desires to pour the liquid from the container, the pour spout assures that the fluid is accurately directed from the container.

Further, the lid may be operated in an uncomplicated manner. Particularly, when utilized by juvenile, elderly, or disabled users the lid of this invention allows for simple actuation. The user simply depresses the rearward portion (52) of the cover (34) to open the lid (10) and depresses the forward portion (50) to close the lid (10).

In addition, the pivot posts (62, 64) are uniquely located on an inward surface of the cover (34). Accordingly, the stresses realized in the cover (34) are thereby reduced.

The unique design of the applicant's lid reduces the build-up of stress due to excessive cambering of the cover (34) when actuated.

While our invention has been described in terms of preferred embodiments, it is apparent that other forms could be adopted by one skilled in the art, such as by incorporating the novel features of this invention within lids which structurally differ from that shown in the Figures. Accordingly, the scope of our invention is to be limited only by the following claims.

What is claimed is:

1. A lid for a beverage container having a bottom portion and terminating at an opening oppositely disposed from said bottom portion such that a fluid is retainable therein, said lid comprising:
a cap having an upper surface with an aperture therethrough and a peripheral edge encompassing said upper surface, a pour spout disposed on said upper surface in communication with said aperture, said pour spout including a lip extending from said peripheral edge;
means for securing said cap to said side walls of said container; and
a cover releasably sealing said aperture, said cover being sized to extend over and enclose said pour spout.
2. A lid as recited in claim 1, wherein said pour spout further comprises a concave channel extending between said aperture and said lip.
3. A lid as recited in claim 1, wherein said cap includes a U-shaped flange surrounding said pour spout and said aperture.
4. A lid as recited in claim 3, wherein said cover includes a plug.



5. A lid as recited in claim 4, wherein said lid further includes a rocker means.
6. A lid as recited in claim 5, wherein said rocker means comprises:
a pair of oppositely disposed pivot pins on said cover; and
a pair of oppositely disposed lugs disposed on said cap, each lug of said pair of lugs being located to receive a corresponding pivot post of said pair of pivot posts.
7. A lid as recited in claim 6, wherein said cap further comprises:
an upper surface;
an arcuate recess portion on said upper surface; and
an abutment portion in communication with said arcuate recess portion.
8. A lid as recited in claim 7, wherein said lid comprises:
a first knuckle having a pit on said arcuate recess portion;
and
a second knuckle on said cover such that said cover is retained in an open position when said knuckle is frictionally retained in said pit by said second knuckle.
9. A lid as recited in claim 8, wherein said first knuckle and said second knuckle are each elongate members.
10. A lid as recited in claim 4, wherein said cover further includes an external annular groove on said plug; and
an internal annular bead on said aperture such that said



cover is retained in a closed position.

11. A lid as recited in claim 10, wherein said cover comprises:
an elongate body having a longitudinal axis;
a front wall portion extending beyond said peripheral surface of said cap;
a pair of side wall portions oppositely disposed in a transverse longitudinal direction relative to said elongate body; and
whereby said pour spout and said lip are enclosed by said front wall portion and said pair of side wall portions when said cover is in the closed position.
12. A lid for a beverage container having a bottom portion and side walls extending from said bottom portion terminating at an oppositely disposed opening relative to said bottom portion such that a fluid is retainable therein, said lid comprising:
a cap having an upper surface with an aperture therethrough, said cap further having a peripheral edge encompassing said upper surface, a pour spout disposed on said upper surface in communication with said aperture, said pour spout including a lip extending from said peripheral edge;
a cover releasably sealing said aperture, said cover having a longitudinal axis; and
a rocker means for rotatably connecting said cover to said cap.
13. A lid as recited in claim 12, wherein said rocker means



comprises:

at least one pivot pin disposed on said cover; and
at least one lug disposed on said cap corresponding to said
pivot pin.

14. A lid as recited in claim 13, wherein said at least one
pivot pin is a pair of pivot pins oppositely disposed along
a transverse direction relative to said longitudinal axis of
said cover; and
wherein said at least one lug being a pair of lugs, each lug
of said pair of lugs corresponding to a respective pivot pin
of said pair of pivot pins.
15. A lid as recited in claim 12, wherein said pour spout
further comprises a concave channel extending between said
aperture and said lip portion.
16. A lid as recited in claim 12, wherein said cap includes a U-
shaped flange encompassing said pour spout and said aperture
such that said fluid is directed towards said lip.
17. A lid as recited in claim 12, wherein cover further
comprises:
an external annular groove on said plug; and
an internal annular bead on said aperture such that said
cover is retained in a closed position when said annular
bead is received in said annular groove.
18. A lid as recited in claim 12, wherein said cap further
comprises:



an upper surface;
an arcuate recess portion on said upper surface; and
an abutment portion in communication with said arcuate recess portion.

19. A lid as recited in claim 18, wherein said lid comprises:
a first knuckle having a pit on said arcuate recess portion;
and
a second knuckle on said cover such that said cover is retained in an open position when said knuckle is frictionally retained in said recess by said second knuckle.
20. A lid for a beverage container having a bottom portion and side walls extending from said bottom portion terminating at an oppositely disposed opening relative to said bottom portion such that a fluid is retainable therein, said lid comprising:
a cap comprising an upper surface having an aperture, said aperture including an annular bead, said upper surface terminating at a peripheral edge, a pour spout disposed on said upper surface, said pour spout having a concave channel extending between said aperture and said peripheral edge of said cap, and a lip extending from said peripheral edge a U-shaped flange surrounding said pour spout and said aperture, an arcuate recess portion disposed on said upper surface having a first knuckle defining a pit, an abutment portion in communication with said arcuate recess portion, and an internal annular bead on said aperture;
a cover having a plug disposed thereon, said cover being



sized to extend over and enclose said pour spout, a second knuckle on said cover such that said cover is retained in an open position when said second knuckle is frictionally retained in said pit by said first knuckle, said cover including an external annular groove on said plug such that said cover is retained in a closed position when said annular bead on said aperture is frictionally retained in said annular groove, a front wall portion extending beyond said peripheral surface, a pair of side wall portions oppositely disposed in a transverse longitudinal direction relative to said elongate body such that in said closed position said pour spout is enclosed by said front wall portion and said side wall portions; a pair of oppositely disposed pivot pins on said cover; a pair of oppositely disposed lugs disposed on said cap, each lug of said pair of lugs being located to receive a corresponding pivot post of said pair of pivot posts; and means for securing said cap to said side walls of said container.

