A lid assembly is adapted to be removably coupled to a container, and the lid assembly includes an actuation member and a seal member each pivotally coupled to a base member. In a sealed position, a sealing portion of the seal member seals a fluid aperture. When the actuation member pivots from a first actuation position to a second actuation position, an engagement portion of the actuation member contacts an engagement portion of the seal member to displace the seal member from the sealed position to a first open position in which the seal member is disposed at a first angle from the base member. When a straw is inserted through the fluid aperture, the straw pivots the seal member from the sealed position to a second open position in which the seal member is disposed at a second angle from the base member.
DUAL DRINK MODE LID ASSEMBLY FOR A CONTAINER

FIELD OF THE DISCLOSURE

[0001] This disclosure relates generally to a lid assembly for containers, and more particularly, to a re-closable dual drink mode lid assembly for beverage containers.

BACKGROUND

[0002] Refillable beverage containers typically include a removable lid that includes a fluid aperture, and a consumer typically fills the interior of the container (e.g., an insulated container) with a beverage (e.g., juice or iced coffee) when the lid is removed. To drink the beverage, the consumer typically tips the container to allow the beverage to pass through the fluid aperture, and the consumer sips the beverage as the beverage exits the fluid aperture. To prevent the beverage from spilling out of the fluid aperture if the container is accidentally tipped, refillable beverage containers can include a selective sealing mechanism coupled to the lid that allows fluid to pass through the fluid aperture only when the sealing mechanism is in a desired position. A typical sealing mechanism includes a lever or button that is displaced by the consumer prior to (or while) sipping the beverage, and the lever or button displaces a seal member away from the fluid aperture.

[0003] In some instances, it may be desired to drink the beverage with a straw instead of drinking directly through the fluid aperture. Typically, the seal member of the sealing mechanism that is adjacent to or within the fluid aperture obstructs the fluid aperture in both the open and locked positions, and therefore a straw may not be inserted. However, in instances where a locking mechanism is included (e.g., a slide lock that selectively covers a fluid aperture), the locking mechanism must typically be placed or locked into an open position prior to inserting the straw through the drinking aperture. If the consumer forgets to lock the locking device after the removal of the straw, the fluid aperture remains unobstructed and tipping over the container will cause the beverage to spill out of the fluid aperture.

BRIEF SUMMARY OF THE DISCLOSURE

[0004] A lid assembly is adapted to be removably coupled to a container, and the lid assembly includes a base member that extends from a first end to an open second end along a lid reference axis. A base axis extends through a portion of the base member adjacent to the lid reference axis, and the base axis is normal to the lid reference axis. A fluid aperture is defined in a portion of the base member. The lid assembly also includes an actuation member coupled to the base member, the actuation member extending from a first end and a second end. The actuation member has an engagement portion disposed at or adjacent to the second end or between the first end and the second end, and the actuation member is displaceable relative to the base member from a first actuation position to a second actuation position. The lid assembly further includes a seal member coupled to the base member, and the seal member includes a portion of the fluid aperture from a first end to a second end, the seal member being pivotally coupled to the base member at or adjacent to the first end of the seal member. A sealing portion of the sealing member is disposed between the first end and the second end of the seal member, and an engagement portion of the seal member is disposed between the first end and the second end of the seal member. The seal member rotates relative to the base portion from a sealed position to a first open position and from the sealed position to a second open position. In the sealed position, the sealing portion is disposed adjacent to or in contact with a portion of the base member surrounding the fluid aperture. In the first open position, the seal axis of the seal member is disposed at a first angular distance from the base axis of the base member. In the second open position, the seal axis of the seal member is disposed at a second angular distance from the base axis of the base member, the second angular distance being greater than the first angular distance. When the actuation member displaces from its first actuation position to its second actuation position, the engagement portion of the actuation member contacts the engagement portion of the seal member, thereby displacing the seal member from the sealed position to the first open position. In addition, the seal member is adapted to pivot from the sealed position to the second open position by contact from a straw being inserted through the fluid aperture and into an interior of the container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIG. 1 is a perspective view of an embodiment of a lid assembly constructed in accordance with the teachings of the disclosure;

[0006] FIG. 2A is a side view of the lid assembly of FIG. 1;

[0007] FIG. 2B is a top view of the lid assembly of FIG. 1, with an actuation member removed;

[0008] FIG. 2C is a cross-sectional view of the lid assembly of FIG. 1, taken along line 2C-2C of FIG. 2B;

[0009] FIG. 2D is a bottom view of the lid assembly of FIG. 1;

[0010] FIG. 3A is a bottom view of an embodiment of a seal member of the lid assembly of FIG. 1;

[0011] FIG. 3B is a side view of the seal member of FIG. 3A;

[0012] FIG. 3C is a cross-sectional view of an embodiment of the seal member of FIG. 3A, taken along line 3C-3C of FIG. 3A;

[0013] FIG. 3D is a perspective view of the seal member of FIG. 3A;

[0014] FIG. 4A is a bottom view of the lid assembly of FIG. 1, with the actuation member installed;

[0015] FIG. 4B is a top view of the lid assembly of FIG. 1, with the actuation member installed;

[0016] FIG. 5A is a side cross-sectional view of the lid assembly of FIG. 1, with a seal member in a sealed position;

[0017] FIG. 5B is a side cross-sectional view of the lid assembly of FIG. 1, with the seal member in a first open position;

[0018] FIG. 5C is a side cross-sectional view of the lid assembly of FIG. 1, with the seal member in a second open position;

[0019] FIG. 6A is a top view of an actuation member of the lid assembly of FIG. 1;

[0020] FIG. 6B is a side cross-sectional view of the actuation member of FIG. 6A;

[0021] FIG. 6C is a bottom view of the actuation member of FIG. 6A;

[0022] FIG. 6D is a front view of the actuation member of FIG. 6A;
FIG. 7 is a perspective view of an embodiment of the lid assembly of FIG. 1, secured to a container.

FIG. 8A is a cross-sectional view of the lid assembly of FIG. 1, with the actuation member in a first actuation position; and

FIG. 8B is a cross-sectional view of the lid assembly of FIG. 1, with the actuation member in a second actuation position.

DETAILED DESCRIPTION

Initially turning to FIG. 7, a lid assembly 10 may be adapted to be removably secured to a container 12. Lid assembly 10 may include a reference axis 17 that generally corresponds to a longitudinal axis of the container 12 when the lid assembly 10 is secured to the container 12. The container 12 includes an interior 44 that is configured to hold a liquid. The lid assembly 10 includes a drink hole or fluid aperture (not shown in FIG. 7) through which a consumer may access liquid stored in the interior 44 of the container 12.

Referring now to FIGS. 1 and 2C, the lid assembly 10 may include a base member 14 that extends from a first end 13 to an open second end 15 along the lid reference axis 17. The base 14 includes a base axis 16 that extends through a portion of the base member 14 adjacent to the lid reference axis 17, and the base axis 16 in one embodiment may be substantially normal to the lid reference axis 17. The fluid aperture 18 is formed in a portion of the base member 14.

As illustrated in FIGS. 1 and 6A, the lid assembly 10 also includes an actuation member 20 extending from a first end 22 to a second end 24, and, as illustrated in FIG. 6B, which is a side cross-sectional view of the actuation member 20 taken along line 63-6B in FIG. 6A, the actuation member 20 has an engagement portion 26 disposed at or adjacent to the second end 24 or between the first end 22 and the second end 24. The actuation member 20 is pivotably replaceable from a first actuation position or closed position (illustrated in FIG. 5A) to a first actuation position or an open position (illustrated in FIG. 5B) when the first end 22 of the engagement portion 20 is pivoted relative to the base member 14. As illustrated in FIGS. 3A to 3C and 4A, the lid assembly 10 further includes a seal member 28, and as illustrated in FIG. 3A, the seal member 28 extends along a seal axis 30 from a first end 32 to a second end 34. As illustrated in FIG. 4A, the seal member 28 is pivotally coupled to the base member 14 at or adjacent to the first end 32 of the seal member 32. A sealing portion 36 of the seal member 28 may be disposed between the first end 32 and the second end 34, and an engagement portion 38 of the seal member 28 is disposed between the first end 32 and the second end 34 (e.g., between the sealing portion 36 and the first end 32). The seal member 28 rotates relative to the base portion from a sealed position (illustrated in FIG. 5A) to a first open position (illustrated in FIG. 5B) or from the sealed position or first position (illustrated in FIG. 5A) to a first open position or second position (illustrated in FIG. 5B), and to a second open position or a third position (illustrated in FIG. 5C). Generally, the second position (FIG. 5B) allows fluid to exit the fluid aperture 18 for a consumer to sip from the lid assembly 10, while the third position (FIG. 5C) allows the seal member 28 to pivot far enough to allow a straw to be inserted through the fluid aperture 18, for accessing fluid in the container 12.
and the top surface 46 may be planar and/or contoured or otherwise curved. As illustrated in FIG. 2B and 2C, a portion 50 of the top surface 46 may be planar or substantially planar and may be downwardly angled so as to define a drinking recess 72 that surrounds or partially surrounds the fluid aperture 18. As illustrated in FIG. 2B, a perimeter edge 52 may define an outward perimeter of the top surface 46 of the base member 14, and the perimeter edge 52 may have any suitable shape or combination of shapes. For example, the perimeter edge 52 may have a generally circular shape. The base member 14 may be a single part or may be an assembly of two or more parts that cooperate to form the base member 14.

As illustrated in FIG. 2C, the fluid aperture 18 may extend through the base member 14 from the top surface 46 to the bottom surface 48. A portion of the fluid aperture 18 may be provided by a boss 54 extending away from the bottom surface 48 of the base member 14, and an inner surface 55 of the boss 54 may define the portion of the fluid aperture 18. The portion 40 of the base member 14 surrounding the fluid aperture 18 (that is contacted by the sealing portion 36 of the seal member 28 in the sealed position) may be an end portion of the boss 54, or the drink seal 301 (FIGS. 5A-5C). The base axis 16 may extend through or immediately adjacent to the end portion of the boss 54 (or through or immediately adjacent to the drink seal 301), and the base axis 16 may intersect and/or be normal to the lid reference axis 17. The fluid aperture 18 may have any suitable cross-sectional shape or combination of shapes, and the cross-sectional shape may vary (when viewed in a direction parallel to or along the lid reference axis 17) provided that it permits fluid flow therethrough. For example, the fluid aperture 18 may have the cross-sectional shape of a circle or that of an oval.

As illustrated in FIG. 2C, the lid assembly 10 may also include a skirt portion 58 that may downwardly extend from a portion of the bottom surface 48 of the base member 14. More specifically, the skirt portion 58 may extend along the lid reference axis 17 from a radially (i.e., normal to the lid reference axis 17) outer portion 60 of the bottom surface 48 of the base member 14 to the open second end 15 of the base member 14. The skirt portion 58 may be at least partially defined by an interior surface 63 and an exterior surface 64, and the exterior surface 64 may be outwardly offset (in a direction away from the lid reference axis 17) from the interior surface 63 when viewed along the lid reference axis 17. The skirt portion 58 may have any suitable cross-sectional shape or combination of shapes (when viewed normal to the lid reference axis 17). For example, the interior surface 63 and/or the exterior surface 64 of the skirt portion 58 may be cylindrical. A threaded portion 57 of the interior surface 63 of the skirt portion 58 may be adapted to engage a threaded portion of the container 12. In other embodiments, the threaded portion 57 may be on the exterior surface 54 of the skirt portion 58 or both the interior surface 63 and the exterior surface 64. A circumferential seal 303 may extend around a portion of the interior surface 63 of the skirt portion 58 above the threaded portion 57 to prevent leakage when the lid assembly 10 is secured to the container 12.

As illustrated in FIGS. 1 and 2B, the base member 14 may also include a straw attachment portion 142 that may be coupled to a portion of the skirt portion 58 (and/or a portion of a ridge portion 59 that will be described in more detail below) and may be adapted to releasably secure the straw 42 to the base member 14. As illustrated in FIG. 2B, the straw attachment portion 142 may include or comprise a first projection 146a and a second projection 146b that radially extend from the skirt portion 58. That is, the first projection 146a and the second projection 146b may outwardly extend (e.g., extend in a direction normal or substantially normal to the lid reference axis 17) from the exterior surface 63 of the skirt portion 58. The first projection 146a and the second projection 146b may define a gap 148 therebetween, the gap 148 being sized to receive a portion of the straw 42. The first projection 146a and the second projection 146b are shaped and dimensioned to releasably secure the straw within the gap 148 when the straw is not in use. In some embodiments, the first projection 146a and the second projection 146b are fixed to the skirt portion 58 such that a reference axis R bisecting the first projection 146a and the second projection 146b makes an angle α (e.g., between approximately 10° and approximately 45°) with the recess axis 80 (when viewed along the lid reference axis 17). By placing the straw attachment portion 142 in this range, the likelihood that a consumer would attempt to drink from the fluid aperture 18 with the straw 42 attached to the lid assembly 10 is reduced or eliminated because the straw 42 is in the consumer’s field of view and the consumer will observe the straw 42 before bringing the straw 42 into contact with his or her face. In other embodiments, the first projection 146a and the second projection 146b may both be rotatable and/or displaceable about a circumference of the skirt portion 58. For example, the first projection 146a and the second projection 146b may both be formed on a collar (not shown) that may be disposed round all or part of the circumference of the skirt portion 58, and the collar may be rotatable relative to the skirt portion 58 such that the consumer can position the first projection 146a and the second projection 146b (and the straw 42 stored therebetween) in a desired radial position.

As illustrated in FIG. 2C, the base member 14 may also include the ridge portion 59 that may outwardly extend from a portion of the top surface 46 of the base member 14. More specifically, the ridge portion 59 may extend along the lid reference axis 17 from a radially outer portion 62 (illustrated in FIG. 2B) of the top surface 46 of the base member 14 to the first end 13 of the base member 14, as illustrated in FIG. 2C. The ridge portion 59 may completely or partially surround the top surface of the base member 14. The ridge portion 59 may be at least partially defined by an interior surface 69 and an exterior surface 70, and the exterior surface 70 may be outwardly offset (in a direction away from the lid reference axis 17) from the interior surface 69 when viewed along the lid reference axis 17. In some embodiments, the ridge portion 59 may have a cross-sectional shape (when viewed normal to the lid reference axis 17) that may correspond to the shape of the radially outer portion 62 of the top surface 46. As illustrated in FIGS. 2A and 2C, the interior surface 69 and/or the exterior surface 70 of the ridge portion 59 may be cylindrical or generally cylindrical. That is, the interior surface 69 and/or the exterior surface 70 of the ridge portion 59 may have a circular cross-sectional shape when viewed along the lid reference axis 17. However, the diameter of the circle corresponding to the interior surface 69 and/or the exterior surface 70 of the ridge portion 59 may vary along the lid reference axis 17. For example, the exterior surface 70 may have a slight
concave shape and the interior surface 69 may have a slight convex shape. Of course, other shapes are also possible. [0037] Referring to FIGS. 2B, 2C, and 2D, a lid recess 66 may be disposed in the base member 14, and the lid recess 66 may be positioned and dimensioned to receive the actuation member 20 such that the engagement portion 26 of the actuation member 20 is at least partially disposed within an actuation aperture 68 when the actuation member 20 is in the second actuation position (of FIG. 5B). Specifically, the lid recess 66 may include or be partially defined by a planar or substantially planar recess surface 74 (that may be normal or substantially normal to the lid reference axis 17) that may be downwardly offset (e.g., along the lid reference axis 17 and towards the second end 15 of the base member 14) from the top surface 46 of the base member 14. The lid recess 66 may extend from a first end 76 (adjacent to or at the radially outer portion 62 of the top surface 46 of the base member 14) to a second end 78 along an recess axis 80 that may be normal to (and may intersect) the lid reference axis 17. The second end 78 of the lid recess 66 may be disposed between the lid reference axis 17 and the first end 76, and the second end may be adjacent to the lid reference axis 17.

[0038] As illustrated in FIG. 2B, the lid recess 66 may be defined by a pair of side walls 82a, 82b that may be parallel to the recess axis 80 and may be separated by a distance W that is slightly greater than a corresponding width of the actuation member 20. A vent aperture 67 may extend through the recess surface 74 (e.g., extend from the recess surface 74 to and through the bottom surface 48), and a diameter of the vent aperture 67 may be between 5% and 15% of the distance W. In addition, the actuation aperture 68 may be disposed through the recess surface 74 (e.g., extend from the recess surface 74 to and through the bottom surface 48), and the actuation aperture 68 may generally extend along an axis that may be disposed along (and may be normal to) the recess axis 80. A recess counterbore 84 may surround (e.g., symmetrically surround) the actuation aperture 68, and the recess counterbore 84 may include a counterbore surface 86 that may be planar or substantially planar and may be offset from the recess surface 74. The actuation aperture 68 (and recess counterbore 84) may have any suitable shape to accommodate the engagement portion 26 of the actuation member 20, such as a circular shape (when viewed normal to the recess surface 74). A first distance between a center point of the actuation aperture 68 and the second end 78 of the lid recess 66 may be less than a second distance between the center point of the actuation aperture 68 and the first end 76 of the lid recess 66.

[0039] As illustrated in FIG. 2D, a pair of coupling tabs 88a, 88b may downwardly extend (e.g., extend along the lid reference axis 17) from the bottom surface 48 of the base member 14. Each of the coupling tabs 88a, 88b may have any shape or geometry to pivotally couple to the seal member 28 at or adjacent to the first end 32 of the seal member 28, as illustrated in FIG. 4A. For example, with reference to FIG. 4A, each coupling tab 88a, 88b may have an aperture that receives a corresponding projection 90a, 90b of a corresponding first and second arm portion 93a, 93b of the seal member 28. In other example embodiments, each coupling tab 88a, 88b may have a projection inserted into a corresponding aperture of the corresponding first and second arm portion 93a, 93b of the seal member 28.

[0040] As illustrated in FIGS. 1, 6A to 6D, the lid assembly 10 may also include the actuation member 20. As illustrated in FIG. 6A, the actuation member 20 may extend from the first end 22 to the second end 24 along an actuator axis 90, and the actuator axis 90 may be aligned with the recess axis 80 (of FIG. 2B) when the actuation member 20 is coupled to the base member 14. As illustrated in FIG. 4A, the first end 22 of the actuation member 20 may be disposed at or adjacent to the first end 76 of the lid recess 66 (of FIG. 2B) and the second end 24 of the actuation member 20 may be disposed at or adjacent to the second end 78 of the lid recess 66 (of FIG. 2B). Referring to FIG. 6A, the actuation member 20 may include a center portion 91 that extends between a pair of elongated side surfaces 92a, 92b that may extend along the actuator axis 90, and the elongated side surfaces 92a, 92b may be separated by a transverse distance that is slightly less than the distance W separating the side walls 82a, 82b of the lid recess (of FIG. 2B). The center portion 90 may be substantially planar and may have a top surface 94 and a bottom surface 96 opposite the top surface 94. When the actuation member 20 is in the first actuation position, the top surface 94 is substantially aligned with the top surface 46 of the base member 14.

[0041] The actuation member 20 is pivotably displaceable relative to the base member 14 from the first actuation position (illustrated in FIG. 5A) to the second actuation position (illustrated in FIG. 5B) by a consumer. For example, the consumer may pivot the second end 24 of the engagement portion 20 about a pivot axis 98, and the pivot axis 98 may be normal to the actuator axis 90 and the lid reference axis 17. The actuation member 20 may be pivotally coupled to the base member 14 in any suitable manner. For example, as illustrate in FIG. 6A, each of a pair of projections 97a, 97b may extend from a corresponding one of the side surfaces 92a, 92b along the pivot axis 98, and each of the pair of projections 97a, 97b may be received in a corresponding aperture or depression in the corresponding one of the side walls 82a, 82b of the lid recess 66 (illustrated in FIG. 2B).

[0042] As illustrated in FIG. 6B and 6D, the actuation member 20 has the engagement portion 26 disposed at or adjacent to the second end 24 of the actuation member 20 or between the first end 22 and the second end 24 of the actuation member 20. The engagement portion 26 may be any feature or combination of features that is adapted to contact the engagement portion 38 of the seal member 28 such that when the actuation member 20 displaces (e.g., pivots about the pivot axis 98) from the first actuation position to the second actuation position, the engagement portion 26 of the actuation member 20 acting on the engagement portion 38 of the seal member 28 and thereby displaces the seal member 28 from the sealed position to the first open position.

[0043] For example, as illustrated in FIG. 6B and 6D, the engagement portion 26 may be disposed at an end portion 103 of a protrusion 99 that extends along a protrusion axis 100 from a first end 101 to a second end 102. More specifically, with reference to FIG. 6B, the first end 101 of the protrusion 99 may be adjacent to the bottom surface 96 of the center portion 91 of the actuation member 20 and the end portion 103 (and the engagement portion 26) may be at or adjacent to the second end 102. The end portion 103 of the protrusion 99 may have a pointed portion 104, and an end of the pointed portion 104 may be the engagement portion 26. The end portion 103 of the protrusion may be sized and dimensioned to be disposed within (and through) the actua...
tion aperture 68 of the lid recess 66 of the lid member 14 when the actuation member 20 pivots about from the first actuation position to the second actuation position.

[0044] Still referring to FIG. 6B, the first end 101 and the second end 102 of the protrusion 99 may be separated along the protrusion axis 100 by a distance D. The distance D may be any suitable distance that allows the engagement portion 26 of the protrusion 99 to contact the engagement portion 38 of the seal member 28 to displace the seal member 20 from the sealed position to the first open position when the actuation member 20 pivots about from the first actuation position to the second actuation position. In addition, the distance D may be any suitable distance in which the engagement portion 26 does not contact (and/or not displace) the engagement portion 38 of the seal member 28 when the actuation member 20 is in the first actuation position.

[0045] As illustrated in FIG. 8A, a securing portion 106 may be coupled to the actuation member 20, and the securing portion 106 may be adapted engage a retaining portion 108 of the base member 14 to provide a detent force that prevents an accidental pivoting of the actuation member 20 from the first actuation position to the second actuation position. More specifically, the securing portion 106 may extend from a first end 110 to a second end 112 along a securing axis 114, and an intermediate point 116 may be disposed between the first end 110 and the second end 112. The securing portion 106 may include a body portion 118 that may be non-movably secured to the projection 99 and a head portion 120 that may be movable or displaceable (e.g., along the securing axis 114) relative to the body portion 118. One end of the head portion 120 may have a hemispherical or ball shape, thus forming a ball-piston. The body portion 118 may include a shaft 122 that extends from the second end 112 to the intermediate point 116, and a cup portion 124 may be coupled to the shaft 122 and may extend from the intermediate point 116 towards the first end 110. The head portion 120 may be at least partially disposed within the cup portion 124, and a first end 126 of the head portion 120 may be rounded or contoured and adapted to engage the retaining portion 108. The head portion 120 may be biased away from the intermediate point 116 along the securing axis 114 by a biasing member 128 and the biasing member 128 may be disposed in any suitable location to directly or indirectly act on the head portion 120 to provide such a biasing force. For example, the biasing member 128 may be a spring (e.g., a leaf spring, dome spring, or coil spring) disposed between the head portion 120 and a surface of the cup portion 124.

[0046] When the actuation member 20 is in the first actuation position, the head portion 120 of the securing portion 106 may be engaged with or disposed within a portion of the retaining portion 108 of the base member 14. For example, the retaining portion 108 may be a feature formed on or coupled to the base member 14, and the retaining portion 108 may be formed on or coupled to a surface or a portion of the lid recess 66. The retaining portion 108 may have the shape if a cup or a dish (e.g., a concave shape) that intersects (or may be symmetrical about) the securing axis 114 when the actuation member 20 is in the first actuation position. The cup-shaped retaining portion 108 is shaped and dimensioned to correspond to (and receive) the first end 126 of the head portion 120. The retaining portion 108 may have a ridge 130 offset from the recess surface 74 of the lid recess 66 at an upper portion of the cup-shaped retaining portion 108, and the ridge 130 may be an upper lip of the concave retaining portion 108.

[0047] As a consumer begins to pivot the actuation member 20 from the first actuation position (illustrated in FIG. 8A) to the second actuation position (illustrated in FIG. 8B), the first end 126 of the head portion 120 comes in contact with the ridge 130 of the retaining portion 108, and this gradual contact forces the head portion 120 towards the shaft 122 along the securing axis 114 against the biasing force provided by the biasing member 120. Thus, this contact against the biasing force provides a detent force that prevents an accidental pivoting of the actuation member 20 from the first actuation position to the second actuation position. As the consumer continues to pivot the actuation member to the second actuation position, the first end 126 of the head portion 120 rotates past the ridge 130 and into the second actuation position illustrated in FIG. 8B. To pivot the actuation member 20 from the second actuation position to the first actuation position, the first end 126 of the head portion 120 begins to come in contact with the ridge 130 of the retaining portion 108 as the actuation member begins to rotate. The first end 126 of the head portion 120 rotates past the ridge 130 as the actuation member 20 pivots into the first actuation position.

[0048] As illustrated in FIGS. 6B and 6C, the actuation member 20 may also have a vent projection 144 adapted to cooperate with the vent aperture 67 of the base member 14 (illustrated in FIG. 2B) to safely vent any hot gasses contained in the interior 44 of the container 12 prior to the consumer drinking from the fluid aperture 18. The vent projection 144 may extend away from the bottom surface 96, and may be dimensioned and position such that an end portion of the vent projection 144 may be inserted (or adapted to be inserted) into a top portion of the vent aperture 67 extending through the recess surface 74 (illustrated in FIG. 2B) when the actuation member 20 is in the first actuation position. In use, when the consumer begins to pivot the actuation member 20 from the first actuation position towards the second actuation position, the end of the vent projection 144 disengages from the top portion of the vent aperture 67 prior to (or as) the engagement portion 26 of the actuation member 20 engages the engagement portion 38 of the seal member 28 to begin to rotate the seal member 28 from the sealed position to the first open position. More specifically, in the closed position, there is a gap 305 (FIG. 2C) between the engagement portion 26 and the engagement portion 38. In some embodiments, the gap 305 may be approximately 0.5 mm. As a result, the actuation member 20 may be rotated a small amount, which allows the vent projection 144 to disengage from the vent aperture before the engagement portion 26 contacts the engagement portion 38 to begin rotating the seal member 28. This action results in pre-venting of pressure within the container 12 before the fluid aperture 18 is opened. Accordingly, while the fluid aperture 18 is still sealed by the seal member 28, hot gasses from within the interior 44 of the container may exit through the unobstructed vent aperture 67 and to the atmosphere. Therefore, when the seal member 28 disengages from the portion 40 of the base member 14 surrounding the fluid aperture 18, no significant amount of gasses vent through the fluid aperture 18, thereby avoiding injuring a consumer that may be beginning to drink as the actuation member 20 is pivoted out of the first actuation position.
As illustrated in FIGS. 3A to 3D and 4A, the lid assembly 10 further includes the seal member 28, and as illustrated in FIG. 3A, the seal member 28 extends along a seal axis 30 from a first end 32 to a second end 34. The seal member 28 may include a main portion 132 and the first and second arm portions 93a, 93b disposed at opposite sides of the main portion 132. The main portion 132 may extend along the seal axis 30 from a point at or adjacent to the first end 32 to the second end 34. The main portion 132 may be planar or substantially planar and may have a top surface 133 and a bottom surface 134, and the seal axis 30 may extend along the top surface 133. A portion of the top surface 133 may include the sealing portion 36 of the seal member 28, and the sealing portion 36 may be disposed between the first end 32 and the second end 34 of the seal member 28. The seal axis 30 may intersect (e.g., bisect) the sealing portion 36. The sealing portion 36 may have any shape and dimensions to allow the sealing portion to sealingly engage (e.g., be disposed adjacent to or in contact with) the portion 40 of the base member 14 surrounding the fluid aperture 18 when the seal member 28 is in the sealed position of FIG. 5A. For example, the sealing portion 36 may be a planar portion of the top surface 133.

The main portion 132 may also include the engagement portion 38 of the seal member 28. The engagement portion 38 of the seal member 28 may be disposed at any suitable location of the seal member 28 such that when the actuation member 20 pivots from the first actuation position to the second actuation position, the engagement portion 26 of the actuation member 20 is able to contact and/or engage the engagement portion 38 of the seal member 28 to displace the seal member 28 from the sealed position to the first open position. For example, the engagement portion 38 of the seal member 28 may be disposed on a portion of the main portion 132 that is along the seal axis 30 between the first end 32 of the seal member 28 and the second end 34 of the seal member 28, and the engagement portion 38 may be between the sealing portion 36 and the first end 32. The engagement portion 38 may be a surface of a concave depression 136 that downwardly extends from the top surface 133 of the main portion 132. The main portion 132 may also include a tab 136 that may extend away from the bottom surface 134 of the main portion 132 and the tab 136 may be adapted to be grabbed by a consumer to pivot the seal member 28 away from the fluid aperture 18 to allow the portion 40 surrounding the fluid aperture 18 to be cleaned.

The seal member 28 may also include the first and second arm portions 93a, 93b that may be coupled to opposite sides of the main portion 132, and the first and second arm portions 93a, 93b may be symmetrically disposed about the seal axis 30. Each of the first and second arm portions 93a, 93b may be planar and may extend in a direction normal to the main portion 132 (e.g., normal to the seal axis 30). First and second projections 90a, 90b may extend from a corresponding arm portion 93a, 93b, and the first and second projections 90a, 90b may be coaxially aligned with a seal rotation axis 138. The seal rotation axis 138 may be normal to (and/or offset from) the seal axis 30.

As illustrated in FIG. 4A, a least one biasing member 140 may act on a portion of the seal member 28 and/or the base member 14 to bias the sealing portion 36 of the seal member 28 towards (or into sealing engagement with) the portion 40 of the base member 14 surrounding the fluid aperture 18. For example, a first and second biasing member 140a, 140b (which may be a torsional spring) may be coupled to (e.g., at least partially disposed around) each of the first and second projections 90a, 90b of the arm portions 93a, 93b of the seal member 28. A first end of each of the first and second biasing member 140a, 140b may be coupled to or contact a portion of the bottom surface 48 of the base member 14, and a second end of each of the first and second biasing member 140a, 140b may be coupled to or contact a portion of a corresponding one of the first and second arm portions 93a, 93b of the seal member 28. The total biasing force provided by the at least one biasing member 140 must be less than the detent force (which, as previously explained, is generated when the securing portion 106 of the actuation member 20 engages the retaining portion 108 of the base member 14) so that the seal member 28 does not force the actuation member 20 from the second actuation position to the first actuation position. Moreover, the biasing force provided by the at least one biasing member 140 must allow the seal member 28 to be capable of rotating at approximately 90° to allow easy cleaning of the seal member 28.

As previously explained, each of the first and second projections 90a, 90b of the arm portions 93a, 93b of the seal member 28 may be disposed a corresponding one of the coupling tab 88a, 88b (see FIG. 2D) of the base member 14 to pivotably couple the seal member 28 to the base member 14 such that the seal member 28 is capable of pivoting about the seal rotation axis 138 from the sealed position (illustrated in FIG. 5A) to the first open position (illustrated in FIG. 5B) and/or from the sealed position (illustrated in FIG. 5A) to the second open position (illustrated in FIG. 5C). More specifically, in the sealed position, the sealing portion 36 of the seal member 28 is disposed adjacent to or in contact with the portion 40 of the base member 14 surrounding the fluid aperture 18, as illustrated in FIG. 5A, and the seal axis 30 of the seal member 28 may be coaxially aligned with or disposed parallel to (and vertically aligned with) the base axis 16 of the base member 14. In this sealed position, the fluid aperture 18 of the base member 14 is sealed or substantially sealed by the sealing portion 36 such that fluid within the interior 44 of the container 12 is prevented (or hindered) from exiting through the fluid aperture 18 unless the actuation member 20 is displaced from the first actuation position to the second actuation position or a straw 42 is inserted into the fluid aperture 18, as illustrated in FIG. 5C. Thus if the container 12 and lid assembly 10 is knocked over when not in use, substantial leakage of fluid from the interior 44 of the container 12 out of the fluid aperture 18 is limited or prevented.

In use, as mentioned previously, the actuation member 20 may initially be in the first actuation position (FIG. 5A), and the seal member 28 may be in the sealed position described above. When the consumer desires to drink a liquid directly out of the container 12, the consumer displaces the first end 22 of the actuation member 20 relative to the base member 14 to pivot the actuation member 20 from the first actuation position to the second actuation position as previously described, which causes the engagement portion 26 of the actuation member 20 to engage or contact the engagement portion 38 of the seal member 28 to pivot the seal member 28 about the seal rotation axis 138 from the sealed position illustrated in FIG. 5A to the first open position illustrated in FIG. 5B, the seal axis 30 of the
seal member 28 is disposed at a first angular distance 01 from the base axis 16 of the base member 14. The first angular distance 01 may be any suitable angle that allows fluid to flow from the interior 44 of the container 12 through the fluid aperture 18 and into the drinking recess 72. The first angular distance 01 may be, for example, an angle between 5° and 45° and may be, in one aspect, an angle between 10° and 30°.

[0055] When the consumer is finished drinking liquid directly out of the fluid aperture 18 of the container 12, the consumer displaces the first end 22 of the actuation member 20 relative to the base member 14 to pivot the actuation member 20 from the second actuation position to the first actuation position. This action causes the engagement portion 26 of the actuation member 20 to retract into or towards the actuation aperture 68, which thereby allows the engagement portion 38 of the seal member 28 to rotate towards the fluid aperture 18 under the force of the biasing member 140.

[0056] The consumer may also wish to drink a liquid from the container 12 using a straw 42. In this case, the consumer may remove the straw from the straw attachment portion 142 and insert an end of the straw 42 through the fluid aperture 18 towards a bottom of the container 12. The end of the straw 42 may contact a portion of the seal member 28 (e.g., a portion adjacent to the sealing portion 36 of the main portion 132), and further downward movement of the end of the straw 42 into the interior 44 of the container will continue to pivot the seal member 28 (against the biasing force provided by the biasing member 140 acting on the seal member 28) about the seal rotation axis 138 until the end of the straw 42 clears the second end 34 of the seal member 42, and the seal member 42 is maintained in this second open position (illustrated in FIG. 5C) by contact with the outside circumferential surface of the straw 42 as the straw 42 is further inserted into the interior 44 of the container until the end reaches a desired depth. In this second open position (FIG. 5C), the seal axis 30 of the seal member 28 is disposed at a second angular distance 02 from the base axis 16 of the base member 28, and the second angular distance 02 typically being greater than the first angular distance 01. The second angular distance 02 may be any angle that allows the end of the straw 42 to be disposed at a desired location within the interior 44 of the container 12. The second angular distance 02 may be, for example, an angle between 20° and 90° and may be, in one aspect, an angle between 35° and 70°.

[0057] When the consumer removes the straw 42 from the fluid aperture 18, the straw 42 no longer maintains a force on the seal member 28 that is opposite to and greater than the biasing force provided by the biasing member 140, and the force provided by the biasing member 140 pivots the seal member 28 about the seal rotation axis 138 from the second open position to the sealed position. As previously explained, such an automatic sealing of the fluid aperture 18 when the straw 42 is removed from the fluid aperture 18 prevents accidental spilling of fluid from the container 12 if the container 12 is accidentally knocked over. The seal member 28 could be in the first open position when the straw 42 is inserted into the fluid aperture 18 and still displace to the second open position.

[0058] While various embodiments have been described above, this disclosure is not intended to be limited thereto. Variations can be made to the disclosed embodiments that are still within the scope of the appended claims.

What is claimed is:
1. A lid assembly for a container, the lid assembly comprising:
   a base member having a fluid aperture disposed in a portion of the base member;
   an actuation member coupled to the base member, the actuation member having an engagement portion, the actuation member being displaceable relative to the base member from a first actuation position to a second actuation position;
   a seal member coupled to the base member, the seal member being pivotably coupled to the base member, the seal member including an engagement portion and a sealing portion, and the seal member being rotatable relative to the base portion from a sealed position to a first open position and from the sealed position to a second open position,
wherein in the first open position, a seal axis of the seal member is disposed at a first angular distance from a base axis of the base member,
wherein in the second open position, the seal axis of the seal member is disposed at a second angular distance from the base axis of the base member, the second angular distance being greater than the first angular distance.

2. The lid assembly of claim 1, wherein the actuation member is elongated and pivots relative to the base member from the first position to the second position about a pivot axis disposed between a first end and a second end of the actuation member.

3. The lid assembly of claim 2, wherein the actuation member pivots from the first actuation position to the second actuation position when the first end of the actuation member is displaced away from a surface of the base member.

4. The lid assembly of claim 1, wherein an engagement portion of the actuation member is disposed at an end portion of a projection.

5. The lid assembly of claim 1, wherein an engagement portion of the seal member is disposed between a first end of the seal member and a sealing portion of the seal member.

6. The lid assembly of claim 1, wherein the seal member rotates about a pivot axis that extends adjacent to a first end of the seal member, the pivot axis being normal to a seal axis, wherein the seal axis is offset from the pivot axis of the seal member.

7. The lid assembly of claim 1, further comprising a biasing member coupled to the base member and to the sealing member, the biasing member biasing the sealing portion of the sealing member towards the fluid aperture of the base member.

8. The lid assembly of claim 1, wherein the actuation member is pivotably displaceable from the first actuation position to the second actuation position about a pivot axis disposed between a first end and a second end of the actuation member.

9. The lid assembly of claim 1, wherein the base member includes a cylindrical skirt portion coaxially-aligned with a lid reference axis.

10. The lid assembly of claim 9, wherein a first projection and a second projection radially extend from the skirt portion, the first projection and the second projection defining a gap therebetween, the gap being adapted to receive the straw and the first projection and the second projection adapted to secure the straw within the gap.
11. The lid assembly of claim 1, wherein the engagement portion of the seal member is disposed at or adjacent to a first end of the seal member or between the first end and a second end of the seal member.

12. The lid assembly of claim 1, wherein a vent aperture is disposed through the base member, and a vent projection disposed on the actuation member is adapted to engage the vent aperture when the actuation member is in the first actuation position and the vent projection is adapted to be spaced apart from the vent aperture when the actuation member is in the second actuation position.

13. The lid assembly of claim 1, wherein a pair of coupling tabs extend from a bottom surface of the base member, and each of the pair of coupling tabs has an aperture that receives a corresponding projection of a corresponding first and second arm portion of the seal member to pivotably secure the seal member to the base member.

14. The lid assembly of claim 1, wherein a securing portion is coupled to the actuation member, and the securing portion is adapted to engage a retaining portion of the base member to provide a detent force when the actuation member is pivoted from the first actuation position to the second actuation position.

15. The lid assembly of claim 14, wherein the securing portion includes a head portion having an end portion that is rounded or contoured, and wherein the retaining portion is cup shaped and adapted to receive the end portion of the head portion when the actuation member is in the first actuation position, and wherein the head portion slides over a ridge of the retaining portion as the actuation member pivots from the first actuation position to the second actuation position.

16. The lid assembly of claim 15, wherein a biasing member biases the head portion into contact with the ridge as the actuation member pivots from the first actuation position to the second actuation position.

17. The lid assembly of claim 1, wherein the first angular distance is an angle between 5° and 45° and the second angular distance is an angle between 20° and 80°.

18. The lid assembly of claim 17, wherein the first angular distance is an angle between 10° and 30° and the second angular distance is an angle between 45° and 70°.

19. A lid assembly for a container, the lid assembly comprising:
   a base member, a fluid aperture being defined in a portion of the base member;
   an actuation member coupled to the base member, the actuation member having an engagement portion, the actuation member being displaceable relative to the base member from a first actuation position to a second actuation position;
   a securing portion coupled to the actuation member, the securing portion being adapted to engage a retaining portion of the base member to provide a detent force; a vent aperture disposed through the base member;
   a vent projection disposed on the actuation member, the vent projection being adapted to engage the vent aperture when the actuation member is in the first actuation position and the vent projection being adapted to be spaced apart from the vent aperture when the actuation member is in the second actuation position;
   a seal member coupled to the base member, the seal member being pivotably coupled to the base member, and the seal member including an engagement portion,
   wherein the seal member rotates relative to the base portion from a sealed position to a first open position and from the sealed position to a second open position; and
   a biasing member coupled to the base member and the sealing member that biases the sealing portion of the sealing member towards the fluid aperture of the base member,
   wherein when the actuation member displaces from the first actuation position to the second actuation position, the engagement portion of the actuation member contacts the engagement portion of the seal member, thereby displacing the seal member from the sealed position to the first open position.

20. The lid assembly of claim 19, wherein the securing portion includes a head portion having an end portion that is rounded or contoured, and wherein the retaining portion is cup shaped and adapted to receive the end portion of the head portion when the actuation member is in the first actuation position, and wherein the head portion contacts a ridge of the retaining portion as the actuation member pivots from the first actuation position to the second actuation position.

21. The lid assembly of claim 20, wherein a pair of coupling tabs extend from a bottom surface of the base member, and each of the pair of coupling tabs has an aperture that receives a corresponding projection of a corresponding first and second arm portion of the seal member to pivotably secure the seal member to the base member.

22. A lid assembly for a container, the lid assembly comprising:
   a base member having a fluid aperture and a retaining portion, the base member being adapted to be removably coupled to the container;
   an actuation member coupled to the base member, the actuation member being displaceable relative to the base member from a first actuation position to a second actuation position;
   a securing portion coupled to the actuation member and adapted to engage the retaining portion of the base member to provide a detent force when the actuation member is pivoted from the first actuation position to the second actuation position,
   wherein the securing portion includes a head portion having an end portion that is rounded or contoured, and wherein the retaining portion is cup-shaped and adapted to receive the end portion of the head portion when the actuation member is in the first actuation position, and wherein the head portion slides over a ridge of the retaining portion as the actuation member pivots from the first actuation position to the second actuation position.

23. The lid assembly of claim 22, wherein a securing biasing member biases the head portion into contact with the ridge as the actuation member pivots from the first actuation position to the second actuation position.

24. The lid assembly of claim 23, further comprising:
   a seal member coupled to the base member, the seal member being pivotably coupled to the base member, wherein the seal member rotates relative to the base portion from a sealed position to a first open position and from the sealed position to a second open position; and
a sealing biasing member coupled to the base member and the sealing member that biases the sealing portion of the sealing member towards the fluid aperture of the base member, wherein the force provided by the sealing biasing member is sufficient to close the seal member when the actuation member is in the first actuation position, but the force provided by the securing biasing member prevents the sealing biasing member from closing the seal member when the actuation member is in the second actuation position.

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