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(54) **MULTI-FUNCTION LID ASSEMBLY AND METHOD OF USE**

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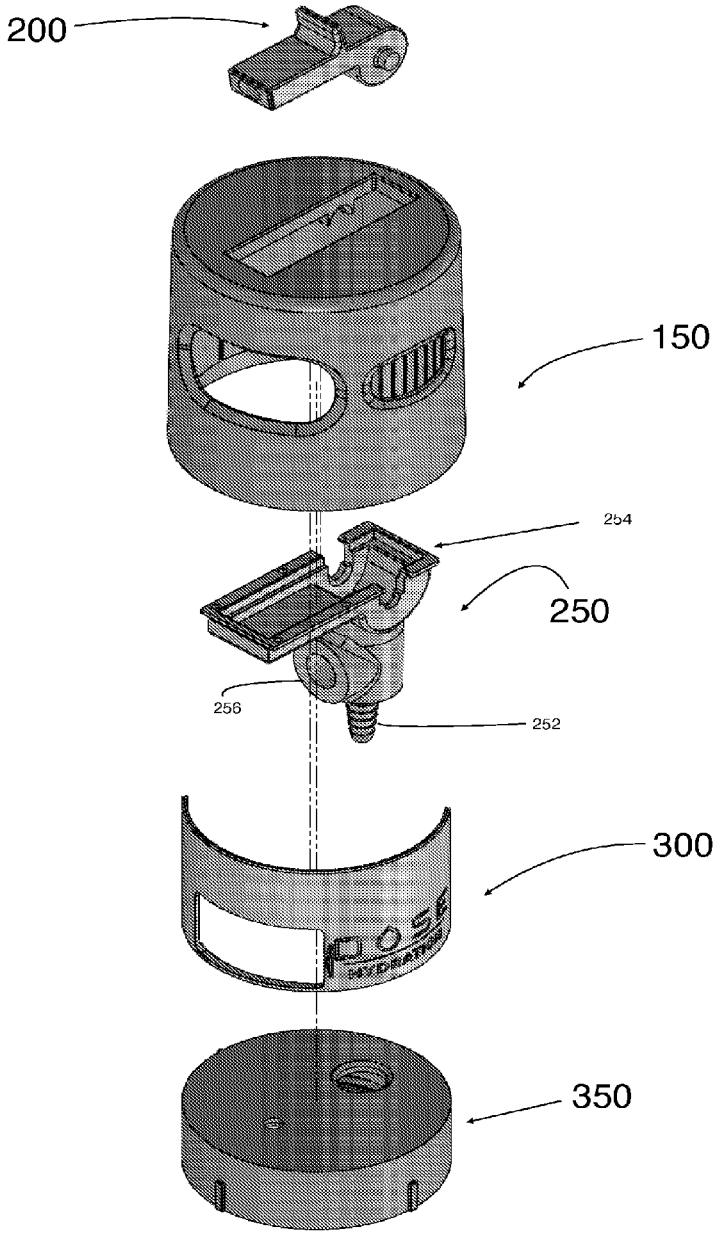
CPC ***B65D 47/263*** (2013.01); ***B65D 47/305*** (2013.01)

(57) **ABSTRACT**

A multi-function lid assembly may have a slideable barrier that when opened by moving the slideable barrier substantially parallel to the lower edge of the multi-function lid assembly exposes a port.



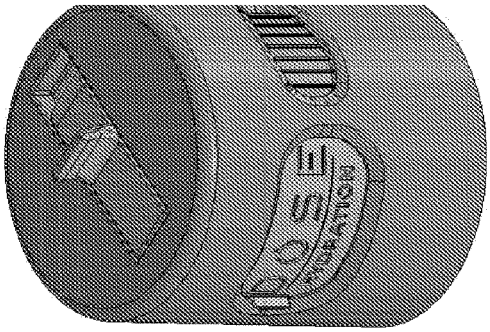


Fig. 1C

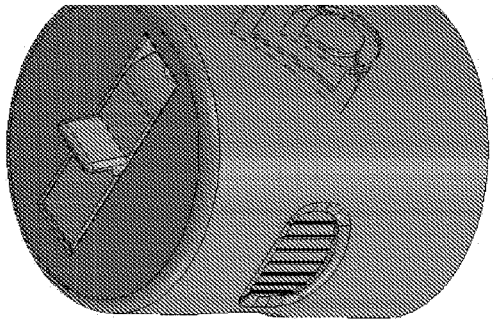


Fig. 1F

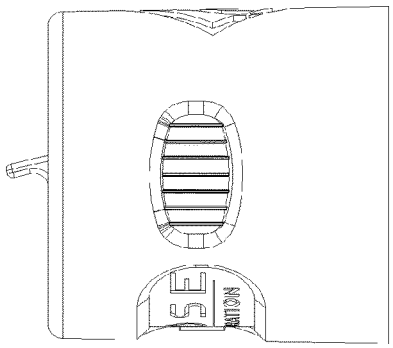


Fig. 1B

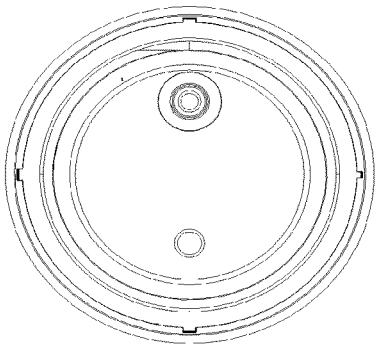


Fig. 1E

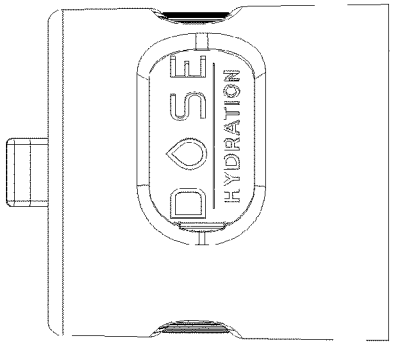


Fig. 1A

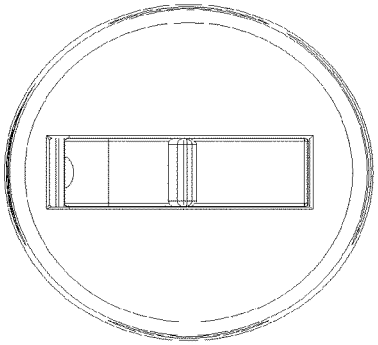


Fig. 1D

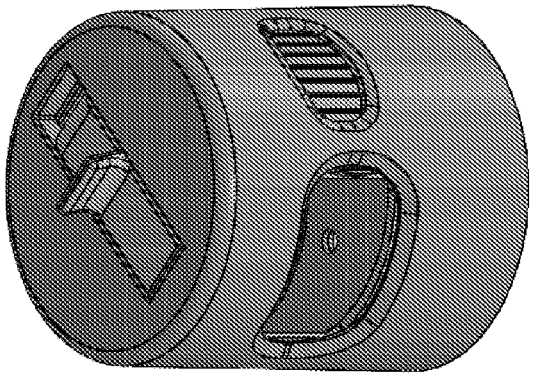


Fig. 2

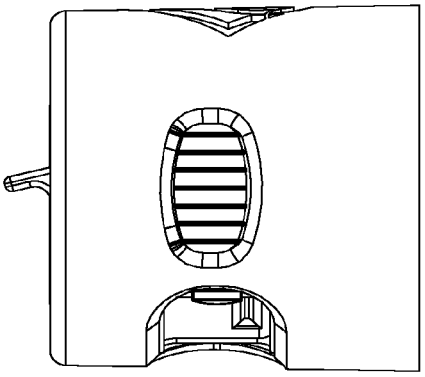


Fig. 3B

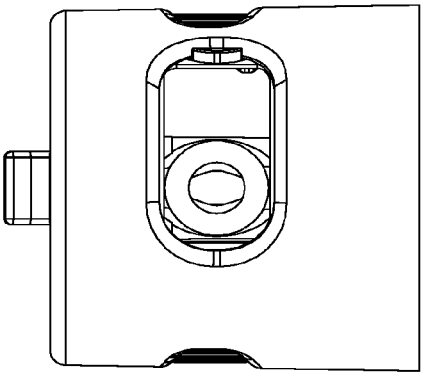


Fig. 3A

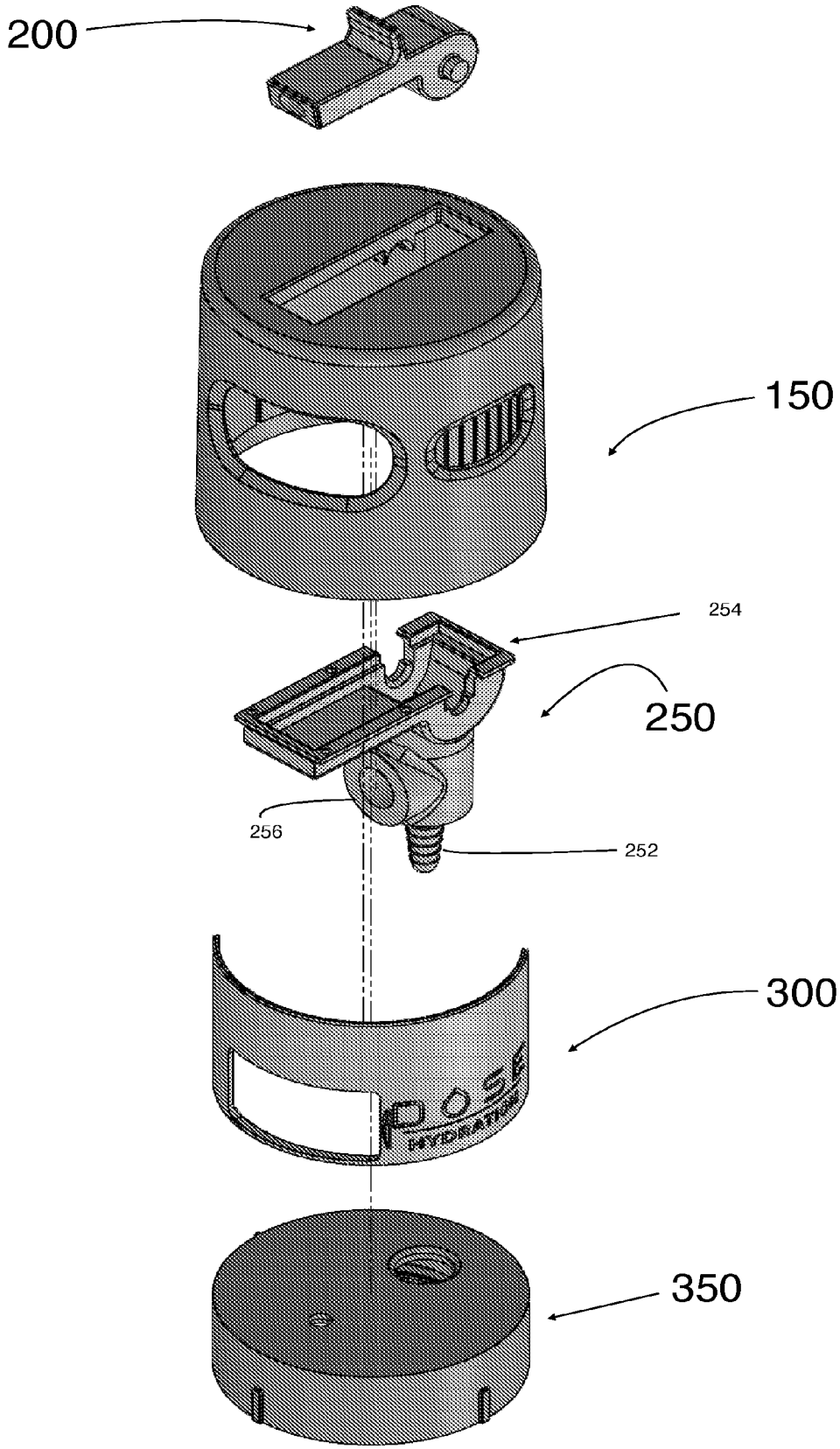


Fig. 4

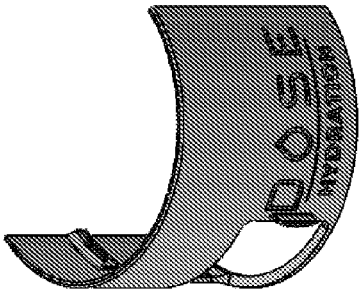


Fig. 5B

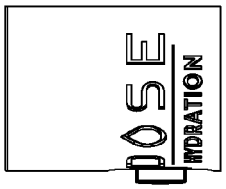


Fig. 5D

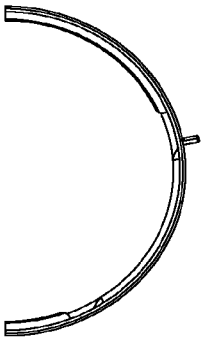


Fig. 5A

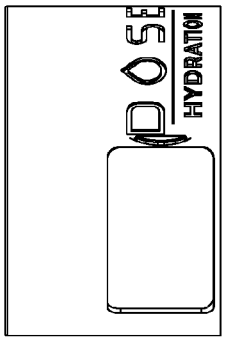


Fig. 5C

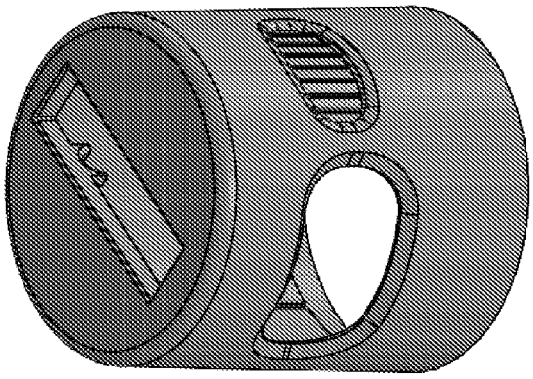


Fig. 6B

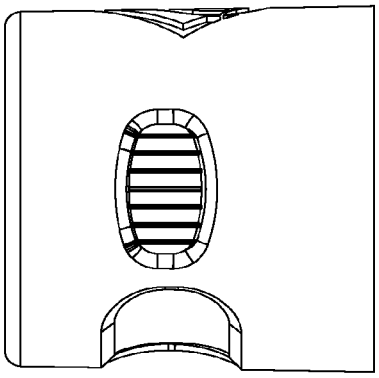


Fig. 6D

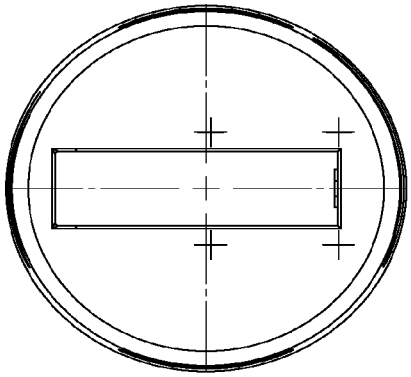


Fig. 6A

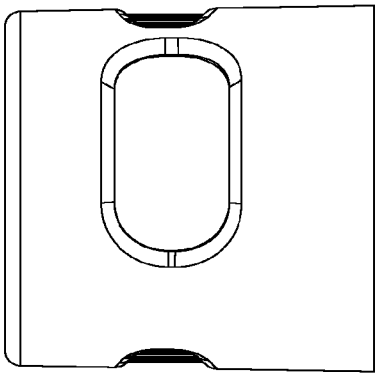


Fig. 6C

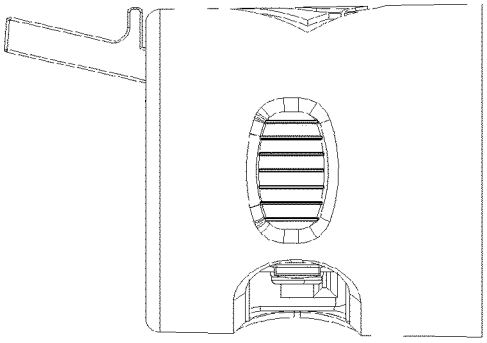


Fig. 8A

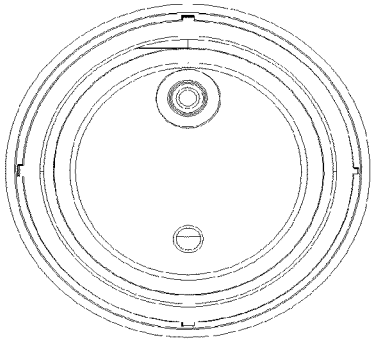


Fig. 8D

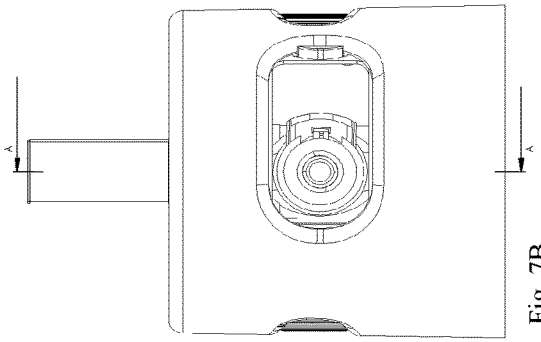


Fig. 7B

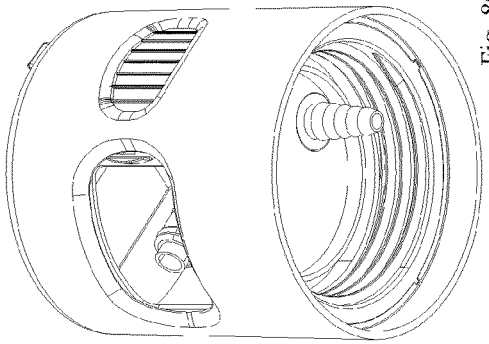


Fig. 8C

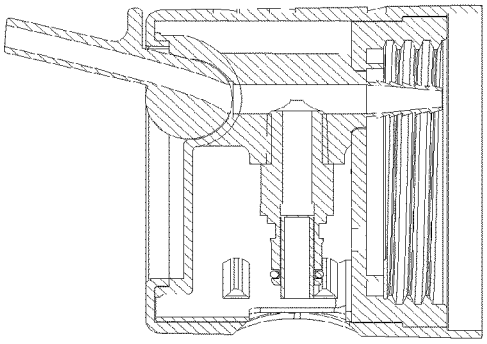


Fig. 7A

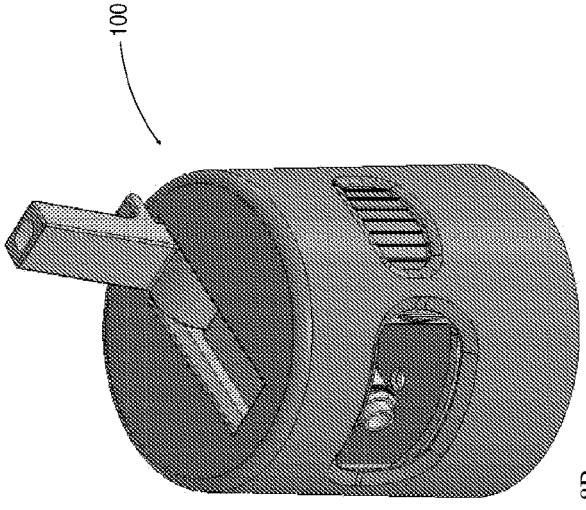


Fig. 8B

MULTI-FUNCTION LID ASSEMBLY AND METHOD OF USE

[0001] This application claims the benefit of, and incorporates by reference, provisional application No. 63/159,982 filed on Mar. 11, 2021.

BACKGROUND OF THE DISCLOSURE

[0002] For some time, people have recognized the need to stay hydrated. Conventionally, many individuals carry drink bottles that contain water or other potable beverages. These bottles are typically formed from plastic or metal and include a cap. Some conventional drink bottles include a threaded or other neck from which a user drinks liquid contained in the drink bottle after removal of the cap. Some conventional drink bottles include a spout, or nozzle, from which the drink liquid may be drawn from the drink bottle without removing the cap of the drink bottle. Conventional spouts typically include a flexible straw or a rigid spout having an outlet through which drink liquid may flow.

[0003] Multiple issues exist with current solutions; a need exists for an apparatus or system that allows a user to quickly switch between drinking through a mouthpiece of a container and drinking through a tube that receives liquid from the container.

SUMMARY OF THE DISCLOSURE

[0004] Some embodiments of a multi-function lid assembly **100**, as disclosed in the present disclosure, are drink container lids that may include a main lid housing **150**, a mouthpiece **200** that may be rotatably coupled to the mouthpiece, a tube connector **250**, a slideable barrier **300** that may be a side covering member, and a threaded base **350**.

[0005] The mouthpiece is adapted to be selectively configured between a dispensing configuration, in which drink liquid may be selectively dispensed through the mouthpiece, and a stowed configuration (closed configuration), in which drink liquid is restricted from being dispensed through the mouthpiece.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] The preferred embodiments of the present invention will be described in conjunction with the appended drawings. Like designations denote like elements, and:

[0007] FIG. **1***a* depicts some embodiments of multi-function lid assembly **100**, from a front view, in which the slideable barrier is in a closed configuration;

[0008] FIG. **1***b* depicts some embodiments of multi-function lid assembly **100**, from a side view;

[0009] FIG. **1***c* depicts some embodiments of multi-function lid assembly **100**, from a front-top-side perspective;

[0010] FIG. **1***d* depicts some embodiments of multi-function lid assembly **100**, from a top view;

[0011] FIG. **1***e* depicts some embodiments of multi-function lid assembly **100**, from a bottom view;

[0012] FIG. **1***f* depicts some embodiments of multi-function lid assembly **100**, from a back-top-side view;

[0013] FIG. **2** depicts some embodiments of multi-function lid assembly **100** except that the tube connector **250**;

[0014] FIG. **3***a* depicts some embodiments of multi-function lid assembly **100**, from a side view in which the slideable barrier has been slid into an open configuration wherein some embodiments of tube connector **250** are exposed;

[0015] FIG. **3***b* depicts some embodiments of a right side view of multi-function lid assembly **100** in which some embodiments of the tube connector **250** are exposed;

[0016] FIG. **4** depicts an exploded view of some embodiments of multi-function lid assembly; referring to tube connector **250**, tube connector **250** may have an upper tray **254** that may be rectangle and may define two slots; tube connector **250** may have an outlet port **256** configured to detachably couple with a quick connect fitting, a push to connect fitting, a tube, or a tube adapted with a coupler; in some embodiments, port **256** includes a detachably coupled or undetachably coupled quick connect fitting. Liquids may travel up through outlet nozzle **252** and through the outlet port **256**. Outlet nozzle **252** may be serrated or may have ridges, which may increase frictional forces between the outlet nozzle **252** and a tube and also may decrease slippage of a tube that may be substantially enclosing or partially enclosing an outward portion of outlet nozzle **252**. Port **256** may be aligned so that the direction that liquid flows outward through the port may be substantially orthogonal to the direction through which outlet nozzle is aligned, as determined by the conduit of outlet nozzle that may transport liquid.

[0017] FIG. **5***a* depicts some embodiments of slideable barrier **300**, from a top view.

[0018] FIG. **5***b* depicts some embodiments of slideable barrier **300**, from a top-front-right side view;

[0019] FIG. **5***c* depicts some embodiments of slideable barrier **300**, from a front view;

[0020] FIG. **5***d* depicts some embodiments of slideable barrier **300**, from a right side view;

[0021] FIG. **6***a* depicts some embodiments of main lid housing **150**, from a top view; main lid housing **150** may have a track configured to receive a slideable barrier **300** and may include one or more flanges that mateably couple with one or more flanges, or one or more edges, of slideable barrier **300**;

[0022] FIG. **6***b* depicts some embodiments of main lid housing **150**, from a top-front-side perspective view;

[0023] FIG. **6***c* depicts some embodiments of main lid housing **150**, from a front view;

[0024] FIG. **6***d* depicts some embodiments of main lid housing **150**, from a right side view;

[0025] FIG. **7***a* depicts some embodiments of multi-function lid assembly **100**, from a cross sectional view in which the sectioning plane is depicted by the line A-A of FIG. **7***b;*

[0026] FIG. **7***b* depicts some embodiments of multi-function lid assembly **100** from a front view;

[0027] FIG. **8***a* depicts some embodiments of multi-function lid assembly **100** from a right side view;

[0028] FIG. **8***b* depicts some embodiments of multi-function lid assembly **100** from a top-front-right side view, in which the mouthpiece is in an open configuration;

[0029] FIG. **8***c* depicts some embodiments of multi-function lid assembly **100** from a front-bottom-right side perspective view; and,

[0030] FIG. **8***d* depicts some embodiments of multi-function lid assembly **100** from a bottom view.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0031] The foregoing description, for purpose of explanation, has been described with reference to specific embodiments. However, the illustrative discussions above are not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated.

[0032] The multi-function lid assembly **100** is configured to provide a drinker, that is a user of the product who desires to drink a liquid, a plurality of dispensing modes: a first dispensing mode via the mouthpiece and a second dispensing mode via a port **256**, which may be a side port, of the tube connector **250**, which may be made of plastic. Tube connector **250** may be branched. Multi-function lid assembly **100** may be adapted to couple with a container, such as a wide mouth water bottle, and with a quick-connect tube, which may allow a drinker to couple the multi-function lid assembly **100** to a container and store the combination of the multi-function lid assembly **100** and the container in a bag, such as a backpack, and dispense liquids from the container coupled to the multi-function lid assembly **100** via a quick-connect tube, that may have a valve in the tube or in the quick-connect fitting of the tube by sliding the slideable barrier to an exposing configuration so as to expose a portion of that tube connector **250**. A drinker may detachably couple a quick connect tube, that is a tube with a quick connect coupler or a push-to-connect fitting. In some embodiments, a drinker slides a door open on the side of the lid and connects a hose via a quick connect fitting that may be detachably or undetachably embedded in or to the lid (preferably in or to the side of the lid). This setup may allow a drinker to place their bottle in their backpack or somewhere else but still have access to drink from it on the go. When the drinker is done with using the tube for drinking, the drinker can disconnect the hose and slide the door shut, then optionally flip up the mouthpiece, which may have spout, that may be detachably or undetachably embedded on or to the top portion or top surface of the lid.

[0033] Mouthpiece **200** may be coupled to a substantially vertical tube that accesses liquid in the container.

[0034] The spout may be configured to allows user to suck on the spout and receive liquids. In some embodiments, the main lid housing **150** may have a base portion **152** that is threaded and may be threadedly coupled to a rim of a container, such as a water bottle; in some embodiments base portion **152** is undetachably coupled to the main lid housing **150**. In the preferred embodiments, threaded base **350** is threaded and may be detachably coupled to both the main lid housing **150** and to a container, such as a water bottle.

[0035] Slideable barrier **300** may be a sliding door that is detachably or undetachably coupled to an inner portion of main lid housing **150**; ridges or connectors undetachably coupled to slideable barrier **300** may allow slideable barrier **300** to be detachably or undetachably coupled to main lid housing **150**.

[0036] Port **256** may allow a drinker to couple a tube, such as a tube with a valve on one end, to the main lid housing **150**, such as via a tube connector **250** that is coupled, or directly coupled, to the main lid housing **150**. Slideable barrier **300** may be slid open, a drinker may then couple a tube, such as via a quick connect fitting, to port **256**, then a drinker may slide slideable barrier **300** into a partially closed configuration such that a quick connect fitting that is coupled to the port **256** may be partially obstructed by slideable barrier **300**, thereby reducing the likelihood that a tube that is connected to the port **256** via a quick connect fitting will be dislodged from being detachably coupled to the port **256**.

[0037] In some embodiments, a tube coupler, which may be branched, may be coupled to the port and also may be coupled to the mouthpiece; in the preferred embodiments, a single tube is coupled to the port **256** and also the mouthpiece **200**; in the preferred embodiments, mouthpiece **200** is set in a closed configuration, thereby sealing off a centralized conduit disposed within the mouthpiece **200** from communication with the outward environment surrounding the main lid housing **150**, which may then allow for a drinker to create a vacuum by sucking on a tube connected to the port **256** and thereby creating a situation in which the difference in air pressure of the air disposed within a tube connecting the tube connector **250** to the liquid reservoir of a container versus the air surrounding a tube connecting the tube connector **250** to the liquid reservoir results in liquid traveling up the tube and out the port, which may be located in the side of the main lid housing **150**. When a user/drinker attempts to drink through a tube coupled to the port **256**.

[0038] The port **256** and the mouthpiece may be each coupled to one or more tubes. The main lid housing **150** may have one or more channels that may or may not be communicatively coupled to each other. One channel may be for the port that may be coupled to a quick connect fitting; a second channel may be for the transport of fluids to and through the mouthpiece. In some embodiments, a quick connect fitting is undetachably coupled to the main lid housing **150**, which may be to an opening defined by a portion of main lid housing **150**. There may be gaskets. Various materials may be used for the various parts; in some preferred embodiments some of the components of multi-function lid assembly **100** are made of BPA-free plastic.

1. A method for using a multi-function lid assembly, comprising:

providing a multi-function lid assembly comprising

a main lid housing comprising a base portion, a slideable barrier, and a port; the main lid housing further comprising an inner portion; wherein the slideable barrier is coupled to the inner portion of the main lid housing; and,

manually sliding the slideable barrier in a substantially horizontal direction so as to expose the port.

* * * * *