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(54) **BEVERAGE CONTAINER LID ASSEMBLY**

(57) One or more beverage container lid assemblies are provided that is configured to enclose a beverage within a beverage container. The lid assemblies selectively actuate between closed and open positions. In the open position the beverage within the beverage container is accessible, and in the closed position the beverage is enclosed within the beverage container.

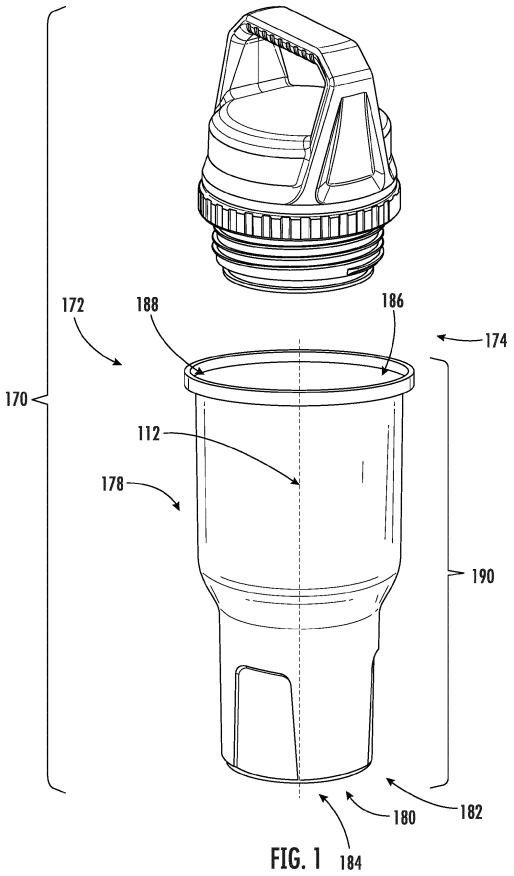

FIG. 1

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Description

CROSS-REFERENCE TO RELATED PATENT APPLICATIONS

[0001] The present application claims the benefit of and priority to U.S. Application No. 63/479,650 filed on January 12, 2023, and U.S. Application No. 63/386,361 filed on December 7, 2022, each of which is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] The present disclosure is directed generally to containers and related devices. The present disclosure relates specifically to various lid assemblies for beverage container.

SUMMARY OF THE INVENTION

[0003] Various embodiments relate to lid assemblies with improved performance characteristics, such as improved insulation, reduced condensation, improved sealing, and venting features.

[0004] One embodiment of the invention relates to a container assembly including a bottom panel that defines a bottom-most surface, a rotational axis around which the bottom panel is centered, a wall extending upwardly from the bottom panel and the wall extending around the rotational axis, a lid centered on the rotational axis, a first helical threading extending from the lower portion of the lid away from the rotational axis, a second helical threading extending from the upper portion of the lid away from the rotational axis, and a cover centered on the rotational axis. The wall and bottom panel collectively partially define a storage compartment, and the wall defines an upper opening opposite the bottom panel. The lid includes a lower portion and an upper portion above the lower portion. The lid includes a drinking aperture providing fluid communication between the storage compartment and an exterior of the wall. The first helical threading is configured to detachably engage the lid to the wall, and the lid threadably engages with the wall via the first helical threading. The cover includes an inner wall, an outer wall, and a third helical threading. The third helical threading extends from the inner wall towards the rotational axis and engages with the second helical threading to couple the cover to the lid. The cover seals the drinking aperture when the cover is coupled to the lid. The inner wall is radially closer to the rotational axis than the outer wall. The cover includes one or more chambers defined at least in part by the inner wall and the outer wall. The one or more chambers provide thermal insulation between the inner wall and the outer wall.

[0005] Another embodiment of the invention relates to a container assembly including a bottom panel that defines a bottom-most surface, a rotational axis around which the bottom panel is centered, a wall extending upwardly from the bottom panel and the wall extending around the rotational axis, a lid centered on the rotational axis and detachably engaged with a drinking container, a first helical threading extending from the lid away from the rotational axis, a second helical threading extending from the lid distinct from the first helical threading, a gasket coupled to the lid, and a cover centered on the rotational axis. The wall and bottom panel collectively partially define a storage compartment. The wall defines an upper opening opposite the bottom panel. The lid includes a first drinking aperture and a first venting aperture. The first drinking aperture and the first venting aperture provide fluid communication between the storage compartment and an exterior of the wall. The first helical threading are configured to detachably engage the lid to the wall. The lid threadably engages with the wall via the first helical threading. The second helical threading extends away from the rotational axis. The cover includes an outer wall, an upper wall, and a third helical threading extending from the outer wall towards the rotational axis and engaging with the second helical threading to couple the cover to the lid. The upper wall includes a second drinking aperture and a second venting aperture. The cover actuates between an open position and a closed position. When the cover is in the open position the first drinking aperture and the first venting aperture are in fluid communication with the second drinking aperture and the second venting aperture, respectively, and when the cover is in the closed position the second drinking aperture and the second venting aperture are interfacing with and sealed by the gasket.

[0006] Another embodiment of the invention relates to a container assembly including a bottom panel that defines a bottom-most surface, a rotational axis around which the bottom panel is centered, a wall extending upwardly from the bottom panel and the wall extending around the rotational axis, a lid centered on the rotational axis and detachably engaged with a drinking container, a helical threading extending from the lid away from the rotational axis, a gasket coupled to the lid, and a cover centered on the rotational axis. The wall and bottom panel collectively partially define a storage compartment. The wall defines an upper opening opposite the bottom panel. The lid includes a first drinking aperture and a first venting aperture. The first drinking aperture and the first venting aperture provide fluid communication between a storage compartment in the drinking container and an exterior of the drinking container. The helical threading is configured to detachably engage the lid to the wall. The lid threadably engages with the wall via the helical threading. The cover includes an outer wall and an upper wall extending from the outer wall towards the rotational axis. The cover is detachably coupled to the lid. The upper wall includes a second drinking aperture, a first protrusion extending towards the gasket and circumferentially surrounding the second drinking aperture, a second venting aperture, and a second protrusion extending towards the gasket and circumferentially surrounding the second venting aper-

ture. The cover actuates between an open position and a closed position. When the cover is in the open position the first drinking aperture and the first venting aperture are in fluid communication with the second drinking aperture and the second venting aperture, respectively, and when the cover is in the closed position the first protrusion is interfacing with the gasket to seal the second drinking aperture and the second protrusion is interfacing with the gasket to seal the second venting aperture.

[0007] Another embodiment of the invention relates to a lid assembly including a rotational axis, a lid centered on the rotational axis, a first helical threading extending from a lower portion of the lid away from the rotational axis, a second helical threading extending from an upper portion of the lid that is above the lower portion, and a cover centered on the rotational axis. The first helical threading is configured to detachably engage the lid to a wall of a drinking container. The lid includes a drinking aperture providing fluid communication between a storage compartment in the drinking container and an exterior of the lid. The second helical threading extends from the upper portion away from the rotational axis. The cover includes an inner wall, an outer wall, and a third helical threading. The third helical threading extends from the inner wall towards the rotational axis and engages with the second helical threading to couple the cover to the lid. The cover seals the drinking aperture when the cover is coupled to the lid. The inner wall is radially closer to the rotational axis than the outer wall. The cover defines one or more pockets (e.g., air pockets) between the inner wall and the outer wall, the one or more pockets providing thermal insulation between the inner wall and the outer wall.

[0008] In various embodiments, the cover includes a plurality of support walls radially extending from the inner wall to the outer wall with respect to the rotational axis. Each of the one or more pockets is defined at least in part by one or more of the plurality of support walls.

[0009] Another embodiment of the invention relates to a lid assembly including a rotational axis, a lid centered on the rotational axis and detachably engaged with a drinking container, a first helical threading extending from a lower portion of the lid away from the rotational axis, a second helical threading extending from an upper portion of the lid above the lower portion, a gasket coupled to the lid, and a cover centered on the rotational axis. The lid includes a first drinking aperture and a first venting aperture. The first drinking aperture and the first venting aperture provide fluid communication between a storage compartment in the drinking container and an exterior of the lid. The first helical threading is configured to detachably engage the lid to a wall of the drinking container. The second helical threading extends from the upper portion away from the rotational axis. The cover includes an outer wall, an upper wall, and a third helical threading extending from the outer wall towards the rotational axis, the third helical threading engaging with the second helical threading to couple the cover to the lid. The upper wall includes a second drinking aperture and a second venting aperture. The cover actuates between an open position and a closed position such that when the cover is in the open position the first drinking aperture and the first venting aperture are in fluid communication with the second drinking aperture and the second venting aperture, respectively, and when the cover is in the closed position the second drinking aperture and the second venting aperture are interfacing with and sealed by the gasket.

[0010] Another embodiment of the invention relates to a lid assembly including a rotational axis, a lid centered on the rotational axis and detachably engaged with a drinking container, a helical threading extending from a lower portion of the lid away from the rotational axis, the helical threading configured to detachably engage the lid to a wall of the drinking container, a gasket coupled to the lid, and a cover centered on the rotational axis. The lid includes a first drinking aperture and a first venting aperture. The first drinking aperture and the first venting aperture provide fluid communication between a storage compartment in the drinking container and an exterior of the lid. The cover includes an outer wall and an upper wall extending from the outer wall towards the rotational axis. The cover detachably couples to the lid. The upper wall includes a second drinking aperture, a first protrusion extending circumferentially around the second drinking aperture and towards the gasket, a second venting aperture, and a second protrusion extending circumferentially around the second venting aperture and towards the gasket. The cover actuates between an open position and a closed position such that when the cover is in the open position the first drinking aperture and the first venting aperture are in fluid communication with the second drinking aperture and the second venting aperture, respectively, and when the cover is in the closed position the second drinking aperture and the second venting aperture are interfacing with and sealed by the gasket.

[0011] In various embodiments, the gasket includes a third drinking aperture and a third venting aperture. When the cover is in the open position the first drinking aperture is in fluid communication with the second drinking aperture via the third drinking aperture, and the first venting aperture is in fluid communication with the second venting aperture via the third venting aperture.

[0012] Additional features and advantages will be set forth in the detailed description which follows, and, in part, will be readily apparent to those skilled in the art from the description or recognized by practicing the embodiments as described in the written description included, as well as the appended drawings. It is to be understood that both the foregoing general description and the following detailed description are exemplary.

[0013] The accompanying drawings are included to provide further understanding and are incorporated in and constitute a part of this specification. The drawings illustrate one or more embodiments and, together with the description, serve to explain principles and operation

of the various embodiments. In addition, alternative exemplary embodiments relate to other features and combinations of features as may be generally recited in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] This application will become more fully understood from the following detailed description, taken in conjunction with the accompanying figures, wherein like reference numerals refer to like elements in which:

FIG. 1 is a perspective view of a container assembly including a lid assembly, according to an exemplary embodiment.
FIG. 2 is a perspective view of the lid assembly of FIG. 1 , according to an exemplary embodiment.
FIG. 3 is a side view of the lid assembly of FIG. 1, according to an exemplary embodiment.
FIG. 4 is a front view of the lid assembly of FIG. 1, according to an exemplary embodiment.
FIG. 5 is an exploded view of the lid assembly of FIG. 1, according to an exemplary embodiment.
FIG. 6 is a perspective view of the lid of the lid assembly of FIG. 1, according to an exemplary embodiment.
FIG. 7 is a perspective view of the cover of the lid assembly of FIG. 1, according to an exemplary embodiment.
FIG. 8 is a cross-section view of the lid assembly of FIG. 1, according to an exemplary embodiment.
FIG. 9 is a perspective view from above of a lid assembly for a drinking container, according to another exemplary embodiment.
FIG. 10 is a perspective view from below of the lid assembly of FIG. 9, according to an exemplary embodiment.
FIG. 11 is a perspective view of the lid and a first gasket of the lid assembly of FIG. 9, according to an exemplary embodiment.
FIG. 12 is a perspective view from below of the cover and a second gasket of the lid assembly of FIG. 9, according to an exemplary embodiment.
FIG. 13 is a cross-section view of the second lid assembly of FIG. 9, according to an exemplary embodiment.
FIG. 14 is a perspective view of a lid assembly for a drinking container, according to another exemplary embodiment.
FIG. 15 is a perspective view from below of the lid assembly of FIG. 14, according to an exemplary embodiment.
FIG. 16 is an exploded view of the lid assembly of FIG. 14, according to an exemplary embodiment.
FIG. 17 is a perspective view of the lid and a gasket of the lid assembly of FIG. 14, according to an exemplary embodiment.
FIG. 18 is a perspective view of the lid and the gasket of the lid assembly of FIG. 17, according to an exemplary embodiment.
FIG. 19 is a perspective view from below of the cover of the lid assembly of FIG. 14, according to an exemplary embodiment.
FIG. 20 is a cross-section view of the lid assembly of FIG. 14, according to an exemplary embodiment.

DETAILED DESCRIPTION

[0015] Referring generally to the figures, various embodiments of lid assemblies for beverage containers are shown. The lid assemblies are designed to selectively actuate between an open position and a closed position. In the open position, the beverage is accessible, for example, for a user to drink. In the closed position, the beverage is enclosed within the beverage container, thereby protecting the beverage from spilling out of the container. Various lid assemblies described herein engage against the container and include covers that selectively seal one or both of the apertures in the lid, thereby sealing the contents of the container within the storage compartment. Various lid assemblies described herein include thermal insulation, such as via chambers, between the inner wall and outer wall, thereby reducing condensation on an exterior of the lid assemblies.

[0016] Referring to FIGS. 1-8, various aspects of container assembly 170 including container 172 and lid assembly 110 are shown. Container assembly 170 includes bottom panel 182 that defines a bottom-most surface 184, a rotational axis 112 around which bottom panel 182 is centered, a wall 178 extending upwardly from the bottom panel 182, a lid 120 centered on the rotational axis 112, first helical threading 124 extending from a lower portion 122 of the lid 120 away from rotational axis 112, second helical threading 128 extending from an upper portion 126 of lid 120 away from rotational axis 112, and a cover 150 centered on the rotational axis 112 and coupled to the lid 120.

[0017] In various embodiments, container 172 includes bottom panel 182 defining a bottom-most surface 184, wall 178 extending around rotational axis 112 (e.g., extending circumferentially) and extending upwardly from bottom panel 182, and storage compartment 186. Wall 178 and bottom 182 collectively partially define storage compartment 186. Wall 178 defines upper opening 188 opposite bottom panel 182. Upper opening 188 provides fluid communication for contents within storage compartment 186 (e.g., liquids) to be moved to exterior 174 of container 172. Body 190 of container 172 includes bottom panel 182 and wall 178. In various embodiments, container 172 includes coupling component 180 (e.g., ledges) configured to couple container 172 to a cleat in a Milwaukee PACKOUT® modular storage unit. In a specific embodiment, coupling component 180 is compatible with the coupling mechanism(s) described in International Patent Publication No. WO 2017/191628, which is incorporated herein by reference in its entirety.

[0018] Lid assembly 110 includes rotational axis 112, lid 120, and cover 150 centered on the rotational axis 112. Lid 120 is engaged with a drinking container. Lid 120 includes lower portion 122 and upper portion 126 above the lower portion 122, lid 120 including drinking aperture 130 providing fluid communication between storage compartment 186 and exterior 174 of wall 178. Lid assembly 110 includes first helical threading 124 extending from a lower portion 122 of the lid 120 away from the rotational axis 112. In various embodiments, the thread pattern of first helical threading 124 permits the lid assembly 110 to couple to a variety of bottles. First helical threading 124 is configured to detachably engage the lid 120 to wall 178 of container 172, lid 120 threadably engaging wall 178 via the first helical threading 124. The lid 120 further includes a drinking aperture 130 providing fluid communication between a storage compartment 186 in the drinking container 172 and an exterior of the lid 120 (and drinking container 172).

[0019] Lid assembly 110 includes second helical threading 128 extending from an upper portion 126 of the lid 120 that is above the lower portion 122. Second helical threading 128 extends from the upper portion 126 away from the rotational axis 112.

[0020] Cover 150 includes inner wall 152, outer wall 154, and third helical threading 156. Third helical threading 156 extends from the inner wall 152 towards the rotational axis 112 and engages with the second helical threading 128 (of lid 120) to couple the cover 150 to the lid 120. Cover 150 seals the drinking aperture 130 when the cover 150 is coupled to the lid 120. Inner wall 152 is radially closer to the rotational axis 112 than outer wall 154. Cover 150 includes one or more chambers 158 defined at least in part by inner wall 152 and the outer wall 154. The one or more chambers 158 provide thermal insulation between the inner wall 152 and the outer wall 154. In various embodiments, chambers 158 (e.g., air pockets, vacuum(s) and/or volumes of reduced pressure) help insulate the cap and reduce condensation. In various embodiments, cover includes handle 162 extending upward away from lid 120, handle 162 configured to be grasped by a user to carry cover 150 (and by extension lid 120 and container 172).

[0021] In various embodiments, cover 150 includes a plurality of support walls 160 extending from the inner wall 152 to the outer wall 154. In various embodiments, plurality of support walls 160 extend radially with respect to the rotational axis 112. Each of the one or more chambers 158 is defined at least in part by one or more of the plurality of support walls 160, as well as the inner wall 152 and the outer wall 154. In various embodiments, at least one of the one or more chambers 158 are defined at least in part by one or more of the plurality of support walls 160.

[0022] Referring to FIG. 5, lid 120 includes an annular wall 134 that extends radially away from the rotational axis 112, and the annular wall 134 is between the upper portion 126 and the lower portion 122, and the annular wall 134 extends radially further from the rotational axis 112 than each of upper portion 126 and the lower portion 122. In various embodiments, lid 120 includes annular wall 134 that extends radially away from rotational axis 112, and the annular wall 134 is between the first helical threading 124 and the second helical threading 128, and the annular wall 134 extends radially further from the rotational axis 112 than each of first helical threading 124 and the second helical threading 128.

[0023] Referring to FIG. 6, upper portion 126 of lid 120 includes a first cylindrical wall 132 extending away from lower portion 122 of lid 120, and the first cylindrical wall 132 defines the drinking aperture 130. In various embodiments, the first cylindrical wall 132 circumferentially surrounds the drinking aperture 130.

[0024] Referring to FIG. 8, cover 150 includes a second cylindrical wall 164 that interfaces with the first cylindrical wall 132 to seal the drinking aperture 130 when the cover 150 is coupled to the lid 120. In various embodiments, cover 150 includes a recess 166 that extends circumferentially around the rotational axis 112, and the recess 166 receives the first cylindrical wall 132 to seal the drinking aperture 130 when the cover 150 is coupled to the lid 120.

[0025] Referring to FIGS. 9-13, various aspects of lid assembly 210 are shown. Lid assembly 210 is substantially the same as lid assembly except for the differences discussed herein. Lid assembly 210 can be coupled to and engaged with container 172 of container assembly 170 in place of lid assembly 110.

[0026] Lid assembly 210 includes rotational axis 212, first helical threading 224 extending from a lower portion 222 of the lid 220 away from the rotational axis 212, second helical threading 228 extending from an upper portion 226 of the lid 220 above the lower portion 222 and distinct from first helical threading 224, gasket 280 coupled to lid 220, and cover 250 centered on rotational axis 212. First helical threading 224 is configured to detachably engage lid 220 to a wall of a container (e.g., wall 178 of container 172). Second helical threading 228 extends away from rotational axis 212.

[0027] Lid 220 is centered on rotational axis 212 and detachably engaged with a drinking container (e.g., container 172). Lid 220 includes first drinking aperture 230 and first venting aperture 232, the first drinking aperture 230 and the first venting aperture 232 providing fluid communication between a storage compartment in the drinking container and an exterior of the wall of the container (e.g., wall 178 of container 172).

[0028] In various embodiments, lid assembly 210 includes gasket 290 (e.g., a ring gasket) and gasket 280 (e.g., a bowtie gasket). Gasket 290 prevents leaks in the open position and both gaskets 280, 290 prevent leaking in the closed position. In various embodiments, lid assembly 210 includes gasket 290 coupled to lid 220.

[0029] In various embodiments, the lid 220 and cover 250 are coupled together so that the more the lid 220 is twisted with respect to the cover 250, the more pressure

is applied to the gaskets 280, 290.

[0030] Lid 20 includes an annular wall 238 that extends radially away from the rotational axis 212, and the annular wall 238 is between the upper portion 226 and the lower portion 222, and the annular wall 238 extends radially further from the rotational axis 212 than each of upper portion 226 and the lower portion 222.

[0031] Cover 250 includes an outer wall 252, an upper wall 256, and third helical threading 254 extending from the outer wall 252 towards the rotational axis 212 and engaging with second helical threading 228 of lid 220 to couple the cover 250 to the lid 220. The upper wall 256 includes second drinking aperture 258 and second venting aperture 260. The cover 250 actuates between an open position and a closed position such that when the cover 250 is in the open position first drinking aperture 230 and first venting aperture 232 are in fluid communication with second drinking aperture 258 and second venting aperture 260, respectively, and when the cover 250 is in the closed position second drinking aperture 258 and second venting aperture 260 are interfacing with and sealed by the gasket 280.

[0032] In various embodiments, the threads (e.g., first helical threading 224) include a step to prevent over-torquing of the lid 220 and the drinking container. This step threading can facilitate removing the lid 220 when the lid 220 is tightly coupled to the drinking container compared to threads that do not include a step.

[0033] Referring to FIG. 10, in various embodiments, lid 220 includes lower surface 236 that partially encloses the storage compartment of the drinking container when lid 220 is coupled to the drinking container.

[0034] Referring to FIG. 11, gasket 280 includes central portion 282 centered on rotational axis 212, first projection 284 extending from central portion 282 radially away from rotational axis 212, and second projection 286 extending from central portion 282 radially away from rotational axis 212 and first projection 284. Gasket 280 extends along primary longitudinal axis 288. In various embodiments, primary longitudinal axis 288 bisects first projection 284 and/or second projection 286.

[0035] In various embodiments, the gasket extends 280 along a primary longitudinal axis 288 such that the first projection 284 defines a width 289 perpendicular to the primary longitudinal axis 288, the central portion 282 defines a width 283 perpendicular to the primary longitudinal axis 288 that is narrower than the width 289 of the first projection 284, and the second projection 286 defines a width 289 perpendicular to the primary longitudinal axis 288 that is wider than the width 283 of the central portion 282. In various embodiments, width 289 of first projection 284 is equal to width 289 of second projection 286. In this arrangement, sidewalls 281 of gasket 280 extend outward from central portion 282 to outer wall 285 of first projection 284 and outer wall 287 of second projection 286. Stated another way, width of gasket 280 (e.g., perpendicular to longitudinal axis 288) increases between the sidewalls 281 the further that gasket 280 is from the center (e.g., axis 212). In various embodiments, outer wall 285 of first projection 284 and outer wall 287 of second projection 286 extend circumferentially around axis 212.

[0036] In various embodiments, first projection 284 includes first channel 277 that extends circumferentially around axis 212, and second projection 286 includes second channel 279 that extends circumferentially around axis 212. In various embodiments, first channel 277 is concentric with respect to outer wall 285 of first projection 284, and second channel 279 is concentric with respect to outer wall 287 of second projection 286.

[0037] Referring to FIGS. 14-20, various aspects of lid assembly 310 are shown. Lid assembly 310 is substantially the same as lid assembly 210 or lid assembly 110 except for the differences discussed herein. Lid assembly 310 can be coupled to and engaged with container 172 of container assembly 170 in place of lid assembly 110.

[0038] Lid assembly 310 includes rotational axis 312, helical threading 322 extending from a lower portion 336 of the lid 320 away from the rotational axis 312, the helical threading 322 configured to detachably engage the lid 320 to a wall of the drinking container (e.g., wall 178 of container 172), the lid 320 threadably engaging with the wall via the helical threading 322, gasket 380 coupled to the lid 320, and cover 350 centered on the rotational axis 312. Lid 320 is centered on the rotational axis 312 and detachably engaged with a drinking container 172. Lid 320 includes first drinking aperture 328 and first venting aperture 330. First drinking aperture 328 and first venting aperture 330 provide fluid communication between a storage compartment in the drinking container (e.g., storage compartment 186 of container 172) and an exterior of the container (e.g., container 172).

[0039] Cover 350 includes an outer wall 352 and an upper wall 356 extending from the outer wall 352 towards the rotational axis 312. Cover 350 is detachably coupled to the lid 320, the upper wall 356 including second drinking aperture 360, first protrusion 362 extending towards the gasket 380 and circumferentially around second drinking aperture 360, second venting aperture 364, and second protrusion 366 extending towards the gasket 380 and circumferentially around second venting aperture 364. Cover 350 actuates between an open position and a closed position such that when cover 350 is in the open position first drinking aperture 328 and first venting aperture 330 are in fluid communication with second drinking aperture 360 and second venting aperture 364, respectively, and when the cover 350 is in the closed position the first protrusion 362 is interfacing with the gasket 380 to seal the second drinking aperture 360 and the second protrusion 366 is interfacing with the gasket 380 to seal the second venting aperture 364.

[0040] Referring to FIG. 15, in various embodiments, lid 320 includes lower surface 326 that partially encloses the storage compartment of the drinking container when lid 320 is coupled to the drinking container.

[0041] Referring to FIGS. 17-19, in various embodi-

ments cover 350 is keyed to the lid 320 (e.g., the coupling is not a threaded coupling). Lid 320 includes vertical channels 334 (e.g., four vertical channels 334 in two pairs of two) and a locking projection 332 between the vertical channels 334 in the pair of vertical channels 334.

[0042] In various embodiments, cover 350 includes projections (e.g., locking projections 358 and/or securing projections 370) that extend radially away from the rotational axis 312, the lid 320 includes lateral channels 324 that circumferentially extend around the lid 320 with respect to the rotational axis 312, and the projections (e.g., locking projections 358 and/or securing projections 370) slide within the lateral channels 324 when the cover 350 actuates between the open position and the closed position with respect to the lid 320. In various embodiments, cover 350 includes locking projections 358 and securing projections 370 extending from inner wall 354 radially away from rotational axis 312. Lower wall 368 extends between outer wall 352 and inner wall 354. When securing cover 350 to lid 320, locking projections 358 and securing projections 370 are inserted in vertical channels 334. Then, cover 350 is rotated relative to lid 320 such that locking projections 358 rotate over and past locking projection 332 until both locking projections 358 and securing projections 370 are secured within lateral channels 324 of lid 320. The interface between locking projections 332 of lid 320 and locking projections 358 of cover 350 biases cover 350 to remain coupled to lid 320.

[0043] In various embodiments, gasket 380 is between the lid 320 and the cover 350 and there is constant pressure on gasket 380. Cover 350 includes an axially extending rim or lip, shown as first protrusion 362, surrounding the perimeter of second drinking aperture 360 and extending towards the gasket 380. Cover 350 includes an axially extending rim or lip, shown as second protrusion 366, surrounding the perimeter of second venting aperture 364 and extending towards the gasket 380. In this arrangement, first protrusion 362 extends around second drinking aperture 360 and second protrusion 366 extends around second venting aperture 364 apply pressure from cover 350 to lid 320 via gasket 380. In various embodiments, the pressure between the lid 320 and cover 350 is the same in the open and closed positions.

[0044] In various embodiments, gasket 380 includes third drinking aperture 382 and third venting aperture 384. When cover 350 is in the open position, first drinking aperture 328 is in fluid communication with second drinking aperture 360 via third drinking aperture 382, and first venting aperture 330 is in fluid communication with second venting aperture 364 via third venting aperture 384.

[0045] To move the lid assembly 310 to the open position, the first drinking aperture 328 in the lid 320 is aligned with the second drinking aperture 360 in cover 350, and the first venting aperture 330 in lid 320 is aligned with the second venting aperture 364 in cover 350.

[0046] It should be understood that the figures illustrate the exemplary embodiments in detail, and it should be understood that the present application is not limited to the details or methodology set forth in the description or illustrated in the figures. It should also be understood that the terminology is for description purposes only and should not be regarded as limiting.

[0047] Further modifications and alternative embodiments of various aspects of the disclosure will be apparent to those skilled in the art in view of this description. Accordingly, this description is to be construed as illustrative only. The construction and arrangements, shown in the various exemplary embodiments, are illustrative only. Although only a few embodiments have been described in detail in this disclosure, many modifications are possible (e.g., variations in sizes, dimensions, structures, shapes and proportions of the various elements, values of parameters, mounting arrangements, use of materials, colors, orientations, etc.) without materially departing from the novel teachings and advantages of the subject matter described herein. Some elements shown as integrally formed may be constructed of multiple parts or elements, the position of elements may be reversed or otherwise varied, and the nature or number of discrete elements or positions may be altered or varied. The order or sequence of any process, logical algorithm, or method steps may be varied or re-sequenced according to alternative embodiments. Other substitutions, modifications, changes and omissions may also be made in the design, operating conditions and arrangement of the various exemplary embodiments without departing from the scope of the present disclosure.

[0048] Unless otherwise expressly stated, it is in no way intended that any method set forth herein be construed as requiring that its steps be performed in a specific order. Accordingly, where a method claim does not actually recite an order to be followed by its steps or it is not otherwise specifically stated in the claims or descriptions that the steps are to be limited to a specific order, it is in no way intended that any particular order be inferred. In addition, as used herein, the article "a" is intended to include one or more component or element, and is not intended to be construed as meaning only one. As used herein, "rigidly coupled" refers to two components being coupled in a manner such that the components move together in a fixed positional relationship when acted upon by a force.

[0049] Various embodiments of the disclosure relate to any combination of any of the features, and any such combination of features may be claimed in this or future applications. Any of the features, elements or components of any of the exemplary embodiments discussed above may be utilized alone or in combination with any of the features, elements or components of any of the other embodiments discussed above.

[0050] For purposes of this disclosure, the term "coupled" means the joining of two components directly or indirectly to one another. Such joining may be stationary in nature or movable in nature. Such joining may be achieved with the two members and any additional intermediate members being integrally formed as a single uni-

tary body with one another or with the two members or the two members and any additional member being attached to one another. Such joining may be permanent in nature or alternatively may be removable or releasable in nature.

[0051] While the current application recites particular combinations of features in the claims appended hereto, various embodiments of the invention relate to any combination of any of the features described herein whether or not such combination is currently claimed, and any such combination of features may be claimed in this or future applications. Any of the features, elements, or components of any of the exemplary embodiments discussed above may be used alone or in combination with any of the features, elements, or components of any of the other embodiments discussed above.

[0052] In various exemplary embodiments, the relative dimensions, including angles, lengths and radii, as shown in the Figures are to scale. Actual measurements of the Figures will disclose relative dimensions, angles and proportions of the various exemplary embodiments. Various exemplary embodiments extend to various ranges around the absolute and relative dimensions, angles and proportions that may be determined from the Figures. Various exemplary embodiments include any combination of one or more relative dimensions or angles that may be determined from the Figures. Further, actual dimensions not expressly set out in this description can be determined by using the ratios of dimensions measured in the Figures in combination with the express dimensions set out in this description.

Claims

1. A container assembly comprising:

a bottom panel that defines a bottom-most surface;
a rotational axis around which the bottom panel is centered;
a wall extending upwardly from the bottom panel, the wall extending around the rotational axis, the wall and bottom panel collectively partially defining a storage compartment, the wall defining an upper opening opposite the bottom panel;
a lid centered on the rotational axis, the lid comprising a lower portion and an upper portion above the lower portion, the lid comprising a drinking aperture providing fluid communication between the storage compartment and an exterior of the wall;
a first helical threading extending from the lower portion of the lid away from the rotational axis, the lid threadably engaging with the wall via the first helical threading;
a second helical threading extending from the upper portion of the lid away from the rotational axis; and
a cover centered on the rotational axis and comprising an inner wall, an outer wall, and a third helical threading, the third helical threading extending from the inner wall towards the rotational axis and engaging with the second helical threading to couple the cover to the lid, the cover sealing the drinking aperture when the cover is coupled to the lid, the inner wall radially closer to the rotational axis than the outer wall, the cover comprising one or more chambers defined at least in part by the inner wall and the outer wall, the one or more chambers providing thermal insulation between the inner wall and the outer wall.

2. The container assembly of claim 1, the cover comprising a handle extending upward away from the lid, the handle configured to be grasped by a user to carry the cover.

3. The container assembly of claim 1, the cover comprising a plurality of support walls extending from the inner wall to the outer wall.

4. The container assembly of claim 3, wherein the plurality of support walls extend radially with respect to the rotational axis.

5. The container assembly of claim 3, wherein at least one of the one or more chambers are defined at least in part by one or more of the plurality of support walls.

6. The container assembly of claim 1, the upper portion of the lid comprising a first cylindrical wall extending away from the lower portion of the lid, the first cylindrical wall defining the drinking aperture.

7. The container assembly of claim 6, wherein the first cylindrical wall circumferentially surrounds the drinking aperture.

8. The container assembly of claim 6, the cover comprising a second cylindrical wall that interfaces with the first cylindrical wall to seal the drinking aperture when the cover is coupled to the lid.

9. The container assembly of claim 6, the cover comprising a recess that extends circumferentially around the rotational axis, wherein the recess receives the first cylindrical wall to seal the drinking aperture when the cover is coupled to the lid.

10. The container assembly of claim 1, the lid comprising an annular wall that extends radially away from the rotational axis, wherein the annular wall is between the upper portion and the lower portion, and wherein the annular wall extends radially further from the ro-

tational axis than each of upper portion and the lower portion.

11. A container assembly comprising:

a bottom panel that defines a bottom-most surface;
a rotational axis around which the bottom panel is centered;
a wall extending upwardly from the bottom panel, the wall extending around the rotational axis, the wall and bottom panel collectively partially defining a storage compartment, the wall defining an upper opening opposite the bottom panel;
a lid centered on the rotational axis and detachably engaged with a drinking container, the lid comprising a first drinking aperture and a first venting aperture, the first drinking aperture and the first venting aperture providing fluid communication between the storage compartment and an exterior of the wall;
a first helical threading extending from the lid away from the rotational axis, the lid threadably engaging with the wall via the first helical threading;
a second helical threading extending from the lid distinct from the first helical threading, the second helical threading extending away from the rotational axis;
a gasket coupled to the lid; and
a cover centered on the rotational axis and comprising an outer wall, an upper wall, and a third helical threading extending from the outer wall towards the rotational axis and engaging with the second helical threading to couple the cover to the lid, the upper wall comprising a second drinking aperture and a second venting aperture, the cover actuating between an open position and a closed position, wherein when the cover is in the open position the first drinking aperture and the first venting aperture are in fluid communication with the second drinking aperture and the second venting aperture, respectively, and when the cover is in the closed position the second drinking aperture and the second venting aperture are interfacing with and sealed by the gasket.

12. The container assembly of claim 11, wherein the gasket comprises a central portion centered on the rotational axis, a first projection extending from the central portion radially away from the rotational axis, and a second projection extending from the central portion radially away from the rotational axis and the first projection.

13. The container assembly of claim 12, wherein the gasket extends along a primary longitudinal axis such that the first projection defines a width perpendicular to the primary longitudinal axis, the central portion defines a width perpendicular to the primary longitudinal axis that is narrower than the width of the first projection, and the second projection defines a width perpendicular to the primary longitudinal axis that is wider than the width of the central portion.

14. The container assembly of claim 13, wherein the width of the first projection is equal to the width of the second projection.

15. The container assembly of claim 12, the first projection comprising a first channel that extends circumferentially around the rotational axis.

16. The container assembly of claim 15, the second projection comprising a second channel that extends circumferentially around the rotational axis.

17. The container assembly of claim 11, the lid comprising an annular wall that extends radially away from the rotational axis, wherein the annular wall is between the first helical threading and the second helical threading, and wherein the annular wall extends radially further from the rotational axis than each of first helical threading and the second helical threading.

18. A container assembly comprising:

a bottom panel that defines a bottom-most surface;
a rotational axis around which the bottom panel is centered;
a wall extending upwardly from the bottom panel, the wall extending around the rotational axis, the wall and bottom panel collectively partially defining a storage compartment, the wall defining an upper opening opposite the bottom panel;
a lid centered on the rotational axis and detachably engaged with a drinking container, the lid comprising a first drinking aperture and a first venting aperture, the first drinking aperture and the first venting aperture providing fluid communication between a storage compartment in the drinking container and an exterior of the drinking container;
a helical threading extending from the lid away from the rotational axis, the lid threadably engaging with the wall via the helical threading;
a gasket coupled to the lid; and
a cover centered on the rotational axis and comprising an outer wall and an upper wall extending from the outer wall towards the rotational axis, the cover detachably coupled to the lid, the upper wall comprising a second drinking aperture, a first protrusion extending towards the gasket

and circumferentially surrounding the second drinking aperture, a second venting aperture, and a second protrusion extending towards the gasket and circumferentially surrounding the second venting aperture, the cover actuating between an open position and a closed position, wherein when the cover is in the open position the first drinking aperture and the first venting aperture are in fluid communication with the second drinking aperture and the second venting aperture, respectively, and when the cover is in the closed position the first protrusion is interfacing with the gasket to seal the second drinking aperture and the second protrusion is interfacing with the gasket to seal the second venting aperture.

19. The container assembly of claim 18, the gasket comprising a third drinking aperture and a third venting aperture, when the cover is in the open position the first drinking aperture is in fluid communication with the second drinking aperture via the third drinking aperture, and the first venting aperture is in fluid communication with the second venting aperture via the third venting aperture.

20. The container assembly of claim 18, the cover comprising projections that extend radially away from the rotational axis, the lid comprising lateral channels that circumferentially extend around the lid with respect to the rotational axis, wherein the projections slide within the lateral channels when the cover actuates between the open position and the closed position with respect to the lid.

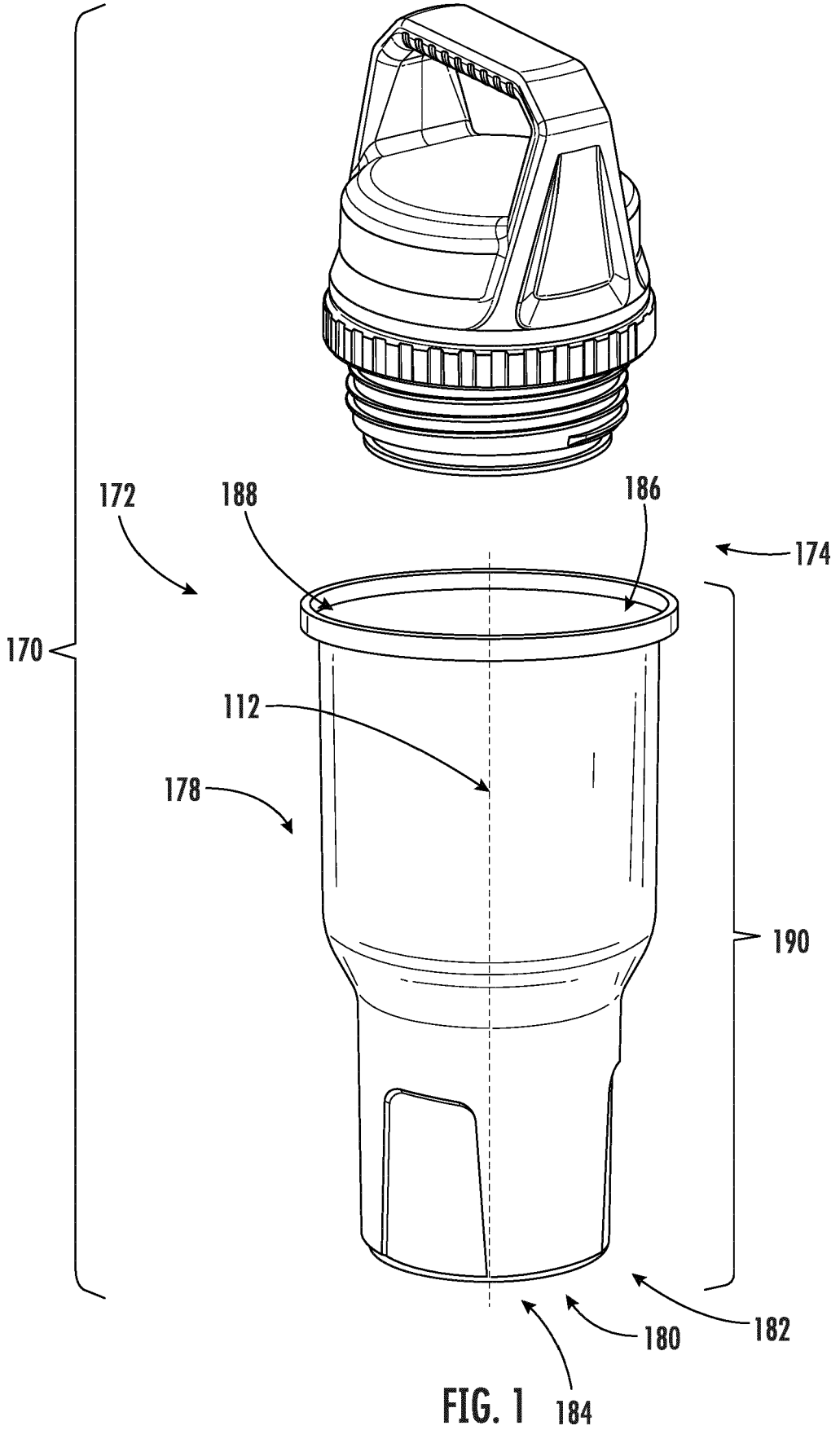

FIG. 1

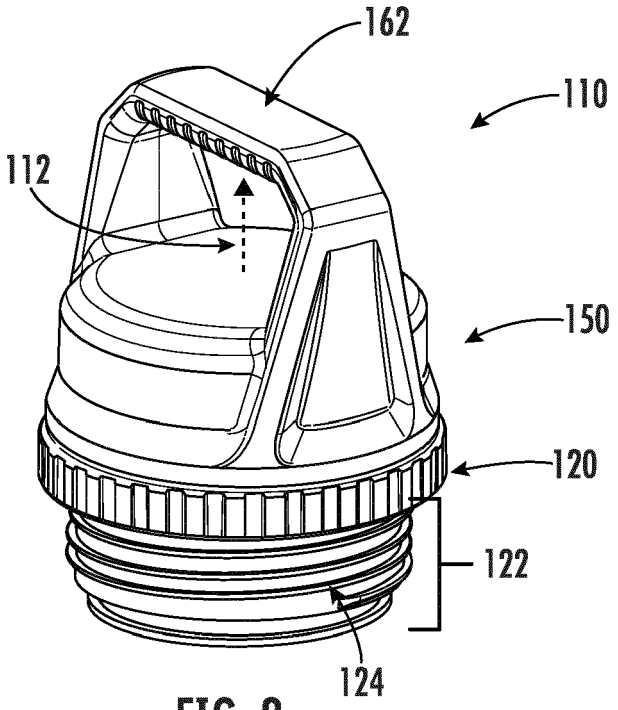

FIG. 2

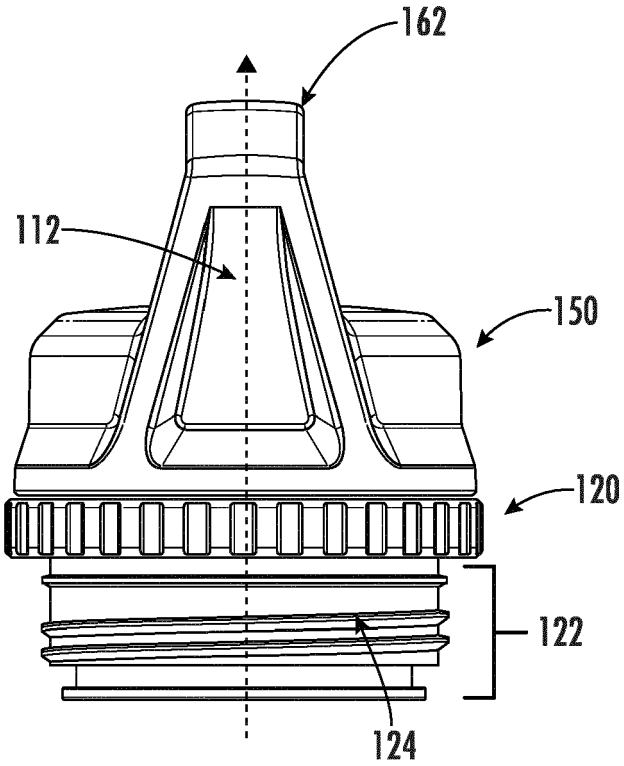

FIG. 3

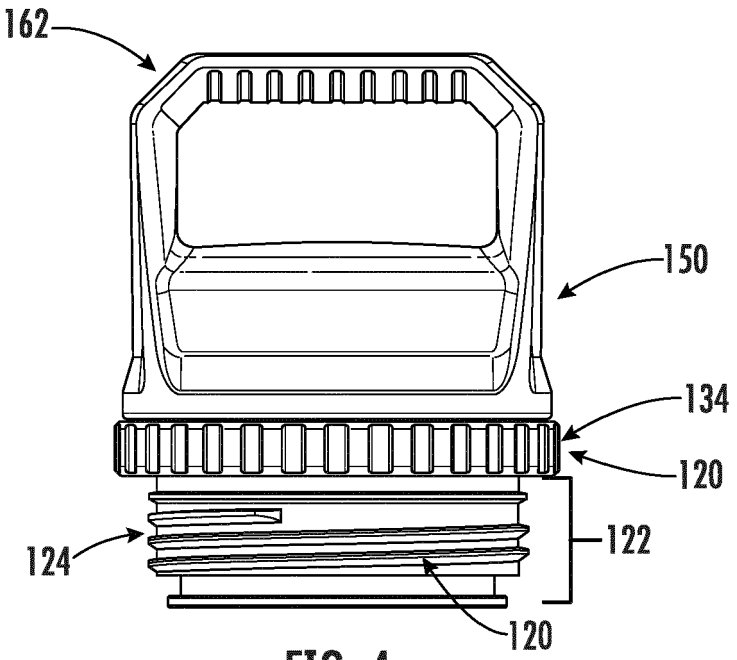

FIG. 4

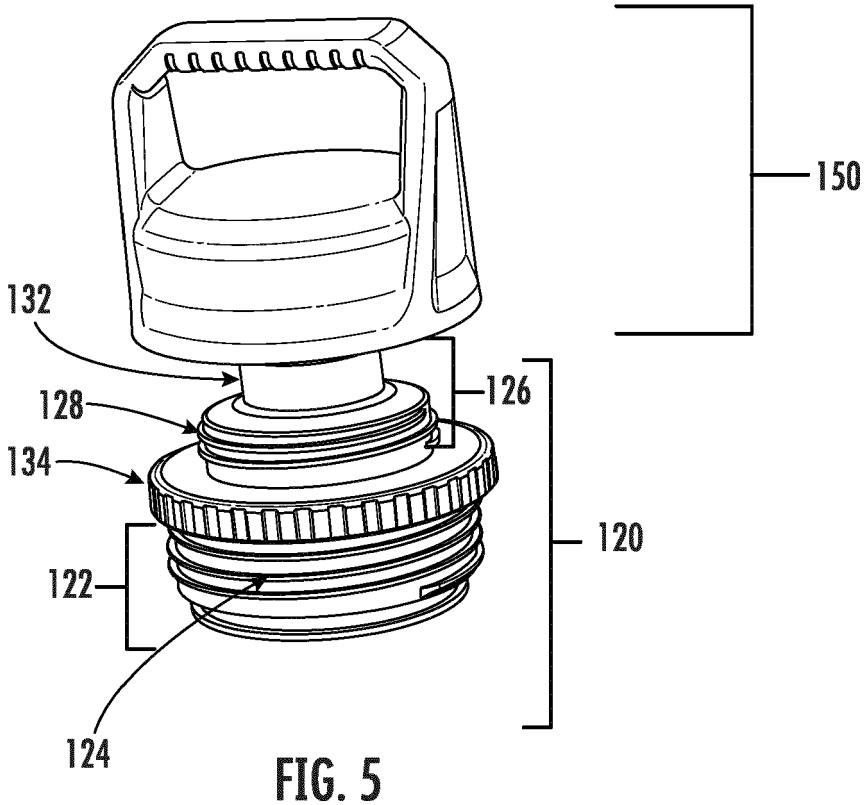

FIG. 5

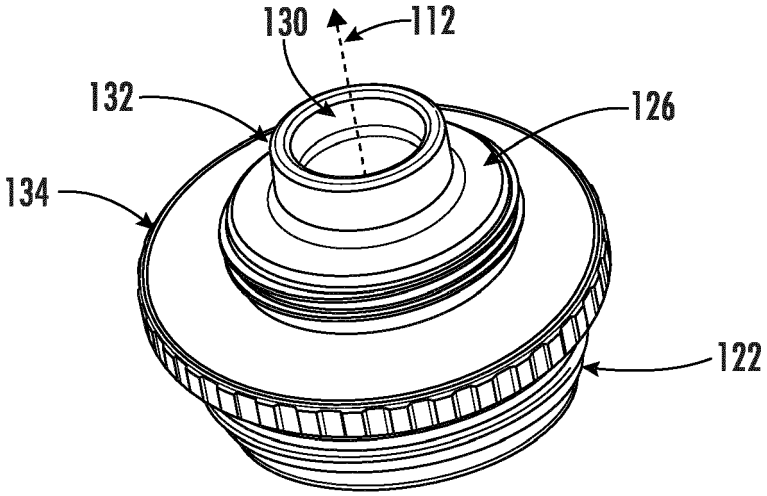
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FIG. 6

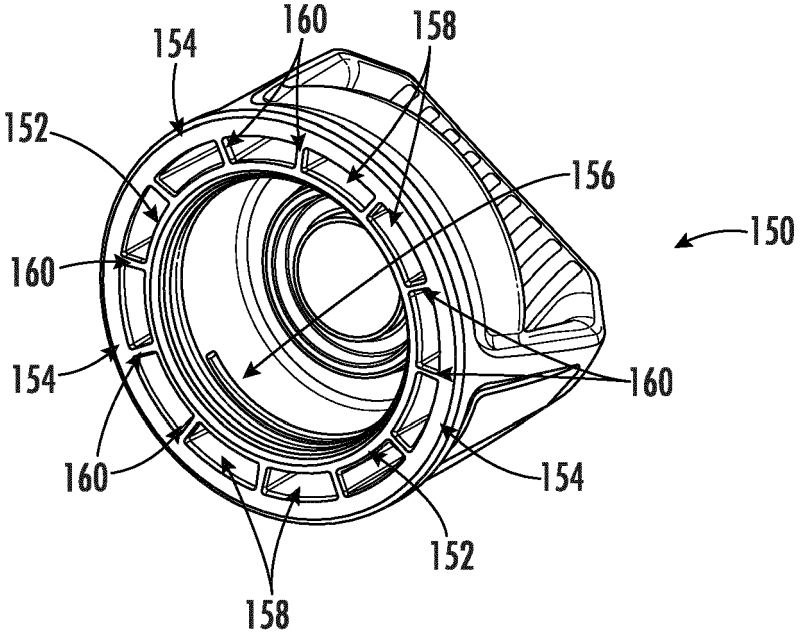
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FIG. 7

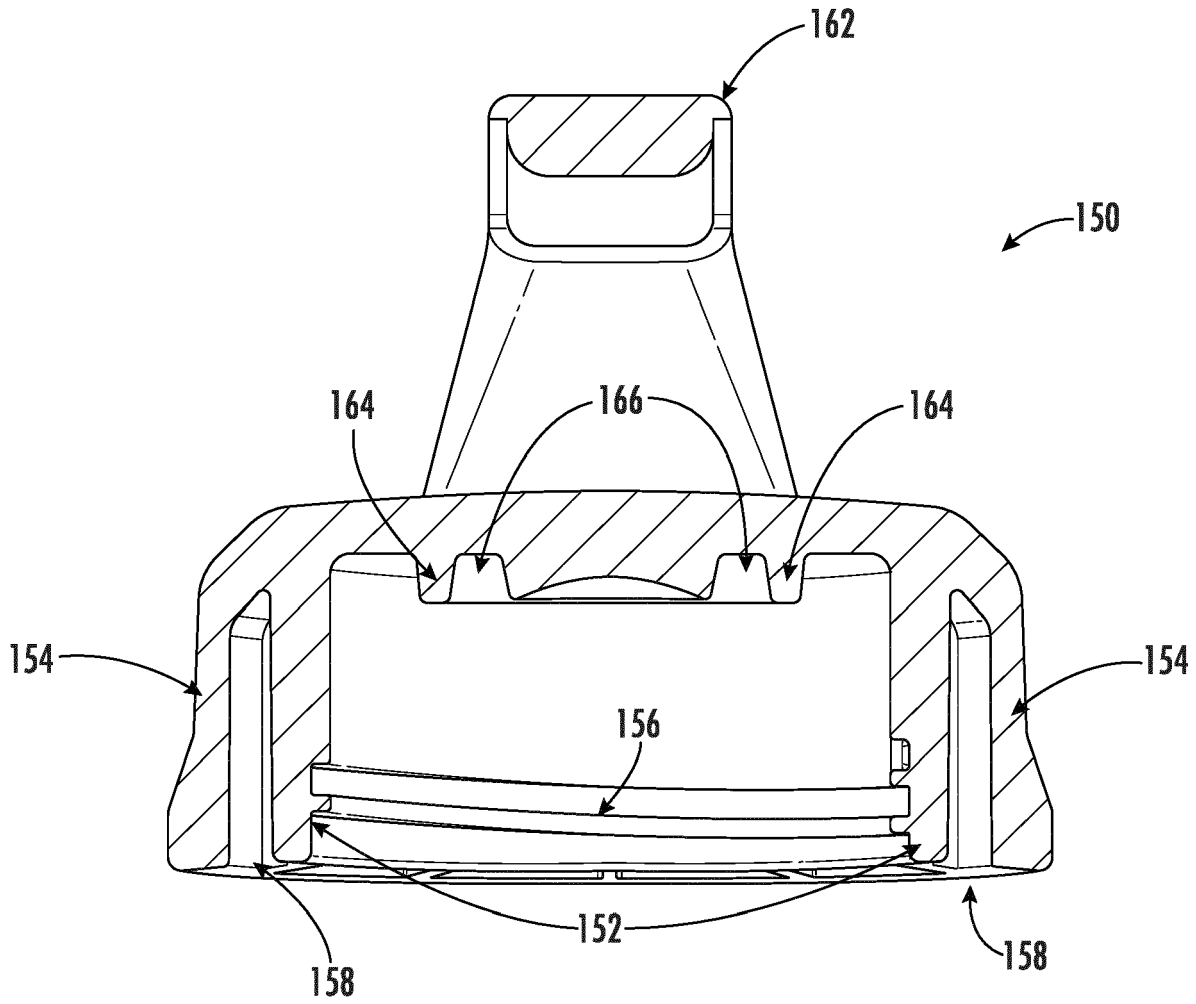

FIG. 8

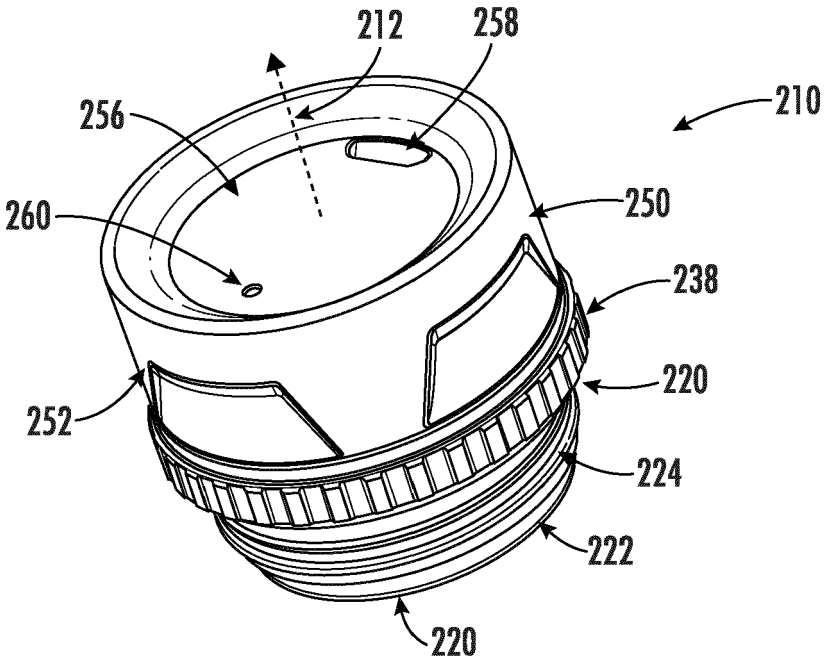
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FIG. 9

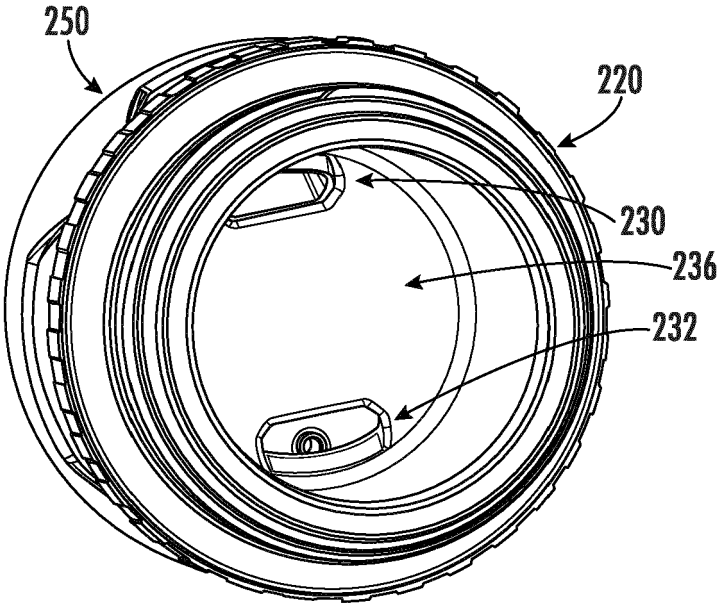
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FIG. 10

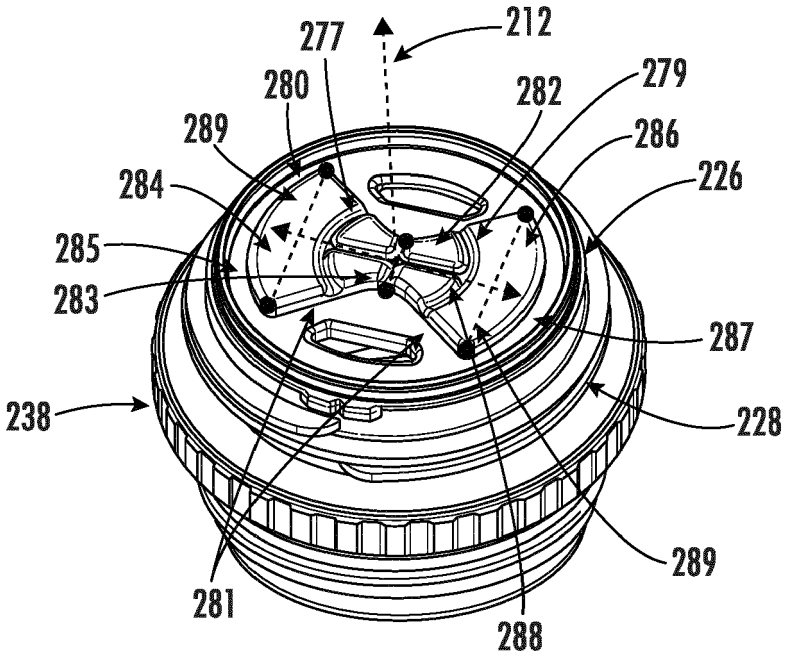
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FIG. 11

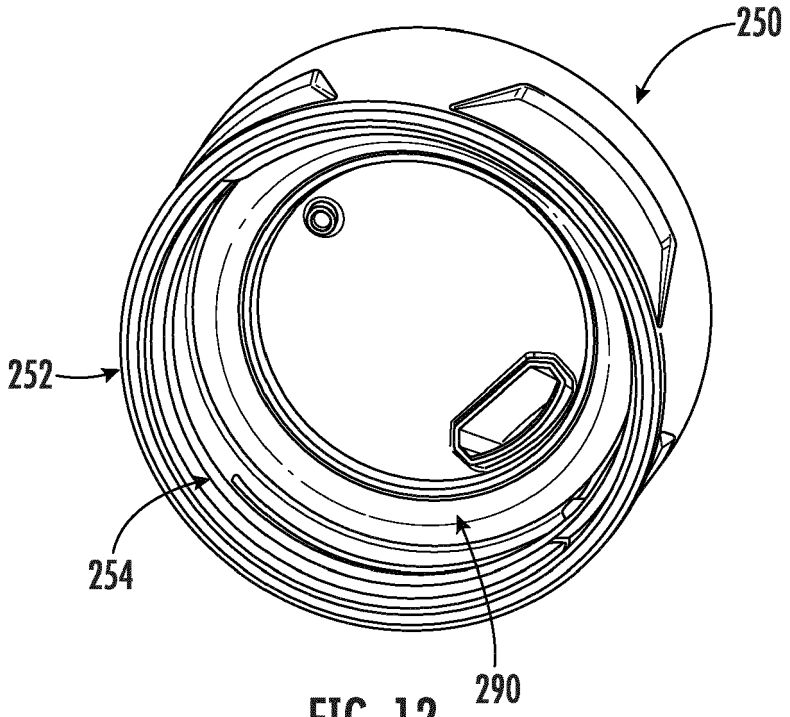
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FIG. 12

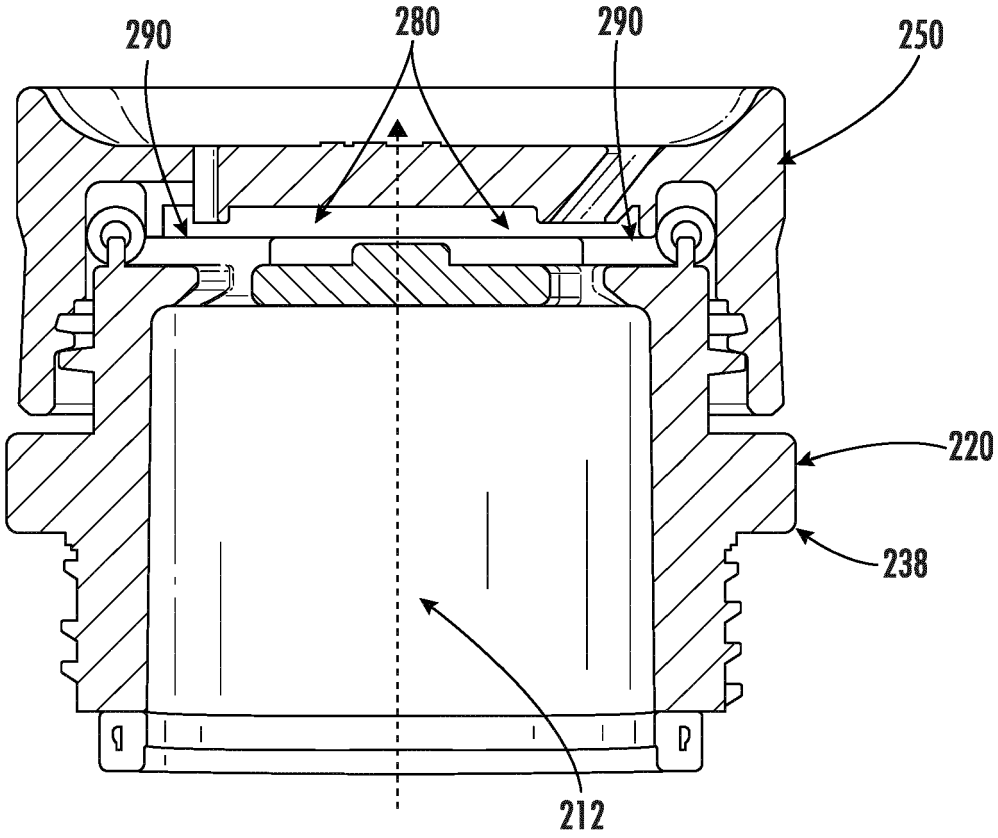

FIG. 13

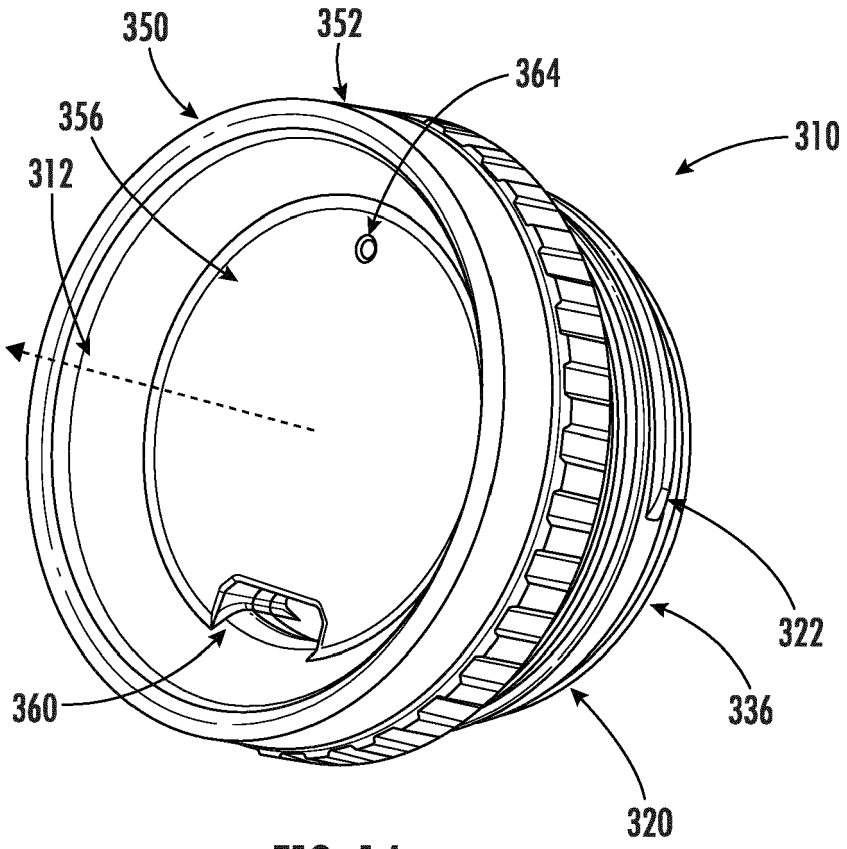

FIG. 14

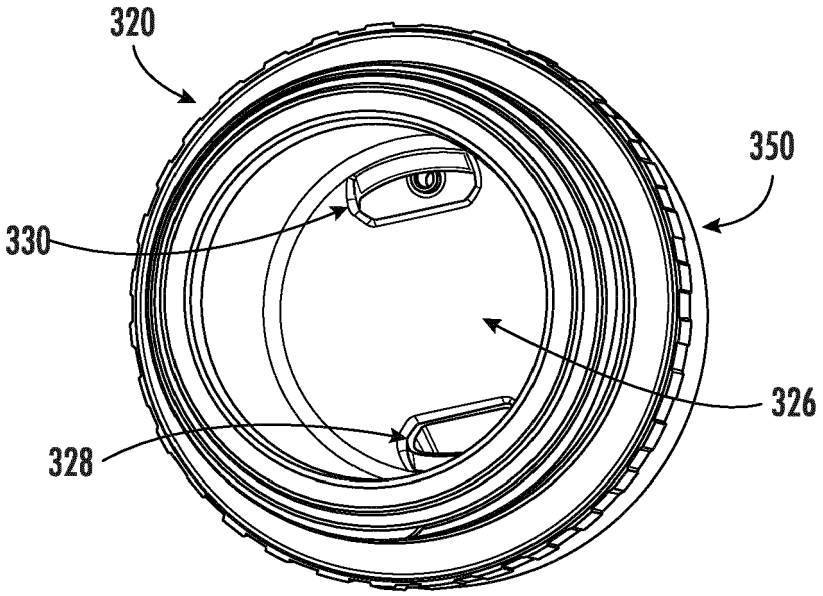

FIG. 15

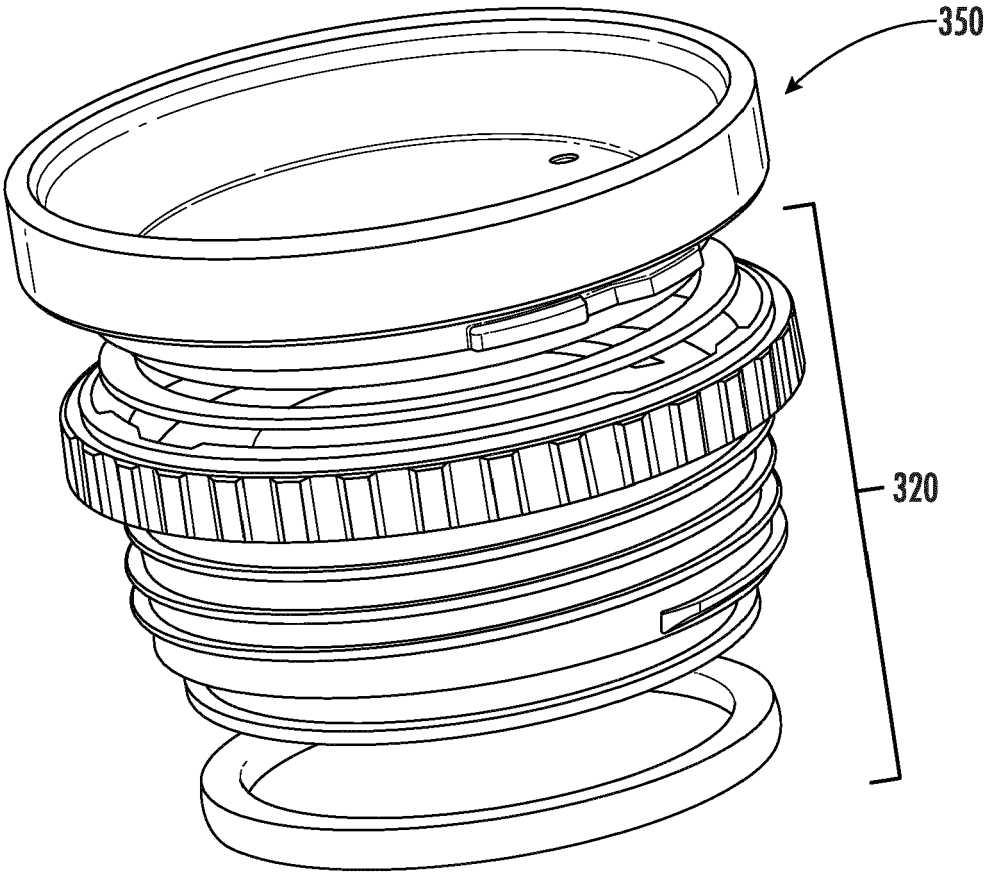

FIG. 16

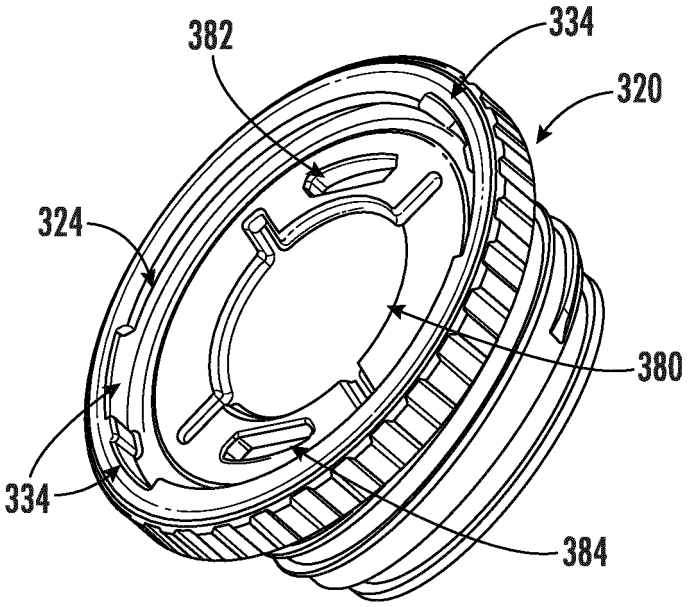

FIG. 17

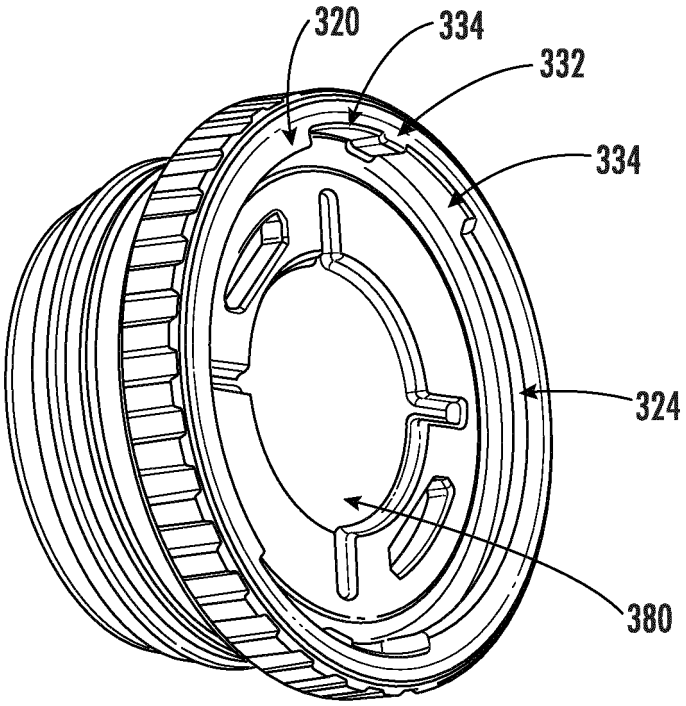

FIG. 18

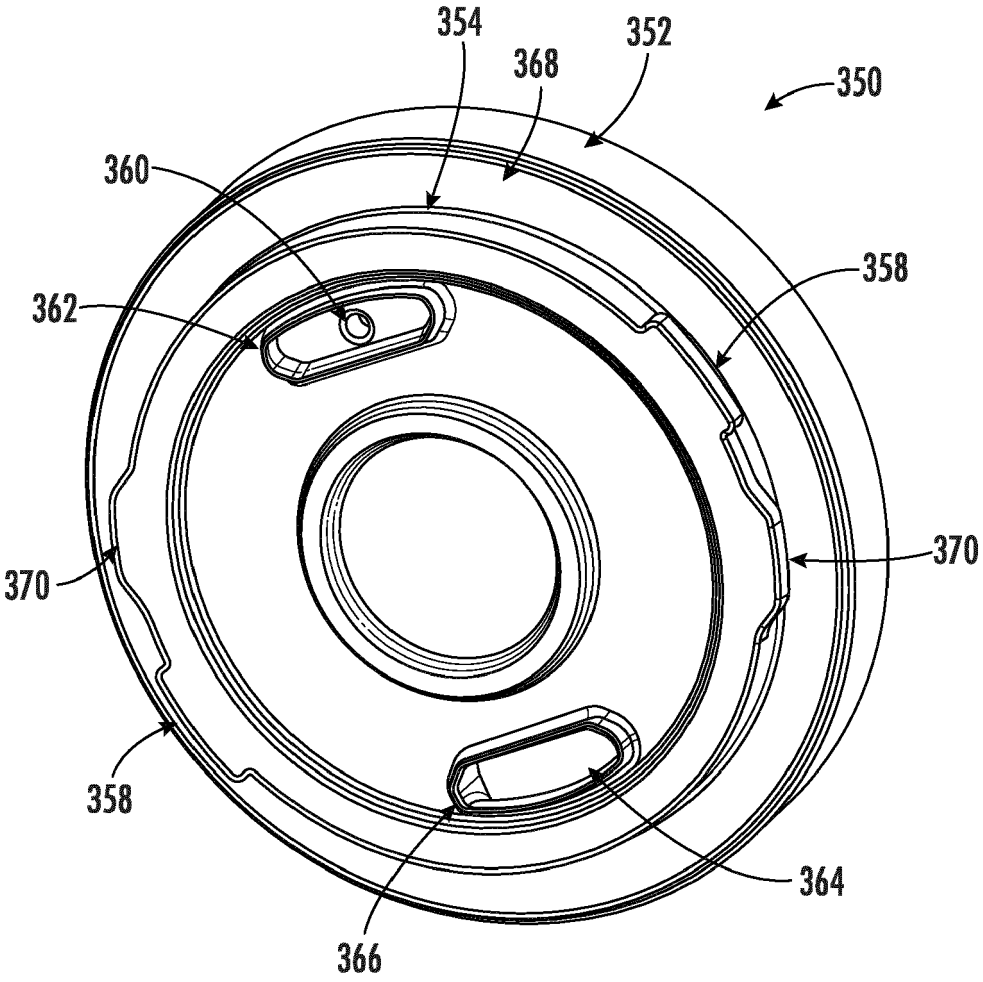

FIG. 19

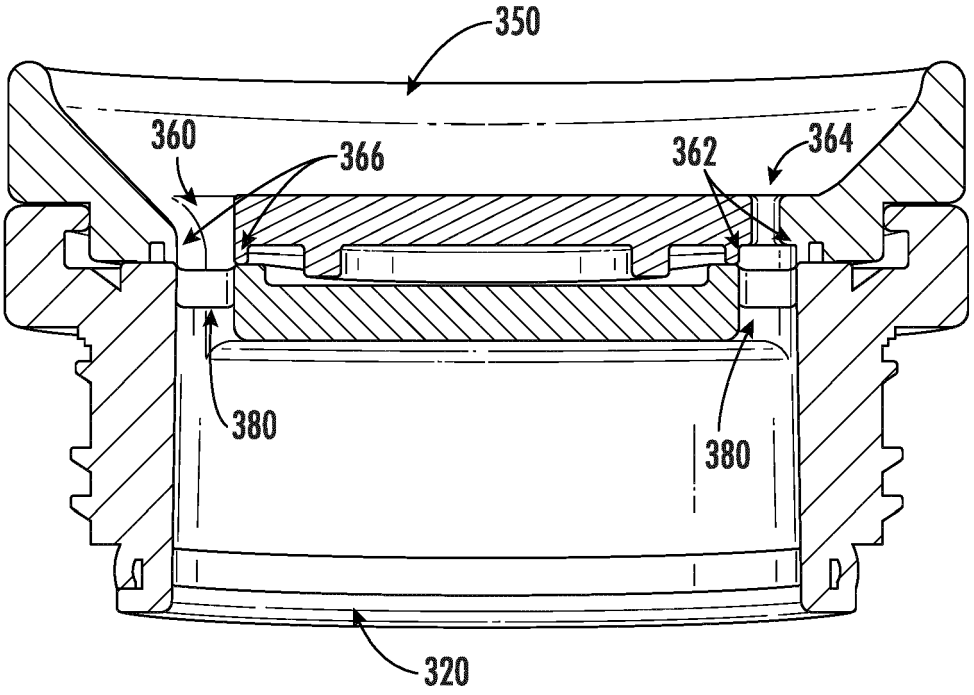

FIG. 20

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 63479650 **[0001]**
- US 63386361 **[0001]**
- WO 2017191628 A **[0017]**