(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 4 470 938 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
04.12.2024 Bulletin 2024/49

(21) Application number: **24203868.5**

(22) Date of filing: **06.05.2021**

(51) International Patent Classification (IPC):
B65D 83/08 *(2006.01)*

(52) Cooperative Patent Classification (CPC):
B65D 83/0835; B65D 43/167; B65D 43/22; B65D 51/18; B65D 2251/0021; B65D 2251/0084; B65D 2543/00148; B65D 2543/00231

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(30) Priority: **08.05.2020 US 202063022189 P**

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
21728713.5 / 4 146 561

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Remarks:
This application was filed on 01-10-2024 as a divisional application to the application mentioned under INID code 62.

(54) CLOSURE ASSEMBLY, SYSTEM AND METHOD OF USE

(57) A closure assembly for a container is provided. The closure assembly includes a frame configured to couple to a container; an interior lid hingedly coupled to the frame along a first longitudinal side thereof and movable between a closed position and an open position, wherein the lid includes a lid rim that defines an opening, a flexible membrane housed within the opening of the lid rim, wherein the flexible membrane defines a zone configured to permit a plurality of articles to feed therethrough, and a tab member fixedly coupled to the lid rim and extending above the membrane, wherein the tab member defines a channel groove configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles. The assembly further includes a cover panel hingedly coupled to the frame along the first longitudinal side thereof and movable between an assembly closed position and an assembly open position.

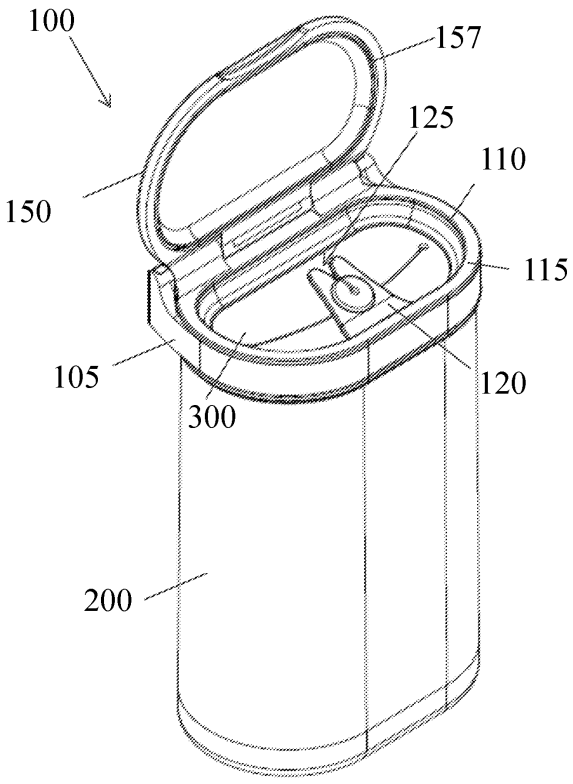

FIG. 1

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Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to and the benefit of U.S. Provisional Patent Application Ser. No. 63/022,189, filed May 8, 2020, the contents of which is hereby incorporated by reference in its entirety herein.

FIELD

[0002] The disclosed subject matter relates to a device, system and method of a dispensing articles from a container system.

BACKGROUND

[0003] Containers can be configured for dispensing sheets of material, such as nonwoven articles used for cleaning, sanitizing, or personal use. Such articles can be circular, oval or rectangular in shape, and can be stored as a roll and the like, and can be stored perforated or separably connected in a container. The material can be packaged dry or can be packaged moistened with a cleaning solution or lotion, for example to produce wet wipes. Conventional containers for such material can include boxes, stand-up containers, canisters or the like, and can be configured as a unitary piece with an orifice to dispense the sheets of material therethrough. Such containers can be rigid, or can be made from a relatively flexible material. The containers can have an opening through which the materials may be removed. Furthermore, the opening may be covered by a lid, such as a hinged cover or adhesive strip that can be opened or closed repeatedly. An example of such containers can be found in U.S. Publication No. 2014/0048553, entitled "Dispenser," and in the U.S. Publication No. 2014/0103058, entitled "Wipes Dispenser and Disposal," the contents of each of which is incorporated by reference in their entireties. Typically, these containers are disposable and cannot be refilled with tissue by the consumer.

[0004] A disadvantage of such containers is that removal of material can deform the lid assembly, which can cause the closure mechanism of the lid assembly to become loose and/or can decrease the effectiveness of the lid orifice to control dispensing of material. Further deformation can cause such closure mechanisms to fail, thus preventing the lid from being secured in a closed position over the container. In some conventional containers, the lids have been known to entirely detach from the container.

[0005] Another disadvantage of such containers is that the orifice size can affect the dispensing of the material. That is, an orifice that is too small can cause individual sheets of material to tear when pulled out through the orifice. On the other hand, an orifice that is too large can cause the sheets of material to clump or rope when pulled out through the orifice or can cause unnecessary moisture release from the package itself.

[0006] Thus, there remains a continued need for improved containers, including lid assemblies for containers for dispensing sheets of material, including wipes. The presently disclosed subject matter satisfies these and other needs.

SUMMARY

[0007] The purpose and advantages of the disclosed subject matter will be set forth in and are apparent from the description that follows, as well as will be learned by practice of the disclosed subject matter. Additional advantages of the disclosed subject matter will be realized and attained by the devices particularly pointed out in the written description and claims hereof, as well as from the appended drawings.

[0008] To achieve these and other advantages and in accordance with the purpose of the disclosed subject matter, as embodied and broadly described, the disclosed subject matter includes a closure assembly, lid, container system, and method of dispensing articles.

[0009] According to an embodiment of the disclosed subject matter, a closure assembly for a container is provided. The closure assembly includes a frame configured to couple to a container; an interior lid hingedly coupled to the frame along a first longitudinal side thereof and movable between a closed position and an open position, wherein the lid includes a lid rim that defines an opening, a flexible membrane housed within the opening of the lid rim, wherein the flexible membrane defines a zone configured to permit a plurality of articles to feed therethrough, and a tab member fixedly coupled to the lid rim and extending above the membrane, wherein the tab member defines a channel groove configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles; and a cover panel hingedly coupled to the frame along the first longitudinal side thereof and movable between an assembly closed position and an assembly open position.

[0010] According to another embodiment of the disclosed subject matter, a lid for a container is provided. The lid comprises a lid rim that defines an opening; a flexible membrane housed within the opening of the lid rim, wherein the flexible membrane defines a zone configured to permit a plurality of articles to feed therethrough; and a tab member fixedly coupled to the lid rim and extending above the membrane, wherein the tab member defines a channel groove configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles.

[0011] In accordance with another aspect of the disclosed subject matter, a container system is disclosed comprising a container, a plurality of articles therein, and the closure assembly as described herein.

[0012] In accordance with another aspect of the disclosed subject matter, a method of dispensing articles

from a container system is further provided. The method includes providing a container system as described herein; transitioning the cover panel to the assembly open position and the lid to the open position; inserting a plurality of articles into the container; transitioning the lid to the closed position; pulling a leading article of the plurality of articles through the zone; and selectively inserting the leading article through the channel grove to separate the leading article from a next article in the plurality of articles.

[0013] It is to be understood that both the foregoing general description and the following detailed description and drawings are examples and are provided for purpose of illustration and not intended to limit the scope of the disclosed subject matter in any manner.

[0014] The accompanying drawings, which are incorporated in and constitute part of this specification, are included to illustrate and provide a further understanding of the devices of the disclosed subject matter. Together with the description, the drawings serve to explain the principles of the disclosed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The subject matter of the application will be more readily understood from the following detailed description when read in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of the closure assembly with the lid in the closed position, according to an embodiment of the disclosed subject matter.
FIG. 2 is a back view of the closure assembly of FIG. 1.
FIG. 3 is a front view of the closure assembly of FIG. 1.
FIG. 4 is a cross section view of FIG. 3.
FIG. 5 is a top view of the closure assembly of FIG. 1
FIG. 6 is a cross-sectional view of FIG. 1.
FIG. 7 is a perspective view of the closure assembly with the lid in an open position, according to an embodiment of the disclosed subject matter.
FIG. 8 is a back view of the closure assembly of FIG. 7.
FIG. 9 is a front view of the closure assembly of FIG. 7.
FIG. 10 is a cross section view of FIG. 9.
FIG. 11 is a top view of the closure assembly of FIG. 7
FIG. 12 is a cross-sectional view of FIG. 7.
FIG. 13 is a top perspective view of the lid, according to an embodiment of the disclosed subject matter.
FIG. 14 is a bottom perspective view of the lid of FIG. 13.
FIG. 15 depicts a top view of example membranes, according to embodiments of the disclosed subject matter.
FIGS. 16-19 depict views of an isolated view of a flexible section of the tab member as a perspective top view, a perspective bottom view, a bottom view, and a cross section view, according to an embodiment of the disclosed subject matter.
FIG. 20 is a magnified partial view of FIG. 10.
FIG. 21 depicts an alternative embodiment of a closure assembly, according to the disclosed subject matter.
FIG. 22 is a side view of FIG. 1 and FIG. 23 is a cross section view of FIG. 22.
FIG. 24 is a side view of FIG. 7 and FIG. 25 is a cross section view of FIG. 24.
FIG. 26 depicts a spring loaded section of a shaft, according to the disclosed subject matter.
FIG. 27 is an exploded view of FIG. 26 and FIG. 28 depicts a phantom side view of FIG. 26.
FIG. 29 depicts an isolated partial phantom view of the cover panel, according to the disclosed subject matter.
FIG. 30 depicts a closure assembly and container, according to the disclosed subject matter.
FIG. 31 depicts an example of a package holding articles therein, according to the disclosed subject matter.
FIG. 32 depicts the device of FIG. 30 with the lid in the open position.
FIG. 33 depicts the device of FIG. 32 receiving the package of FIG. 31 therein.
FIG. 34 depicts the device of FIG. 32 with the lid transitioning to the closed position.
FIG. 35 and FIG. 36 depict the container system with a leading article disposed in the membrane alone and disposed in the tab member.
FIG. 37 depicts the device of FIG. 32 with the cover panel in the assembly closed position.
FIG. 38 depicts a back perspective view of FIG. 37.
FIG. 39 depicts a magnified view of a bracket for coupling with a container system, according to the disclosed subject matter.
FIG. 40 depicts a double bracket, according to the disclosed subject matter.
FIG. 41 depicts an example of the double bracket of FIG. 41 coupled with container systems having different packages therein, according to the disclosed subject matter.
FIG. 42 depicts the container system of FIGS. 33-38 supported by a base of the container.
FIG. 43 depicts the container system of FIGS. 33-38 supported by a holder.

DETAILED DESCRIPTION

[0016] Reference will now be made in detail to various embodiments of the disclosed subject matter, examples of which are illustrated in the accompanying drawings. The examples herein are not intended to limit the scope of the disclosed subject matter in any manner. The disclosed subject matter will be described in conjunction with the detailed description of the system.

[0017] The term "about" or "approximately" means

within an acceptable error range for the particular value as determined by one of ordinary skill in the art, which will depend in part on how the value is measured or determined, *i.e.*, the limitations of the measurement system.

[0018] The presently disclosed subject matter provides closure assembly, lid, container system, and method of dispensing articles. According to an embodiment of the disclosed subject matter, the closure assembly includes a frame configured to couple to a container; an interior lid hingedly coupled to the frame along a first longitudinal side thereof and movable between a closed position and an open position, wherein the lid includes a lid rim that defines an opening, a flexible membrane housed within the opening of the lid rim, wherein the flexible membrane defines a zone configured to permit a plurality of articles to feed therethrough, and a tab member fixedly coupled to the lid rim and extending above the membrane, wherein the tab member defines a channel groove configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles; and a cover panel hingedly coupled to the frame along the first longitudinal side thereof and movable between an assembly closed position and an assembly open position. According to another embodiment of the disclosed subject matter, a container system is provided including the closure assembly coupled with a container.

[0019] Solely for purpose of illustration, FIG. 1 shows a perspective view of the closure assembly 100 coupled with a container 200. FIG. 2 is a back view of the device of FIG. 1, FIG. 3 is a front view thereof, and FIG. 4 is a cross section view of FIG. 3 about lines A-A. FIG. 5 is a top view of the closure assembly of FIG. 1 and FIG. 6 is a cross-sectional view of FIG. 1 about lines B-B. As depicted in FIGS. 1-6, the closure assembly 100 includes a frame 105, a lid 110, and a cover panel 150. The frame 105, lid 110, and cover panel 150 all move about the same axis. As best shown in FIG. 1, the frame 105 is configured to couple with the container 200, which thus couples the closure assembly with the container. As further discussed herein, the cover panel 150 is movable between an assembly closed position and an assembly open position. As depicted in FIGS. 1-6, the cover panel in an assembly open position for purposes of discussion.

[0020] The cover panel 150 and the lid 110 are individually hingedly coupled to the frame 105 along a first longitudinal side thereof. The cover panel is movable between an assembly open position and an assembly closed position, and the lid 110 is movable between a closed position and an open position. As depicted in FIGS. 1-6, the cover panel 150 is shown in an assembly open position, whereas the lid 110 is shown in its closed position. The cover panel 150 can have a wide range of open positions and the assembly open position of FIGS. 1-6 is exemplary. FIGS. 7-12 depict the closure assembly of FIGS. 1-6 with the cover panel 150 and the lid 110 in open positions.

[0021] As shown in FIGS. 11 and 12, the lid 110 includes a lid rim 115 that defines an opening and a flexible membrane 300 housed within the opening of the lid rim 115. The flexible membrane 300 defines a zone configured to permit a plurality of articles to feed therethrough, as further discussed herein. The lid further includes a tab member 120 fixedly coupled to the lid rim 115 and extending above the membrane 300 at an angle. Alternatively, the tab member can be fixedly coupled to and parallel with the rim. The tab member 120 defines a channel groove 125 configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles, as further discussed herein.

[0022] An embodiment of the lid rim 115 with the flexible membrane 300 therein is shown as an isolated unit in FIGS. 13 and 14. The flexible membrane 300 includes a first portion 305 and a second portion 315 separated by a distance dimension of the slot gap 320 that creates the zone. The flexible membrane 300 is designed to permit roping of articles stored within the container 200. The first portion and the second portion cooperate together to permit a plurality of articles to be pulled therethrough without causing a separation of individual articles from the plurality of articles. The first portion 305 and section portion 315 are configured to retain an article therebetween, such as a wet wipe, to permit an edge of a leading article to extend through the membrane while the cover panel 150 is in the assembly closed position. As such the distance dimension of the slot can be any suitable dimension to permit roping during use, but also to allow for retention of an article when not in use. Furthermore, in other embodiments, the first portion 305 and the second portion 315 can overlap with each other such that a slot gap is not evident until an article is being pulled through the membrane. In further embodiments, the first portion 305 and the second portion 315 can overlap even during use such that a passage is created for the zone that deflects the first portion 305 with respect to the second portion 315 to permit an article to pass between 305 and 315 through the passage. As such, the distance dimension between the first portion and the second portion can range from zero to an approximate diameter dimension of the article when in a roped or twisted configuration when in use.

[0023] The flexible membrane is pliable enough to permit a user to insert their fingers through the membrane at the slot gap and to pull an article from the container therethrough, and strong enough to retain a wipe between the first and second portions such as when the cover panel is in the assembly closed position. As such, the flexible membrane has a first configuration with the first portion and second portion separated by the distance dimension of the slot gap, as shown in FIG. 13. A separation force exerted on the first portion and the second portion, such as by a user's fingers, expands the slot gap into a second configuration and upon removal of the separation force, the first and second portion transition back to the first configuration shown by FIG. 13. The membrane can comprise any suitable material to permit such

features of the membrane to function, such as, but not limited to silicone rubber, thermoplastic elastomer, thermoplastic polyurethane, polyester, polyethylene and other plastics.

[0024] As best shown in the back view of FIG. 14, the first and second portions can define a center aperture 325 that is disposed at an approximate center of the slot gap. The center aperture 325 of the membrane can facilitate ease of separation of the first portion and second portion of the membrane to permit a user's fingers to be inserted therethrough. The center aperture 325 can also cooperate with the tab member 120, as further discussed herein. The first and second portions can further define apertures 330 at the respective ends of the slot gap. The apertures 330 can provide further structural support for the membrane to prevent any tearing of the membrane during use. Although the slot gap is shown as a curved line, the slot gap can be any suitable shape to facilitate the functionality of the membrane while also providing a seal for the opening of the lid rim to maintain any moisture in the container and prevent evaporation thereof. FIG. 15 depicts examples of other various shapes 320A-320H of the slot gap of the membrane 300, for purposes of example.

[0025] As depicted in FIG. 13, the tab member 120 is fixedly coupled to the lid rim 115 and extends above the membrane 300. The tab member 120 is rigidly disposed at an angle to the lid rim and disposed opposite the first longitudinal side of the frame. The angle of the tab can be any suitable dimension to permit the tab member to function as described herein, and enable the tab member to be housed within the space between the membrane and the cover panel when the cover panel is in the assembly closed position. The tab member 120 defines the channel groove 125 groove configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles. The tab member 120 further includes a flexible section 130 that defines a flexible orifice 135 at an end of the channel groove 125. The flexible orifice 135 cooperates with the channel groove and separates a leading article from the plurality of articles without substantially removing excessive or material liquid from the leading article and retains a next article within the orifice 135 after the leading article is removed. Accordingly, the channel groove 125 and the orifice 135 can cooperate with the central aperture 325 when the tab member 120 is in use.

[0026] FIGS. 16-19 depict isolated views of a flexible section 130 of the tab member depicting an exemplary orifice 135 according to an embodiment of the disclosed subject matter. FIG. 16 is a top perspective view of the orifice that shows a portion of the channel groove 125 and FIG. 17 is a bottom perspective view. FIG 18 is a bottom view of FIG. 15 and FIG. 19 is a cross section view of FIG. 18 along lines A-A. As depicted in FIGS. 16-19, the flexible section can include a groove 137, which can couple with a rigid section of the tab member to affix the flexible section to the rigid section of the tab member.

[0027] As best shown in FIG. 14, the lid can further include a sidewall 140 extending downwardly from a perimeter of a bottom surface of the interior lid. The sidewall 140 can defining a cavity 145 configured to cooperate with the frame to releasably lock the lid in the closed position. As such, an interior surface of the frame can include a frame latching member 107 extending outwardly therefrom, such as a frame projection. The cavity 145 can receive the frame projection 107 therein to releasably lock the lid with the frame in the closed position. FIG. 20 is a magnified partial view of FIG. 10. As best depicted in FIG. 20 the frame latching member is depicted as a frame projection 107.

[0028] FIG. 21 depicts another embodiment of the disclosed subject matter. In this embodiment, the lid can further include a seal 117 circumscribing a perimeter of the lid rim and the cover panel 150 can further include a raised bead 155. The seal 117 and the raised bead 155 can cooperate with each other to provide a tight seal assembly for the closure assembly when the cover panel is in the closed assembly position. As such, the raised bead 155 can rest on the elastomer seal 117 to create a seal assembly. In other embodiments as depicted in FIG. 1, the cover panel 150 alone can include a seal 157 to seal the closure assembly when the cover panel is in the closed assembly position.

[0029] As noted above, the cover panel 150 and the lid 110 move independently of one another but share the same longitudinal axis for rotation. The lid 110 can be moved between the open and closed position with unrestricted movement. The cover panel 150 can be biased towards the assembly closed position such that the cover panel 150 moves toward the frame when the cover panel is released from the assembly open position. The cover panel can be spring loaded to provide the biasing of the cover panel in the assembly closed position. FIG. 22 is a side view of FIG. 1 showing the cover panel 150 in the assembly open position and FIG. 23 is a cross section view of FIG. 22 about lines C-C. FIG. 24 is a side view of FIG. 7 showing the lid 110 in an open position and FIG. 25 is a cross section view of FIG. 24 about lines C-C. The cover panel 150 can further include a shaft that locks the cover panel with the frame 105. The shaft 160 can include a spring-loaded section 165 for biasing and a closure retarding system 170, as discussed herein. FIG. 26 depicts an exemplary spring-loaded section 165 and FIG. 27 is an exploded view thereof. As shown in FIG. 27, the spring-loaded section 165 can include a spring 167. FIG. 28 depicts a phantom side view of the spring-loaded section with the spring 167 therein.

[0030] As shown in FIGS. 23 and 25, the shaft can further include a closure retarding system 170. The closure retarding system is configured to retard movement of the cover panel when the cover panel transitions from the assembly open position to the assembly closed position. As such, the cover panel can slowly close within a reasonable period of time after being in the assembly

open position. This enables a user to quickly remove an article without wasting the user's time to close the cover panel. FIG. 29 depicts an isolated partial phantom view of the cover panel 150 with the spring-loaded section 165 and the closure retarding system 170. In certain embodiments, the closure retarding system includes a rotary damper, such as commercially available FRT-S1 Series Rotary Damper by Bansbach.

[0031] In accordance with another aspect of the disclosed subject matter, a container system is disclosed comprising a container 200, a package 300 of articles therein, and the closure assembly as described herein. The container can be any suitable container that can contain objects, such as a package of articles therein, and that can be coupled with the frame of the closure assembly. The container can be coupled with the frame in any suitable arrangement, such as for purposes of example by threading or snap fit arrangement. As best shown in the embodiment of FIG. 20, the container 200 can have a snap fit connection that is complementary with mateable beads of the frame 105. In one embodiment, the container has partial or complete transparency such that product information of a package or articles therein is viewable through the container. As example of a suitable container is provided in FIG. 30, and an exemplary package 400 is provided in FIG. 31. In certain embodiments, the container 200 and frame 105 can be manufactured as one component with the closure assembly including the lid and the cover panel alone.

[0032] The container 200 can receive the package 400 containing a plurality of articles. The package can be any suitable package such as a flexible wrap package that contains sanitizing wet wipes, as shown for purposes of example in FIG. 31. The package can contain a plurality of articles, such as wet or dry wipes. Thus, the package can include any articles therein that can be dispensed. Alternatively or additionally thereto, the container 200 can receive a plurality of articles in an unpackaged state. Further examples of suitable articles include wipes, tissues such as moist toilet tissue or dry tissues, facial pads, nonwoven materials, woven materials, and the like. As such, the article can be dry, moist, or wet and include lotions, chemical formulations, and the like. The articles can be arranged in a roll for easy dispensing and desired roping. An end of the package can be removed in order to retrieve the articles therefrom such that the opened package is accessible in the container, as further described herein with respect to the method of dispensing.

[0033] In accordance with another aspect of the disclosed subject matter, a method of dispensing articles from a container system is further provided and as furthermore discussed above in relation to the aspects of the disclosed subject matter. FIGS. 30-39 depict steps of using the container system and steps of dispensing articles therefrom once the closure assembly is affixed to the container. As such, the method includes providing a container system as described herein, as provided in FIGS. 30-31. As shown in FIG. 30, the cover panel has been transitioned from the assembly closed position to the assembly open position. As shown in FIG. 32, the lid has transitioned to the open position. As represented by FIG. 33, the package of FIG. 31 has been opened and is being inserted into the container. As shown in FIG. 34, the lid is transitioning to the closed position. As represented by FIG. 35, a leading article 700 of the plurality of articles is pulled through the slot gap of the membrane. As shown in FIG. 36, the leading article 700 is selectively inserted through the channel grove to separate the leading article from a next article in the plurality of articles. However, as further discussed herein, the articles can be selectively fed through the membrane alone or selectively fed through the membrane and the tab member. As shown in FIG. 37, the cover panel has automatically transitioned from the assembly open position to the assembly closed position and is ready for a next use.

[0034] The container system can be attached to a bracket as shown in FIGS. 30-37. Alternatively or additionally thereto, a base of the container can support the container system alone as shown in FIG. 42, or can fit within a holder 600 as shown in FIG. 43. When attached to a bracket, the lid assembly can be coupled to the bracket in any suitable manner. FIGS. 38 and 39 depict an exemplary connection for the container system and the bracket. As shown in FIG. 38, the frame 105 can include recesses 106 configured to receive prongs 506 of the bracket 500 for a secure connection. In certain embodiments, the bracket can include two locations to receive two container systems, as shown in FIG. 40. As such, each location can house different kinds of products, such as one location for germicidal disposable wipes suitable for skin exposure and another location for germicidal disposable wipes containing bleach (and not suitable for skin exposure). FIG. 41 provides an example of a double bracket used that secures two different product packages therein. In this embodiment, the wall attachment system is positioned between the two dispensers as such the unit as shown has a low profile depth from the wall. Accordingly, the profile depth of the unit is dependent upon the depth of the containers rather than known systems that have profiles dictated by the bracket in combination with the containers. As shown in FIG. 41, the overall depth of the unit from the wall in said embodiment is less than 4 inches, which meets compliance with the American Disabilities Act and in particular ADA Section 307 regarding protruding objects.

[0035] The closure assembly, including any of the components thereof, can be made of any suitable material to enable the device to function as described herein. For example, components of the assembly not otherwise specified herein can be made of a polymer, copolymer or resin, such as HDPE - High Density Polyethylene, LDPE - Low Density Polyethylene, LLDPE - Linear low-density polyethylene, PS - Polystyrene, PVC - Polyvinyl chloride, PP - Polypropylene, ABS - Acrylonitrile butadiene styrene, PET or PETE - Polyethylene terephthalate, PC - Polycarbonate, SAN - Styrene acrylonitrile, POM-

Polyoxymethylene, Acrylic, Nylon, and combinations or blends thereof. Furthermore, the assembly or components of the device can comprise metal, glass or ceramic. The components can be made of the same material or can be made of different material.

[0036] The assembly can be constructed by any suitable method. Examples of such methods includes, but is not limited to, overmolding, injection molding, thermoforming, compression molding, transfer molding, machining, additive manufacturing/ three dimensional printing, and the like and other suitable methods are contemplated herein.

[0037] The container system can be any color, or a plurality of colors. For example, a closure assembly having an orange cover panel can be indicative of a product contained therein having bleach. The device can furthermore include patterns and texture to be more aesthetically pleasing to consumers or to communication certain kind of information to a consumer. The texture processing can include brail, engraving, embossing, and debossing. The system can furthermore be plated, coated, and painted. The container system can further be coated such as with clear or tinted coatings as known in the industry. The system can also be painted, coated with polymers, sprayed, and dipped. The system can additionally include in mold labeling, adhesive labeling, hot stamping, printing, and water transfer films.

[0038] While the disclosed subject matter is described herein in terms of certain embodiments and representative examples, those skilled in the art will recognize that various modifications and improvements can be made to the disclosed subject matter without departing from the scope thereof. Additional features known in the art likewise can be incorporated. Moreover, although individual features of one embodiment of the disclosed subject matter can be discussed herein or shown in the drawings of the one embodiment and not in other embodiments, it should be apparent that individual features of one embodiment can be combined with one or more features of another embodiment or features from a plurality of embodiments.

[0039] In addition to the various embodiments depicted and claimed, the disclosed subject matter is also directed to other embodiments having any other possible combination of the features disclosed and claimed herein. As such, the particular features presented herein can be combined with each other in other manners within the scope of the disclosed subject matter such that the disclosed subject matter includes any suitable combination of the features disclosed herein. Furthermore, although reference is made to a system for integrating a package with a container throughout this disclosure, other suitable container-like devices can be integrated using the system and method disclosed herein, such as a disposable container attachable directly to the frame. Thus, the foregoing description of specific embodiments of the disclosed subject matter has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the disclosed subject matter to those embodiments disclosed.

[0040] It will be apparent to those skilled in the art that various modifications and variations can be made in the system and method of the disclosed subject matter without departing from the spirit or scope of the disclosed subject matter. Thus, it is intended that the disclosed subject matter include modifications and variations that are within the scope of the appended claims and their equivalents.

The following clauses (not claims) define further aspects of the invention:

1. A closure assembly for a container, comprising:

    a frame configured to couple with a container;
    a lid hingedly coupled to the frame along a first longitudinal side thereof and movable between a closed position and an open position, wherein the lid includes

        a lid rim that defines an opening,
        a flexible membrane housed within the opening of the lid rim, wherein the flexible membrane defines a zone configured to permit a plurality of articles to feed therethrough, and
        a tab member fixedly coupled to the lid rim and extending above the membrane, wherein the tab member defines a channel groove configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles; and

    a cover panel hingedly coupled to the frame along the first longitudinal side thereof and movable between an assembly closed position and an assembly open position.

2. The closure assembly of 1, wherein the flexible membrane includes a first portion and a second portion separated by a distance dimension of a slot gap defining the zone, wherein the first portion and section portion are configured to retain an article therebetween.

3. The closure assembly of 2, wherein the first portion and the second portion cooperate together to permit a plurality of articles to be pulled therethrough without causing a separation of individual articles from the plurality of articles.

4. The closure assembly of 2, wherein the flexible membrane has a first configuration with the first portion and second portion separated by the distance dimension of the slot gap, wherein a separation force exerted on the first portion and the second portion expands the slot gap into a second configuration and upon removal of the separation force, the first and

second portion transition back to the first configuration.

5. The closure assembly of 1, wherein the flexible membrane includes a first portion and a second portion, wherein the first portion and section portion overlap with each other and are configured to retain an article therebetween.

6. The closure assembly of 1, wherein the membrane comprises at least one of silicone rubber, thermoplastic elastomer, thermoplastic polyurethane, polyester, and polyethylene.

7. The closure assembly of 1, wherein the tab member is rigidly disposed to the lid rim and disposed opposite the first longitudinal side of the frame.

8. The closure assembly of 1, wherein the tab member is positioned between the cover panel and the membrane.

9. The closure assembly of 1, wherein the tab member further includes a flexible orifice at an end of the channel groove, wherein the flexible orifice separates the leading article from the plurality of articles without removing material liquid from the leading article and retains a next article therein after the leading article is removed.

10. The closure assembly of 1, wherein the frame further includes an interior surface, the interior surface having a frame latching member extending outwardly therefrom, wherein the frame latching member includes a frame projection; and

wherein the lid includes a sidewall extending downwardly from a perimeter of a bottom surface of the interior lid, the sidewall defining a cavity configured to receive the frame projection therein to lock the lid with the frame in the closed position.

11. The closure assembly of 1, wherein the cover panel is biased towards the assembly closed position.

12. The closure assembly of 1, wherein the cover panel and the lid move independently of one another.

13. The closure assembly of 1, further comprising a closure retarding system configured to retard movement of the cover panel when the cover panel transitions from the assembly open position to the assembly closed position.

14. The closure assembly of 13, wherein the closure retarding system includes a rotary damper.

15. A lid for a container of articles disposed therein, the lid comprising:

a lid rim that defines an opening;
a flexible membrane housed within the opening of the lid rim, wherein the flexible membrane defines a zone configured to permit a plurality of articles to feed therethrough; and
a tab member fixedly coupled to the lid rim and extending above the membrane, wherein the tab member defines a channel groove configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles.

16. A container system comprising:

a container;
a closure assembly having:

a frame configured to couple to the container,
a lid hingedly coupled to the frame along a first longitudinal side thereof and movable between a closed position and an open position, wherein the lid includes

a lid rim that defines an opening,
a flexible membrane housed within the opening of the lid rim, wherein the flexible membrane defines a zone configured to permit a plurality of articles to feed therethrough, and
a tab member fixedly coupled to the lid rim and extending above the membrane, wherein the tab member defines a channel groove configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles, and

a cover panel hingedly coupled to the frame along the first longitudinal side thereof and movable between an assembly closed position and an assembly open position; and

a plurality of articles receivable within the container, wherein a leading article of the plurality of articles is accessible in the container through the flexible membrane when the cover panel is in the assembly open position.

17. The container system of 16, wherein the container is at least partially transparent and product information of the plurality of articles is viewable through the container.

18. The container system of 17, wherein articles are selectively fed through the membrane alone or selectively fed through the membrane and the tab member.

19. The container system of 17, wherein the articles are wet nonwovens.

20. The container system of 17, wherein the plurality of articles are contained in a package and the package comprises a flexible package of wet wipes therein.

21. A method of dispensing articles from a container system, comprising

providing a container,

a closure assembly having:

a frame configured to couple to the container,
a lid hingedly coupled to the frame along a first longitudinal side thereof and movable between a closed position and an open position, wherein the lid includes

a lid rim that defines an opening,
a flexible membrane housed within the opening of the lid rim, wherein the flexible membrane defines a zone configured to permit a plurality of articles to feed therethrough, and
a tab member fixedly coupled to the lid rim and extending above the membrane, wherein the tab member defines a channel groove configured to receive a leading article of the plurality of articles therein and separate the leading article from the plurality of articles, and

a cover panel hingedly coupled to the frame along the first longitudinal side thereof and movable between an assembly closed position and an assembly open position, and

a plurality of articles receivable within the container, wherein a leading article of the plurality of articles is accessible in the container through the flexible membrane when the cover panel is in the assembly open position;
transitioning the cover panel to the assembly open position and the lid to the open position;
inserting the plurality of articles into the container;
transitioning the lid to the closed position;
pulling a leading article of the plurality of articles through the zone; and
selectively inserting the leading article through the channel grove to separate the leading article from a next article in the plurality of articles.

Claims

1. A lid (110) for a container of articles disposed therein, the lid (110) comprising:
a lid rim (115) that defines an opening;

a flexible membrane (300) housed within the opening of the lid rim (115), wherein the flexible membrane (300) defines a zone configured to permit a plurality of articles to feed therethrough, wherein the flexible membrane (300) includes a first portion (305) and a second portion (315) separated by a distance dimension of a slot gap (320) defining the zone, wherein the first portion (305) and second portion (315) are configured to retain an article therebetween,
wherein the flexible membrane (300) has a first configuration with the first portion (305) and second portion (315) separated by the distance dimension of the slot gap (320), wherein a separation force exerted on the first portion (305) and the second portion (315) expands the slot gap (320) into a second configuration and upon removal of the separation force, the first (305) and second portion (315) transition back to the first configuration,
wherein the first portion (305) and the second portion (315) further define apertures (330) at respective ends of the slot gap (320) configured to provide structural support for the flexible membrane (300) to prevent any tearing of the flexible membrane (300) during use.

2. A closure assembly (100) for a container (200) comprising:
a frame (105) configured to couple with a container (200);

the lid (110) of claim 1 coupled to the frame (105); and
a cover panel (150) hingedly coupled to the frame (105) along the first longitudinal side thereof and movable between an assembly closed position and an assembly open position.

3. The lid (110) of claim 1, wherein the first portion (305) and the second portion (315) cooperate together to permit a plurality of articles to be pulled therethrough without causing a separation of individual articles from the plurality of articles.

4. The lid (110) of claim 1, wherein the membrane (300) comprises at least one of silicone rubber, thermoplastic elastomer, thermoplastic polyurethane, polyester, and polyethylene.

5. The closure assembly (100) of claim 2, further comprising a closure retarding system configured to retard movement of the cover panel (150) when the cover panel (150) transitions from the assembly open position to the assembly closed position, wherein optionally the closure retarding system includes a rotary damper.

6. The closure assembly (100) of claim 2, further comprising a plurality of articles receivable within the container (200), wherein a leading article of the plurality of articles is accessible in the container (200) through the flexible membrane (300).

7. The closure assembly of claim 6, wherein the con-

tainer (200) is at least partially transparent and product information of the plurality of articles is viewable through the container (200).

8. The closure assembly (100) of claim 6, wherein the articles are wet nonwovens.

9. The closure assembly (100) of claim 2, wherein the slot gap is configured to permit an edge of a leading article to extend through the membrane while the cover panel (150) is in the assembly closed position.

10. The lid (110) of claim 1, further comprising a central aperture (325) configured to facilitate ease of separation of the first portion and second portion of the membrane to permit a user's fingers to be inserted therethrough.

11. The lid (110) of claim 1, wherein the slot gap is a curved line.

12. The lid (110) of claim 3, wherein the slot gap is defined by a distance dimension between the first portion (305) and the second portion (315) that ranges between zero to an approximate diameter dimension of an article when in a roped or twisted configuration when in use.

13. A container system comprising:

a container (200);
the closure assembly (100) of claim 2; and
a plurality of articles receivable within the container (200), wherein a leading article of the plurality of articles is accessible in the container (200) through the flexible membrane (300) when the cover panel (150) is in the assembly open position.

14. A method of dispensing articles from a container system, comprising:
providing a container (200) including a closure assembly (100), the closure assembly (100) having:

a frame (105) configured to couple to the container (200),
a lid (110) coupled to the frame (105), wherein the lid (110) includes a lid rim (115) that defines an opening and a flexible membrane (300) housed within the opening of the lid rim (115), wherein the flexible membrane (300) defines a zone configured to permit a plurality of articles to feed therethrough, wherein the flexible membrane (300) includes a first portion (305) and a second portion (315) separated by a distance dimension of a slot gap (320) defining the zone, wherein the first portion (305) and second portion (315) are configured to retain an article therebetween, wherein the flexible membrane (300) has a first configuration with the first portion (305) and second portion (315) separated by the distance dimension of the slot gap (320), wherein a separation force exerted on the first portion (305) and the second portion (315) expands the slot gap (320) into a second configuration and upon removal of the separation force, the first (305) and second portion (315) transition back to the first configuration,
wherein the first portion (305) and the second portion (315) further define apertures (330) at respective ends of the slot gap (320) configured to provide structural support for the flexible membrane (300) to prevent any tearing of the flexible membrane (300) during use, and
a cover panel (150) hingedly coupled to the frame (105) along the first longitudinal side thereof and movable between an assembly closed position and an assembly open position, and
a plurality of articles receivable within the container (200), wherein a leading article of the plurality of articles is accessible in the container (200) through the flexible membrane (300) when the cover panel (150) is in the assembly open position;
transitioning the cover panel (150) to the open position; and
pulling a leading article of the plurality of articles through the zone.

15. The method of claim 14, further comprising:

exerting a separation force on the first portion (305) and second portion (315) to expand the slot gap (320) into the second configuration; and
transitioning the first portion (305) and second portion (315) to the first configuration upon removal of the separation force.

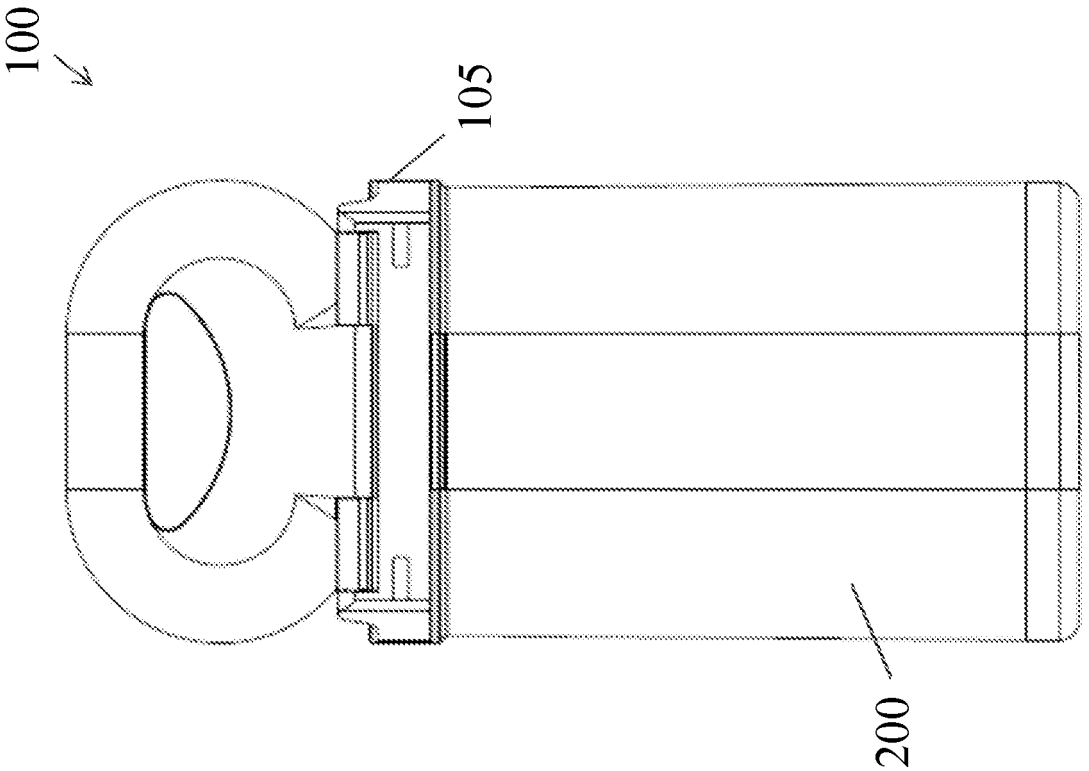

FIG. 2

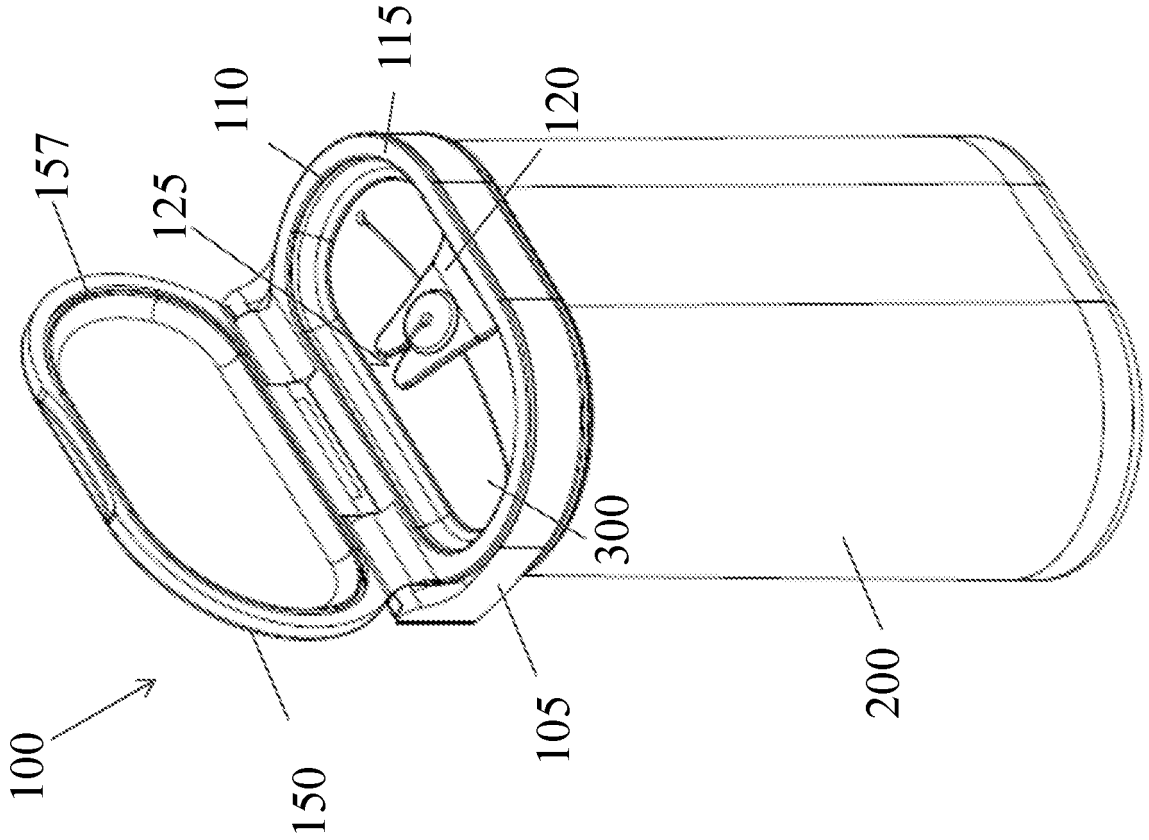

FIG. 1

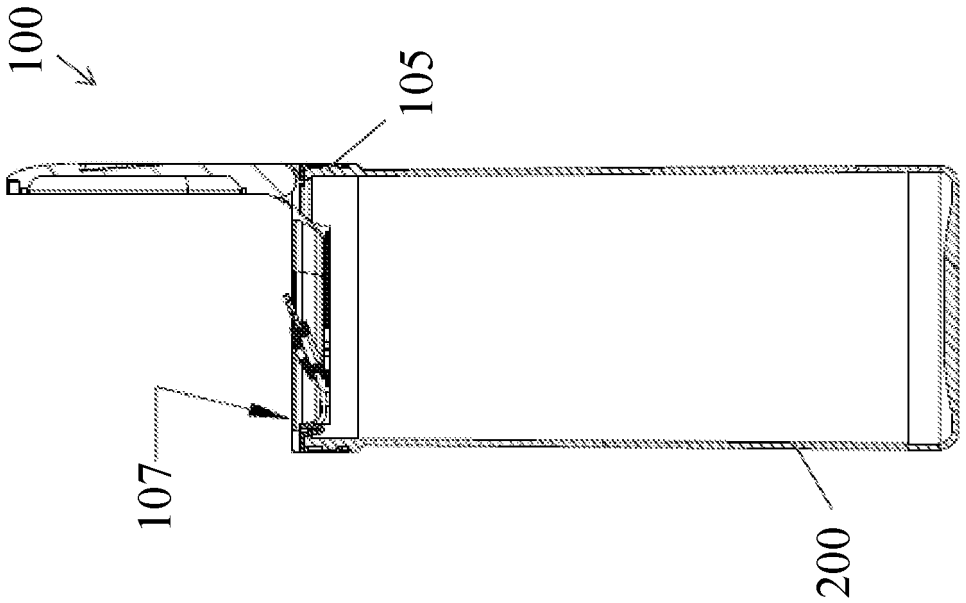

FIG. 4

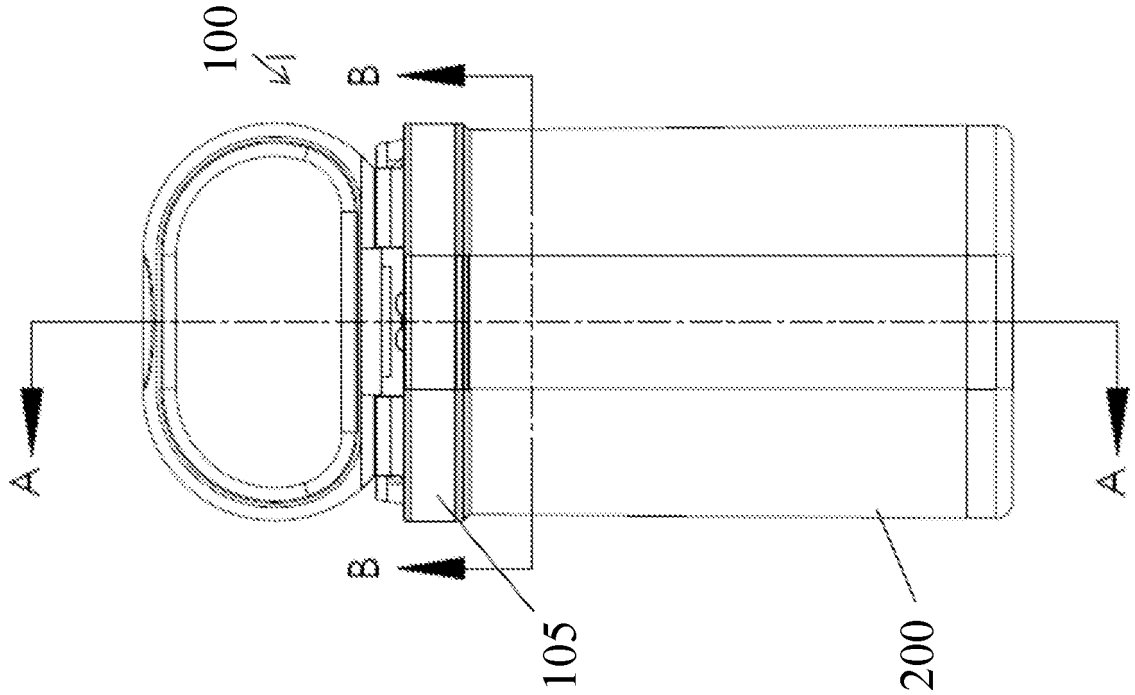

FIG. 3

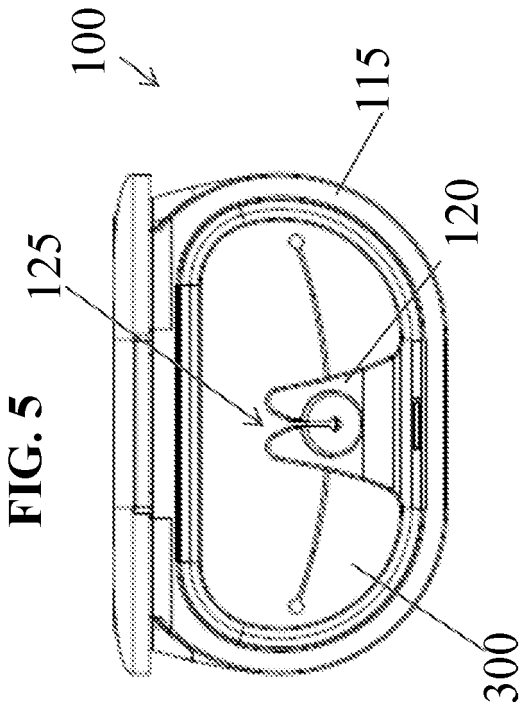

FIG. 5

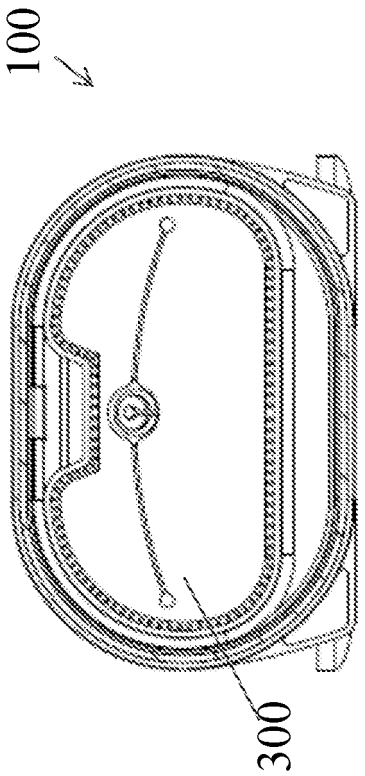

FIG. 6

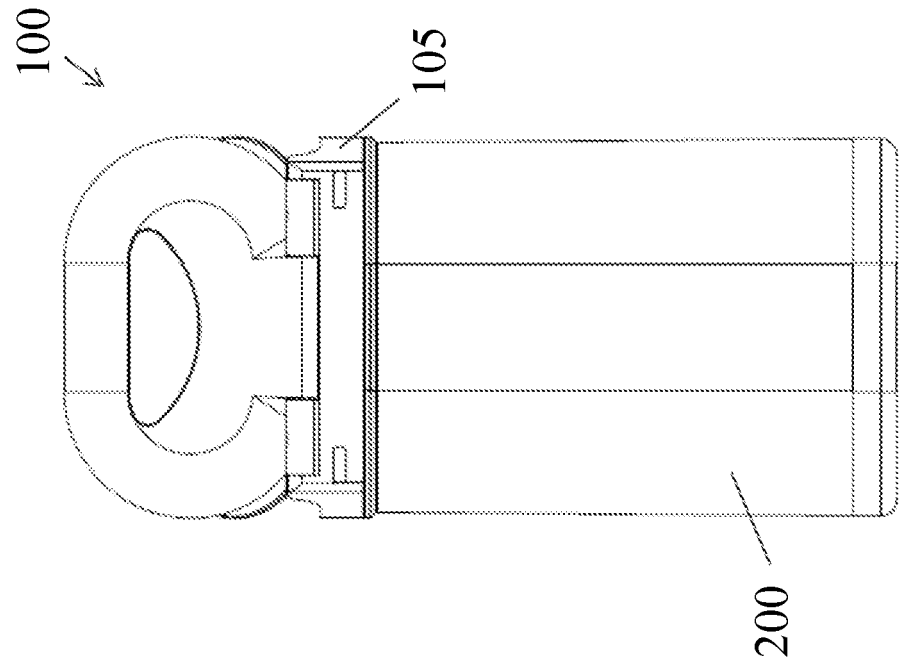

FIG. 8

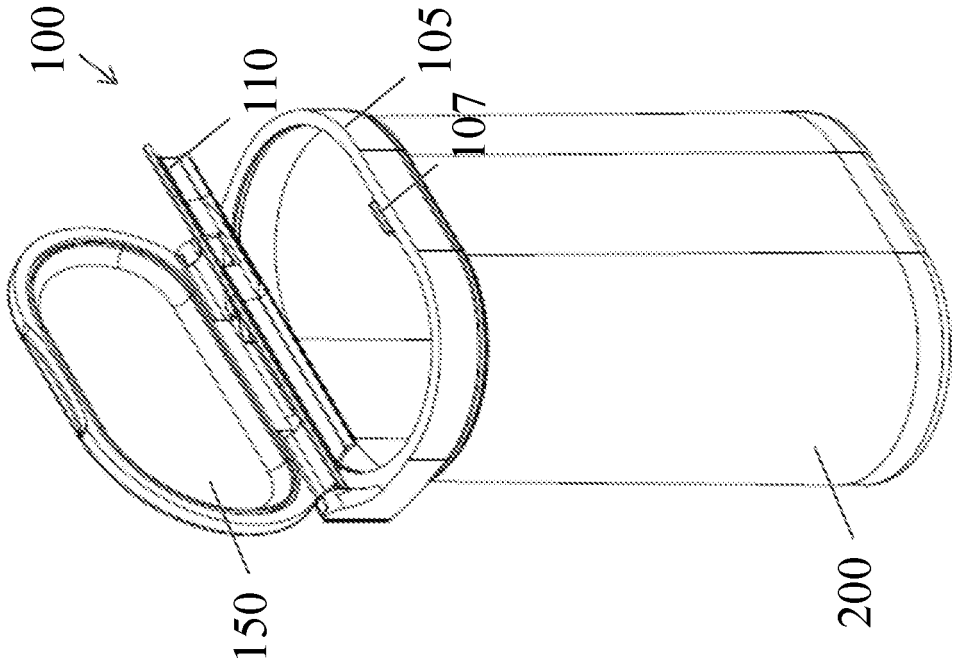

FIG. 7

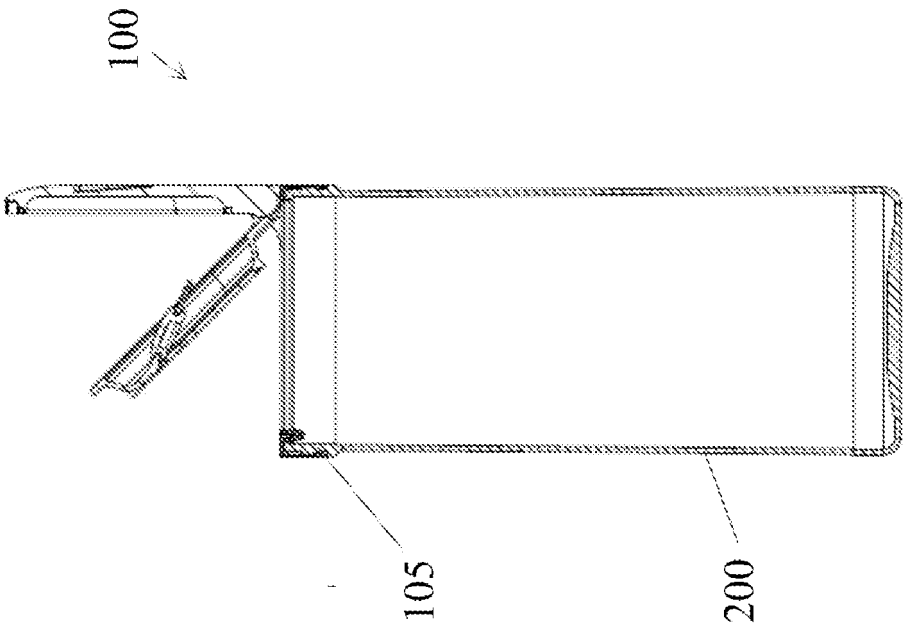

FIG. 10

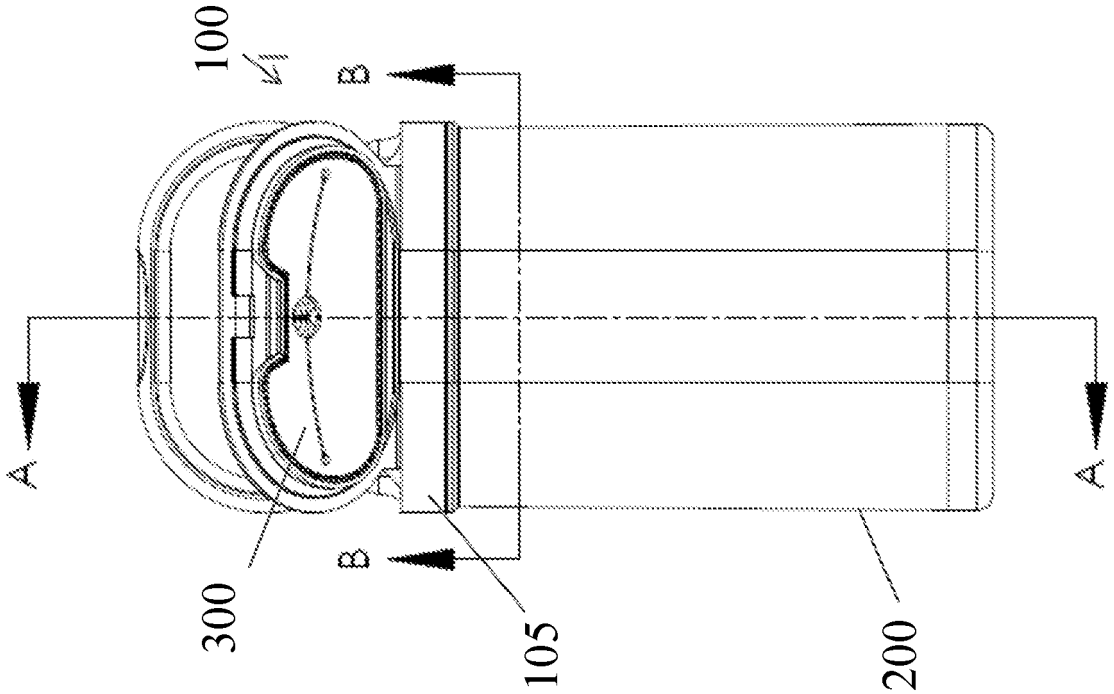

FIG. 9

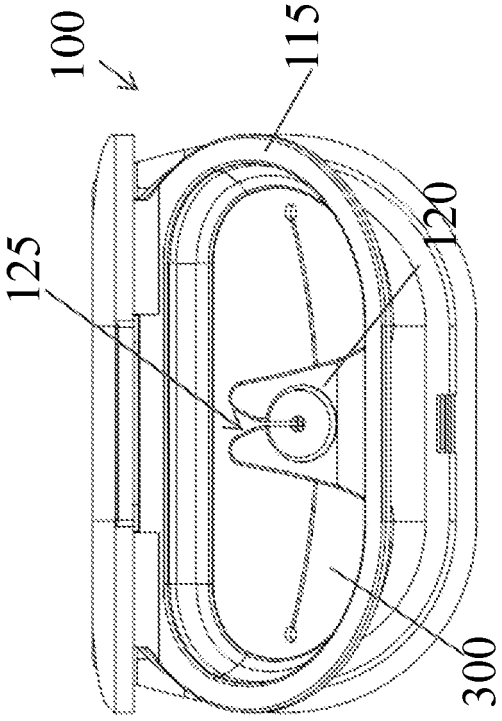

FIG. 11

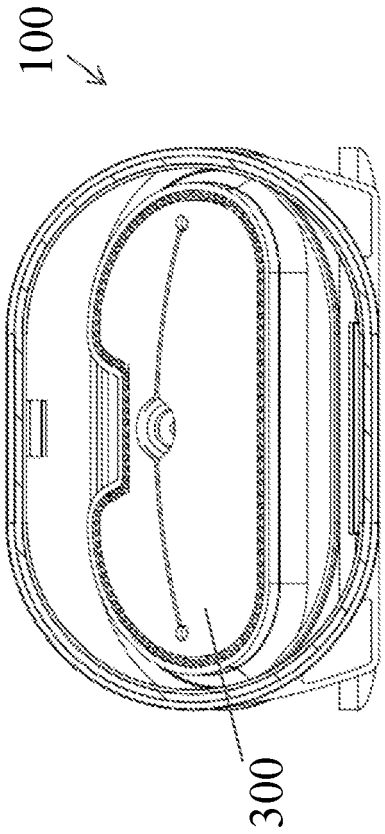

FIG. 12

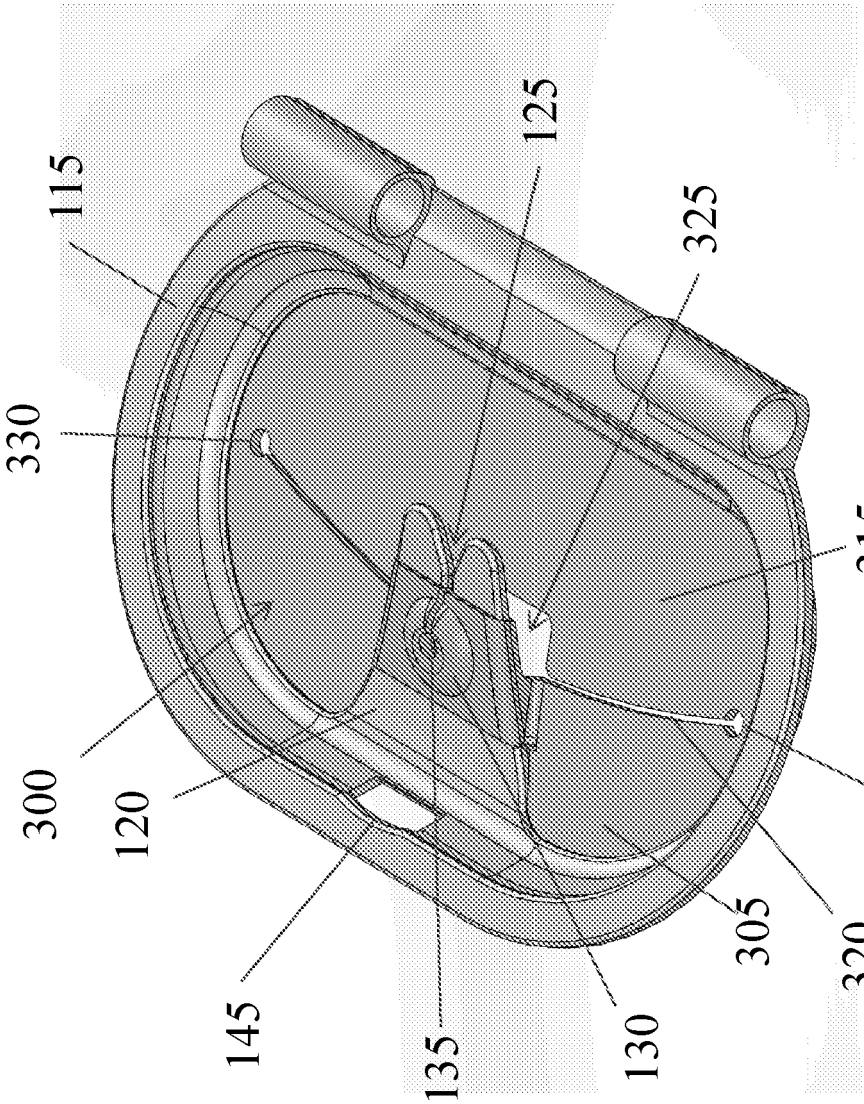

FIG. 13

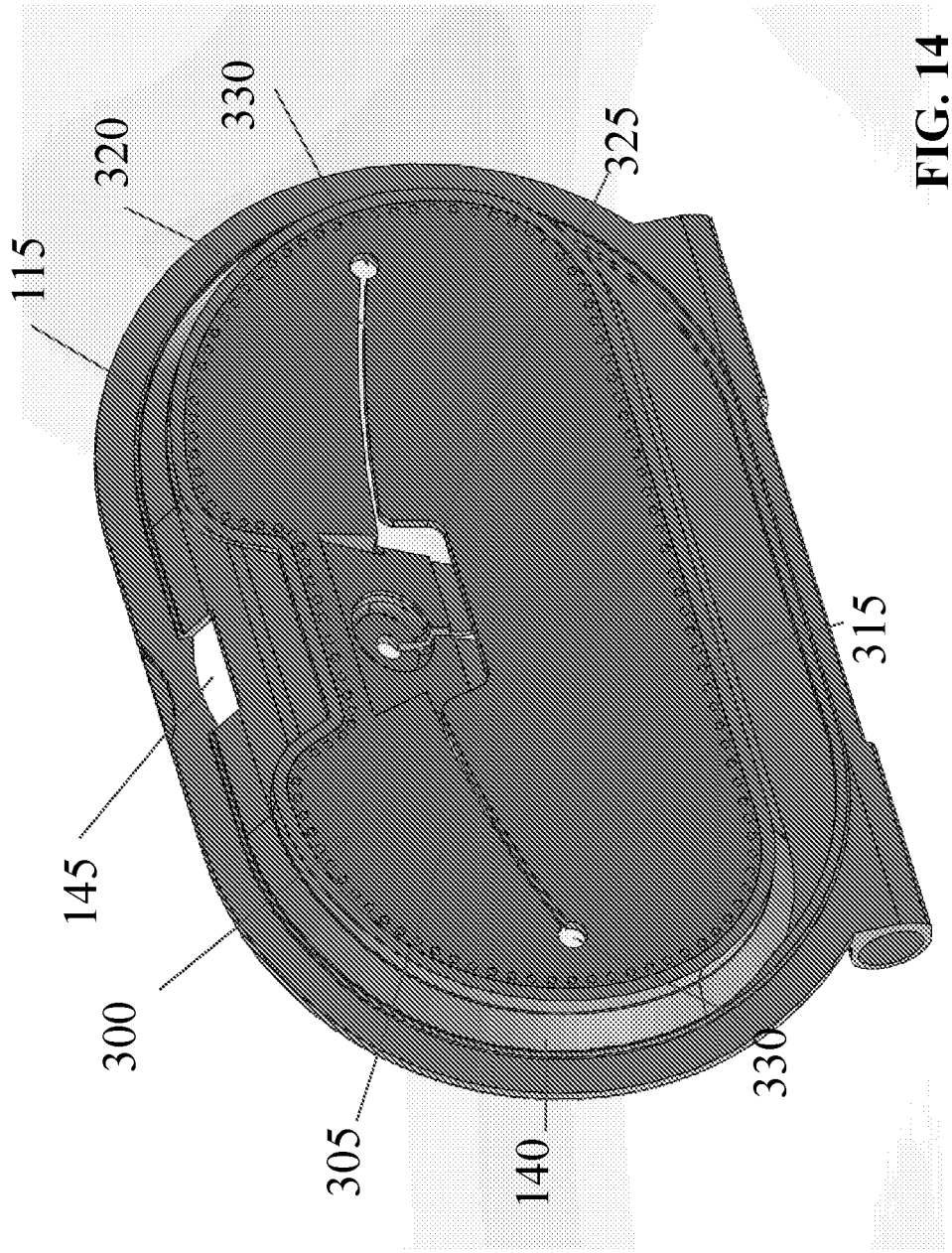

FIG. 14

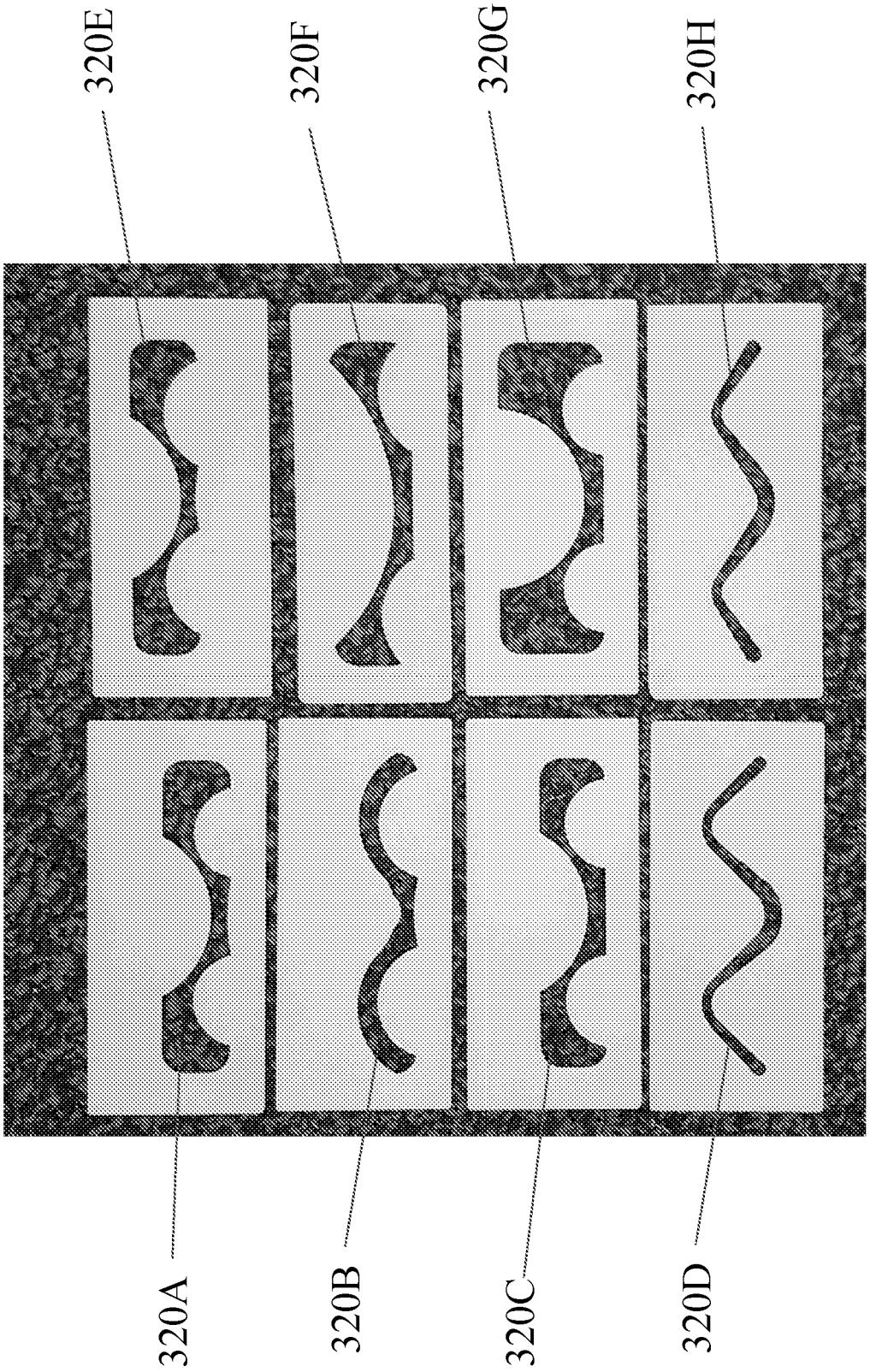

FIG. 15

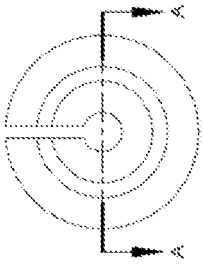

FIG. 18

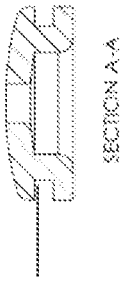

FIG. 19

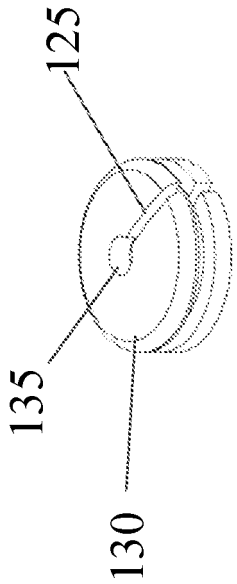

FIG. 16

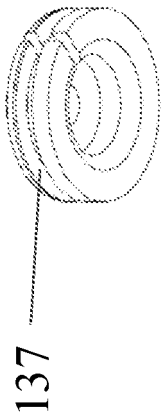

FIG. 17

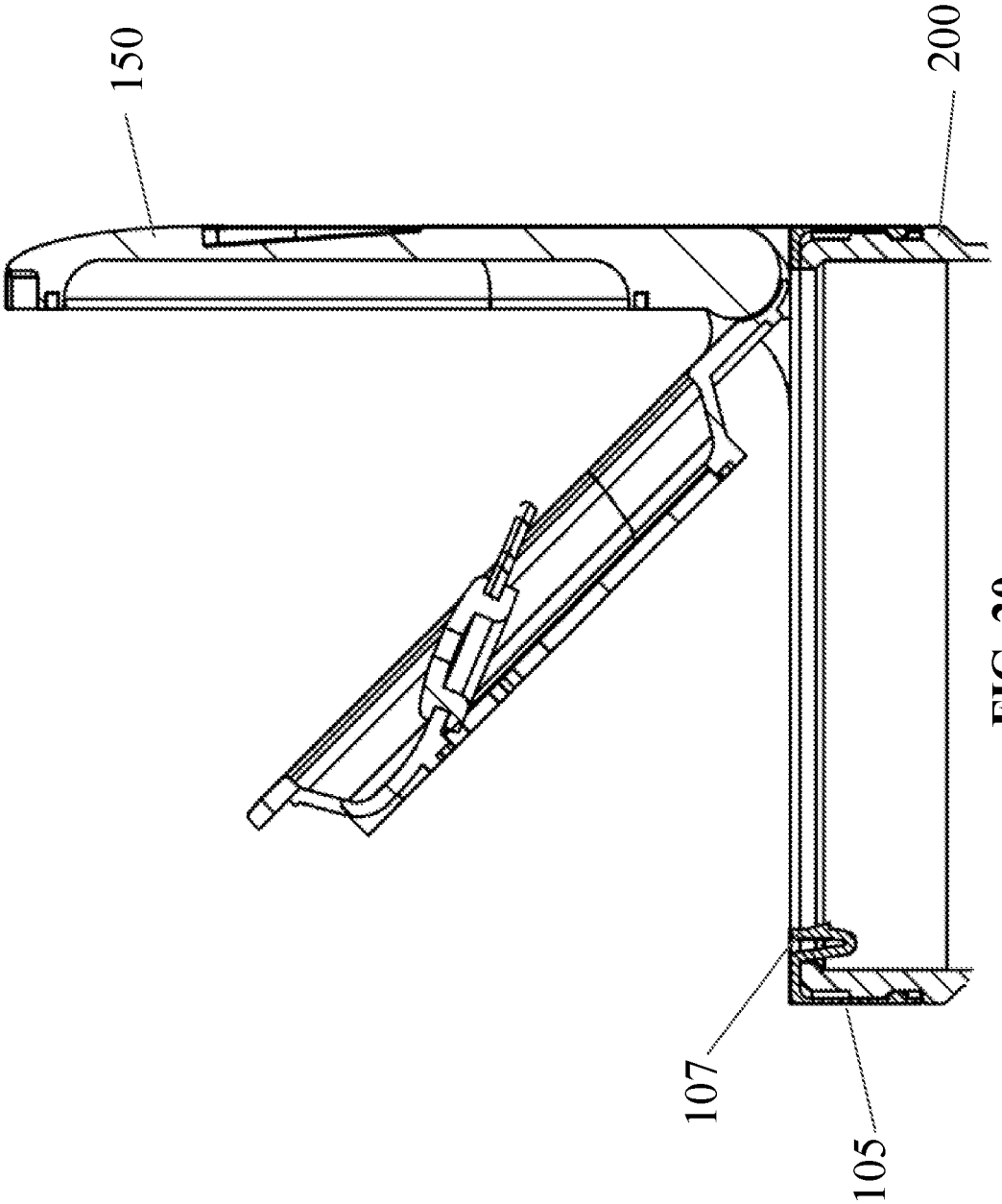

FIG. 20

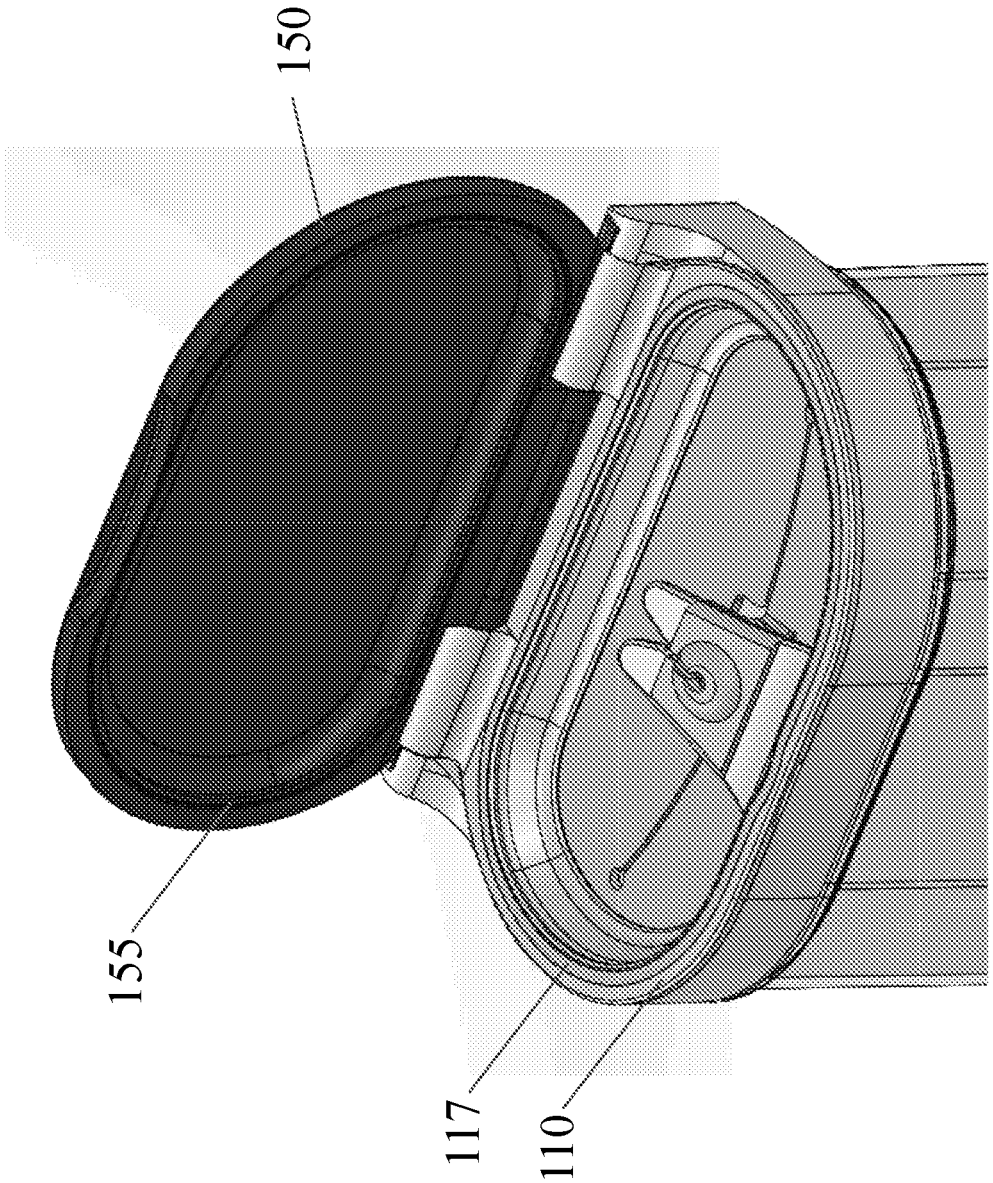

FIG. 21

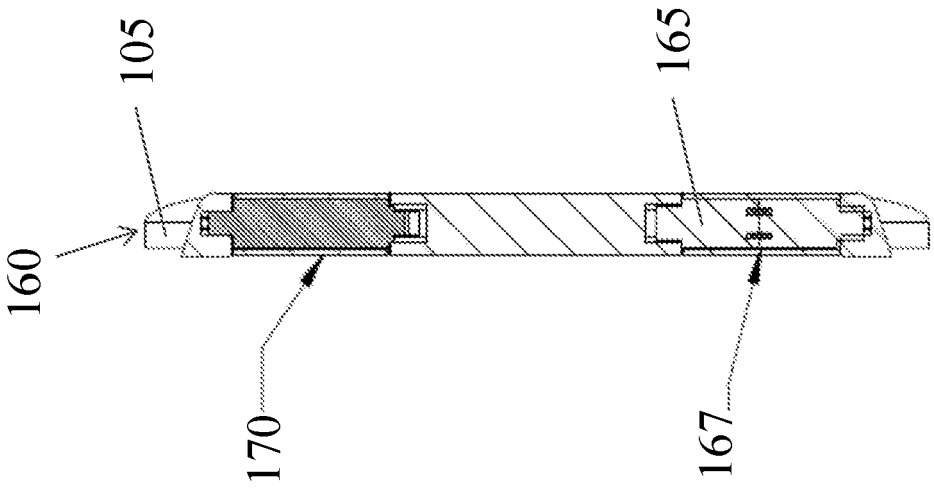

FIG. 23

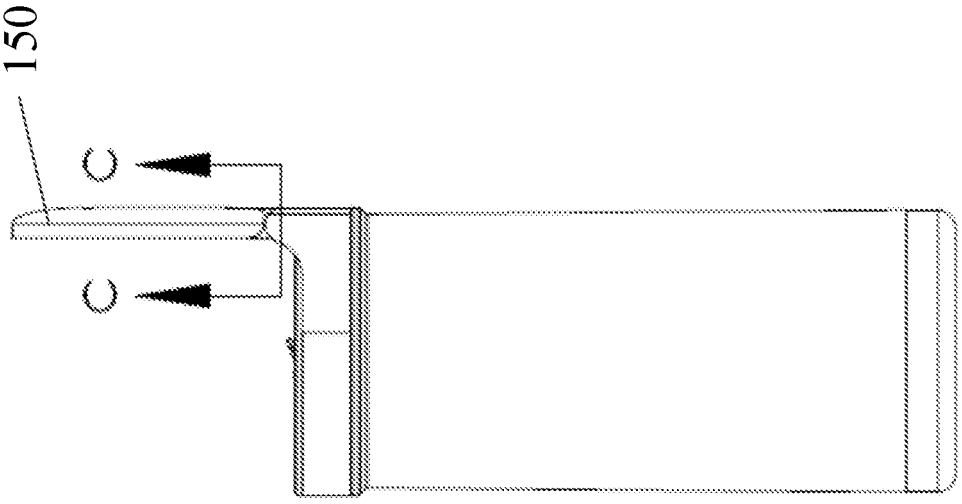

FIG. 22

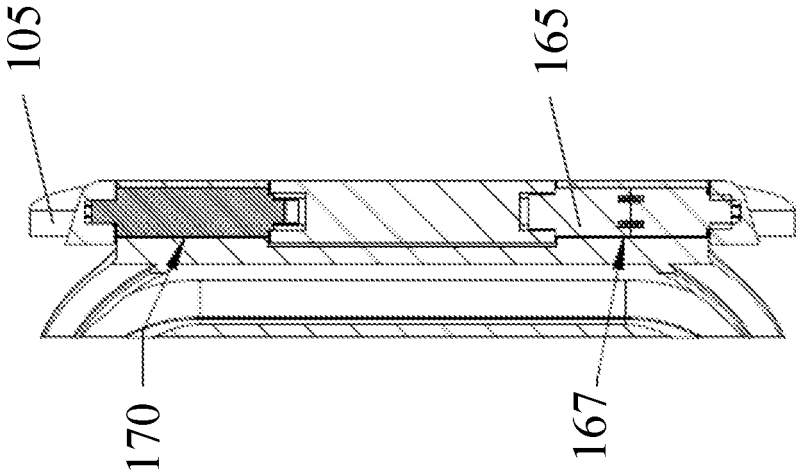

FIG. 25

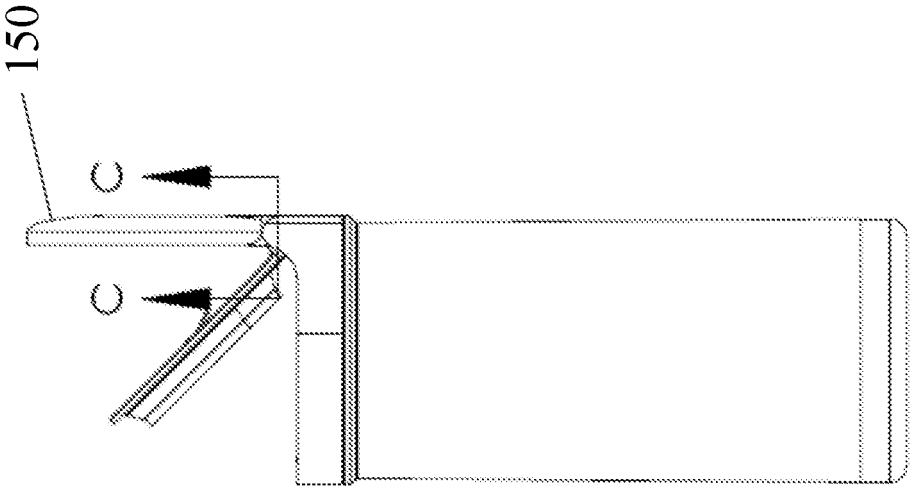

FIG. 24

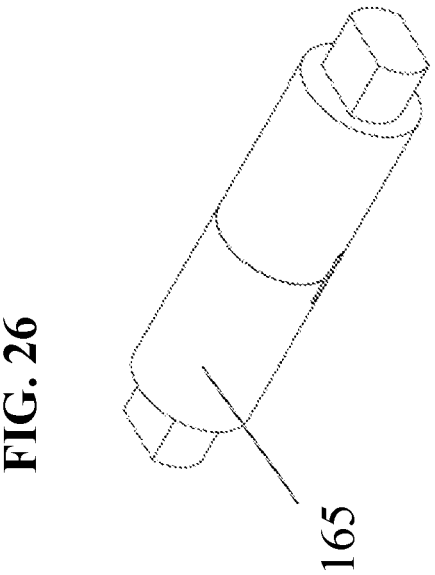

FIG. 26

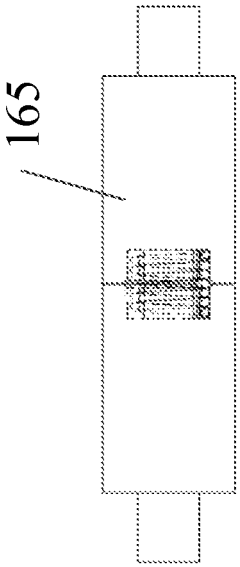

FIG. 28

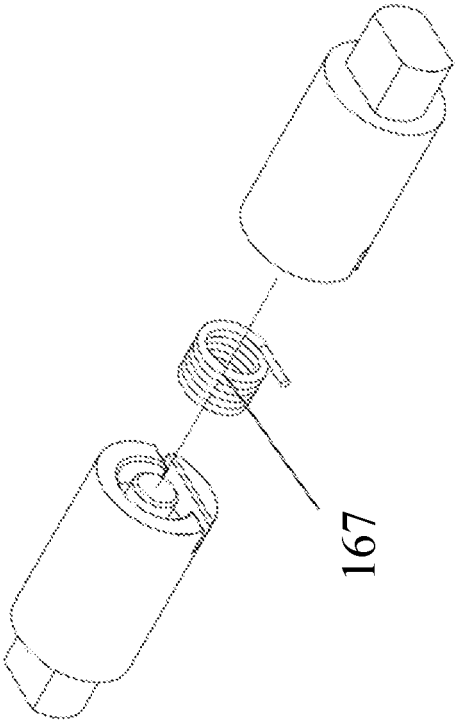

FIG. 27

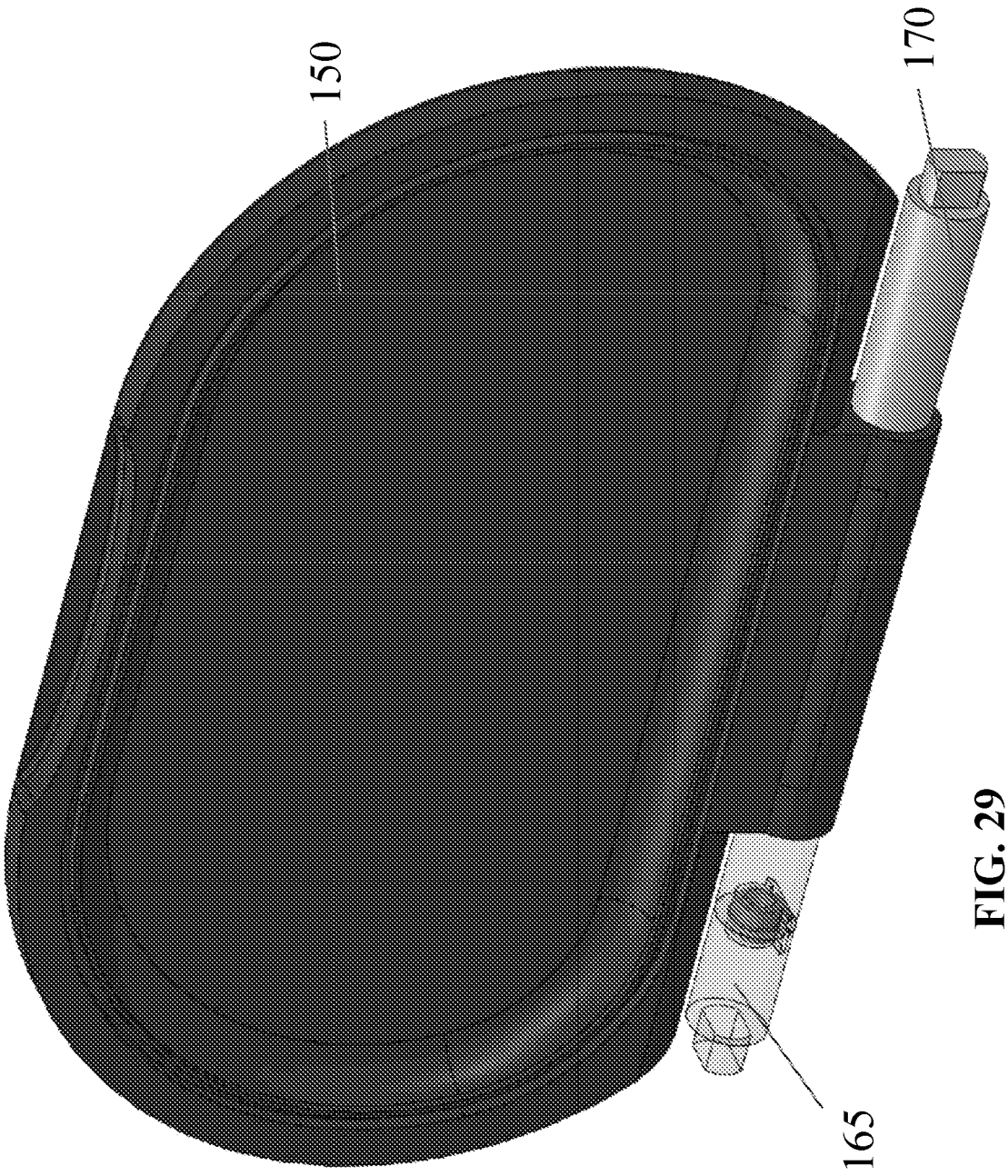

FIG. 29

FIG. 31

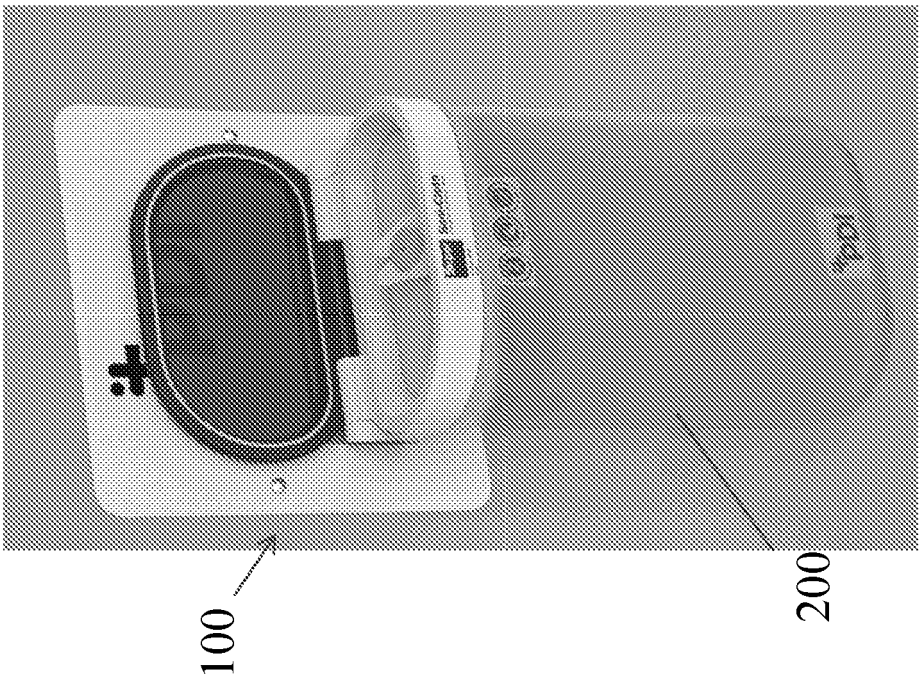

FIG. 30

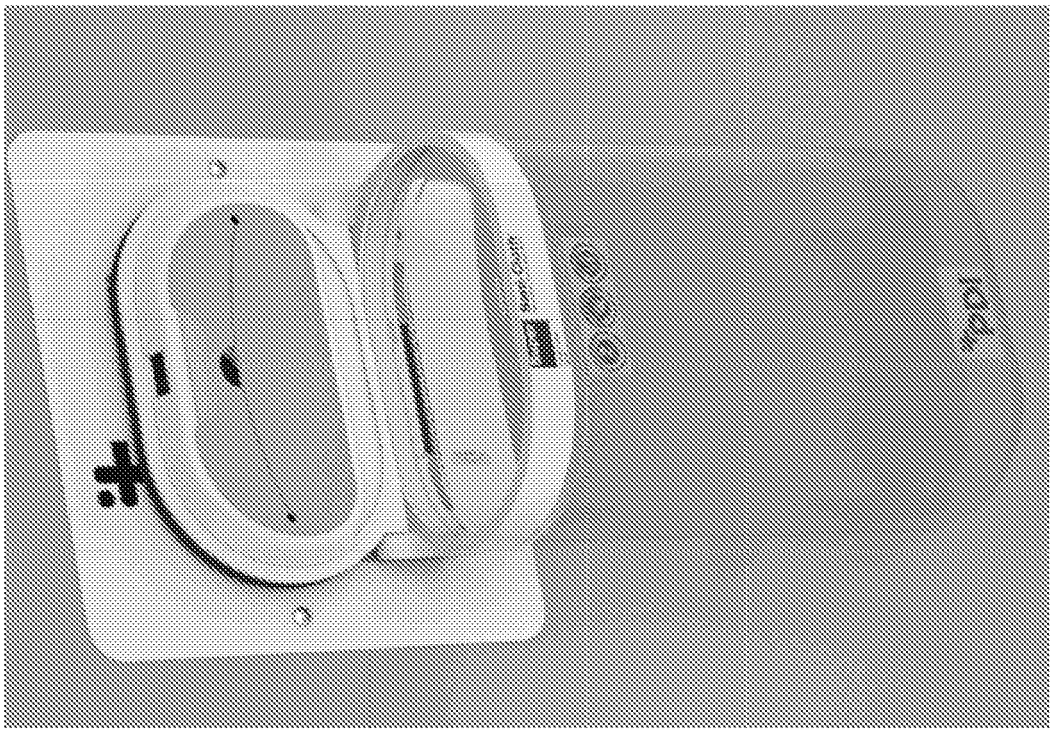

FIG. 32

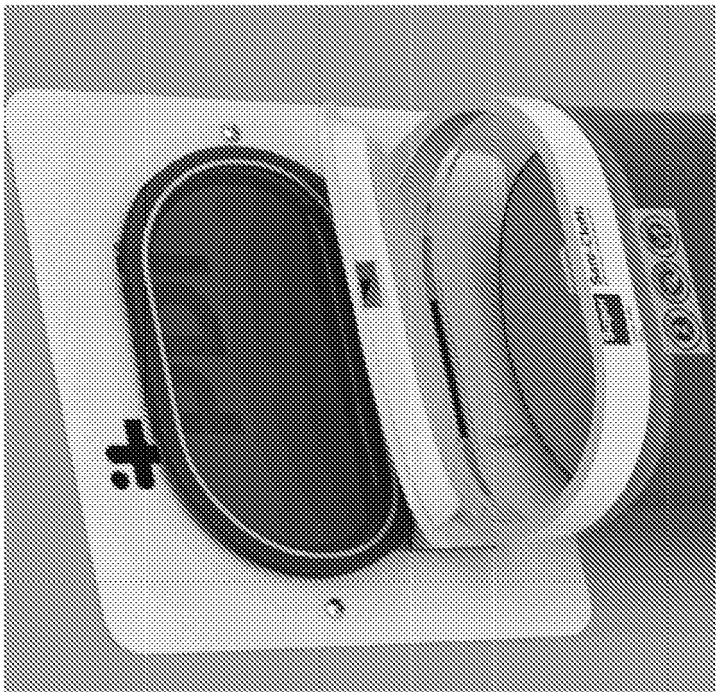

FIG. 34

FIG. 33

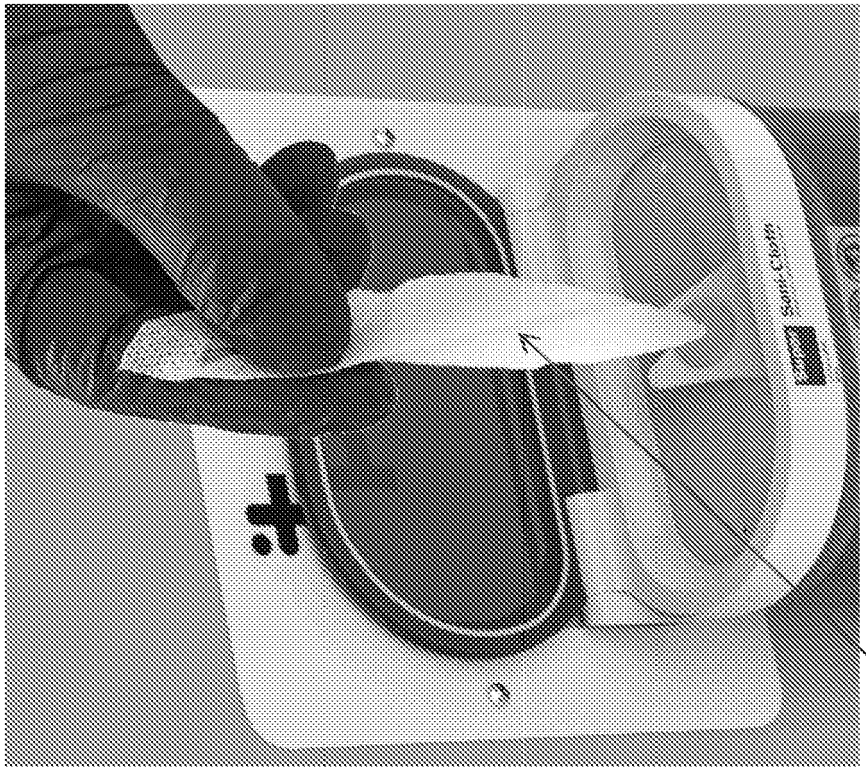

FIG. 36

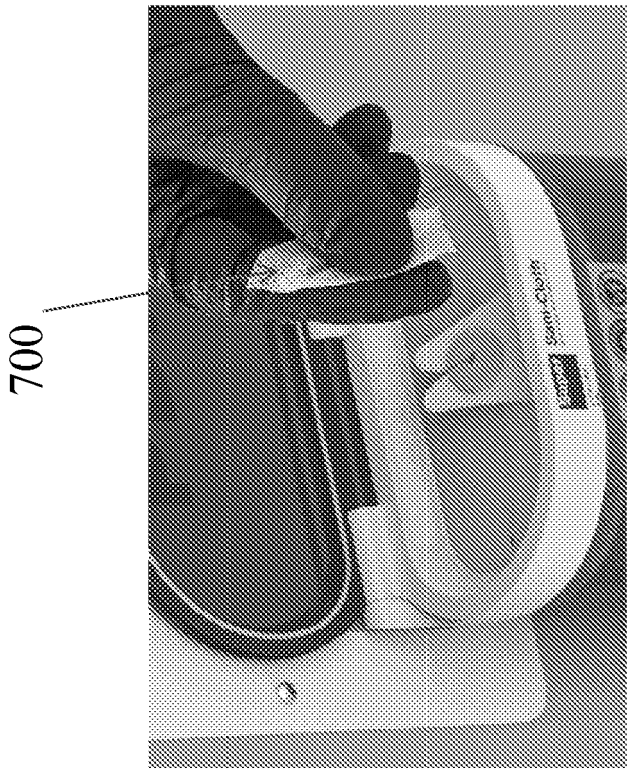

FIG. 35

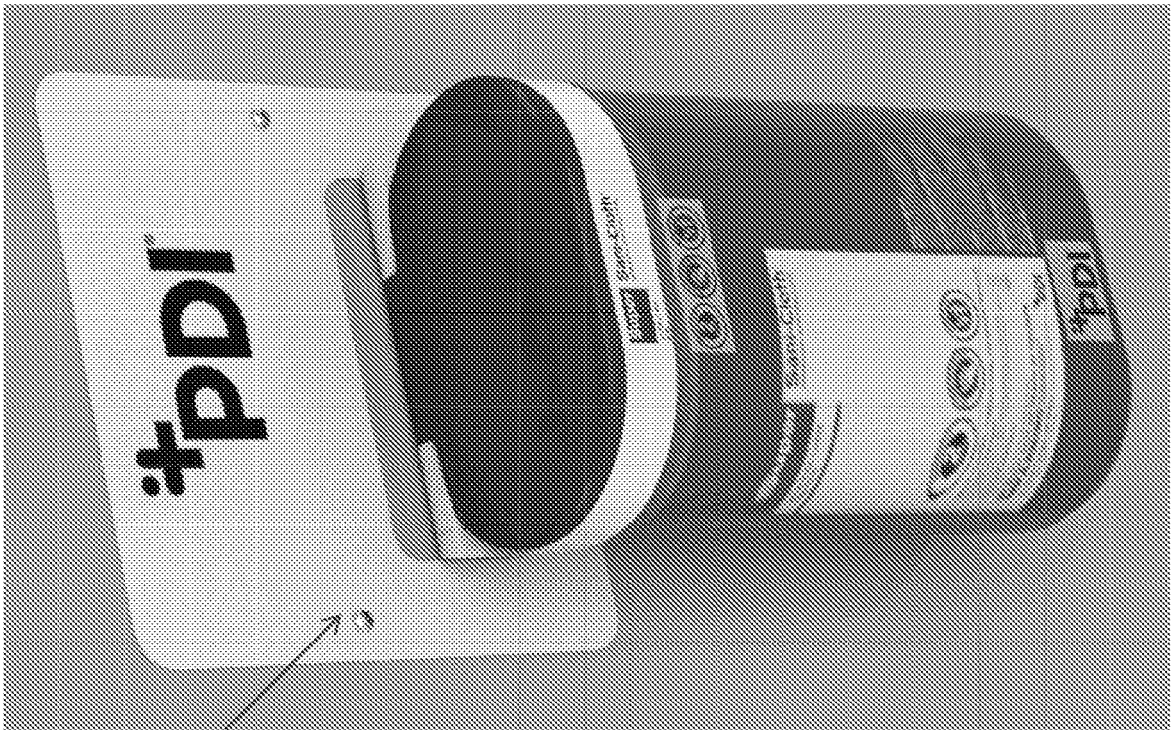

FIG. 37

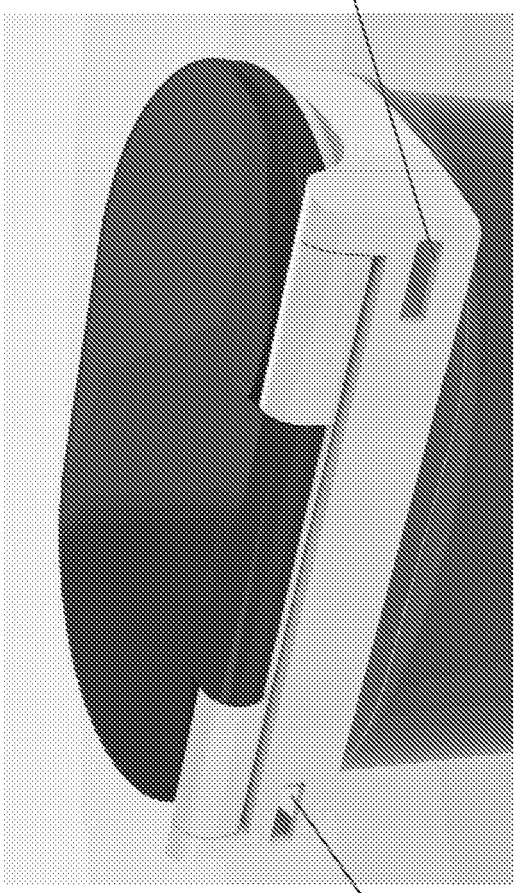

FIG. 38

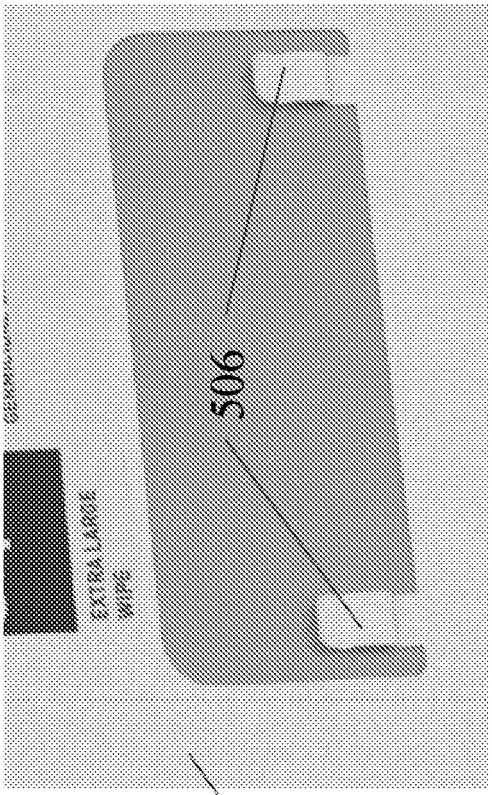

FIG. 39

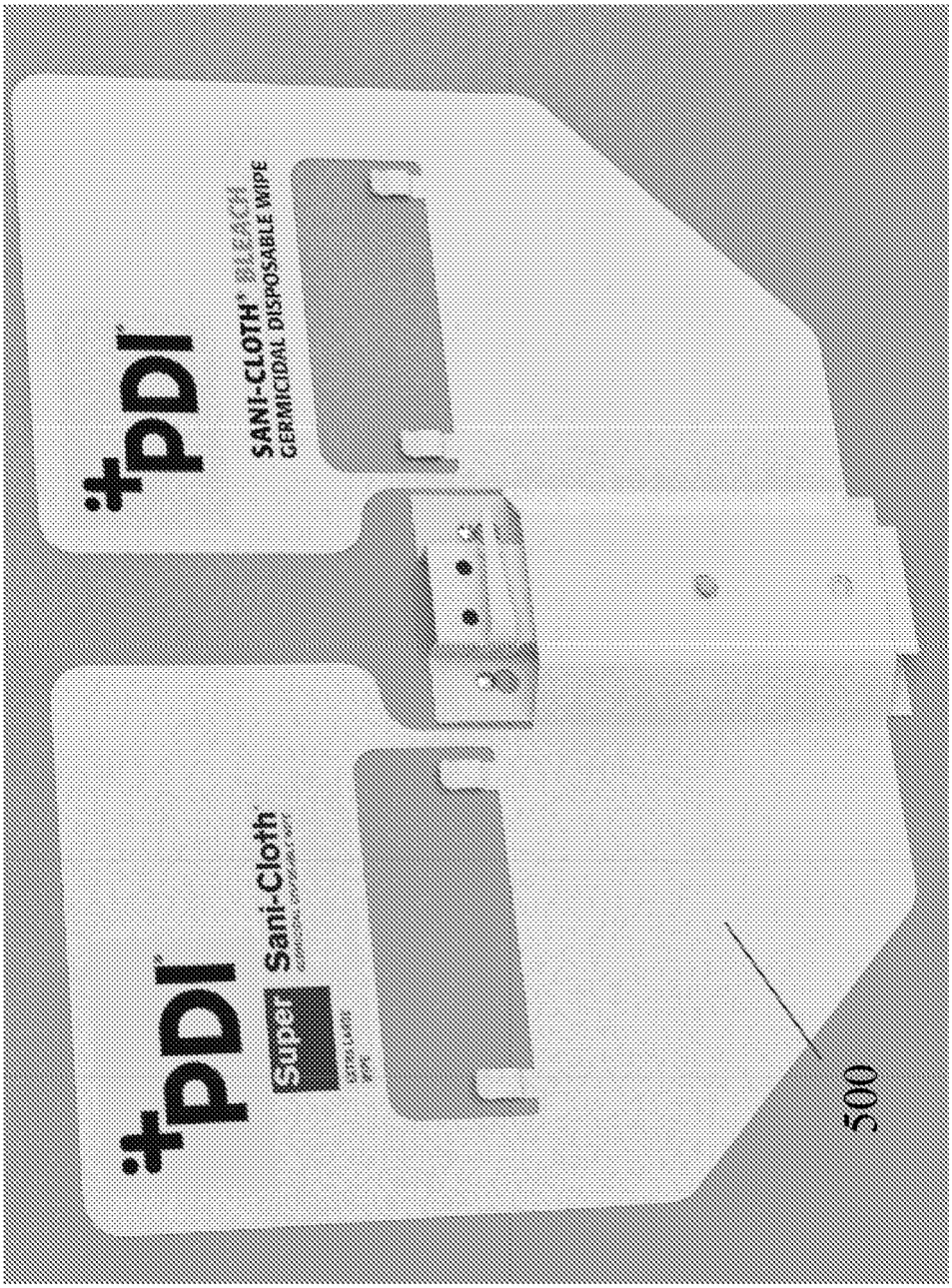
+pdi
Super
Sani-Cloth
+pdi
SANI-CLOTH
GERMICIDAL DISPOSABLE WIPE
500

FIG. 40


+PDI
SANI-CLOTH
CHEMICAL BIODISPOSABLE WIPE
+PDI
Sani-Cloth
+PDI

FIG. 41


Sani-Cloth
Sani-Cloth
Sani-Cloth
600

FIG. 43


Sani-Cloth
Sani-Cloth
Sani-Cloth

FIG. 42

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 63022189 **[0001]**
- US 20140048553 A **[0003]**
- US 20140103058 A **[0003]**