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(54) Sip Lid for a Container

(57) A lid is provided which is designed to attach to the top of a beverage container having its open top sealed by a membrane. The lid further has a mechanism for opening the closed top of the container and simultaneously providing access to container contents through the sip opening. In one form, the lid includes a main body and a rotatable center portion with a top surface having recesses for one to grasp with one's fingers to rotate the center portion. A projection extends in a direction away from a bottom of the center portion and towards the membrane. When the center portion is rotated, the projection is forced towards the membrane until the projection pierces the membrane. The lid may include a closable opening through which one sips the beverage after the membrane has been pierced. The opening is selectively opened and closed by rotating the center portion, which selectively moves a cover over the opening in the sip lid.

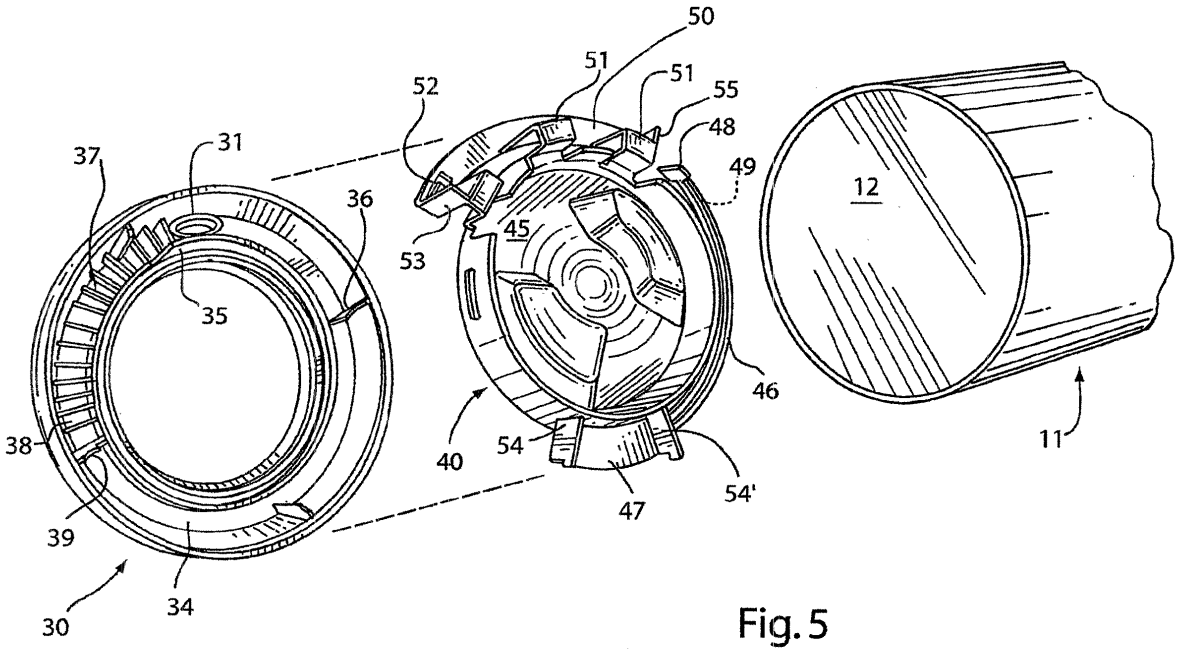

Fig. 5

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a lid for a container and, in particular, it relates to a sip lid which allows piercing of a membrane covering an opening of a container.

BACKGROUND OF THE INVENTION

[0002] Beverages, such as coffee and the like, are often served in cups which have lids which are placed over the top opening of the cup in order to seal the container and/or to prevent or limit accidental spilling of the cup contents. Some conventional lids include a relatively small opening in the lid for allowing one to sip the beverage through the opening. One known type of lid for allowing one to sip the beverage through the opening comprises an inner and an outer part, wherein the outer part is rotatable relative to the inner part to either align openings in the inner and outer parts, which is an open position, or move the openings in the inner and outer part out of alignment with each other, which is a closed position. Such a lid is shown, for example, in U.S. Patent No. 6,732,875.

[0003] Another known lid includes elements for piercing a metallic foil sealing membrane which covers the top opening of the cup. For example, U.S. Patent No. 4,901,435 discloses a lid having a cutter which includes a knife blade which cuts a hole in a metallic foil cover of a container upon rotation of a portion of the lid.

SUMMARY OF THE INVENTION

[0004] The present invention relates to a lid for a container, and the combination of a container and a lid. The lid provides a structure or mechanism for piercing a membrane which seals the top opening of the container, which membrane is generally in the form of a foil, film or the like. The lid may also include a sip opening which, upon piercing of the membrane, permits access for consumption of the contents of the container. Preferably, the same movement of the lid which causes the piercing of the membrane simultaneously uncovers the sip opening; and preferably such movement comprises rotation of one part of the lid relative to another part of the lid. The contents may include, but are not limited to coffee, hot chocolate, cappuccino, liquid desserts and semi-liquid, highly flowable foods.

[0005] The lid of the present invention is designed to attach to the top of a container, such as a beverage container, which has a membrane sealingly covering the top opening of the container. The lid preferably includes a sip opening formed in a main body and a rotatable center portion with a gripping portion on a top surface thereof for one to grasp the center portion with one's fingers to rotate the center portion. A projection extends downwardly from a bottom surface of the center portion, towards the membrane. When the center portion is rotated, the projection is forced towards the membrane until the projection pierces the membrane. Preferably, the lid includes a closable opening through which one sips the beverage after the membrane has been pierced. The opening is selectively opened and closed by rotating the center portion.

[0006] The present invention, in one form thereof, relates to a container having a closed top and a lid, thereover. The lid has a sip opening and a mechanism for opening the closed top of the container and simultaneously providing access to container contents through the sip opening.

[0007] The present invention, in another form thereof, relates to a container having a closed top and a lid, thereover. The lid has a sip opening with a recloseable sip cover and a mechanism for moving the sip cover away from the sip opening, and opening the closed top of the container, thereby simultaneously providing access to container contents through the sip opening.

[0008] The present invention, in another form thereof, relates to a lid for a container having a membrane covering the top opening of the container. The lid has a stationary main body and a rotatable center portion. The center portion has an upper surface adapted to be grasped by a user to rotate the center portion. The underside of the main body includes a cam facing toward the membrane of the container, wherein rotation of the center portion causes a projection, which is engaged by the cam, to move towards the membrane of the container to pierce the same.

[0009] In one advantageous form, the projection is on an arm which is radially spaced from the center portion and includes a groove facing away from the direction of the projection. The groove accommodates insertion of the cam which extends downwardly from a bottom surface of the main body of the lid. The cam is inclined, whereby rotation of the center portion permits the radially spaced arm with the projection to move downwardly.

[0010] The present invention also comprises a lid for a container having a membrane. The lid includes a stationary main body and a member which is rotatable relative to the main body. The rotatable member has an arm radially spaced from a main portion of the rotatable member and includes a projection. The projection pierces the membrane when the rotatable member is rotated when disposed on the container.

[0011] The present invention also comprises a lid for a container having a membrane. The lid has a main body having a top surface and a bottom surface. The bottom surface has an inclined surface extending downwardly therefrom. The lid further includes a rotatable portion which is rotatable relative to the main body. An arm is radially spaced from the rotatable portion with a projection facing away from the bottom surface of the main body. The arm abuts the inclined surface, whereby rotation of the rotatable portion causes the arm to ride along

the inclined surface and, thereby, moves the projection of the arm away from the bottom surface of the main body and towards the membrane cover.

[0012] The present invention also comprises a lid for a container having a membrane cover wherein the lid has a main body and a rotatable center portion. The main body includes a sip opening. A sip cover located in the main body under the sip opening is connected to the center portion such that rotation of the center portion causes the sip cover to both cover and uncover the sip opening. Preferably the same rotational movement of the center portion which causes a projection to pierce the membrane also moves the sip cover to uncover the sip opening.

[0013] In a further form of the present invention, a sip lid has a main body and a rotatable center portion which pierces a membrane therebelow and includes a package integrity tab between the rotatable center portion and the main portion of the sip lid.

BRIEF DESCRIPTION OF THE FIGURES

[0014] Figure 1 is a perspective view of a container with a lid in accordance with the present invention.

[0015] Figure 2a is a top plan view of the lid of Figure 1, shown in its closed configuration, and Figure 2b is a plan view of the lid shown in its open configuration.

[0016] Figures 3a and 3b are bottom plan views of the lid of Figures 2a and 2b, respectively.

[0017] Figure 4 is a partial cross-sectional view of a main body of the lid taken along line 4-4 of Figures 2a and 2b.

[0018] Figure 5 is an exploded view of the lid of Figure 2a, together with a container.

[0019] Figure 6 is a top plan view of the rotatable center portion of Figure 1, removed from the main body of the lid.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0020] The present invention will now be described with regard to the several views of the drawings where like numerals represent like elements throughout the several figures.

[0021] Referring now to Figure 1, container 10 is shown here as a cup 11 sealed by membrane 12. Cup 11 can be composed of any suitable material, including paper, cardboard, Styrofoam and various thermal plastics. Membrane 12 can be any suitable material, including metal or plastic. Container 10 is designed for containing a liquid or a flowable semi-liquid.

[0022] Lid 20 is disposed on top of cup 11, acting as an overcap covering membrane 12. The lid 20 includes a stationary main body 30 and a rotatable member or center portion 40. The main body 30 has an opening 31 for a user to sip the beverage from the container 11 after membrane 12 has been pierced, as will be discussed below.

[0023] A main body groove 33 is radially disposed adjacent the outer circumference of the rotatable center portion 40 to accommodate any liquid which may have inadvertently seeped between the center portion 40 and the main body 30 after the membrane has been pierced.

[0024] The center portion 40 has an outwardly facing top surface 41 which has two 180° opposed discrete recessed actuatable surfaces 42 of a sufficient size for allowing a user to grasp the top surface 41 and rotate the center portion 40. A recess in the form of a concave depression center 43 accommodates a user's nose when sipping the liquid from the container 11.

[0025] Prior to rotating the center portion 40 for a first time, a package integrity tab 44 spans between, and is affixed to, both the main body 30 and center portion 40. After the center portion 40 has been rotated for a first time, the tab 44 separates between the main body 30 and the center portion 40 to indicate that the container 10 has been previously opened.

[0026] Referring now to Figures 4 and 5, the main body 30 has an inwardly facing surface 34 which faces downwardly toward the membrane 12. Extending from the surface 34 is an inclined surface in the form of inclined cam 35, stops 36 and 39, and a plurality of fins 37 defining shallow compartments 38.

[0027] Referring now to the center portion of Figure 5, the center portion 40 has a downwardly facing surface 45. Arm 48, which extends in a circumferential direction, is radially space from and is fixed to the main part of the center portion 40 via support 47 which is fixed to the main part of center portion 40 by brackets 54 at one end and 54' at the other end. The end of arm 46 farthest from the support 47 includes a downwardly extending projection 48, i.e. extending from the arm 46 downwardly toward the membrane 12 when the lid 20 is disposed on the cup 11.

[0028] A groove 49 is formed from a pair of ridges extending upwardly from the arm 46. The groove 49 is dimensioned to accommodate insertion of the inclined cam 35.

[0029] Sip cover 50 is also radially spaced from the main part of the center portion 40 and is affixed thereto via a plurality of supports 51. The sip cover 50 has an upwardly facing surface 50a (Figure 6), which covers opening 31 when the container 10 is in its closed configuration (as shown in Figure 1).

[0030] A projection 52 extends from the sip cover 50, in an upwardly facing direction away from the membrane 12, towards the inwardly downwardly facing surface 34 of the main body 30. The projection 52 is resiliently formed with the sip cover 50 and/or is biased toward the sip cover 50. The projection 52 is selectively disposed in one of the plurality of shallow compartments 38 defined by the plurality of fins 37. Due to the resilient nature of the material of which the center portion 40, including the sip cover 50, is composed and/or the biasing nature of the projection 52, the projection 52 is allowed to be urged into one of the plurality of compartments 38 and forced

out of the compartment, riding along one of the surfaces of the fins 37 as the center portion 40 is rotated. As a result, the combination of the fins 37 and the projection 52 provide resistance to limit free rotation of the center portion 40.

[0031] Referring now to Figures 2a, 2b, 3a and 3b, and, in particular, Figures 2a and 3a, in its initial position, prior to opening container 10 for a first time, the lid 20 is in its closed configuration, i.e. the sip cover 50 covers opening 31, with the package integrity tab 44 attached to both the main body 30 and the center portion 40 to indicate that the sip lid 20 has yet to be opened for a first time. Initially, the inwardly extending projection 48 is in its uppermost, retracted position relative to the membrane 12. To pierce the membrane 12 which covers the opening of the container 10, one grasps the center portion 40 with one's fingers by pressing the recessed actuatable surfaces 42 and applying sufficient pressure in a clockwise direction, as indicated by arrow 60. Turning the center portion 40 in direction 60 first separates connection of the package integrity tab 44 between the main body 30 and the center portion 40 while simultaneously causing the circumferentially spaced arm 46 with a groove 49 to ride along the inclined cam 35 to force the projection 48 inwardly towards the membrane 12 to eventually pierce the membrane 12. As the center portion 40 is rotated, the cover 50 is rotated away from the opening 31. In the fully opened position, end surface 53 of cover 50 abuts stop 39, as shown in Figure 3b. Advantageously, the cut made in the membrane by projection 48 is proximate the opening 31, thereby facilitating sipping a beverage from the container 10 by tilting back the container 10 to allow one to drink the beverage from the opening 31.

[0032] The sip lid 20 is closable by rotating the center portion 40 in an opposite direction, as indicated by arrow 61 in Figures 2b and 3b. Rotating the center portion 40 in direction 61 returns the cover 50 to cover opening 31. In the completely closed position, cover end surface 55 abuts stop 36 and end surface 54 abuts stop 39.

[0033] It will now be clear to one of ordinary skill in the art that the present sip lid provides advantages and features not found in prior sip lids. For example, in the preferred embodiment, the present sip lid allows for a membrane sealed container to remain closed and sealed until a user selectively rotates the rotatable center portion, which simultaneously pierces the membrane therebelow and uncovers the sip opening to allow a user to sip a beverage from the container. Subsequently, a user can rotate the sip lid in an opposite direction to cover the opening to prevent accidental spillage from the container. In addition, the present container includes a package integrity element in the form of a tab which provides an indication that the container has yet to be opened for a first time.

[0034] Although the invention has been described above in relation to preferred embodiments thereof, it will be understood by those skilled in the art that variations and modifications can be effected in these preferred embodiments without departing from the scope and spirit of the invention.

Claims

1. A container having a closed top and a lid thereover, the lid having a sip opening, the lid further having a mechanism for opening the closed top of the container and simultaneously providing access to container contents through the sip opening.

2. A container having a closed top and a lid, thereover, the lid having a sip opening with a recloseable sip cover, the lid further having a mechanism for:

   moving the sip cover away from the sip opening, and
   opening the closed top of the container,

   thereby simultaneously providing access to container contents through the sip opening.

3. The container of Claim 1 or 2, wherein the closed top comprises a membrane material over the container.

4. The container of any one of Claims 1 to 3, wherein the lid comprises a top and bottom and the mechanism comprises a rotatable center portion, the center portion having a projection extending downwardly from the bottom, the center portion being rotatable relative to a main body of the lid, to cause the projection to move downwardly towards the closed top, to pierce the closed top therebelow.

5. The container of Claim 4, wherein the projection is radially spaced from a main part of the rotatable center portion.

6. The container of any one of Claims 1 to 5, wherein the projection is disposed on an arm which is radially spaced from the main part of the center portion.

7. The container of Claim 6, wherein the arm comprises a groove facing away from the direction of the protection, the groove being slidable along an inclined cam disposed on a bottom surface of the main body of the lid, whereby rotation of the center portion permits the radial arm with the projection to move in the direction away from the bottom surface.

8. The container of any one of Claims 1, or 3 to 7 insofar as they depend on Claim 1, wherein the rotatable center portion comprises a sip cover which covers and uncovers the sip opening upon being rotated in one direction or the other.

9. The container of Claim 2 or any one of Claims 3 to 7 insofar as they depend on Claim 2, wherein the sip cover is of sufficient size to completely cover the sip opening.

10. A lid for a container having a membrane cover, the lid comprising:

a top and bottom, a stationary main body and a rotatable center portion, the center portion having a projection extending downwardly from the bottom, the center portion being rotatable relative to the main body to cause the projection to move downwardly towards the membrane cover.

11. The lid of Claim 10, wherein rotation of the center portion permits the projection to pierce a container membrane disposed therebelow.

12. The lid of Claim 10 or 11, wherein the projection is radially spaced from a main part of the rotatable center portion.

13. The lid of any one of Claims 10 to 12, wherein the projection is disposed on an arm which is radially spaced from the main part of the center portion.

14. The lid of Claim 13, wherein the arm comprises a groove facing away from the direction of the projection, the groove being slidable along an inclined cam disposed on a bottom surface of the main body of the lid, whereby rotation of the center portion permits the radial arm with the projection to move in the direction away from the bottom surface.

15. The lid of any one of Claims 10 to 14, further comprising a sip opening in the main body to permit one to drink from a container to which the lid is attached.

16. The lid of Claim 15, wherein the rotatable conter portion comprises a sip cover which covers and uncovers the sip opening upon being rotated in one direction or the other.

17. The lid of Claim 16, wherein the sip cover covers the sip opening when the projection is in its retracted position and the sip cover uncovers the sip opening when the projection is in its extended position.

18. The lid of any one of Claims 10 to 17, further comprising a package integrity tab connecting the main body and the rotatable center portion, the tab being breakable upon rotation of the rotatable center portion, relative to the main body, to thereby indicate that the rotatable center portion has been previously rotated relative to the main body.

19. The lid of any one of Claims 10 to 18, wherein the center portion has a top surface with recesses formed therein.

20. The lid of any one of Claims 10 to 19, wherein the top of the main body has a groove circumferentially disposed adjacent to center portion.

21. A lid for a container having a membrane covering its open top, the lid comprising:

a main body; and
a rotatable member, rotatable relative to the main body, the rotatable member comprising an arm radially spaced from a main part of the rotatable member and having a projection, the projection being movable in a direction to pierce a membrane of a container in which the lid is mounted when the rotatable member is rotated.

22. The lid of Claim 21, wherein the main body comprises a top surface and a bottom surface, the bottom surface having an inclined surface extending from the bottom surface; and radially spaced arm abuts the inclined surface, whereby rotation of the rotatable member causes the arm to ride up the inclined surface, thereby moving the arm away from the bottom surface of the main body.

23. A container lid having a main body surrounding a rotatable center portion, the main body having a sip opening and the center portion having a sip cover which selectively covers and uncovers the sip opening, the center portion also having a projection which, upon rotation of the center portion relative to the main body, moves downwardly in a position whereat the projection would pierce the membrane of a container when the lid is located on a container,
and wherein movement of the center portion relative to the main body essentially simultaneously uncovers the sip opening and pierces the membrane.

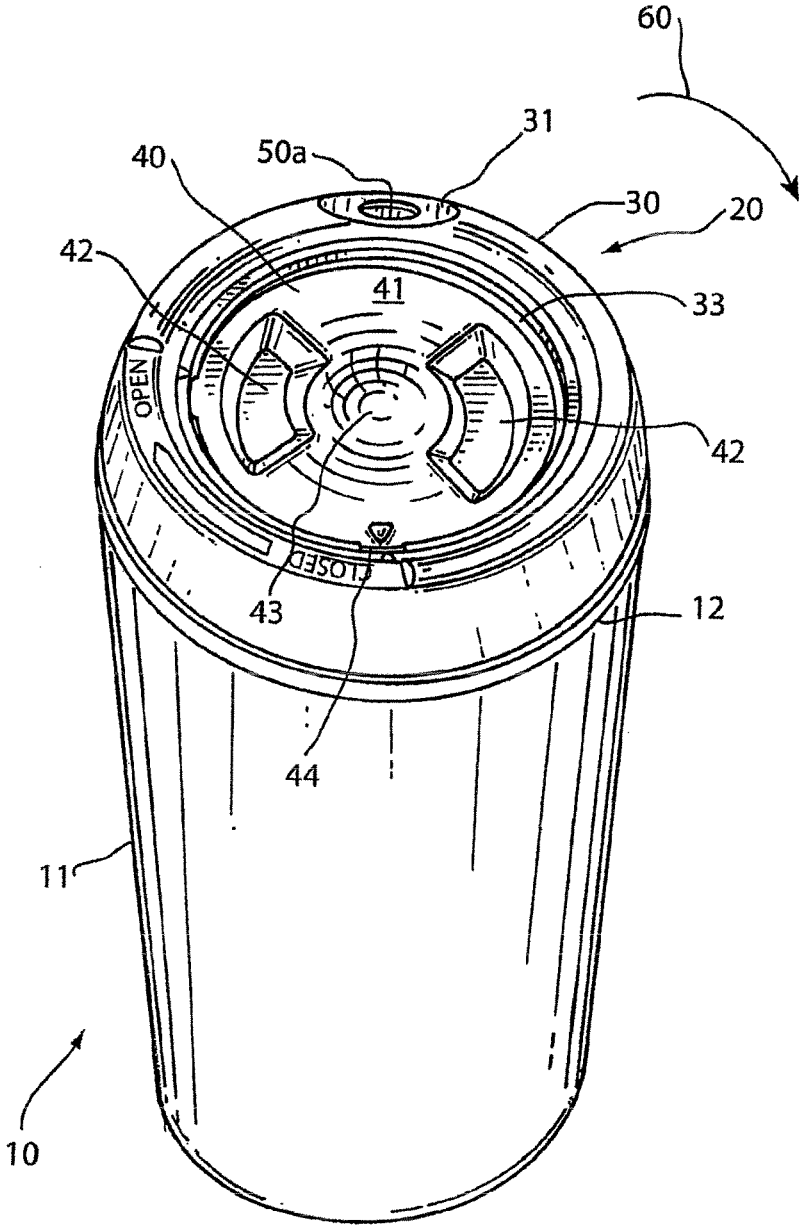

Fig. 1

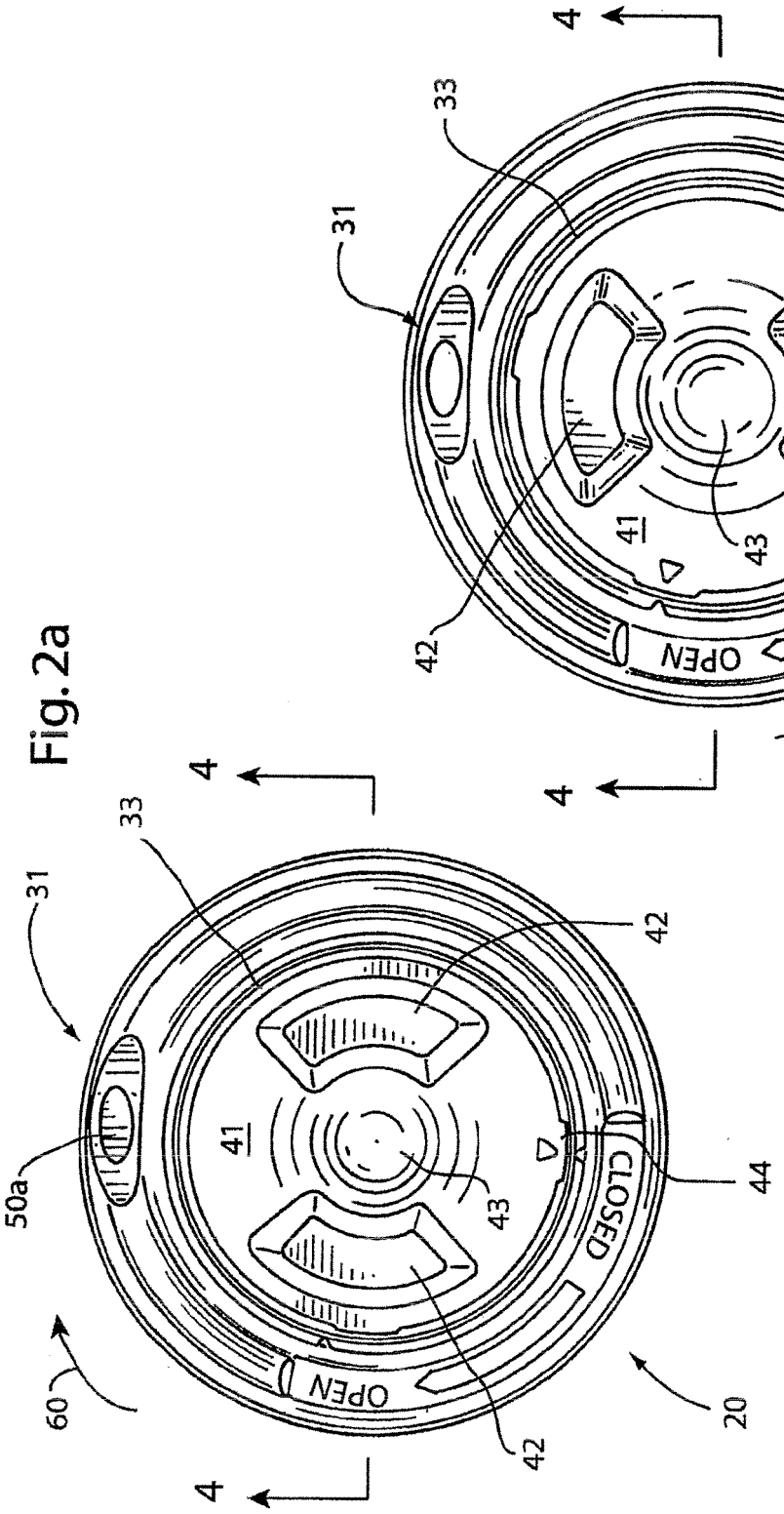
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Fig. 2a

Fig. 2b

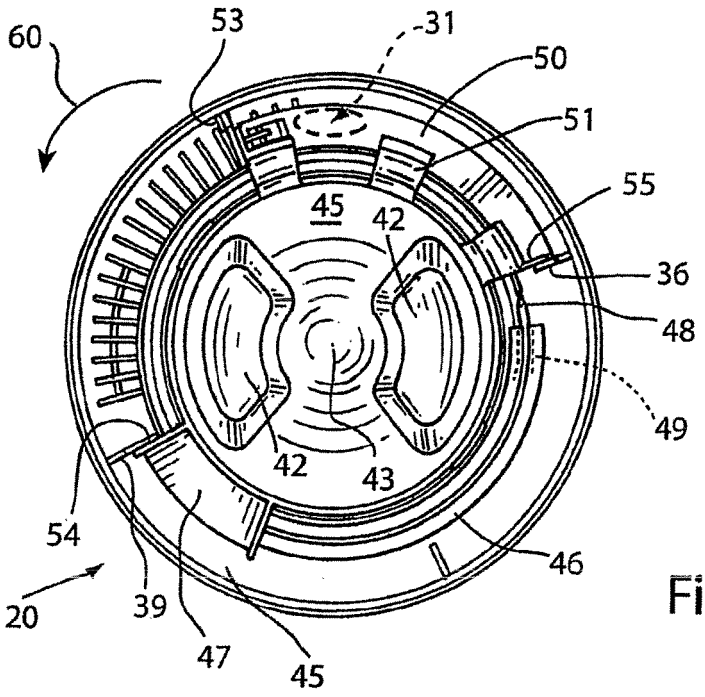
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Fig. 3a

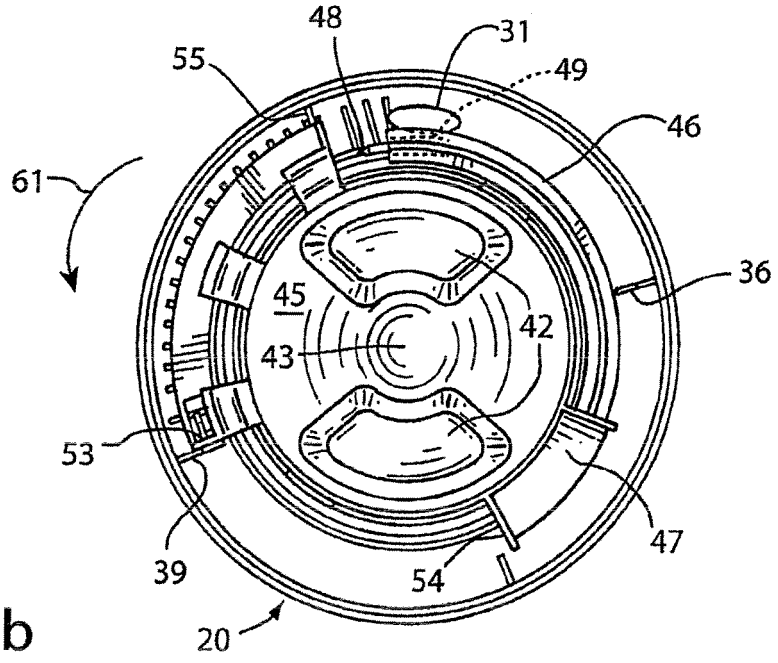
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Fig. 3b

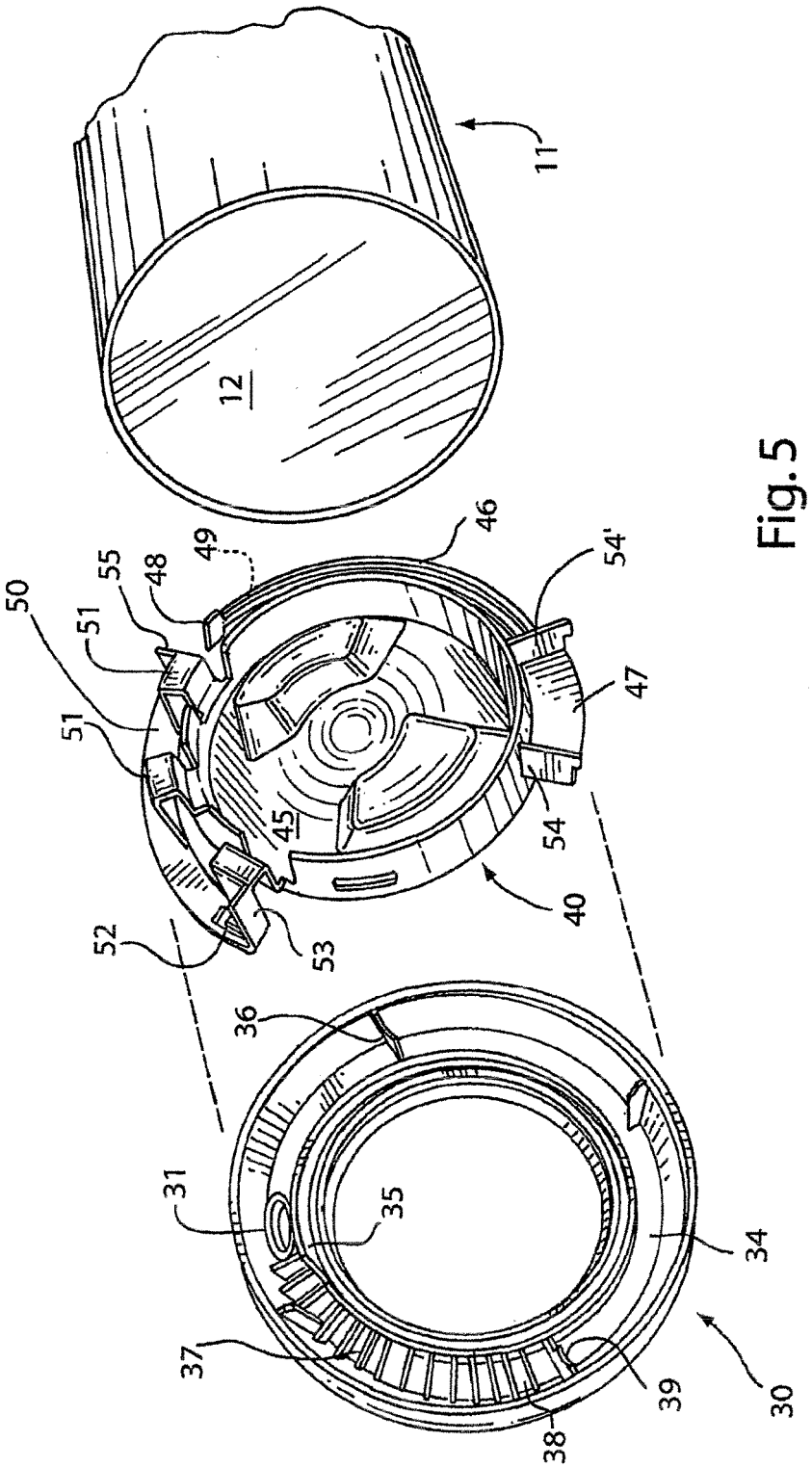

Fig.5

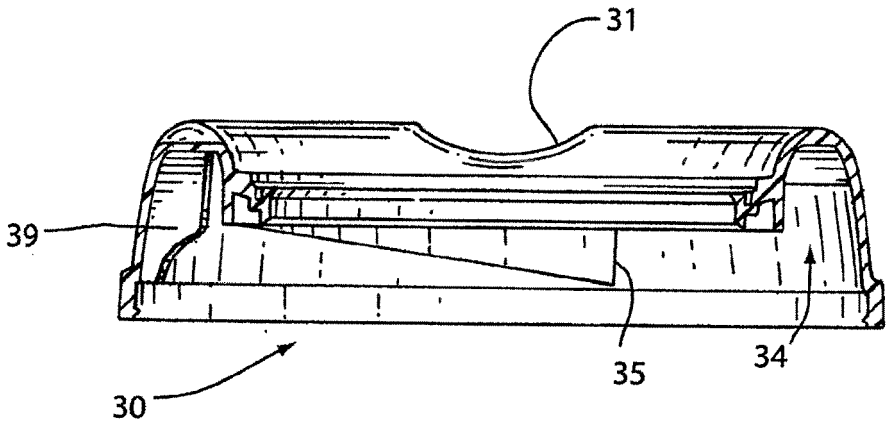

Fig. 4

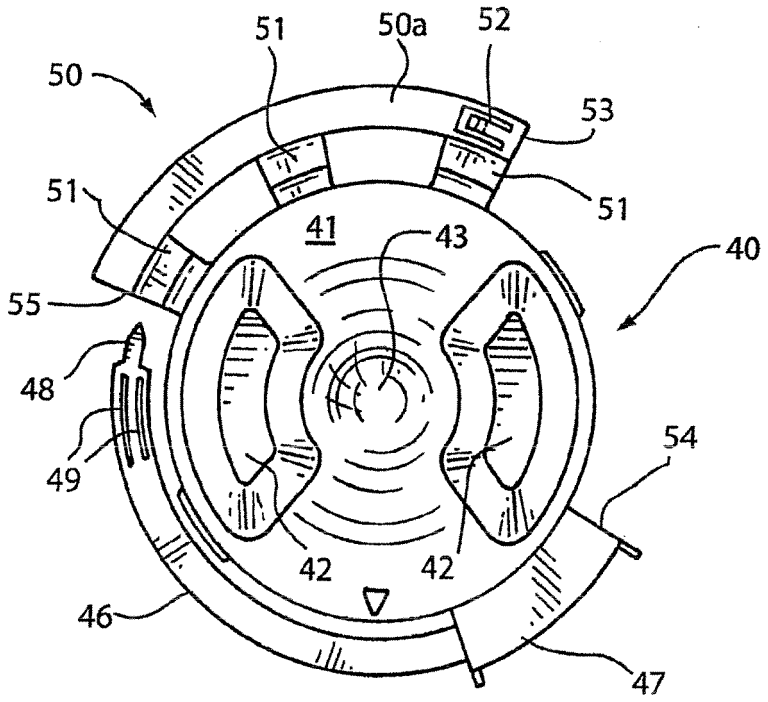

Fig. 6

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 11 5676

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	2 April 2008	Bridault, Alain

CATEGORY OF CITED DOCUMENTS

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02-04-2008

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REFERENCES CITED IN THE DESCRIPTION

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