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(54) **LID FOR AIRTIGHT CONTAINER**

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- (57) **ABSTRACT**

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The present invention relates to a lid for use in an airtight container. The lid comprises a center section; a subsiding center section surrounding the center section and extending outwardly therefrom; a rim reinforcing section surrounding the subsiding section and extending outwardly therefrom; a lid rim surrounding the rim reinforcing section and extending outwardly therefrom, the lid rim being adapted to form a seal with a container rim defined on the airtight container; and at least two locking wings mounted on the lid rim adapted to engage with a wing connection part extending outwardly along an exterior of the container rim such that the lid defines a locked and unlocked configuration with respect to the container. The lid rim and the container rim form a spatial interval sized to allow for upward, downward and circular movement of the lid with respect to the container. The lid protrudes upwardly in a sectional configuration extending from the rim to the center section. As a result, a lid for use with an airtight container is provided that does not open involuntarily during involuntary fall or downward pressure is applied.

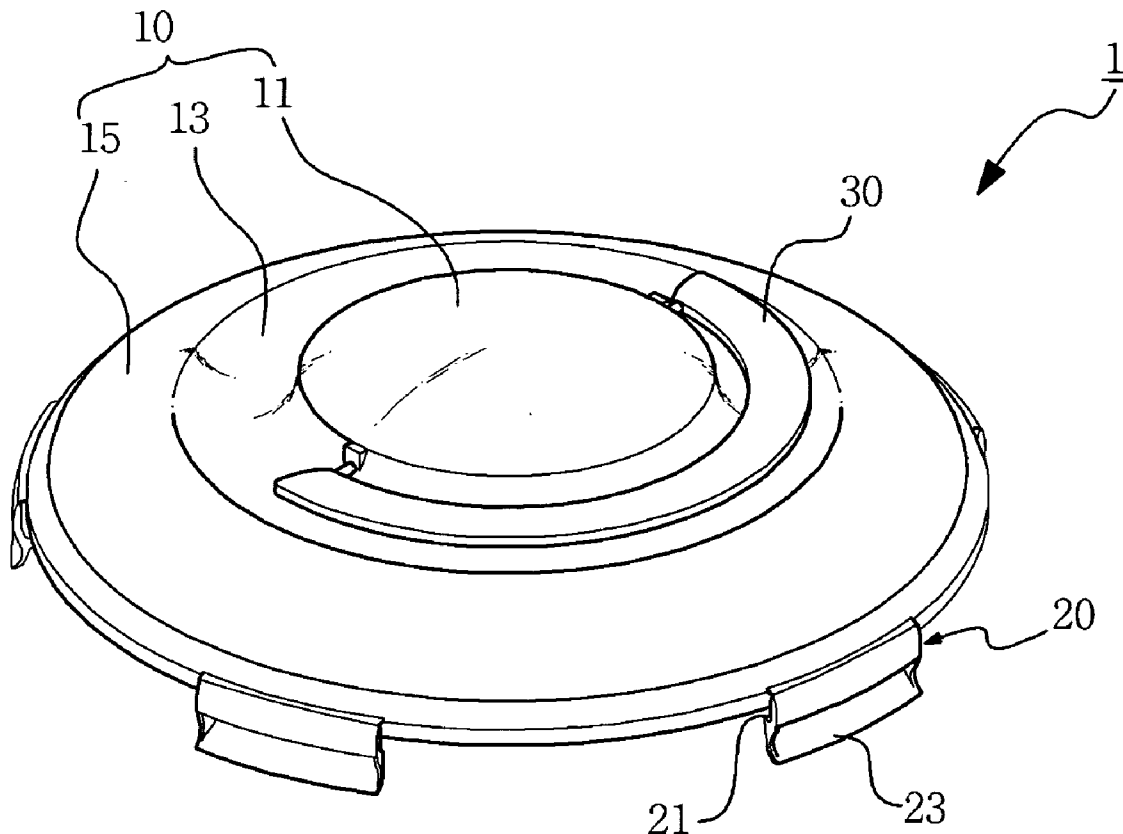


Figure 1
(Prior Art)

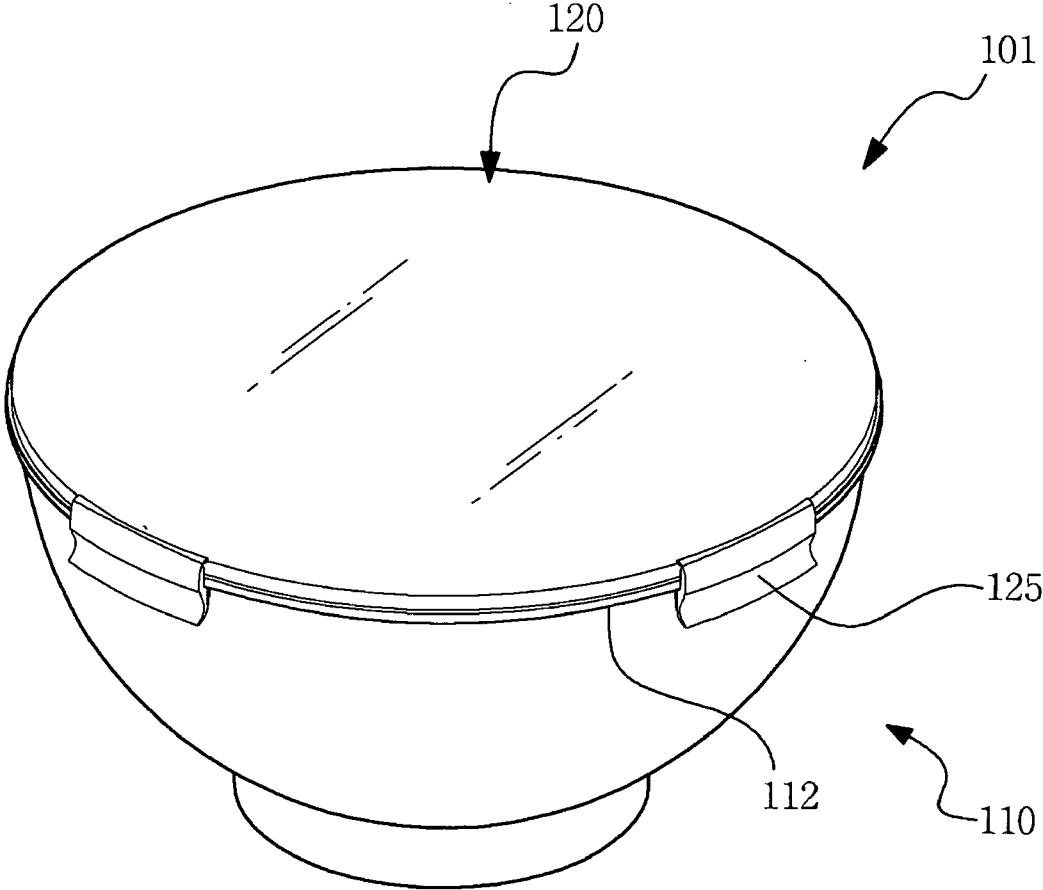


Figure 2
(Prior Art)

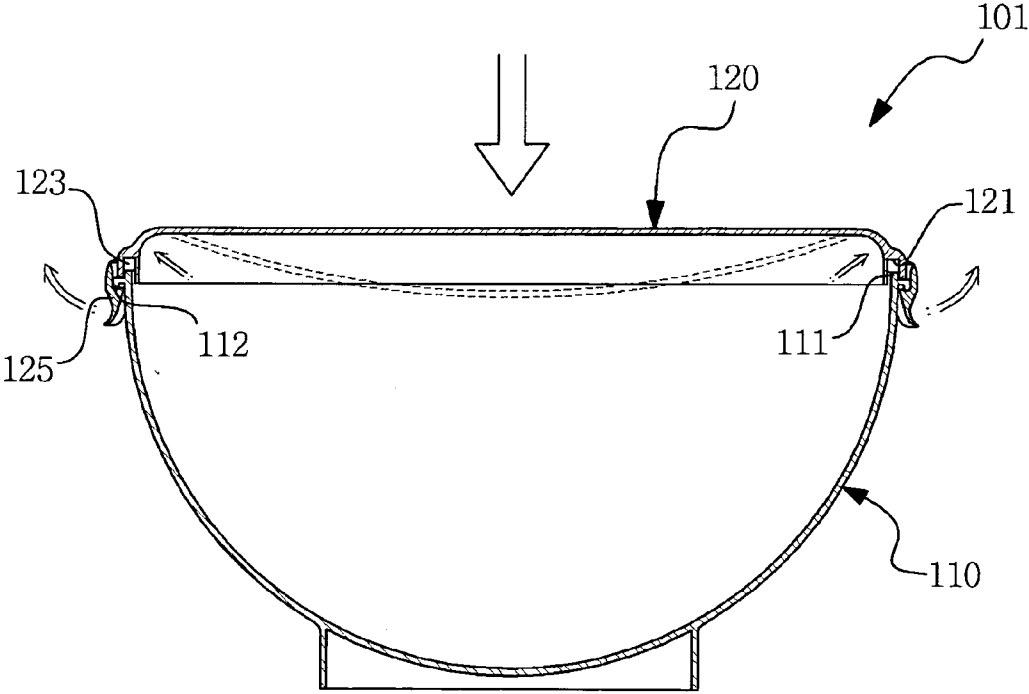
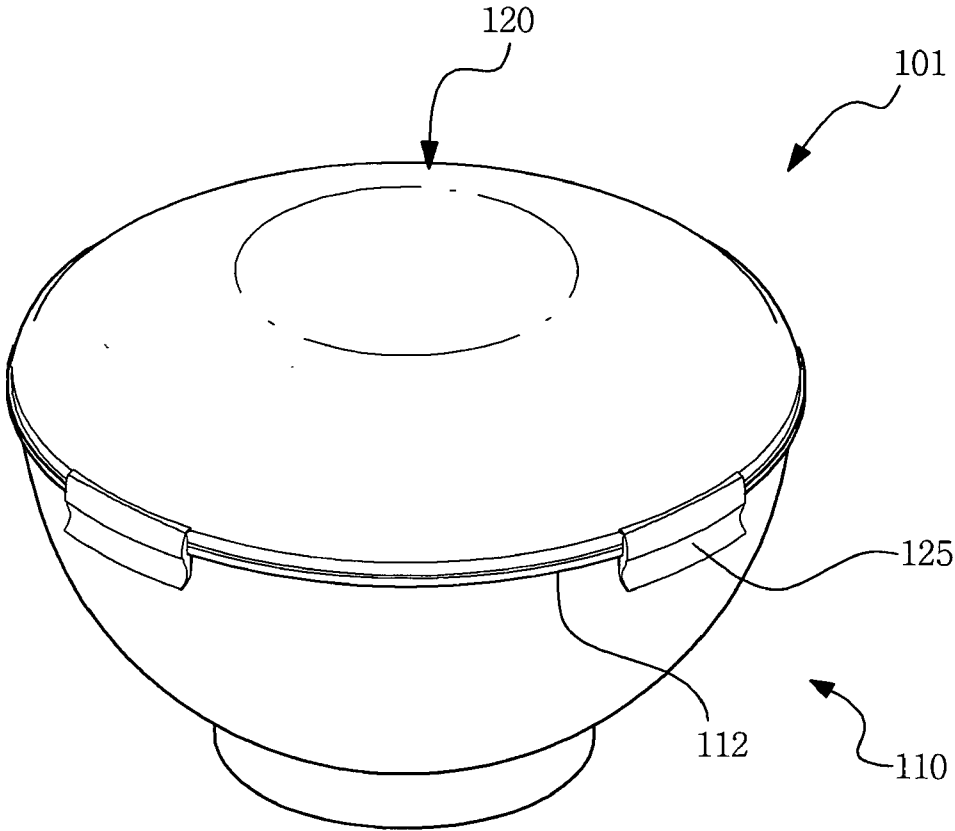


Figure 3
(Prior Art)



**Figure 4
(Prior Art)**

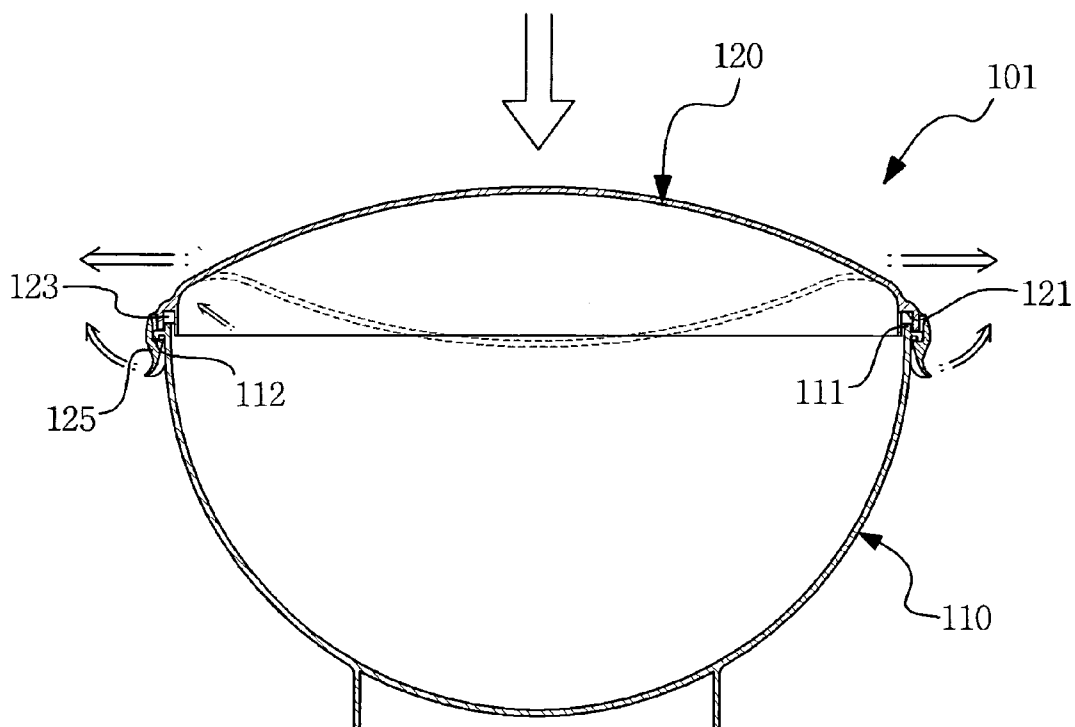


Figure 5

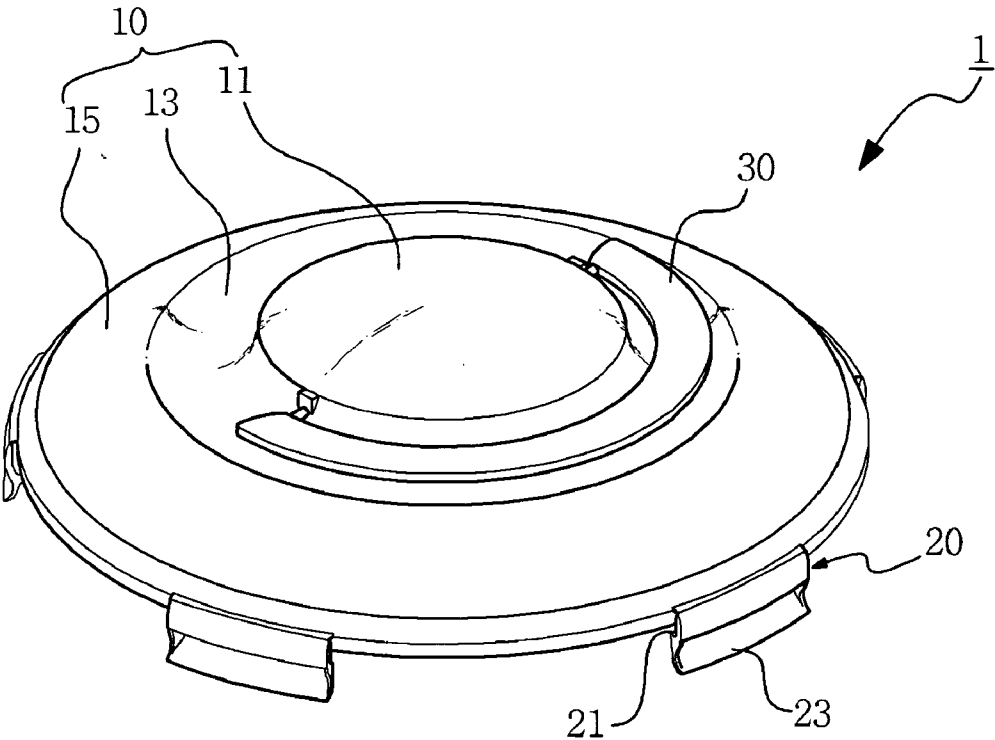


Figure 6

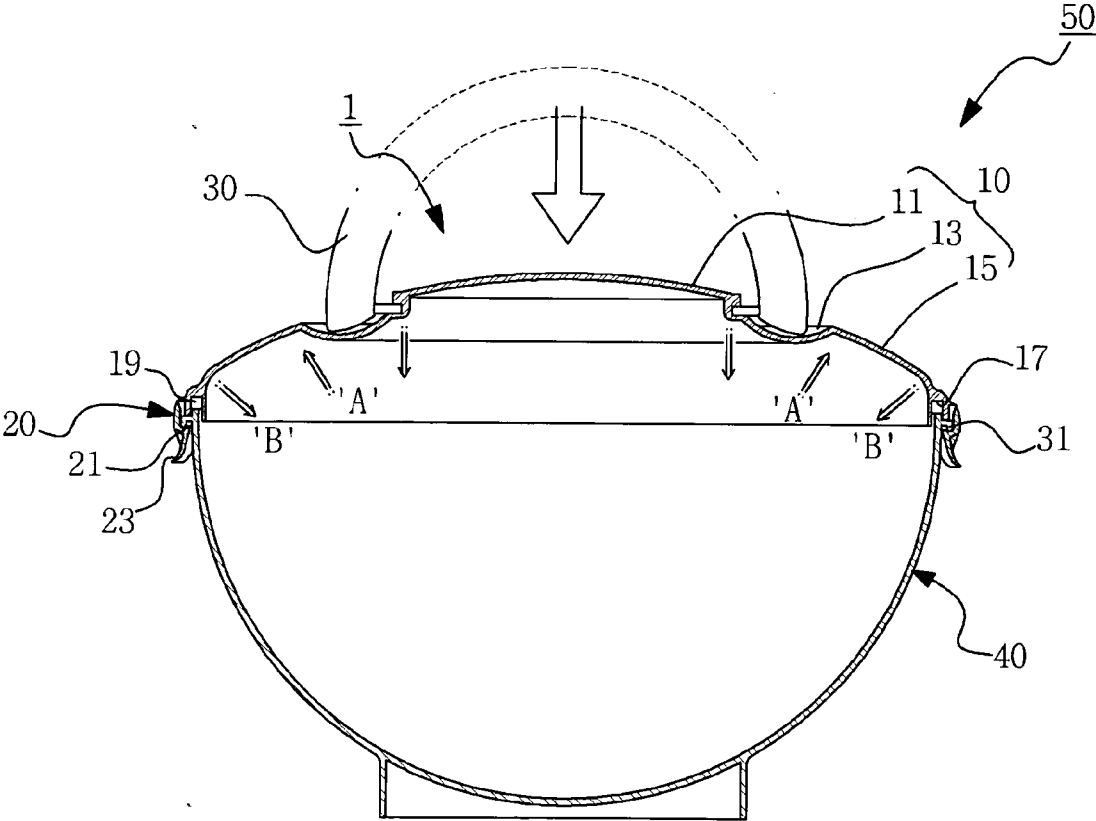


Figure 7

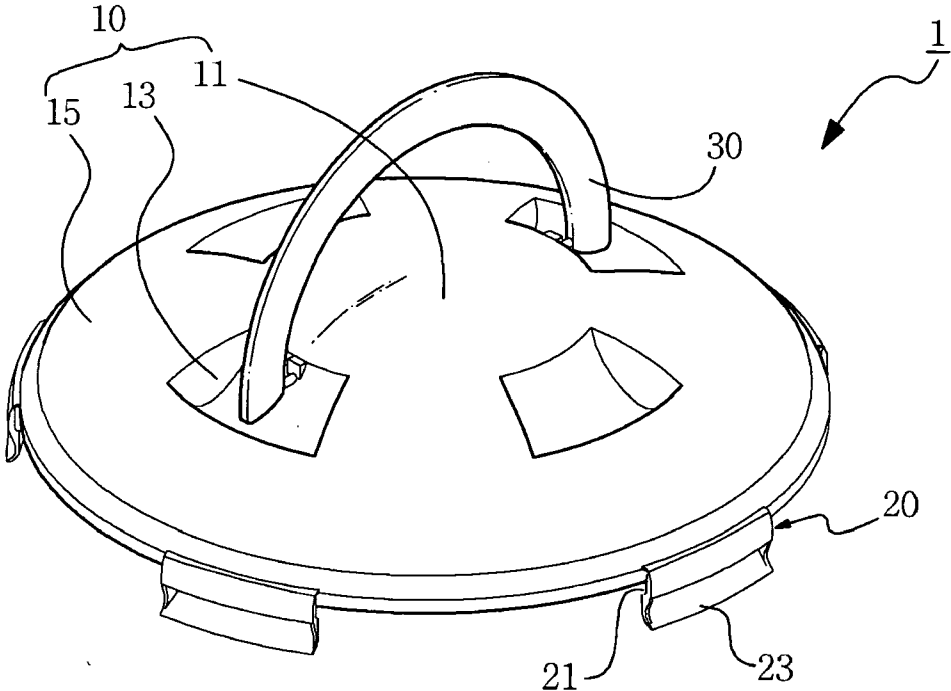


Figure 8

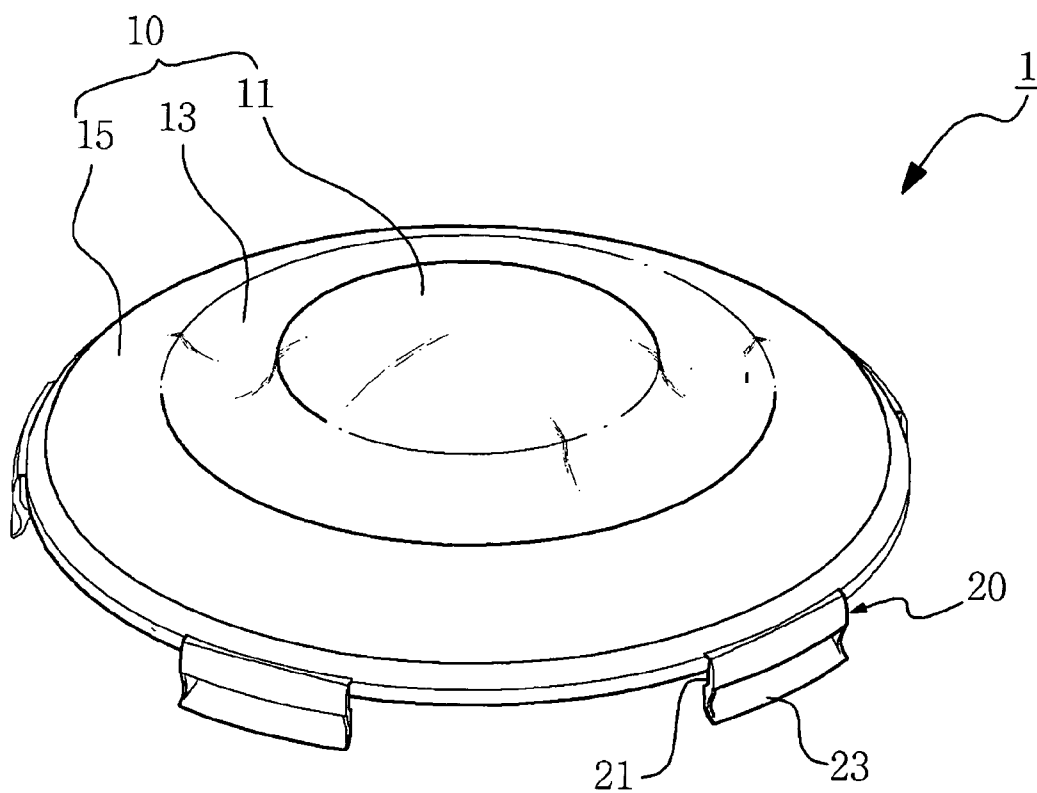
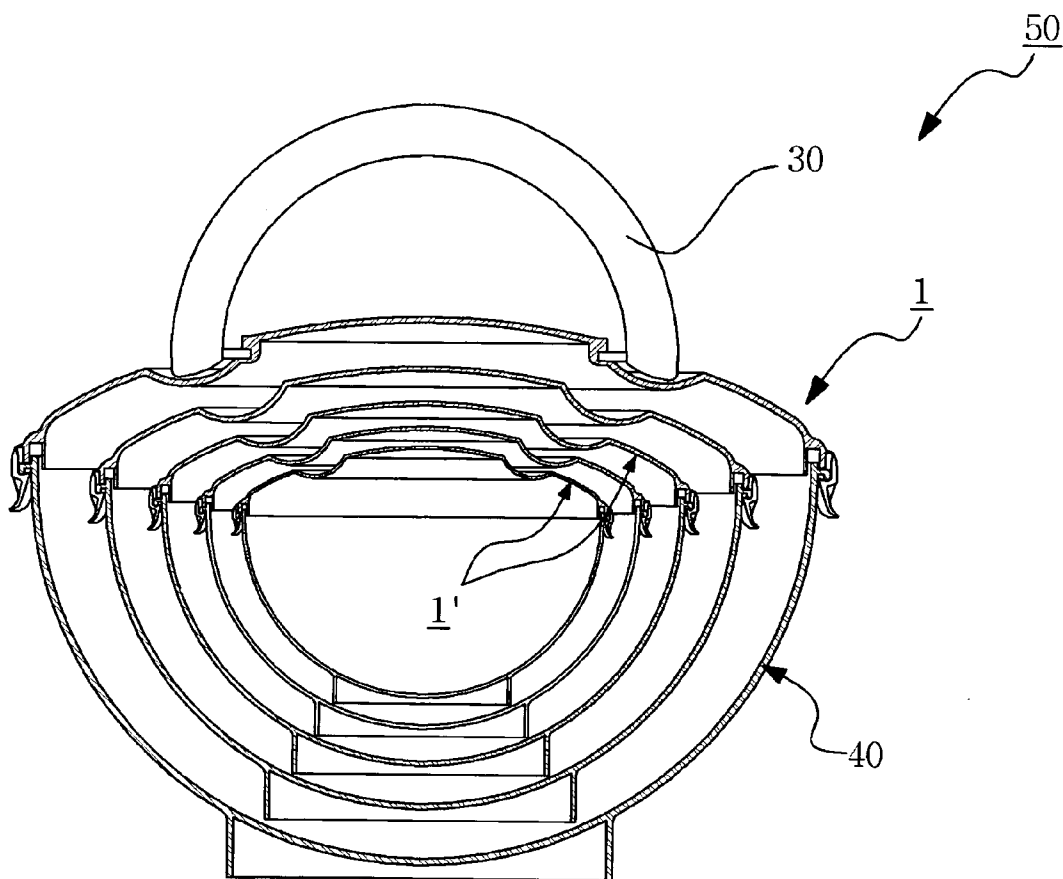


Figure 9



LID FOR AIRTIGHT CONTAINER

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority under 35 U.S.C. §119 to Korean Application KR-10-2007-0096889, filed Sep. 21, 2007, the entire disclosure of which is herein incorporated.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable.

REFERENCE TO A "COMPUTER LISTING APPENDIX SUBMITTED ON A COMPACT DISC"

[0003] Not Applicable.

BACKGROUND OF THE INVENTION

[0004] (1) Field of the Invention

[0005] The present invention relates generally to an airtight container, particularly a container used for storing vegetables and/or salad having an airtight lid, and more particular to a lid for use with an airtight salad bowl container that prevents involuntary opening.

[0006] (2) Description of the Related Art

[0007] In general, salad bowl containers used in cooking mixed or seasoned dishes such as salad, etc. have relatively large volume and a substantially circular shape. Although such salad bowl containers have been used in cooking, they typically have not been used for the purpose of storing food.

[0008] Food is generally stored in separate airtight containers after it is cooked or needs to be stored. Using separate containers brings about several inconveniences such as needing additional and unnecessary containers and increasing the amount of containers to be washed.

[0009] Airtight salad bowl containers as shown in FIG. 1 or FIG. 4 are distributed in the market. The airtight salad bowl container 101 is comprised of a semi-sphere shaped main body having an upward opening and a lid 120 that forms an airtight seal of the upward opening of the main body of the container.

[0010] The main body of the container is structured with sealing section 111 having upward protrusion in the rim of the top part and wing connection part 112 around the exterior rim section of the upward opening.

[0011] Lid 120 is structured with gasket slit 121 accommodating sealing gasket 123 in the rim section on the bottom and locking wing 125 is locked and unlocked to the wing connection part 112 on the edge of the rim in the main body of the container defining small intervals along the circumference.

[0012] Lid 120 defines a structure of circular plane as illustrated in FIG. 1 and FIG. 2 or a plane of circular arc as illustrated in FIG. 3 & FIG. 4.

[0013] The main bodies of such containers without the lid 120 are used in cooking mixed or seasoned dishes such as salad. Food is stored by blocking the upward opening of the main body of the container with lid 120 without the use of separate containers. Locking wing 125 is maintained to be locked to the wing connection part 112 of the main body of the container and a space between the main body of the container and the lid 120 is sealed airtight with sealing gasket 123.

[0014] Since previous airtight salad bowl container have lids in the shape of circular plate or plane of circular arc as shown in FIG. 2 and FIG. 4, it is inevitable for the rim of the lid to become unfastened upward when downward pressure is applied to the center of the lid. A problem exists where the lids open with involuntary unlocking of the locking wing fastened to the wing connection part of the main body of the container when a user drops the airtight container or unintentionally applies downward pressure to the lid.

[0015] Despite efforts to date, a need remains for an effective lid for use with an airtight container, particularly a container designated for use in cooking and storage of food such as salad which does not break a formed airtight seal when undergoing unintentional and involuntary forces such as being dropped or downward pressure.

OBJECTS

[0016] Therefore, it is an object of the present invention to provide a lid of an airtight container that does not open involuntarily during a fall or application of downward pressure to the lid.

SUMMARY OF THE INVENTION

[0017] The present disclosure provides for a lid for use in an airtight container comprising: (a) center section; (b) a subsiding center section surrounding the center section and extending outwardly therefrom; (c) a rim reinforcing section surrounding the subsiding section and extending outwardly therefrom; (d) a lid rim surrounding the rim reinforcing section and extending outwardly therefrom, the lid rim being adapted to form a seal with a container rim defined on the airtight container; and (e) at least two locking wings mounted on the lid rim adapted to engage with a wing connection part extending outwardly along an exterior of the container rim such that the lid defines a locked and unlocked configuration with respect to the container. The lid rim and the container rim form a spatial interval sized to allow for upward, downward and circular movement of the lid with respect to the container. The lid protrudes upwardly in a sectional configuration extending from the rim to the center section.

[0018] In an exemplary embodiment, the center section of the container is formed in either a curved surface or plane. In a further embodiment, the subsiding center section is formed in a subsiding circular arc plane. The subsiding center section can be formed to completely surrounding the center section. Further still, the subsiding center section can be formed in separated interval sections surrounding the center section. In a further embodiment, the rim reinforcing section is formed in either a curved surface or a tilted plane. In an exemplary embodiment, the lid further comprises a handle having opposed ends bonded in boundaries between the subsiding center section and the center section for circular movement. The handle is accommodated in the subsiding center section. In an exemplary embodiment, the lid is constructed to make operable distribution of an external force applied to the lid from the lid to the rim reinforcing section and increasing a locking force formed by the locking wings.

[0019] In an exemplary embodiment, the lid further comprises a handle having opposed ends positioned in the center subsiding section. Further still, the handle can be positioned in the center subsiding section operable to allow for circular movement of the handle within the center subsiding section.

[0020] The present disclosure provides for an exemplary storage unit comprising the lid according to the present disclosure and a container. In a particular embodiment, the storage unit further comprises a plurality of nested containers, wherein the lid is adapted to enclose the plurality of nested containers. In an even further embodiment, the present disclosure provides for a storage system comprising a plurality of nested storage units.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] FIG. 1 illustrates a perspective view of a prior art airtight salad bowl container;

[0022] FIG. 2 illustrates a cross section view of the airtight salad bowl container of FIG. 1;

[0023] FIG. 3 illustrates a perspective view of an alternative prior art airtight salad bowl container;

[0024] FIG. 4 illustrates a cross section view of the airtight salad bowl container of FIG. 3;

[0025] FIG. 5 illustrates a perspective view of a lid for use with an airtight salad bowl container according to the present invention;

[0026] FIG. 6 illustrates a cross section view of an airtight salad bowl container that corresponds to the lid as shown in FIG. 5;

[0027] FIGS. 7 and 8 illustrate perspective views of exemplary and alternative embodiments of lids for use with airtight salad bowl containers according to the present invention; and

[0028] FIG. 9 illustrates a cross section view of mutual storage of multiple airtight salad bowl container sets with a lid according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0029] The present disclosure provides for a lid of an airtight container that defines an overall upward protrusion from rim to center in sectional projection. The lid includes a containing blocking section with a center section; a subsiding center section subsided around the center section; a rim reinforcing section formed around the subsiding center section; and a lid rim around the rim reinforcing section. A wing connection part is formed on a main body of the container with small interval defined between an edge of the container blocking section sized to allow for upward, downward, and circling movement. The lid further includes at least two locking wings to lock and unlock in regards to the airtight container that opens and closes the upward opening of the main body of the container. In an exemplary embodiment the center section of the lid is formed in a curved surface or plane surface. In a particular preferred embodiment, the subsiding center section of the lid is formed in subsiding circular arc plane. Preferably, the subsiding center section is formed surrounding the center section. Preferably, the subsiding center section is formed in sectional intervals surrounding the center section. The rim reinforcing section of the lid can be formed in a curved surface or tilted plane. In an exemplary embodiment, the lid further comprises a handle in that its both ends are bonded within boundaries between the subsiding center section and the center section to allow for circular movement and it can be accommodated in the subsiding center section.

[0030] With reference to the figures, FIG. 5 illustrates a lid of an exemplary airtight salad bowl container according to the present invention. Lid 1 comprises container blocking section 10 that opens and closes the upward opening of a main body

of an exemplary container 40 (shown in FIG. 6). The rim of the container blocking section 10 includes the locking wing 21 that is locked and unlocked to the wing connection section 31 of the main body of the container and handle 30 is placed on the container blocking section 10 of the lid 1. Container blocking section 10 is sized to cover the upward opening of main body of container 40 and constructed to define an overall upward protrusion from rim to center in sectional projection. Center section 11, subsiding center section 13 and rim reinforcing section 15 each define distinctive shape from the center to the exterior rim.

[0031] Center section 11 can be formed in either a curved surface or plane surface. Preferably, subsiding center section 13 is formed around the center section 11 in a subsiding circular arc plane. In particular embodiments, the subsiding center section 11 defines subsiding spaced apart intervals that are relatively small surrounding center section 11 as illustrated in FIG. 7. Subsiding center section 13 may have subsiding structure with various plane shapes in section projection other than the subsiding circular arc.

[0032] Rim reinforcing section can be formed surrounding the subsiding center section as a curved surface. In a particular embodiment, the rim reinforcing section may be formed to define a tilted plane along a straight line in sectional projection. The rim reinforcing section 15 can include a gasket slit 17 on a bottom side that accommodates sealing gasket 19 formed along and underneath the lid rim.

[0033] Lid 1 is constructed and made operable to distribute force when applied to the lid in such a manner to prevent the force to be applied to the rim reinforcing section 15 of lid 1. The center section and center subsiding section are constructed to adsorb the external force, such as downward pressure applied from the top of the lid 1, and redirect the direction of the external force. In addition, each of locking wing 20 is formed in an edge of the rim of the container blocking section 10 to allow for upward, downward, and circular movement. Locking wing 20 includes locking maintenance parts 21 formed along a side toward a wing connection part (31) of the main body of container 40. The locking wing 20 includes a pressure control panel 23 with outward protrusion so that a user can apply pressure to the panel by holding the panel in an upward and downward direction. Locking wing 20 maintains the main body of container 40 airtight with lid 1. A user can apply a downward pressure to pressure control panel 23 thereby locking the locking maintenance part 21 to the wing connection part 31 of the main body of container 40 in a configuration where lid 1 is covering the upward opening of the main body of container 40. Lid 1 can be separated from the main body of container (4) when a user applies upward pressure to pressure control panel 23 thus separating the locking maintenance part 21 from the wing connection part 31 of the main body of container 40. Accordingly, upward pressure is applied to the panel when the main body of container 40 is sealed airtight with lid 1 (i.e., the condition where locking maintenance part 21 of the locking wing 21 is fastened to the wing connection part 31 of the main body of container 40).

[0034] In an exemplary embodiment, a lid according to the present invention comprises a handle 30 formed in a semi-circle such that opposed ends are bonded in boundaries between subsiding center section 13 and the center section 11. Handle 30 can improve convenience in storage and exterior of the airtight container 40 by accommodating the handle 30 within subsiding center section 13 allowing for circular movement in an embodiment where subsiding center section

13 of lid 1 is formed to entirely surround center section 111. In an alternative embodiment, as shown in FIG. 7, handle 30 defines a structure that is accommodated within the subsiding center section 13 in that subsiding center section 13 is comprised of relatively small spaced apart interval sections each defining a curved surface surrounding center section 11. Handle 30 may be formed in various shapes other than a semi-circle in that a user may hold onto it with convenience.

[0035] As shown with respect to FIG. 9, in an exemplary embodiment, airtight salad bowl container 50 can be arranged in set where various airtight containers 30 become gradually smaller in size and are mutually accommodated by one another. In a particular embodiment, the lid associated with container 50 includes a handle 30 placed on lid 1 of the biggest airtight container and not placed in lid (1') of remaining airtight containers.

[0036] Regarding the lid 1 as illustrated in FIG. 6, external force is spread from center section 11 to rim reinforcing section 15 of the container blocking section 10 and converted to be slanted toward the external and upward direction A of lid 1 at subsiding center section 13 Force is also distributed in this manner when downward pressure is applied to the top of lid 1 as a result of an involuntary fall, for example. Accordingly, these examples relate to application of external force under the condition where upward opening of the main body of container 40 is blocked, namely the state where locking wings 21 are fastened to the wing connection part 31 of the main body of container 40. As a result, internal force B is generated at rim reinforcing section 15 Thus rim reinforcing section 15 and locking wing 21 are more closely adhered to main body of container 40. Therefore, locking maintenance of locking wing 20 becomes more solidified and sealing force of lid 1 is further improved as well.

[0037] A lid of an airtight salad bowl container according to the present disclosure improves sealing force when downward pressure is applied by involuntary fall of the airtight container or external force by effectively distributing the external force and converting the direction of the external force in the container blocking section. This is accomplished by having an overall upward protrusion toward the center in sectional projection. The container blocking section is separated as a center section, a subsiding center section and a rim reinforcing section all surrounded by a rim. As a result, a lid of an airtight salad ball container is provided that does not open involuntarily from an involuntary fall or downward pressure is applied.

[0038] Although the present invention was described with reference to circular airtight salad bowl containers, it can be applied to the lids of various airtight containers and shapes of lids may vary as well corresponding to the shape of upward opening of the airtight containers according to the technical idea of the invention.

[0039] While the present invention is described herein with reference to illustrated embodiments, it should be understood that the invention is not limited hereto. Those having ordinary skill in the art and access to the teachings herein will recognize additional modifications and embodiments within the

scope thereof. Accordingly, such modifications and/or embodiments are considered to be included within the scope of the present invention.

What is claimed:

1. A lid for use in an airtight container comprising:

- (a) a center section;
- (b) a subsiding center section surrounding the center section and extending outwardly therefrom;
- (c) a rim reinforcing section surrounding the subsiding section and extending outwardly therefrom;
- (d) a lid rim surrounding the rim reinforcing section and extending outwardly therefrom, the lid rim being adapted to form a seal with a container rim defined on the airtight container;
- (e) at least two locking wings mounted on the lid rim adapted to engage with a wing connection part extending outwardly along an exterior of the container rim such that the lid defines a locked and unlocked configuration with respect to the container;

wherein the lid rim and the container rim form a spatial interval sized to allow for upward, downward and circular movement of the lid with respect to the container; and wherein the lid protrudes upwardly in a sectional configuration extending from the rim to the center section.

2. The lid of claim 1, wherein the center section of the container is formed in either a curved surface or plane surface.

3. The apparatus of claim 1, wherein the subsiding center section is formed in a subsiding circular arc plane.

4. The apparatus of claim 1, wherein the subsiding center section is formed to completely surround the center section.

5. The apparatus of claim 4, wherein the subsiding center section is formed in separated interval sections surrounding the center section.

6. The apparatus of claim 1, wherein the rim reinforcing section is formed in either a curved surface of titled plane.

7. The apparatus of claim 1, further comprising a handle having opposed ends bonded in boundaries between the subsiding center section and the center section for circular movement, wherein the handle is accommodated in the subsiding center section.

8. The apparatus of claim 1, wherein the lid is constructed to make operable distribution of an external force applied to the lid from the lid to the rim reinforcing section and increasing a locking force formed by the locking wings.

9. The apparatus of claim 1, wherein the lid further comprises a handle having opposed ends positioned in the center subsiding section.

10. The apparatus of claim 9, wherein the handle is positioned in the center subsiding section operable to allow for circular movement of the handle within the center subsiding section.

11. A storage unit comprising the lid according to claim 1 and a container.

12. The storage unit of claim 11, further comprising a plurality of nested containers, wherein the lid is adapted to enclose the plurality of nested containers.

13. A storage system comprising a plurality of nested storage units according to claim 11.

* * * * *