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(54) **COLLAPSIBLE INSERT**

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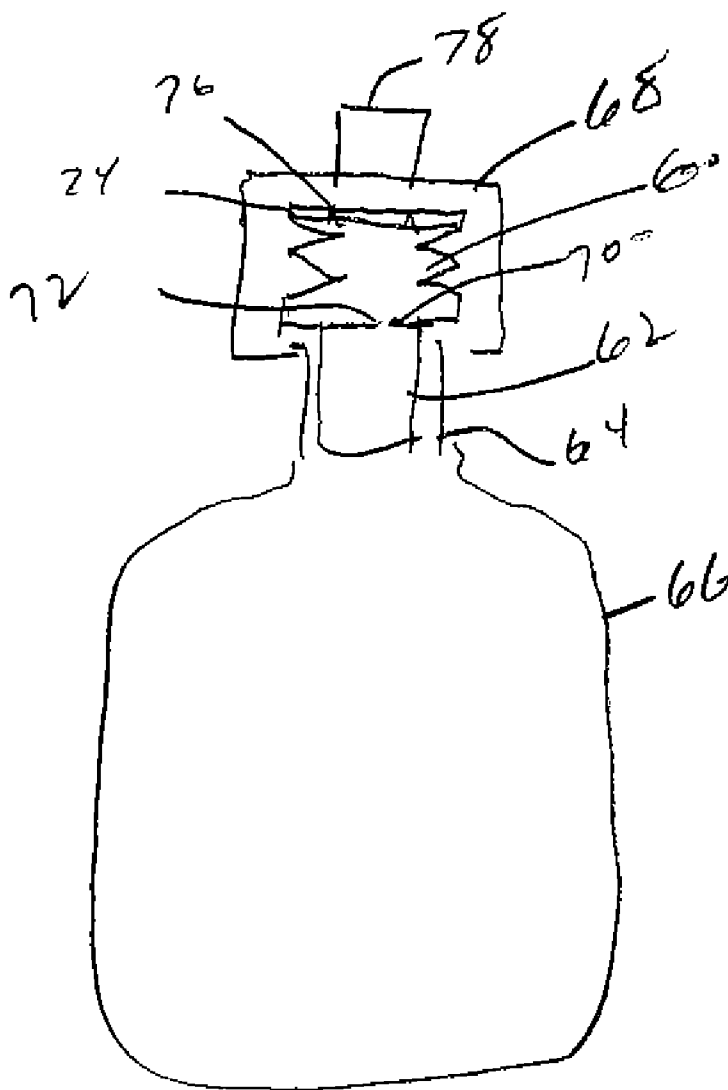
(57) **ABSTRACT**

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A collapsible insert having one or more chambers and at least one weakened area is disclosed. Edible ingredients are placed in the chambers, and the edible ingredients are released through the weakened area when the collapsible insert collapses. A bottle having a removable cap that can hold the collapsible insert also can be provided. The collapsible insert collapses when the removable cap is placed on the bottle so that the edible substance is released through the weakened area into the bottle. The collapsible member can also have an extending tube that fits into a neck of the bottle, exposing the collapsible insert. When the cap is placed on the bottle, it collapses the collapsible insert to release the ingredients into the bottle.

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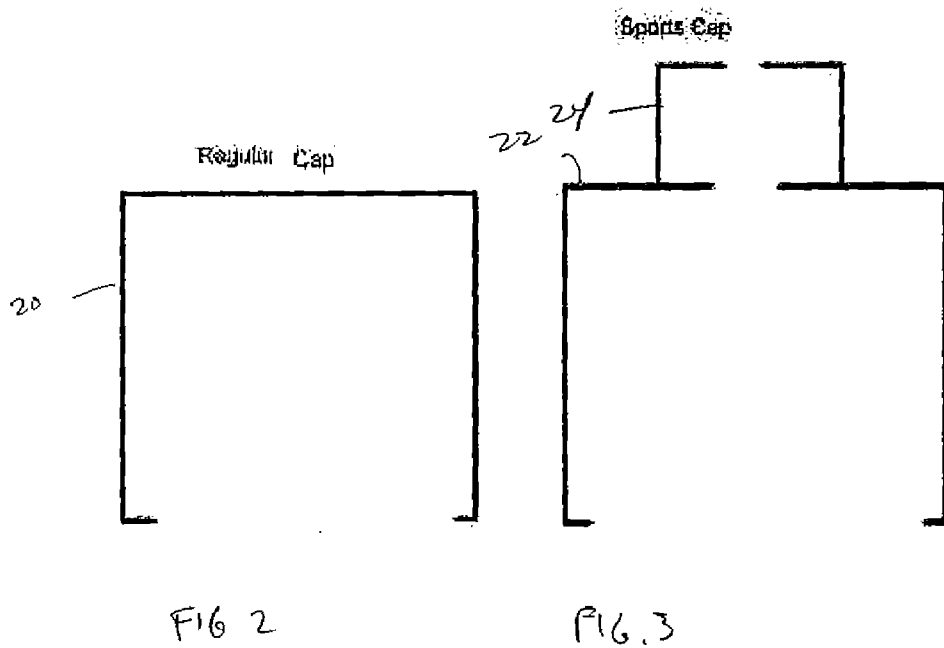
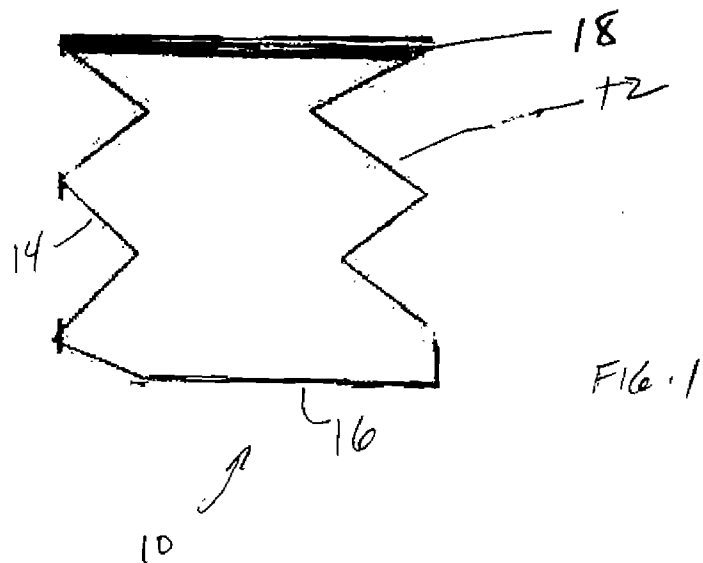


FIG. 4

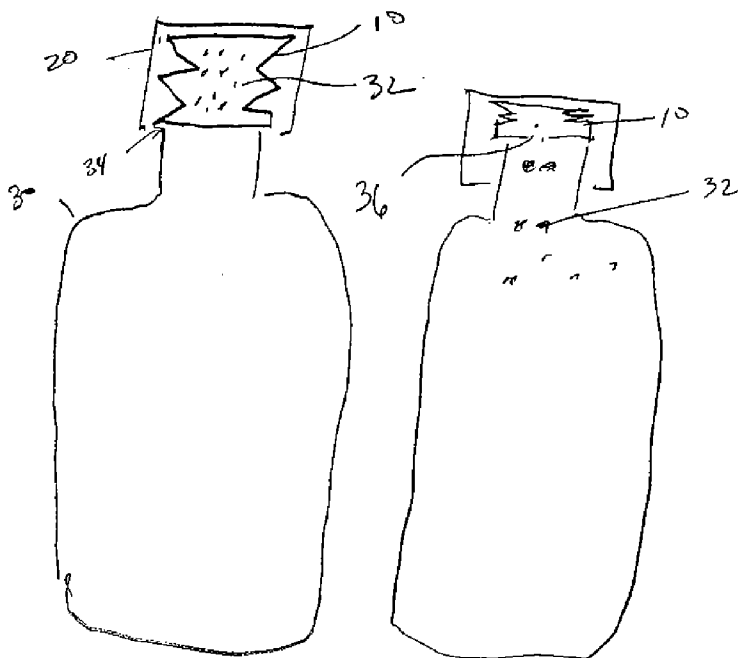
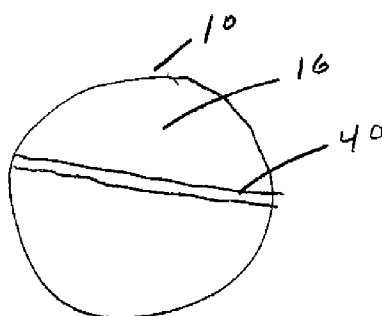


FIG. 5



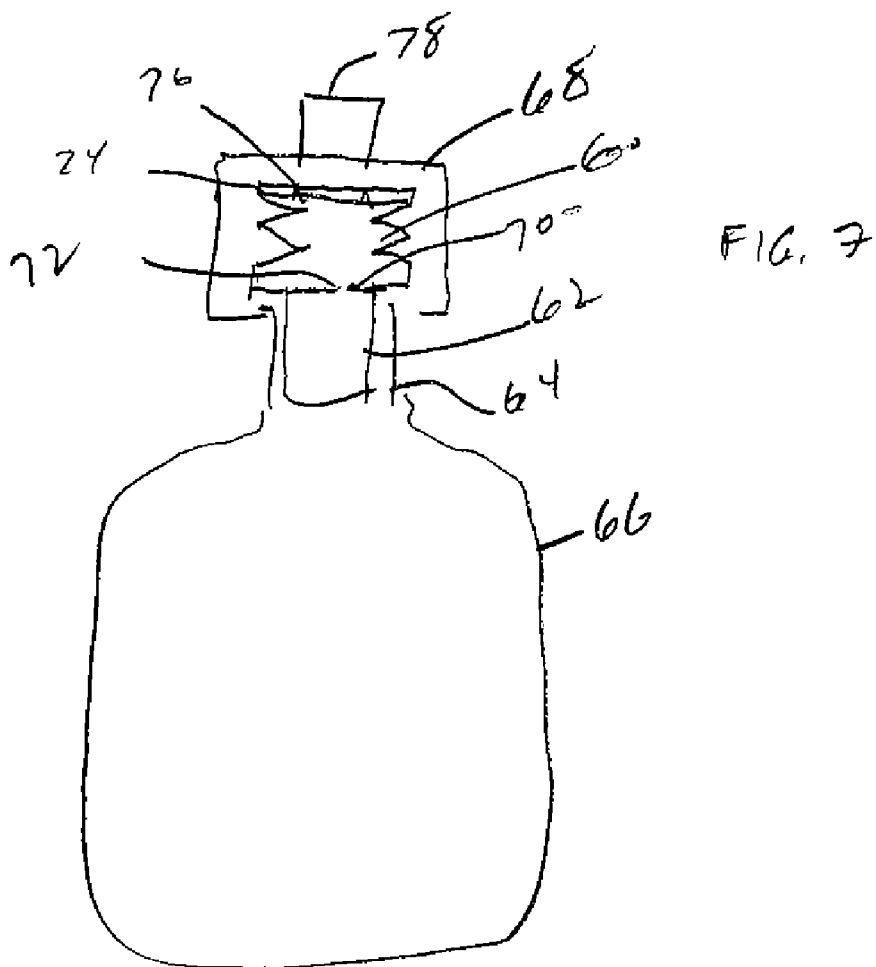
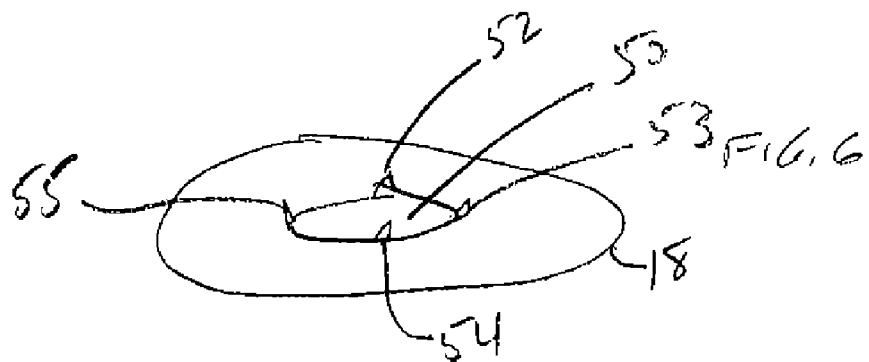


FIG. 8

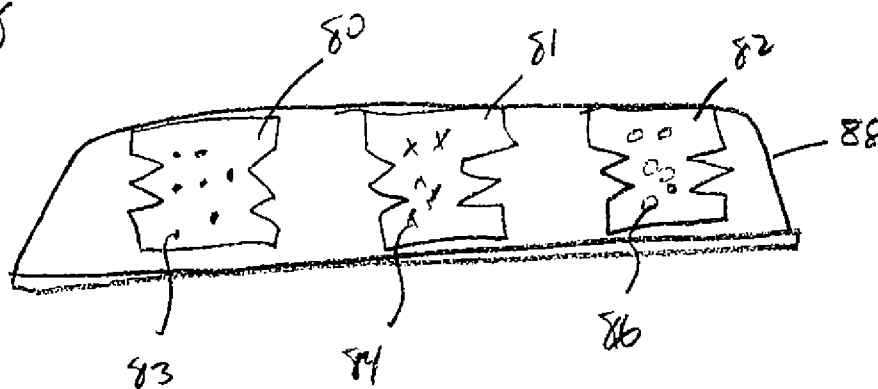
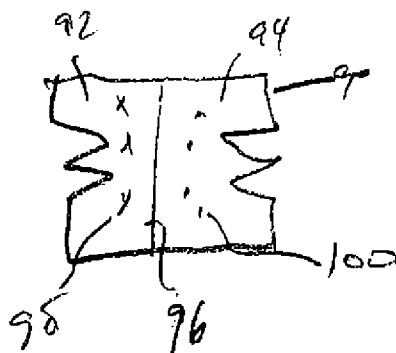


FIG. 9



COLLAPSIBLE INSERT

BACKGROUND OF THE INVENTION

[0001] The present invention generally relates to collapsible inserts for bottled water and the like.

[0002] Bottled water is a big industry today. The bottled water industry, however, still faces issues. Some of the issues include inadequate shelf space at stores and transportation issues due to the bulkiness of the bottles. There are numerous other issues and problems.

[0003] Accordingly, new and improved apparatus and methods are needed to address these and other issues.

SUMMARY OF THE INVENTION

[0004] In accordance with one aspect of the present invention, a bottle insert includes a collapsible member having a chamber, an edible substance within the chamber and a weakened area in the collapsible member. In accordance with another aspect of the present invention, a bottle and a removable cap that fits on the bottle is provided. The removable cap can collapse the collapsible member such that the weakened area is over or in an opening in the bottle, such that when the removable cap is placed on the bottle, the collapsible member collapses so that the edible substance is released through the weakened area into the bottle.

[0005] In accordance with a further aspect of the present invention, the cap can be a closed cap with no opening. The cap can also have a closeable opening in it, such as is commonly found in the caps on today's sports drinks.

[0006] The collapsible member can be accordion shaped.

[0007] In accordance with another aspect of the present invention, the collapsible member has a second chamber that contains a second edible substance and that has a second weakened area. The second collapsible member collapses when the removable cap is threaded on the bottle so that the second substance is released through the second weakened area into the bottle.

[0008] In accordance with a further aspect of the present invention, the apparatus can include a second collapsible member which has a second chamber. A second edible substance is provided within the second chamber and a weakened area is provided in the second collapsible member. The removable cap can hold the first collapsible member and the second collapsible member such that the first collapsible member and the second collapsible member collapse when the removable cap is placed on the bottle thereby releasing the first edible substance and the second edible substance through the weakened wall into the bottle.

[0009] The weakened area in the collapsible member can be created by the collapsible member being thinner in the weakened area than in other areas of the collapsible member. The process of releasing the substance through the weakened area can be enhanced by pressurizing the chamber to a pressure greater than atmospheric pressure.

[0010] A disk can be provided in the collapsible member. The disk is preferably located opposite the weakened area in the collapsible member. The disk has an opening and one or more extending barbs. When a cap is placed on the bottle, the prongs cause a second hole in the member to be formed. This is useful when sports caps are used to drink from a bottle through a cap.

[0011] In accordance with yet another aspect of the present invention, a cylindrical tube extends from the weakened area.

The cylindrical tube is made from a soft pliable rubber or plastic and is preferably inserted into a neck of a bottle containing fluid.

[0012] In accordance with a further aspect of the present invention, the collapsible insert or member can have a tube, generally cylindrical in shape, extending from the bottom of the insert. The cylindrical tube is placed inside the neck of the bottle so that when the removable cap is placed on the bottle, the collapsible member collapses releasing the edible substance through the weakened area into the bottle.

[0013] In accordance with another aspect of the present invention, the edible substance is selected from the group consisting of: flavors, liquor, vitamins, minerals, pharmaceuticals, medicines, powdered milk, and baby formula. The edible substance is in liquid form or in solid form.

[0014] The collapsible member can also have a second weakened area in the collapsible member. The second weakened area opens when the cap is placed on a bottle so that fluid from a bottle can flow through the first weakened area and through the second weakened area and through an opening in the cap, thereby allowing a user to drink through a cap.

DESCRIPTION OF THE DRAWINGS

[0015] FIG. 1 illustrates a collapsible insert in accordance with one aspect of the present invention.

[0016] FIGS. 2 and 3 illustrate bottle caps in accordance with various aspects of the present invention.

[0017] FIG. 4 illustrates a collapsible insert in a bottle cap on top of a bottle in accordance with an aspect of the present invention.

[0018] FIG. 5 illustrates a bottom view of a collapsible insert in accordance with an aspect of the present invention, wherein the bottom of the collapsible insert has a weakened area.

[0019] FIG. 6 illustrates an optional disk that can be located in the collapsible insert.

[0020] FIG. 7 illustrates a collapsible insert with a tube extending therefrom in accordance with a further aspect of the present invention.

[0021] FIG. 8 illustrates a package having a plurality of inserts.

[0022] FIG. 9 illustrates an insert having a plurality of compartments in accordance with one aspect of the present invention.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0023] FIG. 1 illustrates a collapsible insert 10 in accordance with one aspect of the present invention. Each side 12 and 14 of the collapsible insert 10 is ribbed shaped. Thus, the collapsible insert 10 is overall shaped like an accordion.

[0024] The accordion shape allows the insert 10 to easily collapse when pressure is applied from the top or the bottom. The collapsible insert 10 has a weakened area that breaks when the collapsible insert 10 collapses. The weakened area is preferably located on the bottom 16 of the insert 10.

[0025] A disk 18 is optionally provided in the collapsible insert 10. The disk 18 is provided in the top of the insert 10 in accordance with one aspect of the present invention.

[0026] The collapsible insert 10 is used with bottles. The bottles typically have caps on them. FIGS. 2 and 3 illustrate bottle caps in accordance with various aspects of the present invention. The cap in FIG. 2 is a regular cap 20 found on top

of water bottles. The cap 20 typically has threads that match the threads of a bottle. The cap 22 in FIG. 3 illustrates a sports cap 22, also found on many bottles. The sports cap 22 has a top part 24 that can be lifted to provide an opening in the cap 22. This allows a person to drink liquid in a bottle while the sports cap 22 is on the bottle.

[0027] FIG. 4 illustrates a collapsible insert in a bottle cap 22 on top of a bottle 30 in accordance with an aspect of the present invention. A collapsible insert 10 is placed inside of the cap 20. The cap 20 is placed on top of a bottle 30. In accordance with one aspect of the present invention, the cap is wide enough to catch the top 34 of the bottle 30.

[0028] As illustrated in the right side of FIG. 4, when the cap 20 is placed onto the bottle, for example, by screwing it onto the bottle 30, the cap 20 compresses or collapses the insert 10. The ribbed sides of the collapsible insert 10 allow the collapsible insert 10 to collapse.

[0029] The collapsible insert 10 may be pressurized with a pressure greater than one atmosphere to facilitate in the breaking of the collapsible insert 10 to allow the release of the ingredients.

[0030] The collapsible insert 10 can be made of any material strong enough to hold liquids or solids and to collapse along the ribs under pressure. By way of example, only and without limitation, the collapsible insert 10 could be made from polymeric materials, preferably acceptable for food contact. For example, polyethylene, polypropylene and polystyrene can be used. In another aspect of the present invention, foil could also be used.

[0031] FIG. 5 illustrates a bottom view of a collapsible insert 10 in accordance with an aspect of the present invention, wherein the bottom 16 of the collapsible insert 10 has a weakened area 40. The weakened area can be formed by making the area 40 thinner than the rest of the collapsible insert 10. When the collapsible insert 10 breaks, it breaks across the weakened area 40.

[0032] FIG. 6 illustrates an optional disk 18 that can be located in the collapsible insert 10. The disk 18 has a hole 50 in it. The disk 18 also has four prongs 52 to 55 extending upwards. When used, the disk 18 is preferably located in the top of the cap 22. When the collapsible insert 10 is placed in the cap 22, the hole 50 in the disk 18 preferably aligns with the part 24 of the cap 22 that is lifted to create a drinking hole in the cap 22. As the cap 22 is screwed onto the bottle, the prongs 52 to 55 pierce the insert 10 to create an opening through which liquid from the bottle can pass into the part 24 and then into someone's mouth. It is preferred that the insert 10 be designed so that the weakened area 40 break first and then the prongs 52 to 55 would pierce the insert 10.

[0033] In accordance with another aspect of the present invention, a second weakened area in the insert 10 can be provided. The second weakened area can be used in conjunction with the disk 18 or alone. The second weakened area, if used, is preferably located opposite the drinking opening 24 in the cap 22. The second weakened area can also be formed by a thinner area of the insert 10 than surrounding areas. Additionally, the second weakened area can be designed to open after the first weakened area by the thickness of the two weakened areas. In this example, the first weakened area would be thinner than the second weakened area.

[0034] FIG. 7 illustrates a collapsible insert 60 with a tube 62 extending from the bottom of the insert 60. The insert 60 can be similar to the insert 10 of FIG. 1. In use, the tube 62 is

placed into a neck 64 of a bottle 66. This provides stability while the cap 68 is placed onto the bottle 66.

[0035] The insert 60 has a bottom section 70 that has a weakened area 72. The weakened area 72 breaks when the cap is placed on the bottle 66, as previously described. Alternatively, the weakened area 72 be placed in the bottom of the tube 62, particularly if the insert 60 is pressurized.

[0036] In accordance with one aspect of the present invention, the insert 60 is sized to catch the rim of the opening of the bottle so that the insert 60 collapses as the cap 68 is placed on the bottle 66. In accordance with another aspect of the present invention, the insert 60 can be sized to create sufficient pressure on the inside of the bottle 66 to allow the insert 60 to collapse as the cap 68 is placed on the bottle 66. In accordance with yet another aspect of the present invention, the neck of the bottle 66 can be V-shaped to assist in holding the insert 60 in place. The ingredients in the insert 60 are released into the bottle 66 when the cap 68 is threaded or otherwise placed on the bottle 66.

[0037] FIG. 7 illustrates a sports cap. The disk 74 has the prongs 76, as previously described. When the cap is placed on the bottle 66, the prongs 76 pierce the collapsible insert 60 to allow fluid from the bottle 66 to flow through the first weakened area 72 and through a hole in the disk 74 and then through the top 78.

[0038] The cylindrical tube can be made of soft pliable rubber or plastic.

[0039] The inserts 10 or 60, or any other insert using the present invention, can be placed into a package to provide multiple inserts. Different flavors or ingredients can be located in inserts in one package, or the same flavors or ingredients can be located in inserts in a single package. FIG. 8 illustrates the packaging of collapsible inserts 80 to 82 in accordance with one aspect of the present invention. Insert 80 has substance 83, insert 81 has substance 84 and insert 82 has substance 85.

[0040] FIG. 9 illustrates an insert 90 having two compartments 92 and 94. The compartments 92 and 94 are formed by an impermeable membrane 96. The first compartment 92 has a first substance 98 and a second substance 100. The first substance 98 can be a solid and the second substance can be a liquid, or they can both be a solid or both be a liquid.

[0041] Alternatively, two collapsible members can be inserted into a cap or into the bottle to release different ingredients into a bottle.

[0042] The ingredients in the collapsible insert are edible in accordance with one aspect of the present invention. The ingredients can be flavorings. The ingredients can also be liquid or solids. The ingredients can also be foods, pharmaceuticals, medicines, baby formula, liquors and the like.

[0043] Different ingredients can be placed into different compartments in one of the collapsible inserts.

[0044] In accordance with a further embodiment of the present invention, the insert 10 or 60 acts as a gasket when collapsed. This prevents liquids from escaping the bottle during use.

[0045] Although the invention herein has been described with reference to particular embodiments, it is to be understood that these embodiments are merely illustrative of the principles and applications of the present invention. It will be apparent to those skilled in the art that various modifications and variations can be made in the apparatus and methods of the present invention without departing from the spirit and scope of the invention. Thus, it is intended that the present

invention include modifications and variations that are within the scope of the appended claims and their equivalents.

- 1. Apparatus, comprising:
a collapsible member having a chamber;
an edible substance within the chamber; and
a weakened area in the collapsible member that can be broken when the collapsible member collapses.
- 2. The apparatus of claim 1, further comprising:
a bottle;
a removable cap on the bottle, the removable cap holding the collapsible member;
wherein the collapsible member collapses when the removable cap is placed on the bottle so that the edible substance is released through the weakened area into the bottle.
- 3. The apparatus of claim 2, wherein the cap has a closeable opening in it.
- 4. The apparatus of claim 2, wherein the collapsible member is accordion shaped.
- 5. The apparatus of claim 2, wherein the collapsible member has a second chamber that contains a second edible substance and that has a second weakened area.
- 6. The apparatus of claim 5, wherein the second chamber collapses when the removable cap is threaded on the bottle so that the second substance is released through the second weakened area into the bottle.
- 7. The apparatus of claim 1, further comprising:
a second collapsible member having a second chamber;
a second edible substance within the second chamber; and
a second weakened area in the collapsible member.
- 8. The apparatus of claim 1, wherein the weakened area in the collapsible member is created by the collapsible member being thinner in the weakened area than in other areas of the collapsible member.

9. The apparatus of claim 1, wherein the chamber inside the collapsible member is pressurized greater than atmospheric pressure.

10. The apparatus of claim 1, further comprising a disk opposite the weakened area in the collapsible member, the disk having an opening and one or more prongs extending from it.

11. The apparatus of claim 1, further comprising a cylindrical tube extending from the weakened area.

12. The apparatus of claim 12, wherein the cylindrical tube is made from a soft pliable rubber or plastic.

13. The apparatus of claim 12, further comprising:
a bottle having a neck;
a removable cap that can be placed on the bottle;
wherein the cylindrical tube is inside the neck of the bottle so that when the removable cap is placed on the bottle the collapsible member collapses releasing the edible substance through the weakened area into the bottle.

14. The apparatus of claim 2, wherein the edible substance is selected from the group consisting of: flavors, liquor, vitamins, minerals, pharmaceuticals, medicines, powdered milk and baby formula.

15. The apparatus of claim 1, wherein the edible substance is in liquid form.

16. The apparatus of claim 1, wherein the edible substance is in powdered form.

18. The apparatus of claim 2, further comprising a second weakened area in the collapsible member that opens when the cap is placed onto the bottle.

19. The apparatus of claim 1, further comprising a package containing one or more of the apparatus recited in claim 1.

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