A food container in the form of a carton or beverage bottle is provided with two or more sub-compartments. The sub-compartments designed to segregate two or more beverages or ingredients within a common bottle or carton enclosure, the retail unit package. The container includes a base wall configured to support the container in an upright fashion, say for retail display or storage. A neck tube having a threaded end and equipped with a removable cap is sealably mounted over each sub-compartment such that for each sub-compartment there is one removable cap providing access to contents stored within the sub-compartment. Sub-compartment dividing walls provide a hermetic seal between sub-compartments. The container having multiple hermetically sealed sub-compartments providing a multi-ingredient container in which beverages or ingredients may be stored for an extended period of time. The caps and tubes into each compartment are similar in size and form the threaded necks and thread bottle caps of conventional beverage bottles.
SUMMARY OF THE DISCLOSURE

[0006] Accordingly, embodiments of the inventive disclosures made herein comprise a multi-compartment beverage or ingredient bottle or carton designed to segregate two or more beverages or ingredients within a common bottle, carton enclosure while maintaining a hermetic seal between the compartments.

[0007] In embodiments of the inventive disclosures made herein, a multi-compartment beverage container comprises a compartmentalized closed container having two or more sub-compartments therein. The sub-compartments are configured for storing and segregating ingredients such as food stuffs or beverages. The container includes a base wall configured to support the container in an upright fashion, say for retail display or storage, a side wall secured along a bottom edge to the peripheral edges of the base so as to form a copy or well, and a top wall having two or more holes therethrough. A neck tube having a threaded end and equipped with a removable cap is sealably mounted over each hole such that for each sub-compartment there is one removable cap providing consumer access to contents stored within the sub-compartment. One or more dividing walls are provided, the dividing walls segregating the container into the two or more sub-compartments as discussed above.

[0008] The dividing walls are sealed and secured along the peripheral edges of the dividing walls to the inside surfaces of the side wall, top wall and bottom wall, the structure together with the neck tubes and caps thereon forming two or more sub-compartments having a hermetic seal between sub-compartments and between each sub-compartment and the environment outside the container. The container with the multiple hermetic sealed sub-compartments provides a multi-ingredient container in which beverages or ingredients may be stored for an extended period of time. The caps and neck tubes into each compartment are similar in size and form the threaded necks and thread bottle caps of conventional beverage bottles in common use.

[0009] In a first embodiment multi-compartment containers such as described above may be formed from sealably folded and formed paperboard blanks, the paperboard coated with a waterproof plastic, generally polyethylene in present day beverage packaging processes, although the use of, for example, wax coated paper board would serve a similar purpose. Conventional single compartment containers constructed of coated paperboard are commonly available in retail food stores having products such as orange juice, grapefruit juice and similar non-carbonated beverages packed within. The some embodiments of the inventive disclosures herein provide multi-compartment containers for non-carbonated beverages or other ingredients using folded coated paperboard type packaging. As in the ease of conventional single compartment containers, the multi-compartment cartons start as coated paper blanks that are fed into a forming and sealing machine. The machine stamps or folds the blank into a carton. The carton seams are sealed by the use of heat and squeezing pressure on the seams without the use of adhesives, as the heated polyethylene bonds the seams strongly without the use of glues or adhesives.

[0010] In a second embodiment of the inventive disclosures made herein, a multi-compartment container comprises a compartmentalized closed plastic bottle having two or more sub-compartments therein. The sub-compartments
are configured for storing and segregating ingredients such as food stuffs or beverages into a common retail package or container. The container includes a base wall configured to support the container in an upright fashion, say for retail display or storage, a side wall secured along a bottom edge to the peripheral edges of the base so as to form a close wall well, and a top wall having two or more holes therethrough. A neck tube having a threaded end and equipped with a removable cap is sealably mounted over each hole such that for each sub-compartment there is one removable cap providing consumer access to contents stored within the sub-compartment. A primary plastic material used in the manufacture of the multi-compartment plastic beverage container is clear polyethylene terephthalate plastic, which allows the beverage or contents to be viewed through the container by the purchaser or consumer. One or more dividing walls are provided, the dividing walls segregating the container into the two or more sub-compartments as discussed above. The dividing walls are sealed and secured along the peripheral edges of the dividing walls to the inside surfaces of the side wall, top wall and bottom wall, the structure taken together with the tubes and caps thereon forming two or more sub-compartments having a hermetic seal between sub-compartments and between each sub-compartment and the environment outside the container. The container having multiple hermetically sealed sub-compartments providing a multi-ingredient container in which beverages or ingredients may be stored for an extended period of time. The caps and tubes into each compartment are similar in size and form the threaded necks and thread bottle caps of conventional beverage bottles, making the bottle well adapted for beverage packaging for retail and for consumption by the consumer.

[0011] In a third embodiment and related embodiments of the inventive disclosures made herein, a multi-compartment container of the second embodiment is modified to have a top wall which is domed in form, the domed form of the top is to strengthen the top wall against the pressure of one or more carbonated beverages contained within sub-compartments of the container. In this embodiment the bottom or base wall may or may not have a concave dome, the dividing wall or wall being secured to the base wall provides additional support to the base wall resisting any buckling tendency due to carbonation pressure.

[0012] In the case of cardboard containers, the preferred embodiment of the multi-component container comprises cardboard having a waterproof polyethylene plastic coating and two sub-compartments, the preferred limit of two sub-compartments primarily for ease of manufacturing, i.e., forming and sealing of the plastic coated cardboard container. It is to be understood however from reading the disclosure herein that the invention is not limited to cardboard containers having two sub-compartments.

[0013] In the case of plastic containers, the preferred embodiment of the multi-component container comprises two or three sub-compartment molded plastic containers having domed top walls. It is to be understood however from reading the disclosure herein that the invention is not limited to plastic containers having two or three sub-compartments, but in the contrary to a plastic multi-compartment container having a reasonable number of sub-compartments therein. To help assure the safety of our food, the U.S. Food and Drug Administration (FDA) carefully reviews food and beverage packaging materials, including plastics for beverage bottles, before allowing them on the market. Most convenience-size beverage bottles sold in the United States are made from polyethylene terephthalate (PET). PET has become the material of choice for bottled beverages because it is lightweight and shatter resistant, and PET has been extensively tested for safety by the FDA. Under the Federal Food, Drug and Cosmetic Act, FDA regulates materials and substances used to make plastic packaging as indirect food additives. According to the FDA, indirect food additives are "substances that may come into contact with food as part of packaging or processing equipment, but are not intended to be added directly to food." Conventional single-compartment bottles made with PET are widely used for everything from water and fruit juice to soft drinks and even beer. In view of the established safety records and wide use, preferred embodiments of the plastic multi-component bottle are made from polyethylene terephthalate (PET), although other suitable materials may be substituted as would be known to one skilled in the art.

[0014] In certain foodstuffs, it is beneficial to maintain the ingredients separated until use is intended, this providing a longer shelf life. For example, certain dried flavored materials, one example being a sugar based dry drink mix, may be stored for an extended time if the dry ingredients are kept dry. In cases such as this, the liquid portion of the foodstuff, which may just be water and therefore have a long shelf life, may be kept separate from the dry ingredients until the time of use, resulting in a packaged product with an extended shelf life.

[0015] It is an objective of the present inventive disclosures to provide a new multiple beverage container which is not anticipated, rendered obvious, suggested, or implied by the known prior art in beverage bottles and cartons.

[0016] It is another objective of the present inventive disclosures to provide a new multiple beverage bottle or carton that meets the regulatory requirements of the U.S. Food and Drug Administration, particularly in regard to construction and packaging material and public health and safety.

[0017] It is another objective of the present inventive disclosures to provide a new multiple beverage bottle or carton that is reliable in construction and relatively easy to manufacture, resulting in a packaging product that is attractive to the food industry and to consumers due to its innovative design and low packaging cost.

[0018] It is another objective of the present inventive disclosures to provide a new multiple beverage bottle or carton that is easily fillable on automated bottle filling machines and lines.

[0019] It is another objective of the present inventive disclosures to provide a new multiple beverage bottle or carton for hermetically storing two or more beverages or ingredients in sub-compartments within a common carton.

[0020] It is another objective of the present inventive disclosures to provide a new multiple beverage bottle or carton that is within the fundamental packaging sizes of currently available beverage bottles and cartons, and therefore is adapted to fit packaging, transport, retail display shelving and refrigerated displays without requiring special adaptations to the same.
It is another objective of the present inventive disclosures to provide a new multiple beverage bottle or carton that is convenient and easy for the consumer to use.

It is another objective of the present inventive disclosures to provide a new multiple beverage bottle or carton that saves the consumer time by providing multiple beverages within one single container to more easily satisfy the tastes of the consumer, and, for example, to be particularly beneficial to travelers with children.

It is another objective of the present inventive disclosures to provide a new multiple beverage bottle or carton that may provide a common container for beverages which are naturally mixed together for use, for example rum and a carbonated cola beverage.

These and other objects of the invention made herein will become readily apparent upon further review of the following specification and associated drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The drawings show a form of the invention that is presently preferred; however, the invention is not limited to the precise arrangement shown in the drawings.

FIG. 1 presents a perspective view of one embodiment of the multi-compartment container in accordance with the inventive disclosures herein.

FIG. 2 presents a top view of one embodiment of the multi-compartment container in accordance with the inventive disclosures herein.

FIG. 3 presents a top view along section A-A of FIG. 1 of one embodiment of the multi-compartment container in accordance with the inventive disclosures herein.

FIG. 4 presents a top layout view of a coated paperboard blank for forming a multi-compartment carton or container.

FIG. 5 presents a perspective view of a two compartment plastic beverage bottle in accordance with the inventive disclosures herein.

FIG. 6 presents a section view along section A-A of a two compartment plastic beverage bottle in accordance with the inventive disclosures herein.

FIG. 7 presents a top section view of a three compartment plastic beverage bottle in accordance with the inventive disclosures herein, showing particularly the dividing wall layout for a three compartment beverage bottle.

DETAILED DESCRIPTION OF THE DRAWINGS

In preparation for explaining the details of the present inventive disclosure, it is to be understood by the reader that the invention is not limited to the presented details of the construction, materials and embodiments as illustrated in the accompanying drawings, as the invention concepts are clearly capable of other embodiments and of being practiced and realized in various ways by applying the disclosure presented herein.

Turning now to FIG. 1.

FIG. 1 depicts a perspective view of one embodiment of the multi-compartment container in accordance with the inventive disclosures herein. This embodiment is a formed and sealed paperboard container for food stuff and non-carbonated beverages. In exterior size and form it is similar to single compartment quart, half gallon and liter cartons, although it deviates significantly from the conventional packages in that it provides two sealed compartments within one package, as illustrated.

The container is formed from closed sidewalls 1, formed and sealed top walls 2 having a thermally sealed seam 3, and a formed and sealed base wall 4. An interior dividing wall 5 forms a hermetic seal between the first compartment 6 and the second compartment 7. Threaded removable twist caps 8 provide re-sealable access to the contents of the compartments.

Turning now to FIG. 2. FIG. 2 depicts a top view of the multi-compartment container or carton of FIG. 1 showing the folded and thermally sealed top seam 9 which hermetically seals the top wall and dividing wall. Also shown are the conventional twist caps 8 which are threaded upon conventional short threaded neck tubes mounted to the top walls to provide the consumer with re-sealable access to the contents of the two sub-compartments of the container package.

Turning now to FIG. 3 and FIG. 4. FIG. 4 depicts a top view through section line A-A of FIG. 1, and depicts one method of forming a plastic coated paperboard blank in the multi-component paperboard container or carton of FIG. 1. FIG. 3 depicts a coated paper blank having fold lines upon which the paper blank will be folded or formed to realize the multi-compartment container of FIG. 1. In FIG. 4, the vertical wallfold sections are identified across the top of the blank for discussion and are labeled 1, 2, 3 continuing consecutively through 9. Each vertical wall fold comprises a top wall portion, and side wall partition and a base or bottom wall portion as labeled. In FIG. 3, the folding process is illustrated through a cutting line A-A taken through the container as shown in FIG. 1. The vertical sidewall sections are formed in sequence as shown by labels and arrows 1, 2, 3, continuing through 9. The completed package vertical wall section 1 is thermally sealed to vertical wall section 7, and vertical wall section 9 is thermally sealed to vertical wall section 3. Vertical wall section 5 forms the interior dividing wall of the container, dividing the container into two sealed sub-compartments. The dividing wall, vertical wall section 5, is positioned directly and intentionally under the thermally sealed top seam 3 of FIG. 1 and has an upper end extending into the seam. Similarly, the bottom portion of the dividing wall extends into a bottom wall or base seam, the completed package forming two sealed sub-compartments within one container or carton. Removable and re-sealable twist caps 8 provide access to the beverage or contents of the sub-compartment of the container.

FIG. 5 depicts a perspective view of one embodiment of a two compartment plastic beverage bottle in accordance with the inventive disclosures herein. The two compartment beverage bottle comprises a cylindrical peripheral sidewall 20 having a top convex domed wall 21 secured around top edges of the sidewall 20. Seen in dashed outline is a concave domed bottom or base wall 22 secured around bottom edges of the cylindrical sidewall 20. The domed top and base walls together with the cylindrical sidewall are particularly suited for packaging of pressurized
or carbonated beverages. Extended tubular necks 23 are fitted to openings through the top wall, one tubular neck to each sub-compartment, in this case two. The tubular neck ends displaced from the bottle top wall are provided with a threaded portion to removably and sealably receive a threaded cap 24.

[0040] FIG. 6 depicts a section view along section A-A of FIG. 5 of a two compartment plastic beverage bottle in accordance with the inventive disclosures herein, particularly pointing out the dividing wall. The dividing wall 27 is secured at peripheral edges to the side wall, top wall and bottom or base wall of the two compartment beverage bottle, forming a hermetic seal between the contents of the first sub-compartment 25 and second sub-compartment 26.

[0041] FIG. 7 depicts a top section view of a three compartment plastic beverage bottle in accordance with the inventive disclosures herein, showing particularly the dividing wall layout for a three compartment beverage bottle as would be seen by a section cut horizontally through the cylindrical bottle below the top domed top cap. The ‘Y’ shaped dividing wall 28 is secured at peripheral edges to the side wall 20, top wall (not shown) and bottom or base wall (not shown) of the three compartment beverage bottle, forming a hermetic seal between the contents of the first sub-compartment 25, second sub-compartment 26 and third sub-compartment 29.

[0042] The discussed construction, illustrations and sequence of operation is for one embodiment of the invention, but is in no way limiting to other embodiments. The operating modes may be changed and enhanced without deviating from the intention of this inventive disclosure.

[0043] In the preceding detailed description, reference has been made to the accompanying drawings that form a part hereof, and in which are shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments and certain variants thereof have been described in sufficient detail to enable those skilled in the art to practice the invention. It is to be understood that other suitable embodiments may be utilized and that logical, material, and mechanical changes may be made without departing from the spirit or scope of the invention. To avoid unnecessary detail, the description omits certain information known to those skilled in the art. The preceding detailed description is, therefore, not intended to be limited to the specific forms set forth herein, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents, as can be reasonably included within the spirit and scope of the appended claims.

What is claimed is:

1. A compartmentalized closed container having two or more sub-compartments for storing and segregating ingredients, the container comprising:
   a. a base wall configured to support the container in an upright fashion;
   b. a side wall secured along a bottom edge to peripheral edges of the base;
   c. a top wall having two or more holes therethrough, each hole singularly positioned over one sub-compartment; the top wall secured along peripheral edges to top edges of the side wall, secured edges between the top, base and side wall forming a hermetic seal;
   d. one or more dividing walls, the dividing walls segregating the container into two or more sub-compartments, the dividing walls secured along its peripheral edges to inside surfaces of the side wall, top wall and bottom wall so as to form a hermetic seal between sub-compartments in the container;
   e. a plurality of neck tubes, one for each compartment, each having one end secured to and hermetically sealed to a wall of the container, and an opposing end projecting outwards from the container and having a threaded portion thereon; and
   f. a removable cap for providing hermetic closure to the threaded end of the neck tube, the cap having threads sized and fitted to be threadably received onto the threads of the neck tube and to provide a hermetic closure thereon, wherein the ingredients in each sub-compartment are hermetically sealed.

2. The compartmentalized closed container of claim 1, wherein the ingredients comprise two or more liquid beverages, one for each sub-compartment.

3. The compartmentalized closed container of claim 2, wherein the walls comprise substantially clear polyethylene terephthalate plastic allowing the beverage to be viewed through the container.

4. The compartmentalized closed container of claim 3 wherein the top wall is a convex dome shaped top wall, the top wall configured to withstand pressure of a carbonated beverage;

   and wherein at least one beverage is a carbonated beverage.

5. The compartmentalized closed container of claim 4, wherein the number of sub-compartments is two; and wherein the number of neck tubes and caps is two.

6. The compartmentalized closed container of claim 4, wherein the one or more dividing walls is one ‘Y’ shaped dividing wall dividing the container into three hermetically sealed sub-compartments; and wherein the number of neck tubes and caps is three.

7. The compartmentalized closed container of claim 2, wherein the walls comprise formed paperboard coated with a waterproof polyethylene plastic coating; and wherein the beverage is a non-carbonated beverage.

8. The compartmentalized closed container of claim 1, wherein the walls comprise formed paperboard coated with a waterproof polyethylene plastic coating; and wherein at least one ingredient comprises a dry granular material.

9. The compartmentalized closed container of claim 5, wherein the container has a base width of 4 to 6 inches and an overall container height of 4 to 14 inches.

10. The compartmentalized closed container of claim 9, wherein the overall height is 12 inches.

11. The compartmentalized closed container of claim 6, wherein the container has a base width of 4 to 8 inches and an overall container height of 4 to 14 inches.

12. The compartmentalized closed container of claim 11, wherein the overall height is 12 inches.

* * * * *