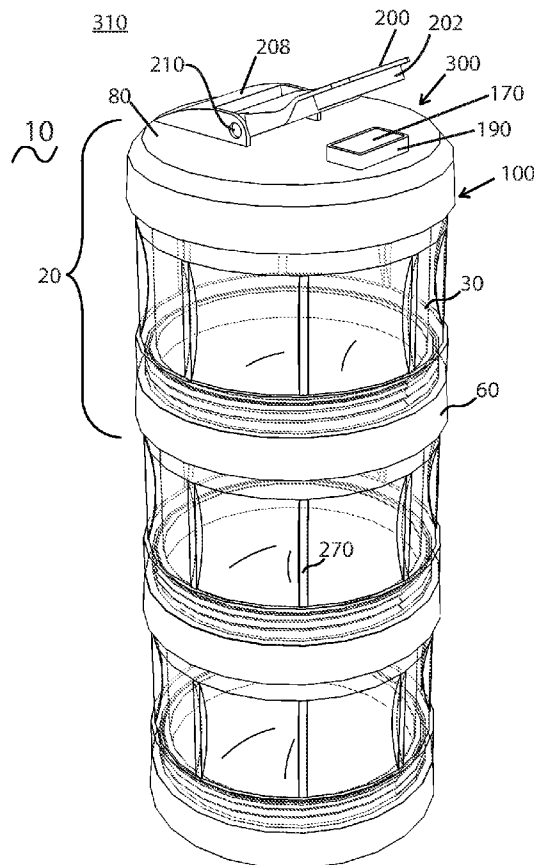




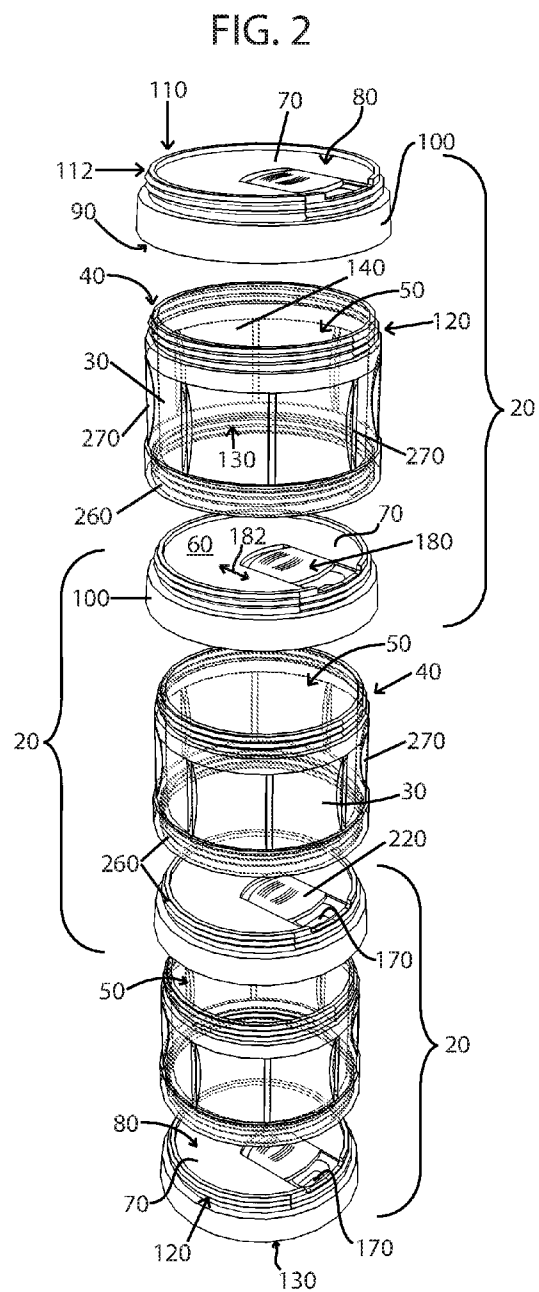
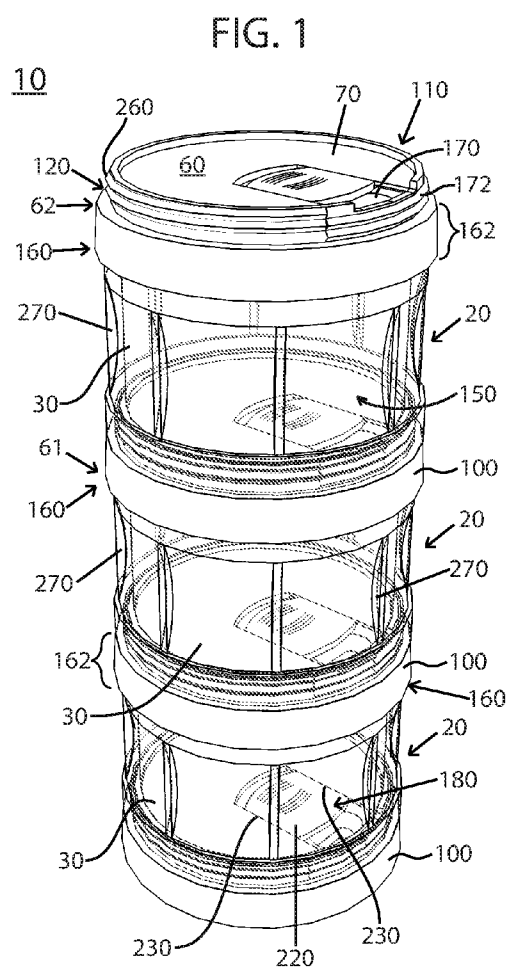
US 20160368661A1

(19) **United States**(12) **Patent Application Publication**
Moore(10) **Pub. No.: US 2016/0368661 A1**(43) **Pub. Date: Dec. 22, 2016**(54) **MULTI-COMPARTMENTED GYM BOTTLE
WITH INTERCHANGEABLE
COMPARTMENTS**(52) **U.S. Cl.**
CPC **B65D 21/0228** (2013.01); **B65D 1/10**
(2013.01)(71) Applicant: **Eugene Moore**, Hamilton, NJ (US)(72) Inventor: **Eugene Moore**, Hamilton, NJ (US)(21) Appl. No.: **15/186,535**(22) Filed: **Jun. 19, 2016****Related U.S. Application Data**(60) Provisional application No. 62/182,152, filed on Jun.
19, 2015.**Publication Classification**(51) **Int. Cl.**
B65D 21/02 (2006.01)
B65D 1/10 (2006.01)(57) **ABSTRACT**

The present invention is comprised of an at least one of at least two containers of equal or different dimensions, having a sidewall that forms a tubular or parallelogramic inner cavity. The sidewall is terminated or sealed at the top and bottom with a removable lid. The lid may be slightly different for a lid covering the uppermost container. Each removable lid is comprised of a horizontal covering surface having a rim or ribbon around its perimeter. The bottom rim forms a stand or a sealed means for attaching to a lower container, while the top rim, if present and engaged in a sealed association, forms a means for attachment to an upper container. The lid preferably further contains an opening to permit dispensing of contents being stored inside the cavity of the container. There may also exist a top terminal lid whose lid may contain only the just the internal coupler area which forms a tight seal around an upper lip of a container's sidewall. All removable components of the present invention form a tight waterproof, airtight and weatherproof seal with designated mounting components.



320



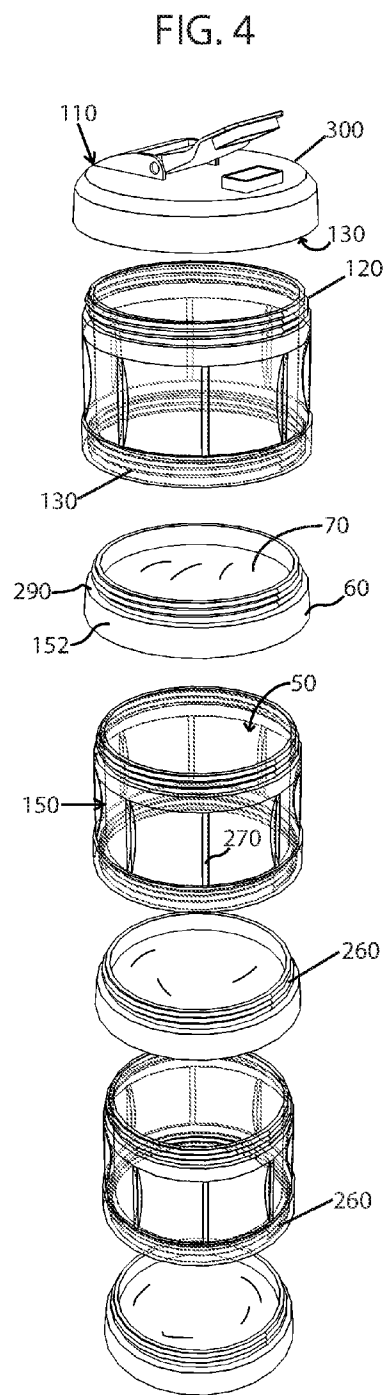
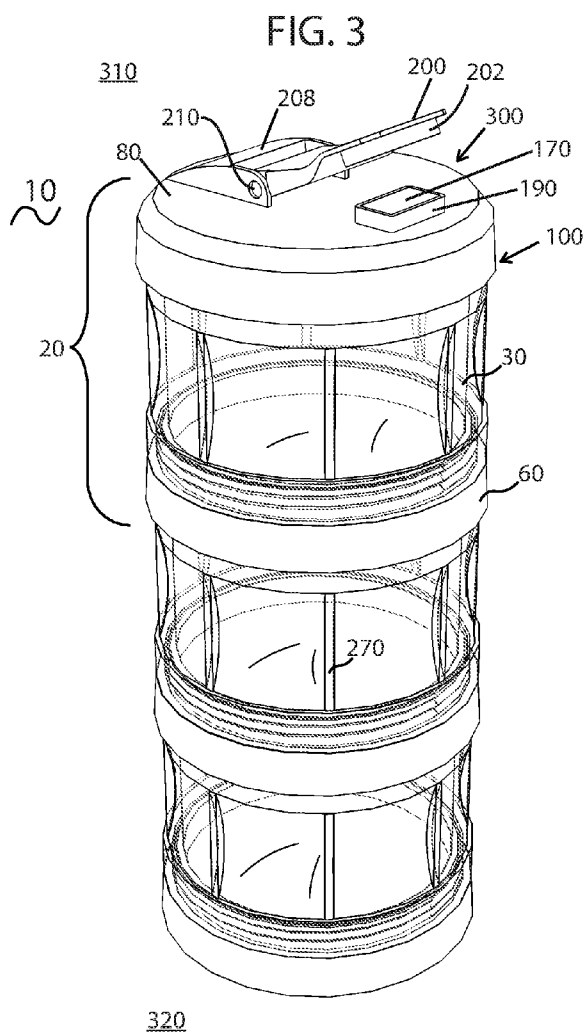


FIG. 5B

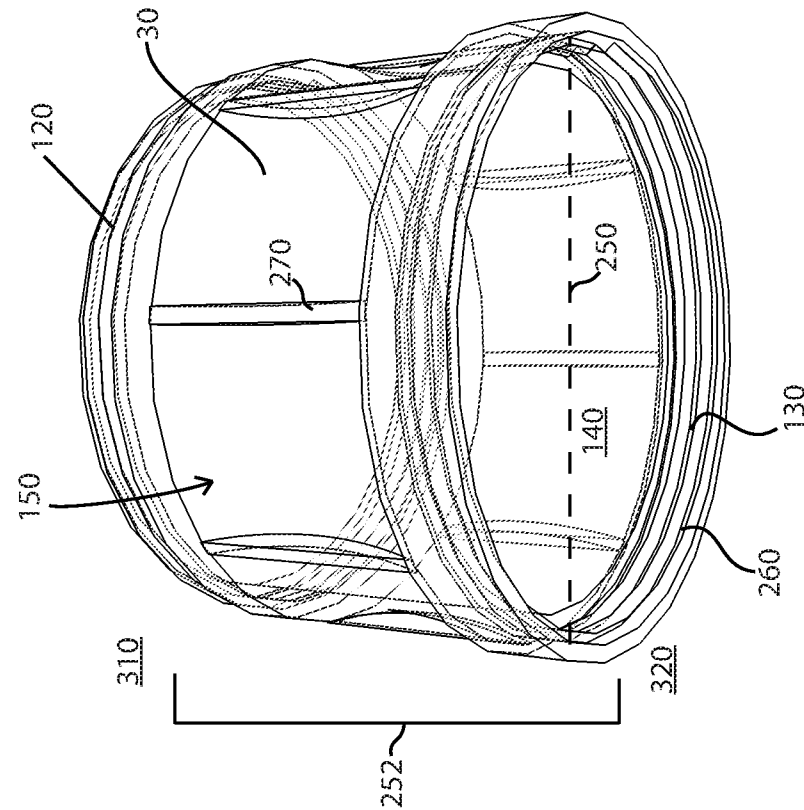


FIG. 5A

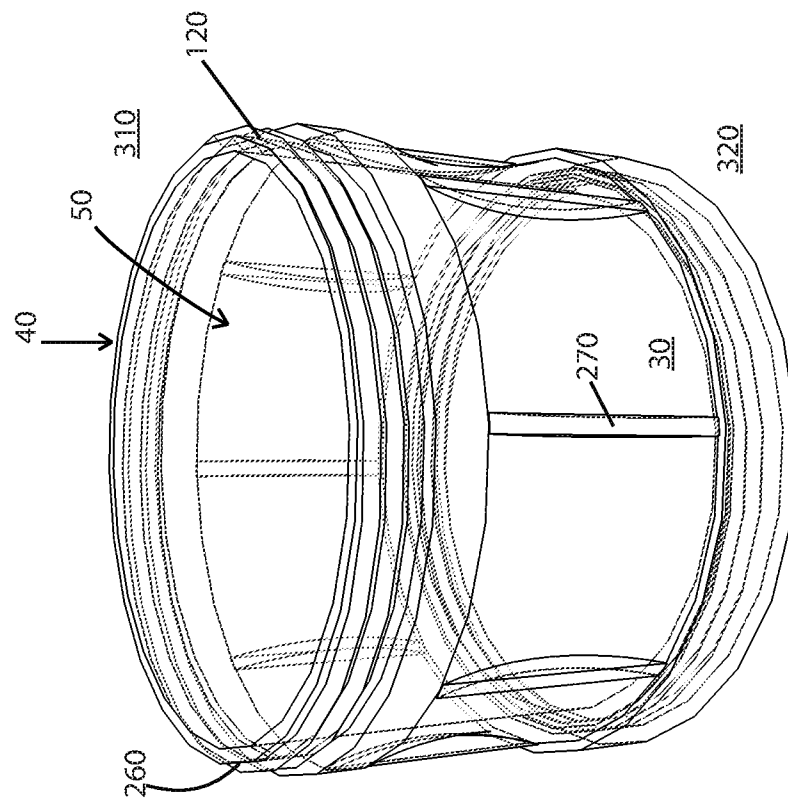


FIG. 7A

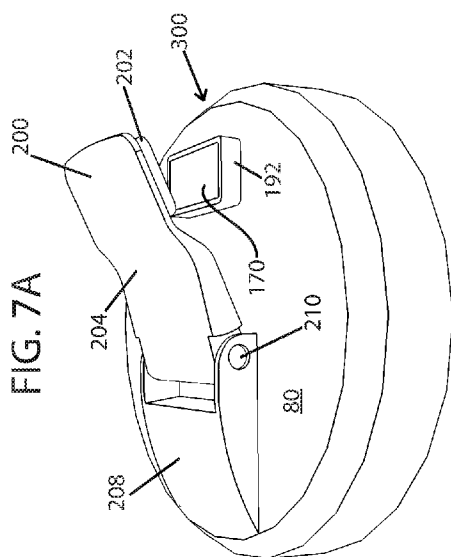


FIG. 7B

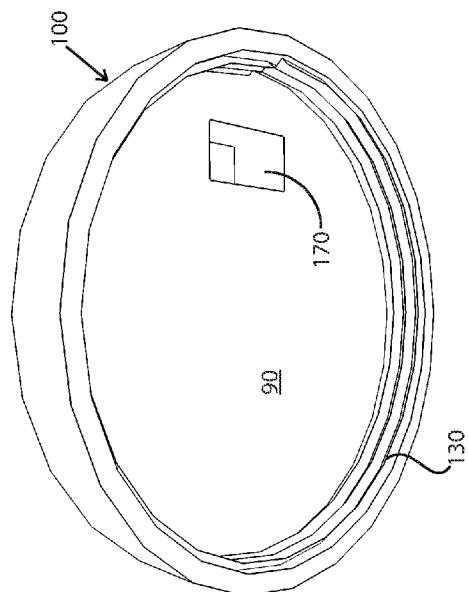


FIG. 6A

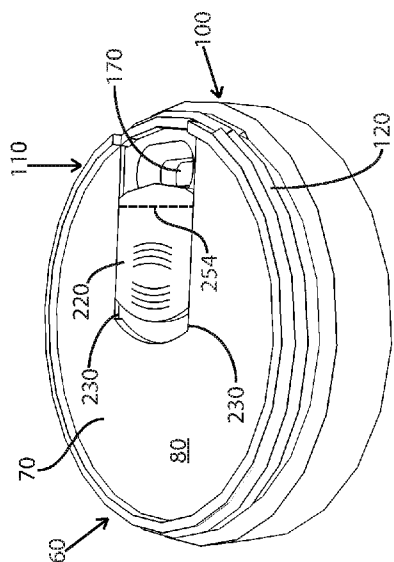
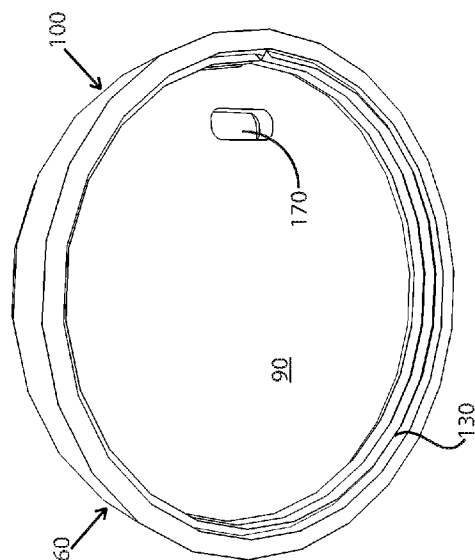


FIG. 6B



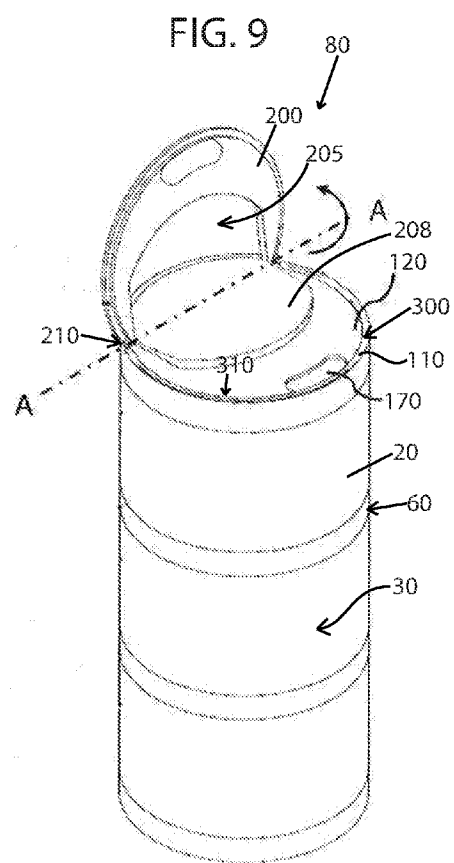
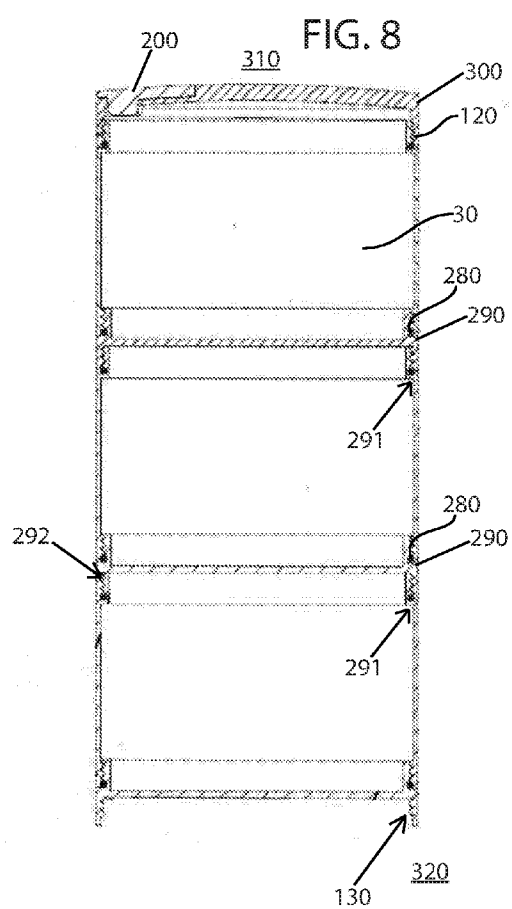
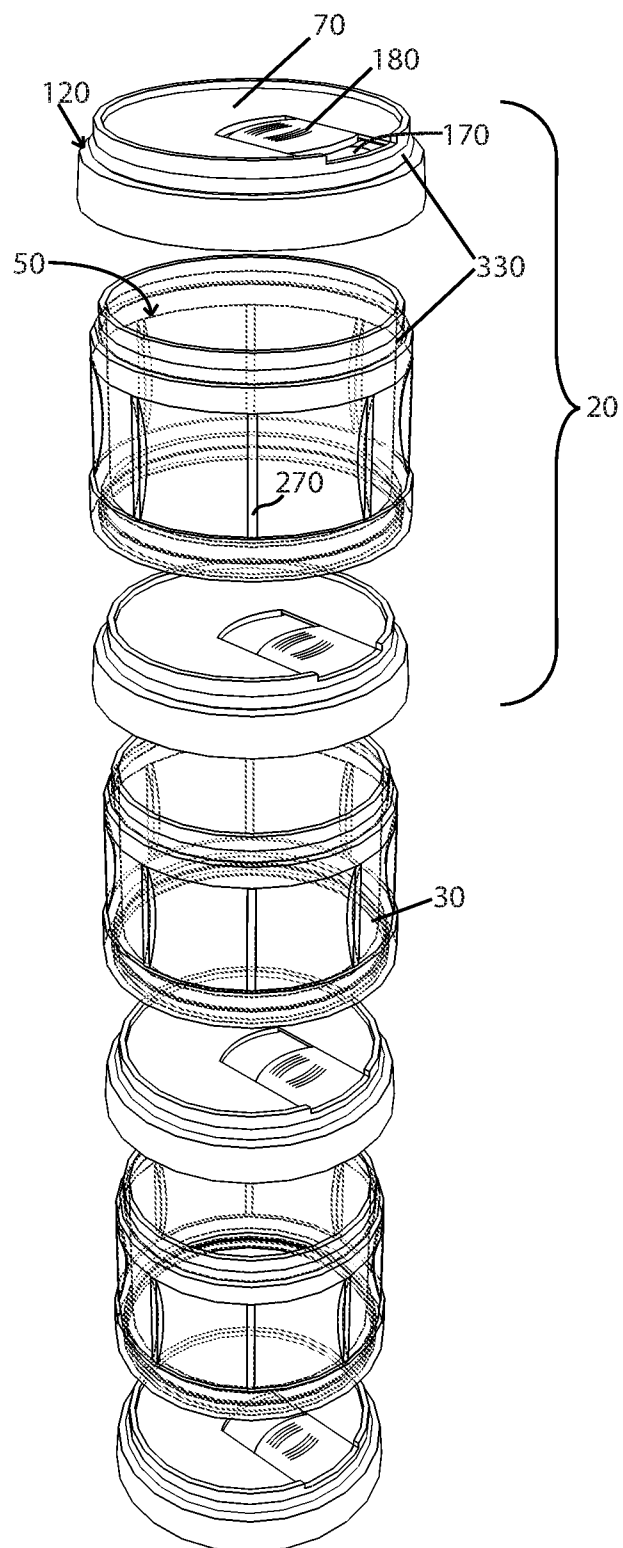


FIG. 10



MULTI-COMPARTMENTED GYM BOTTLE WITH INTERCHANGEABLE COMPARTMENTS

CLAIM OF PRIORITY

[0001] This application claims prior of a Provisional Application for a Ser. No. 62/182,152 filed on Jun. 19, 2015, the contents of which are fully incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to a modular multi-purpose container for carrying food and non-food items.

BACKGROUND OF THE INVENTION

[0003] The present invention greatly expands the utility of a refillable water bottle and general use food storage containers. Existing portable devices for carrying liquids and solids must be emptied before being reused for a different liquid or solid. Therefore, when on the go, needing or desiring to have multiple of different liquids or solids simultaneously requires one to use separate containers. It will usually take two containers to carry a measure of water and a dietary shake. Having to carry several containers presents a myriad of problems including added weight, space usage and sheer inconvenience of container juggling being the most prominent among them.

[0004] A further problem of existing solutions in the art is that containers generally cannot be resized. For example, a user needing more water than what can be stored within a standard water bottle, requires the use of a second water bottle or a container that is larger than the standard water bottle. Once the contents of such bottle get consumed, the user would then need to lug about an empty container or two with no way of combining them or repurposing them for some other use. It would also mean that the user will need to own and carry different containers that would satisfy different uses and circumstances. While a collapsible container would solve this problem and such already exist in the art, these present little utility when a robust and durable structure is needed, such as in a gym or on field trips. Furthermore, when contents of a single conventional jar or water bottle are earmarked for consumption by several people, one must have on hand cups, plates or bowls in order to share contents of a single container among several people in a sanitary and hygienically desirable manner.

[0005] An additional problem is that present containers cannot be used well across both liquid and solid contents. Rather, containers normally used for solids fulfil that task well, but fall short with liquids and visa-versa. For example, a wide mouthed container in shape of a box having a lid, such as those sold for food storage by Topperware® or Rubbermaid®, are designed to store solid or semi-solid food items. The wide open access is ideal for placing and dispensing solid items. A wide mouth is less desirable with liquids because it increases the likelihood of leakage, spillage and contamination. On the other hand, water bottles are designed to limit the risk of splashes and enable consumption of liquids even when on-the-go. However, bottle shaped containers cannot be used to carry solids due to cumbersome fill-up process and nearly impossible extraction. Therefore, a user wishing to carry or store food and drink, or other forms liquids and solids, would be required to utilize at least

two distinct containers with all negative connotations of using multiple storage contains as were mentioned before.

[0006] The solution presented by the present invention is to utilize a stackable and modular container. It is preferred that each module is relatively small to accommodate small needs. This size can then be embellished or supplemented with additional modules. If additional space is required, a separation lid is removed between two or more modules resulting in an increased common interior volume. Individual modules may be refilled or contents accessed by removing the lid separator. Or, if a liquid is used, one of the removable lids may double as a liquid dispenser by having an opening that can be resealed with a removable cover.

BRIEF DESCRIPTION OF THE RELATED ART

[0007] The present invention solves at least three problems as described above, as well as other undesired problems with conventional devices. Additional solutions and utilities may be envisioned. While the concept of stackable containers has been explored in the past, none of the prior solutions contain all required features and limitations of the present invention.

[0008] The U.S. Pat. No. 4,703,863 teaches an extendable baby bottle. Aside from an obvious utility of a baby bottle, this device described in this invention cannot be easily used for any other purpose. Furthermore, unlike the present invention, this reference requires a user to hold or store additional parts that are required to fulfil the main utility of the device.

[0009] The US Patent Application No. 2006/0273059 discloses an extendable baby feeder. While a stackable architecture is described, it is still a device for a singular purpose of extending capacity of a baby feeder.

[0010] The US Patent Application No. 2013/0092693 is still another example of an expandable container. However, the disclosed container is intended to only expand internal capacity as desired and is not intended to create individual modular units having the potential to link together.

[0011] Various implements are known in the art, but fail to address all of the problems solved by the invention described herein. One embodiment of this invention is illustrated in the accompanying drawings and will be described in more detail herein below.

SUMMARY OF THE INVENTION

[0012] The present invention is comprised of an at least one or at least two containers of equal or different dimensions, having a sidewall that forms a tubular or parallelogramic inner cavity. The sidewall is terminated or sealed at the top and bottom with a removable lid. The lid may be slightly different for is lid covering the uppermost container. Each removable lid is comprised of a horizontal covering surface having a rim or ribbon around its perimeter. The bottom rim forms a stand or a sealed means for attaching to a lower container, while the top rim, if present and engaged in a sealed association, forms a means for attachment to an upper container. The lid preferably further contains an opening to permit dispensing of contents being stored inside the cavity of the container. There may also exist a top terminal lid whose lid may contain only the just the internal coupler area, which forms a tight seal around an upper lip of a container's sidewall. All removable components of the

present invention form a tight waterproof, airtight and weatherproof seal with designated mounting components.

[0013] It is an object of the present invention to create a stackable and modular storage container for liquids and solids.

[0014] It is another object of the present invention to increase convenience and appeal of existing liquid containers.

[0015] It is still another object of the present invention to create expandable or compartmentalized containers.

[0016] It is still another object of the present invention to create a modular container that is still capable of hermetically sealing stored content.

[0017] It is yet another object of the present invention to create a modular container capable of carrying, storing and dispensing liquids and solids equally well.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] FIG. 1 is a perspective view of one embodiment of the present invention.

[0019] FIG. 2 is a perspective exploded view of the embodiment shown in FIG. 1.

[0020] FIG. 3 is a perspective view of another embodiment of the present invention.

[0021] FIG. 4 is an exploded view of the embodiment shown in FIG. 3.

[0022] FIGS. 5A and 5B are a plurality of views of the sidewall and coupling areas of the present invention.

[0023] FIGS. 6A, 6B are several views of one embodiment of the lid.

[0024] FIGS. 7A, 7B are several views of another embodiment of the lid.

[0025] FIG. 8 is another embodiment of the present invention.

[0026] FIG. 9 is a lid of another embodiment of the present invention.

[0027] FIG. 10 is an exploded diagram of another embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0028] The preferred embodiments of the present invention will now be described with reference to the drawings. Identical elements in the various figures are identified with the same reference numerals.

[0029] Reference will now be made in detail to embodiment of the present invention. Such embodiments are provided by way of explanation of the present invention, which is not intended to be limited thereto. In fact, those of ordinary skill in the art may appreciate upon reading the present specification and viewing the present drawings that various modifications and variations can be made thereto.

[0030] Turning, now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, the figures illustrate an apparatus 10, at least one container 20, a sidewall 30, a perimeter 40, an inner cavity 50, a removable lid 60, a horizontal cover 70, a top surface 80, a bottom surface 90, a ribbon 100, a perimeter 110 for said horizontal cover 70, an external coupler area 120, an internal coupler area 130, an inner surface 140, and an outer surface 150, temporary sealed association 160, an opening 170, a remov-

able cover 180, a slide-away cover 220 that is housed between guides 230, thread 260, and gripping bulges 270.

[0031] The at least one container 20 comprises a sidewall 30 and a removable lid 60. The removable lid 60 can serve both as the bottom cover 61 and as a top cover 62. Each lid 60 is interchangeable and may serve as a top cover 62 for one sidewall 30 or as a bottom cover 61 for another sidewall 30. FIG. 1 shows three containers 20 forming three distinct modules. Alternatively one may add additional or fewer modules than shown. In FIG. 1 the removable lid 60 and the sidewall 30 of the container 20 are in a temporary sealed association 160 within the joint area 162. The association is temporary since the entire container 20 can be disassembled into its constituting parts, and then reassembled again into a sealed entity having two removable lids 60 for top and bottom covers and a sidewall 30. The sealed association means that the coupling joint area 162 is sealed against seepage of liquid or air both to and from the container 20.

[0032] The removable cover or lid 60 is comprised of a horizontal cover 70, which is the member that serves as the cover or bottom to the container 20. The horizontal cover 70 contains a perimeter 110 in form of a ribbon 100. The ribbon 100 is essentially a short sidewall surrounding the horizontal cover 70.

[0033] The ribbon 100 contains an external coupler area 120 that is preferably immediately adjacent to the internal coupler area 130. The external coupler area 120 is essentially a male connector that is coupled into the internal coupler area 130, or a female connector, of either another lid 60 or a sidewall 30 of the container 20. The horizontal cover 70 may be mounted within the perimeter 110 at about a half way point, or a point between the external coupler area 120 and an internal coupler area 130. Preferably however, since the horizontal cover 70 also contains an opening 170 that is intended to be used for pouring liquids or as a drinking spout, the horizontal cover 70 is positioned near the top portion 112 of the ribbon 100.

[0034] FIGS. 1 and 2 demonstrate a slide away cover 220, which slides horizontally back and forth the direction 182 within the guides 230. The slide-away cover 220 constitutes a removable cover 180 as it is not fixed in one place. When the removable cover 180 is covering the opening 170, no liquid is able to flow between cavities 50 that are separated by the cover 70 (of if the cover is also the top most or terminal cover, liquid is then unable to flow from the cavity 50 toward the surrounding environment, or from the surrounding environment into the internal cavity 50). As shown in FIGS. 1, with the removable cover 180 being closed, the inner cavities of two adjacent containers 201 are completely separate from each other. There is preferably a cutaway 172 corresponding, the movable cover 180, thus improving its appearance and functionality as a spout.

[0035] The sidewall 30 is preferably upright, but may be slightly conical or may have uneven surfaces, or a surface shaped into a whimsical shape. The outer surface 150 features a plurality of gripping bulges 270. In addition, similar gripping bulges 270 may be deployed on the inner surface 140. The gripping bulges 270 serve a dual purpose, namely, they provide a textured and notched surface which can be easily and securely held while loosening or tightening the various components of the apparatus 10, or to provide structural strength and rigidity to the sidewall 30.

[0036] Referring now to FIGS. 3 and 4 that are demonstrating another embodiment of the present invention.

Shown are the modular storage apparatus 10, at least one container 20, a sidewall 30, an inner cavity 50, a removable lid 60, a top terminal lid 300, a ribbon 100, a horizontal cover 70, a top surface 80, a perimeter 110, gripping bulges 270.

[0037] Shown in FIG. 3 is the top terminus cover 300, or top cover for short. The top cover 300 is disposed at the top end 310 of the storage apparatus 10, and preferably further contains an opening 170, a border 190, a swing-away cover 200 which is demonstratively removable. The swing-away cover 200 may also be referred to as a removable cap. The swing away cover 200 is removably tethered to the top surface 80, and immediately to the harness 208 and is capable of swinging radially about the pivot 210 to cover the opening 170. The flange 202 is preferably threaded unto the border 190 in a preferably snug fashion so as to maintain a water and air seal for the cavity 50.

[0038] In the embodiment shown in FIGS. 3 and 4, the removable lid 60 has no opening, with the only opening being at the top terminus cover 300. The internal coupler area 130 of the top terminal lid 300 may fit on top of the external coupler area 120 of either a removable lid 60 or the sidewall 30. In the embodiment shown in FIG. 3, liquid can be exuded from the cavity 50 only through the opening 170 of the top terminal lid 300. To release contents of containers 20 that are stacked below the container located at the top 310, a user will need to remove the removable lid 60 from the external coupler area 120, and either extract contents of the container 20 at that point, or replace the lid 60 with the top cover 300 for a more controlled and gradual dispensing through the opening 170. Alternatively, each of the removable lids 60 may each have their own openings 170.

[0039] Still referring to FIG. 4 also shown is the recessed disposition of the external coupler area 120 with respect to the exterior surface 152 of the ribbon 100 or the outer surface 150 of the sidewall 30. The recess is desirable as it forms a base 290 which functions as a ledge to further seal the associated components, such as a lid 60 on top or on bottom of a sidewall 30 or the point of attachment of two sidewalls 30 in the case where two or more sidewalls 30 are being stacked on top of each other. The recesses may also be aesthetically preferred, since it presents a smooth uniform common sidewall of all of the combined stacked containers 20.

[0040] Similarly to the recessed external coupler area 120, the internal coupler area 130 may present a raised band on the outer surface 150 or the exterior surface 152 of the ribbon 100. The present invention preferably contains both recessed and raised surfaces corresponding to the external and internal coupler area 120 and 130, respectively, or it can have either recessed or raised areas, but not both. The recessed and raised areas may also be achieved by varying the diameter of the ring that forms the coupler area versus the diameter of the sidewall 30 or the ribbon 100. This is more clearly shown in FIG. 5B, where the diameter 250 is of one length while the diameter of the internal coupler area 130 is of slightly longer length.

[0041] Further shown in FIG. 3 is that removable lid 60 forming the bottommost cover at point 320.

[0042] FIGS. 5A and 5B demonstrate the close up of the sidewall 30. Shown is the sidewall 30 that forms a cylindrical structure forming a perimeter 40 around the cavity 50. The cylindrical structure is preferred in the present embodiment due the threaded surfaces 260. However, the internal

cavity may contain individual sides and corners in embodiments that accomplish temporary sealed association using corresponding snap surfaces (FIG. 10), bayonet connections or frictional connection. Meaning the container 20 may be square, triangular or otherwise paralelogramic

[0043] FIGS. 5A and 5B further demonstrate the top end 310 and the bottom end 320 of the sidewall 30. The internal coupler area 130 in FIG. 5B may be threaded over the external coupler area 120 of FIG. 5A to form a stacked sidewall 30, with resultant internal cavity 50 being the combination of two or more cavities. A user may stack as many or as few sidewalls 30 as desired. Additionally, the user may stack two or more sidewalls together to form a single container 20, and then insert a separate sidewall 30, separated from other sidewall 30 with a removable lid 60 to form a separate container 20.

[0044] Also shown in FIG. 3 is the average diameter 250 of the sidewall 30, which is preferably between two and ten inches long, as well as the preferred height 253 of the sidewall 30, which is preferably between two and five inches.

[0045] FIGS. 6A a top view of the removable lid 60, while FIG. 6B is the bottom view of the removable lid 60. Visible also is the horizontal cover 70, the top surface 80 the bottom surface 90, the opening 170, the perimeter 110, the slide-away cover 220, which slides within and is held in place by parallel guides 230 that are placed at a distance 254 of preferably ¼ to 1 inch apart, and close to the perimeter of the 110 of the horizontal cover 70. Also shown is the ribbon 100 having an external coupler area 120 vertically adjacent to the internal coupler area 130.

[0046] FIGS. 7A and 7B demonstrate the top terminal cover 300, which does not have an external coupler area 120. Shown also is the top surface 80 housing, a harness 208 for the pivot 210, which further contains the pivoting arm 204 and the cap area 200. The cap area has a recessed band 202 that is threaded over the border 190 that frames the opening 170. As such, the recessed band 202 provides for an improved grip area for easier removal of the cap 200 off of the top of the opening 170. As may be appreciated by one familiar in the art, the cap type used in FIGS. 6A and FIG. 7A are interchangeable between the embodiments shown in FIGS. 6A and 7A.

[0047] FIG. 8 is a side view of another alternative embodiment of the present invention showing a gasket 280 at the base 290 of the ledge 291 that is formed when the external coupler area is recessed. The gasket provides additional insulation from leakages. The gasket 280 is preferably a single complete ring around the perimeter of the base 290. The internal coupler area 130 may also contain a gasket 280 at the base point 292.

[0048] Continuing with the embodiment shown in FIG. 8, FIG. 9 demonstrates smooth sidewalls 30 that are either connected to each other, or to a removable lid 60 that serves as the coupler or a joint between two sidewalls 30. Also shown is another embodiment of the opening 170 being placed close to the perimeter 110. The axially swinging cap 200 contains a pivot point 210, also close to perimeter 110 on the opposite side from opening 170. The harness 208 is of a lower profile than in FIG. 7A, with the cap 200 having a cutout 205 that traces the exterior profile of the harness 208. As such, when the cap 200 is in closed position, the cap 200 and harness 208 present a single level surface that forms the top surface 80.

[0049] FIG. 10 demonstrates an alternative embodiment of achieving temporary sealed association. Whereas the prior figs featured corresponding threading 260 between internal and external coupler areas 130 and 120, respectively, FIG. 10 shows corresponding snap band 330, so that corresponding snap band 330 of an external coupler 120 threads over and snaps above the band 330 disposed on the internal coupler area 130 and locked, in place thereby.

[0050] The modular storage apparatus 10 may be made of any material, such as but not limited to plastic, resin, metal, glass or wood. Different components may be made of different or same materials. The container 20 may be used to carry liquid and solid substances. In another alternative embodiment, the sidewall 30 may be a double wall, to maintain a constant temperature in the cavity 50.

[0051] Although this invention has been described with a certain degree of particularity, it is to be understood that the present disclosure has been made only by way of illustration and that numerous changes in the details of construction and arrangement of parts may be resorted to without departing from the spirit and the scope of the invention.

What is claimed:

1. A modular swage apparatus comprising; at least one container having a sidewall forming a perimeter around an inner cavity and a removable lid, wherein said lid comprises a horizontal cover having a top surface and a bottom surface, a ribbon being substantially perpendicular to said horizontal cover forming a perimeter for said horizontal cover; wherein said ribbon further comprising an external coupler area and an internal coupler area said sidewall having an inner surface and an outer surface; and an external coupler area adjacent to said outer surface, and an internal coupler area adjacent to said inner surface.

2. The modular storage apparatus of claim 1, wherein said internal coupler area of said sidewall forming a temporary sealed association with said external coupler area of said ribbon; and wherein said internal coupler area of said ribbon forming a temporary sealed association with said external coupler area of said sidewall.

3. The modular storage apparatus of claim 2, wherein said internal coupler area of said ribbon forming a temporary sealed association with external coupler area of said sidewall of another of said at least one container.

4. The modular storage apparatus of claim 1, wherein said external coupler area of said sidewall forming a temporary sealed association with said internal coupler area of said ribbon, said ribbon belonging to said lid forming a cover to said sidewall; wherein said internal coupler area of said sidewall forming a temporary sealed association with an external coupler area of said sidewall of another of said at least one container; wherein cavities of said at least one container and of another of said at least one container are in open communication with each other; and wherein said internal coupler area of said sidewall of another of said at least one container forming a temporary sealed association with said external coupler area of said ribbon of said lid; and wherein said lid forming a bottom lid for said sidewall of another of said at least one container.

5. The modular storage apparatus of claim 1, wherein said horizontal cover of said lid further comprising an opening, wherein said opening having a removable cover.

6. The modular storage apparatus of claim 5, wherein said opening being framed by a low border extending perpen-

dicularly above said top surface; said border capped with a swing-away cover; wherein said cover pivotally attaching to said top surface.

7. The modular storage apparatus of claim 5, wherein said cover is a slide-away cover housed between guides, with a cut away length of said ribbon corresponding to a distance between said guides.

8. The modular storage apparatus of claim 1, wherein said external coupler area of said ribbon and said external area of said sidewall is recessed in relation to outer surface of said sidewall or said ribbon; and wherein said internal coupler area of said ribbon and said internal area of said sidewall is raised in relation to outer surface of said sidewall or said ribbon.

9. The modular storage apparatus of claim 1, wherein said external coupler area of said ribbon and said external area of said sidewall is of a smaller diameter than the diameter of said sidewall or said ribbon; and wherein said internal coupler area of said ribbon and said internal area of said sidewall is of a larger diameter than the diameter of said sidewall or said ribbon.

10. The modular storage apparatus of claim 2, wherein said temporary sealed association is enabled through concurrently interlocking threads of said internal coupler area and said external coupler area.

11. The modular storage apparatus of claim 4, wherein said temporary sealed association is enabled through concurrently interlocking threads of said internal coupler area and said external coupler area.

12. The modular storage apparatus of claim 1, wherein said temporary sealed association is enabled through concurrently interlocking snap joints of said internal coupler area and said external coupler area.

13. The modular storage apparatus of claim 4, wherein said temporary sealed association is enabled through concurrently interlocking snap joints of said internal coupler area and said external coupler area.

14. The modular storage apparatus of claim 1, wherein said outer surface further comprises gripping bulges.

15. The modular storage apparatus of claim 1, wherein said internal coupler area is capable of forming a temporary sealed association with said external coupler area of said ribbon of another of said lid.

16. The modular storage apparatus of claim 8, further comprising a gasket disposed at the base of said recessed external coupler area.

17. The modular storage apparatus of claim 10, further comprising a gasket disposed at the base of said external coupler area.

18. The modular storage apparatus of claim 1, further comprising a gasket at the base of said internal coupler area of said sidewall or said ribbon.

19. A modular storage apparatus comprising; at least one container having a sidewall forming a perimeter around an inner cavity and a removable lid, wherein said lid comprises a horizontal cover having a top surface and a bottom surface, a ribbon being substantially perpendicular to said horizontal cover forming a perimeter for said horizontal cover; wherein said ribbon further comprising an external coupler area and an internal coupler area; said sidewall having an inner surface and an outer surface; an external coupler area adjacent to said outer surface, and an internal coupler area adjacent to said inner surface; wherein a top terminus cover forming a lid for a topmost of said at least one container, said

top terminus having a horizontal cover inside a perimeter forming ribbon having an internal coupler area, said internal coupler area in a temporary sealed association with an external coupler area of said removable lid or said sidewall; an opening disposed within said horizontal cover of said top terminus cover, said opening having a removable cap; and wherein said internal coupler area of said sidewall forming a temporary sealed association with said external coupler area of said ribbon of said removable lid.

20. The modular storage apparatus of claim **19**, wherein said removable lid further comprising an opening having a sealing cap.

* * * * *