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(54) **METHOD AND SYSTEM FOR STORING FOOD PREPARATIONS**

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*B65D 1/34* (2006.01)

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(2) Date: **Sep. 10, 2015**

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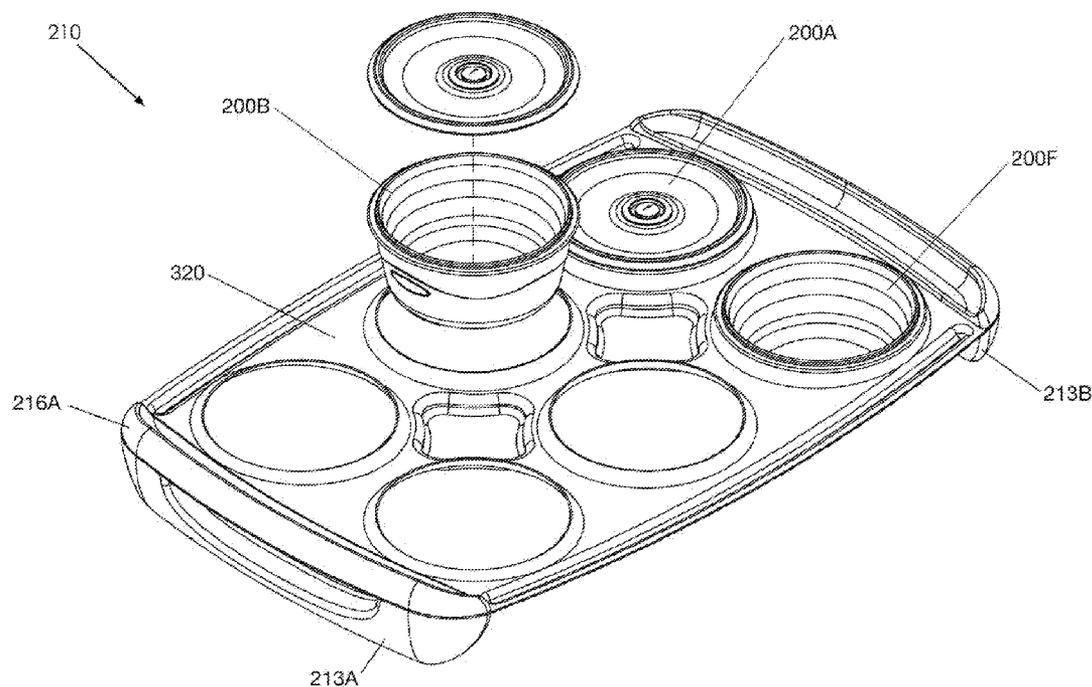
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*B65D 43/02* (2006.01)

(57) **ABSTRACT**

A method and system for storing food using a plurality of containment units (200) that can be held in a storage tray (210) for temporary storage and transferred to a storage container (220) with a cap (222) attachable to the storage container (220) for an airtight seal for longer term storage on a rack (250) in a freezer. The containment unit (200) and/or the storage container (220) can be vacuum sealed. The storage container (220) and cap (222) may have windows.



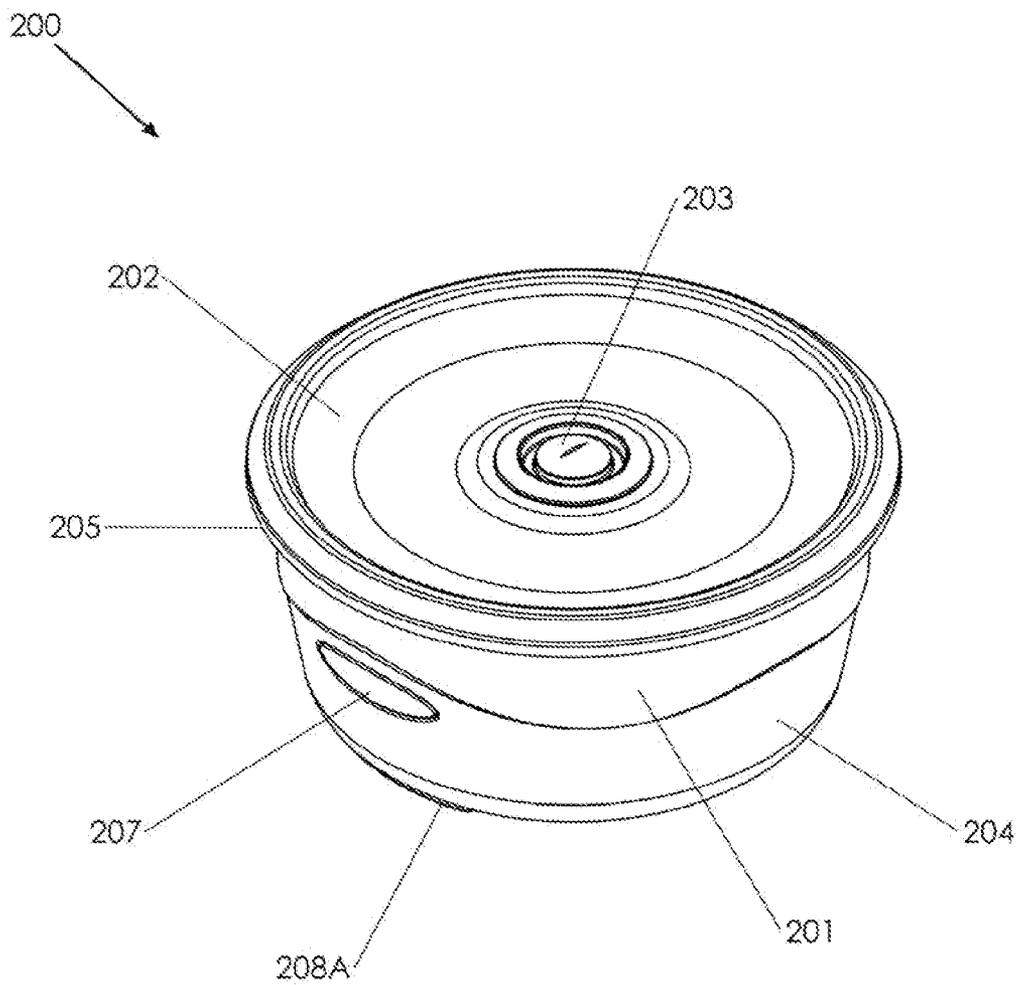


FIG. 1A

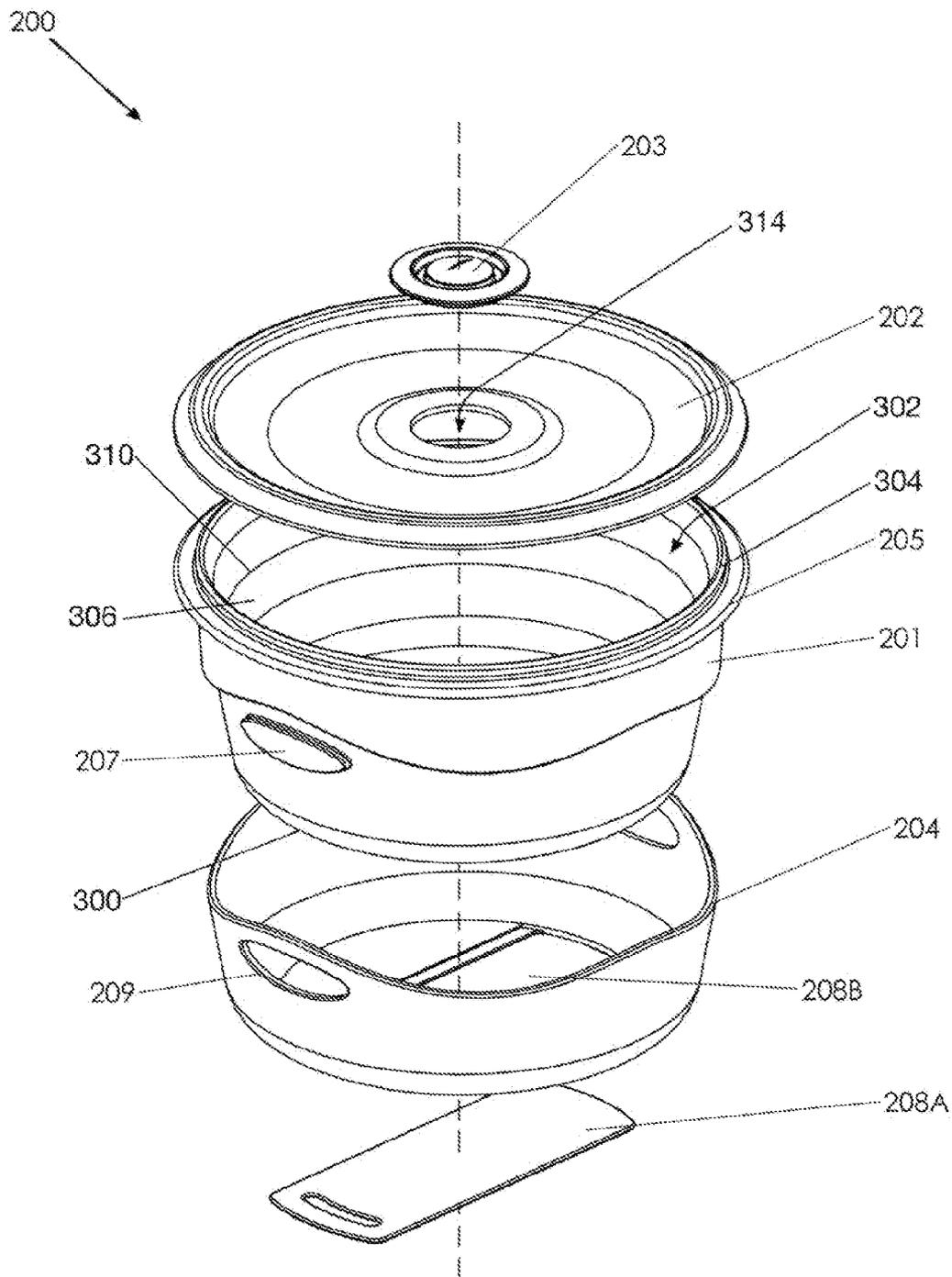


FIG. 1B

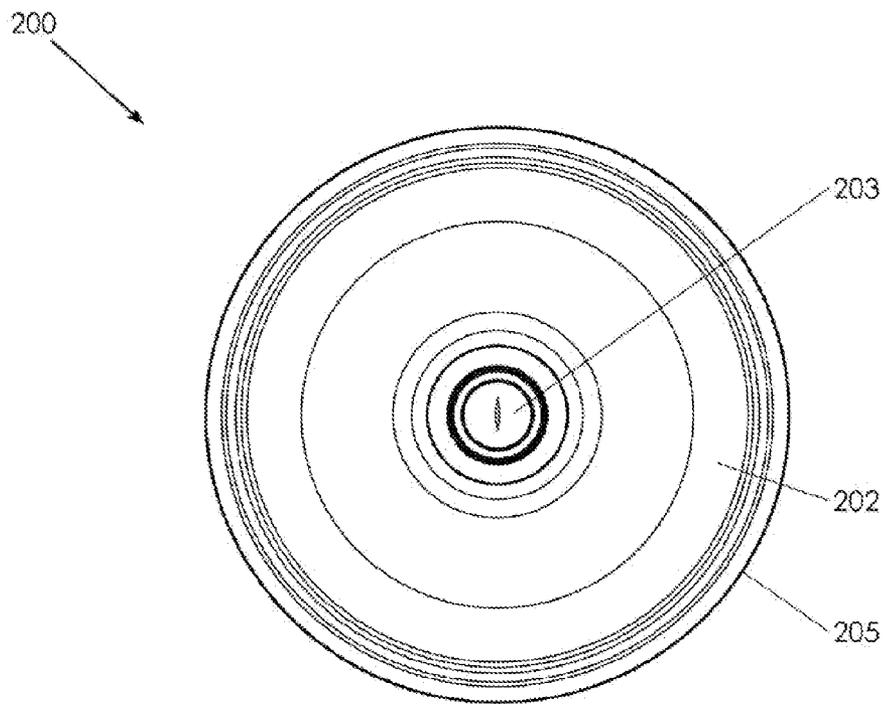


FIG. 1C

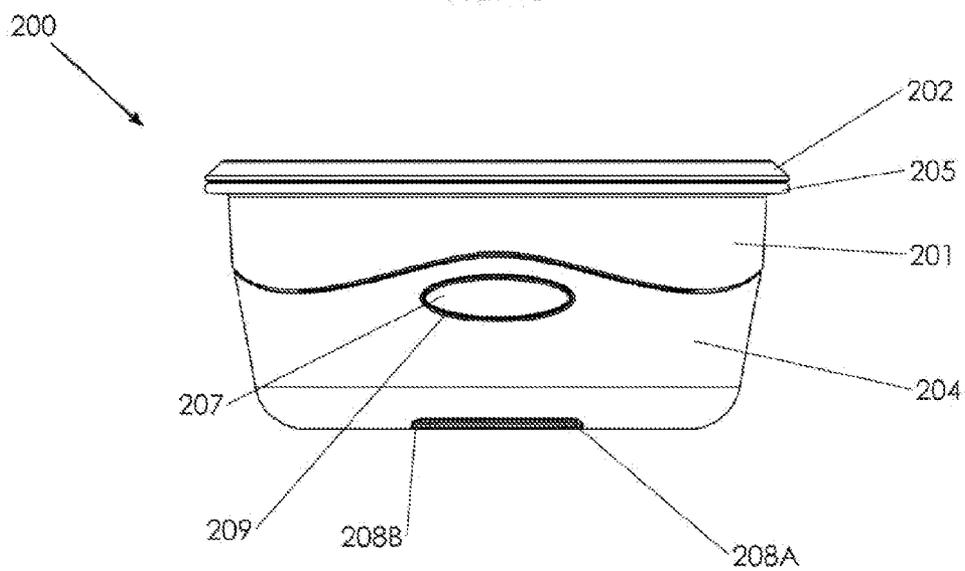


FIG. 1D

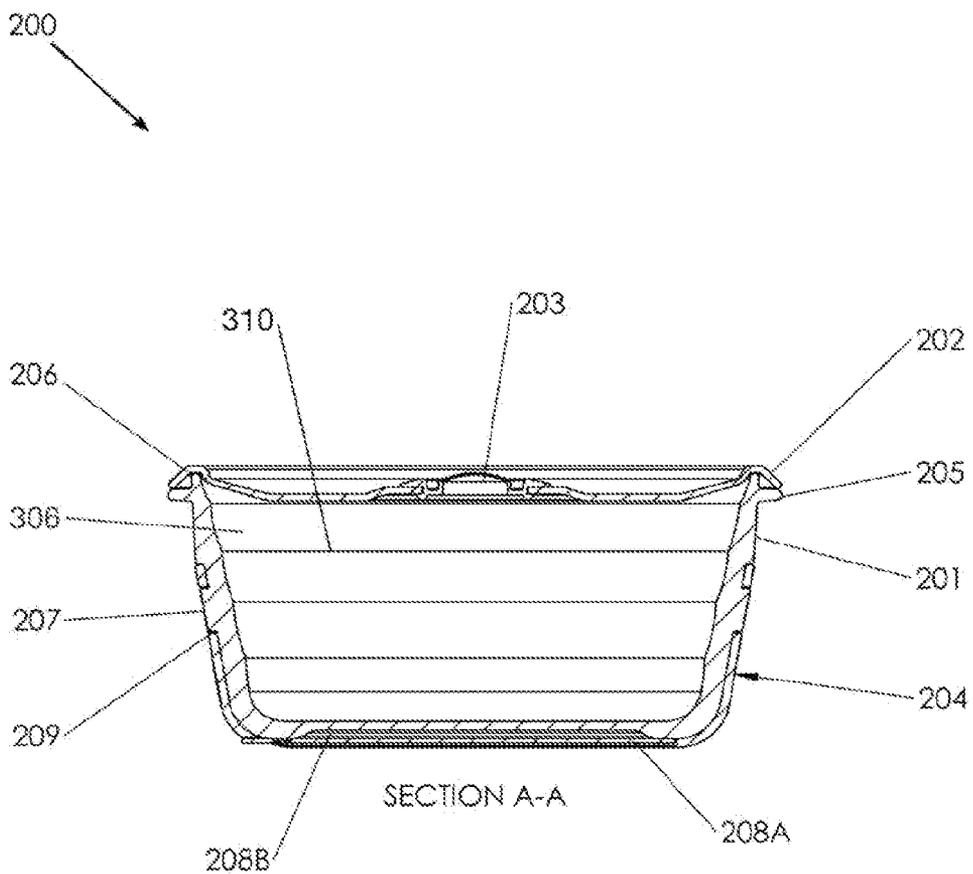


FIG. 1E

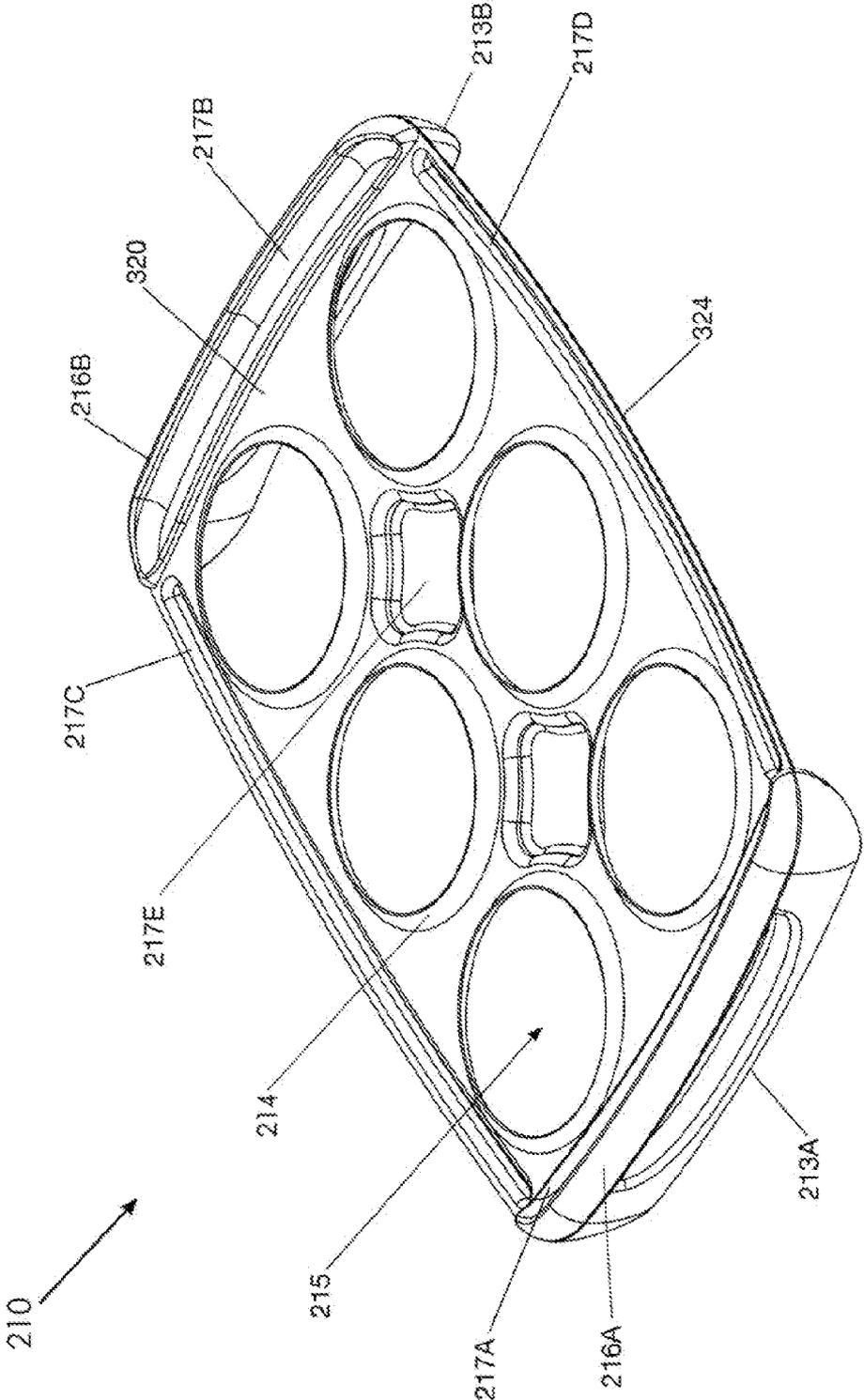


FIG. 2A

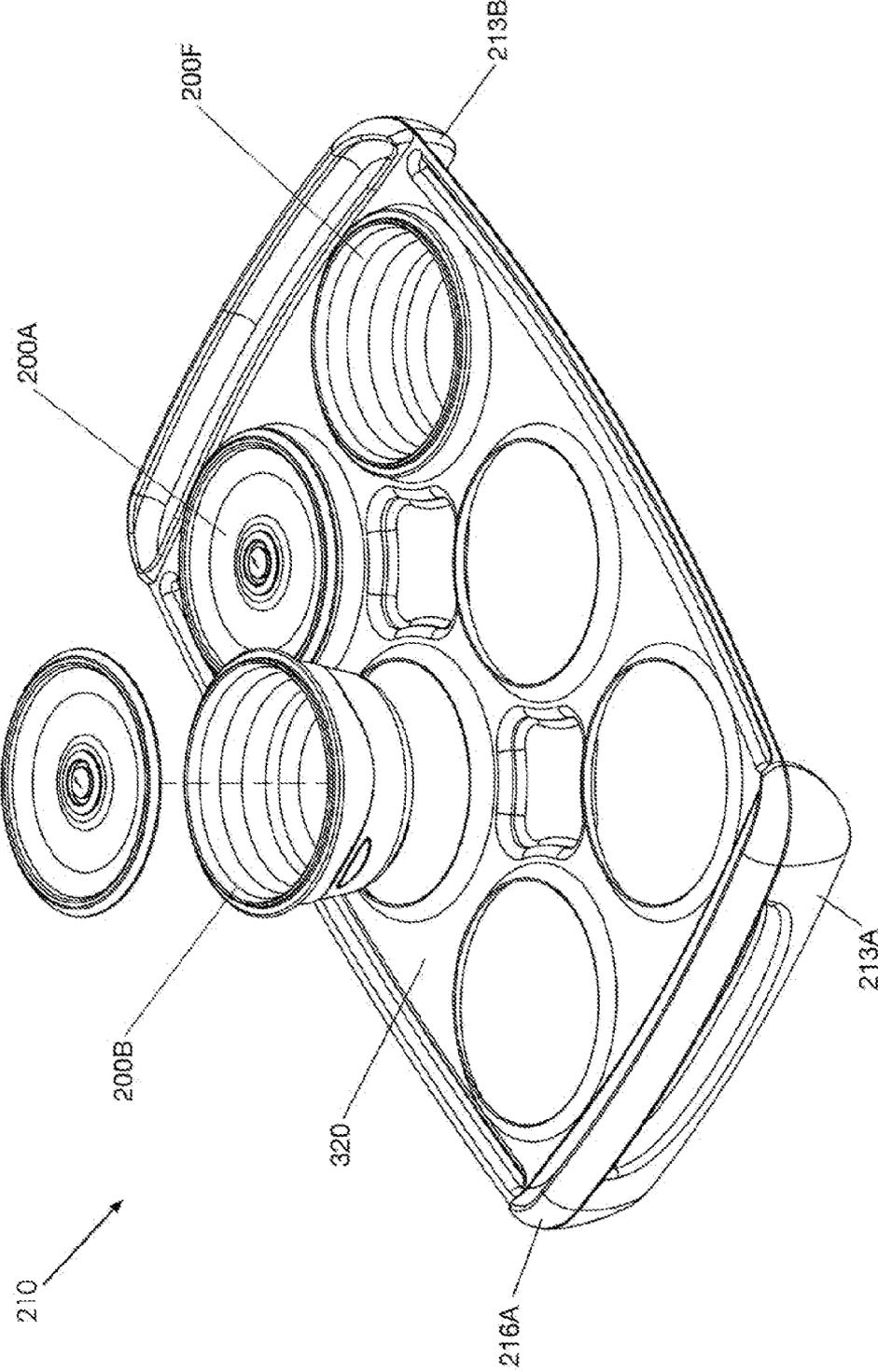


FIG. 2B

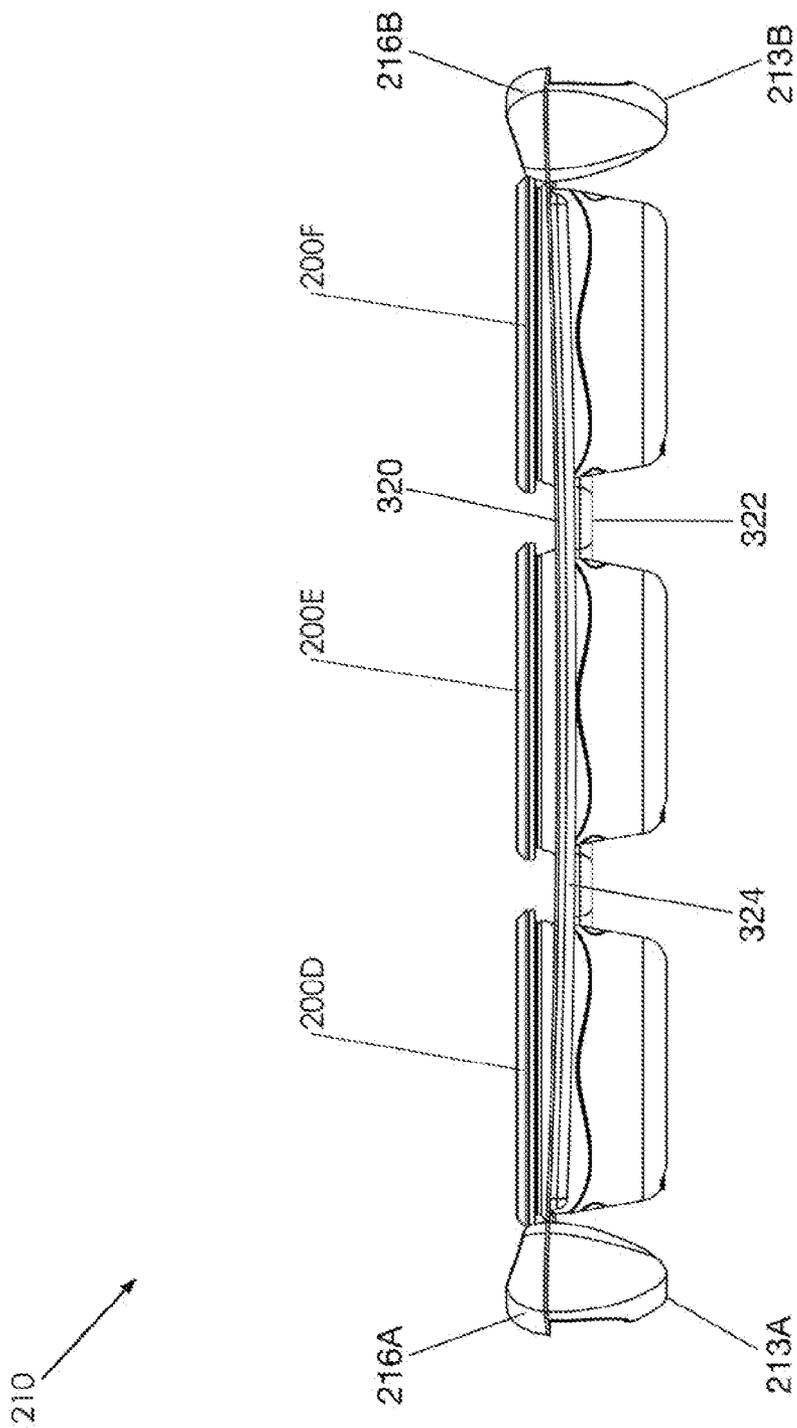


FIG. 2C

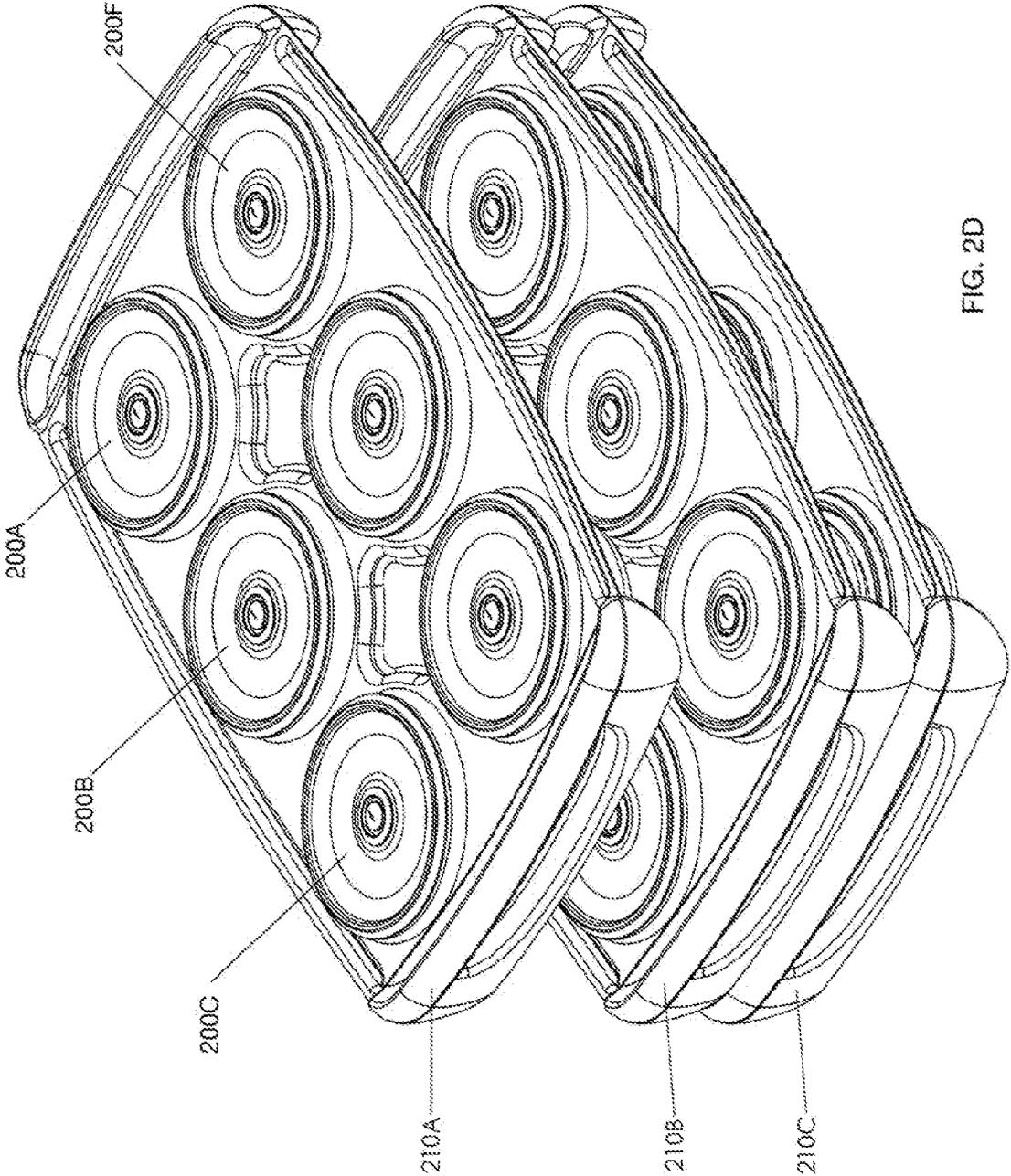


FIG. 2D

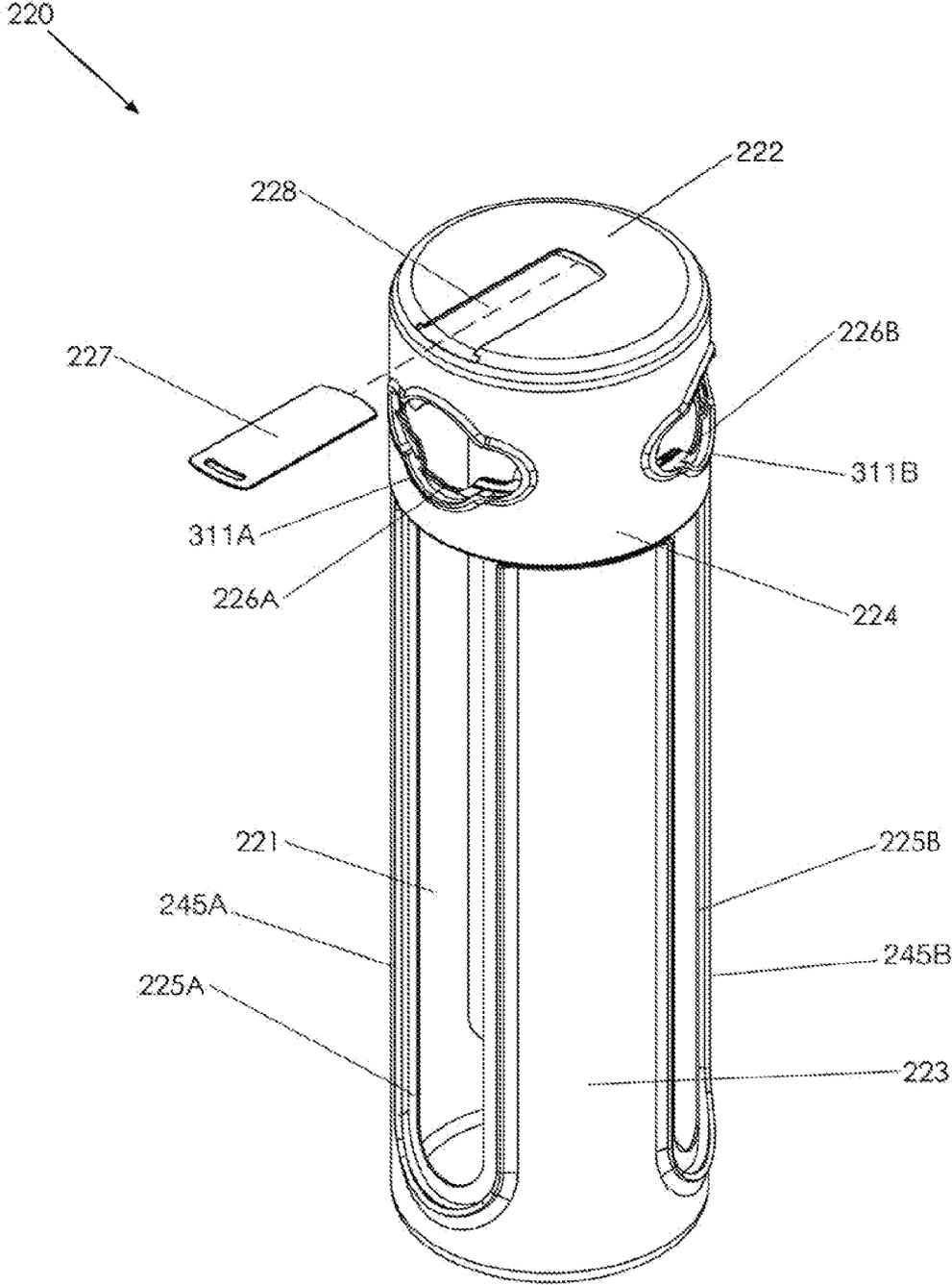


FIG. 3A

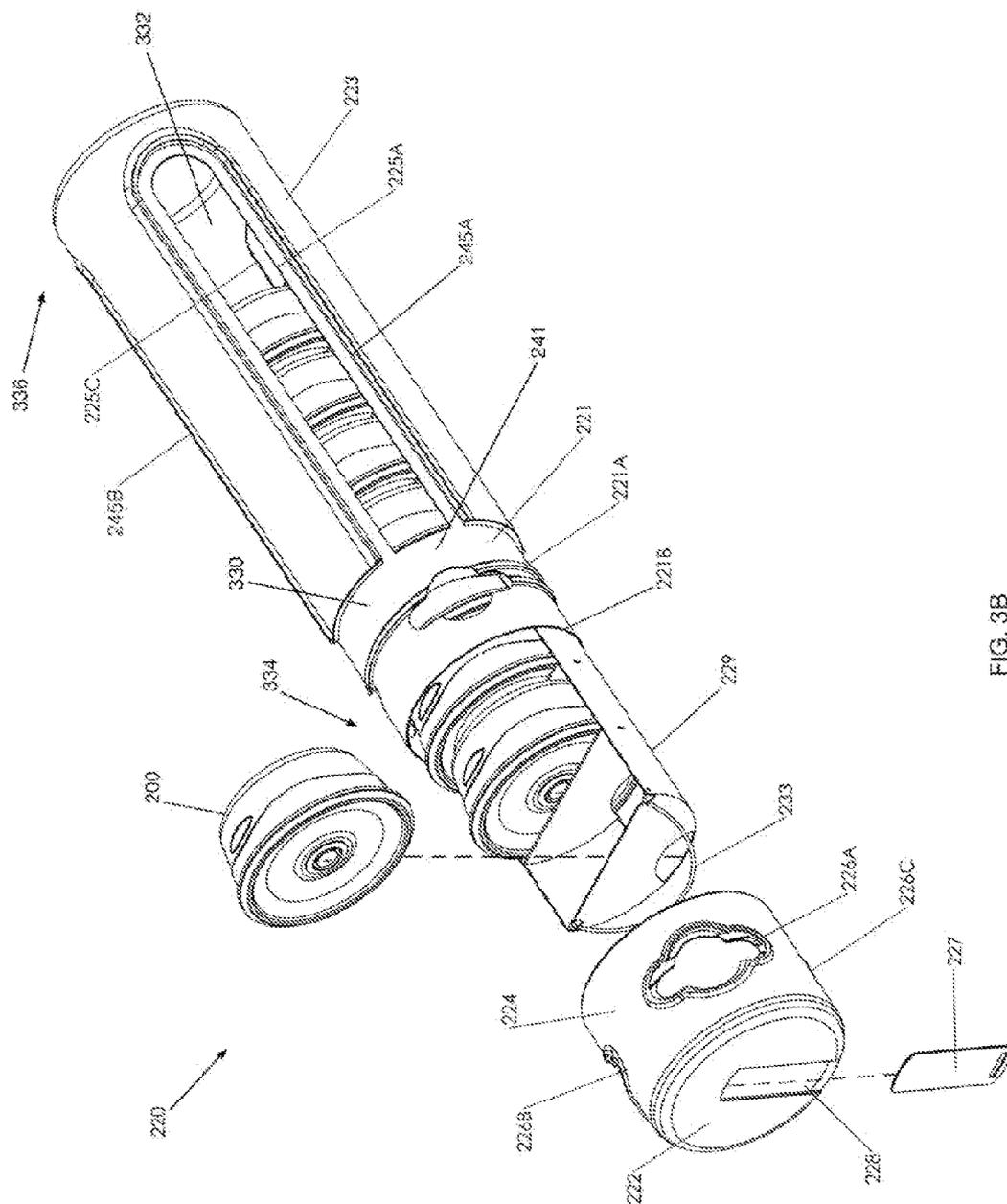
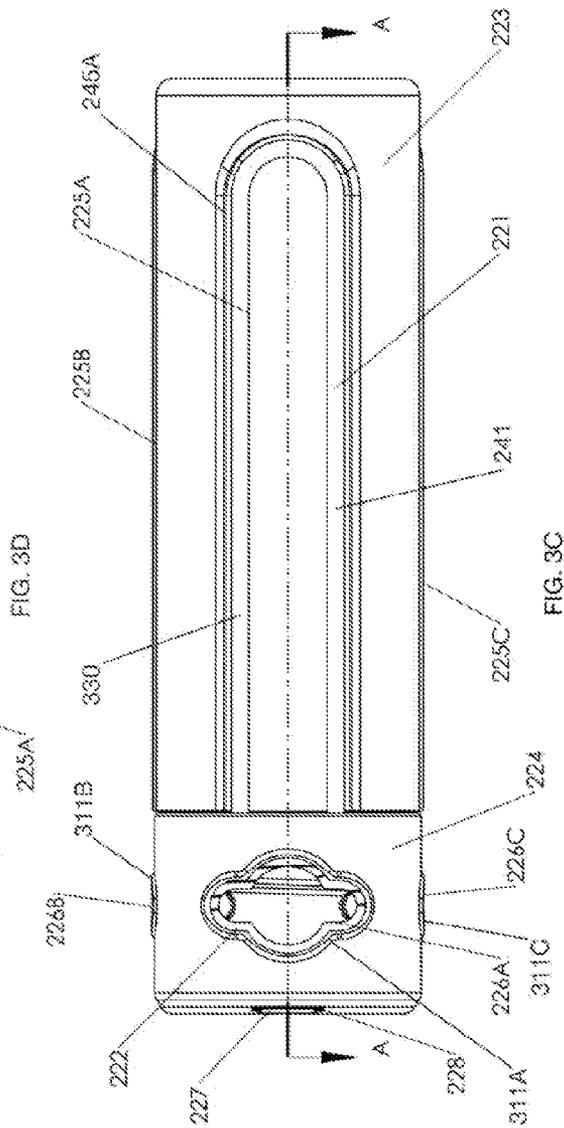
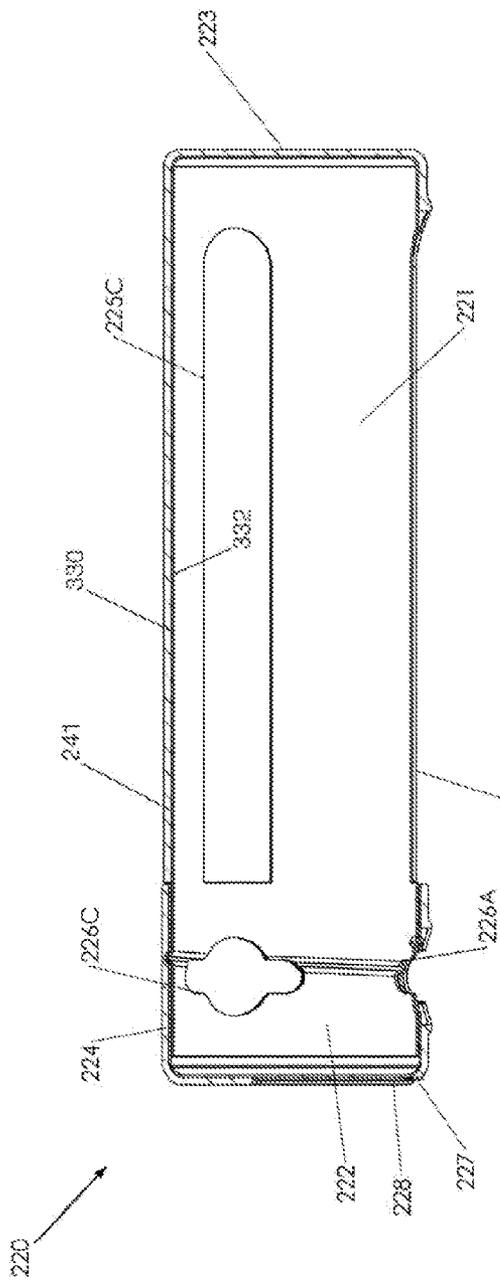


FIG. 3B



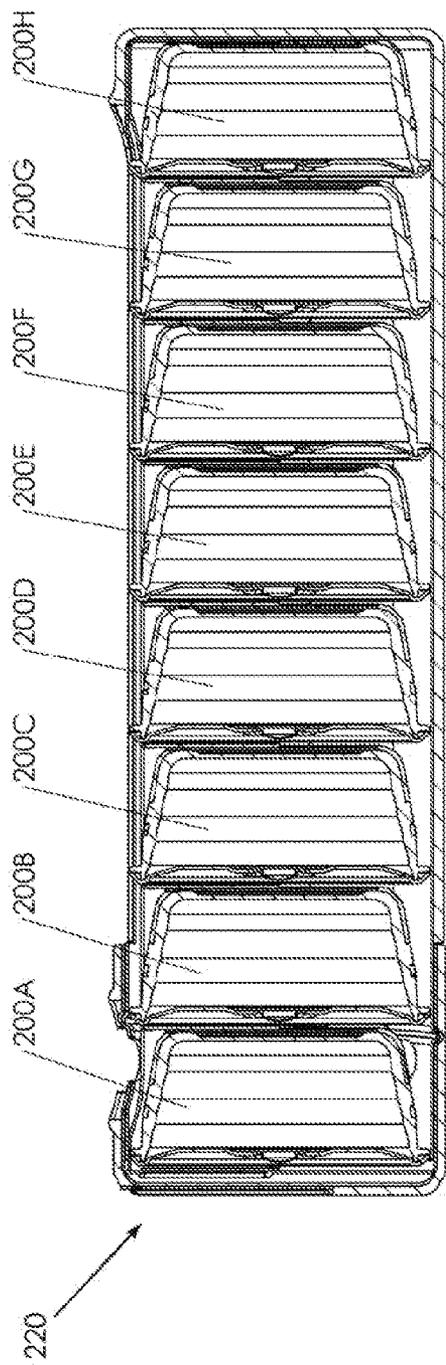


FIG. 3F

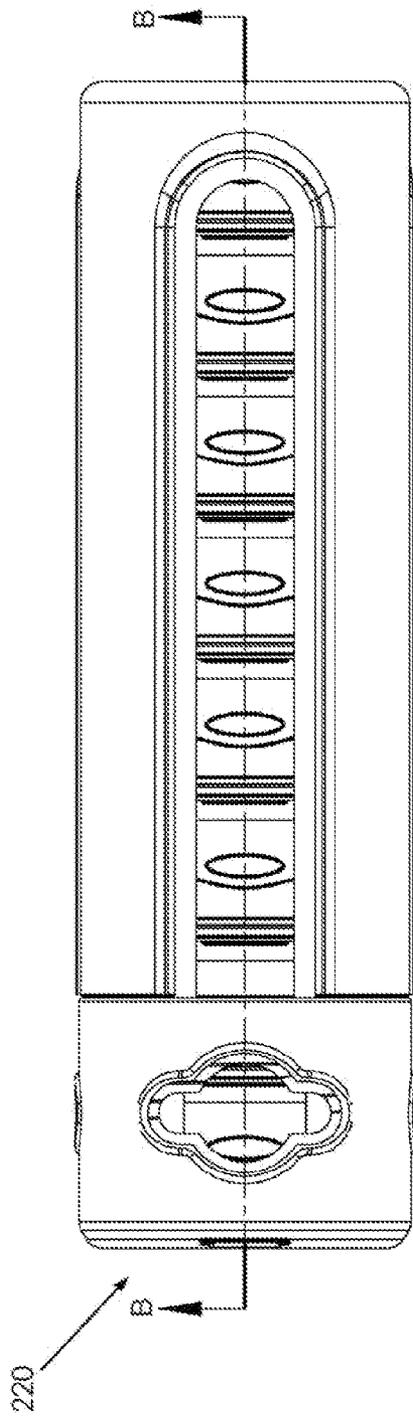


FIG. 3E



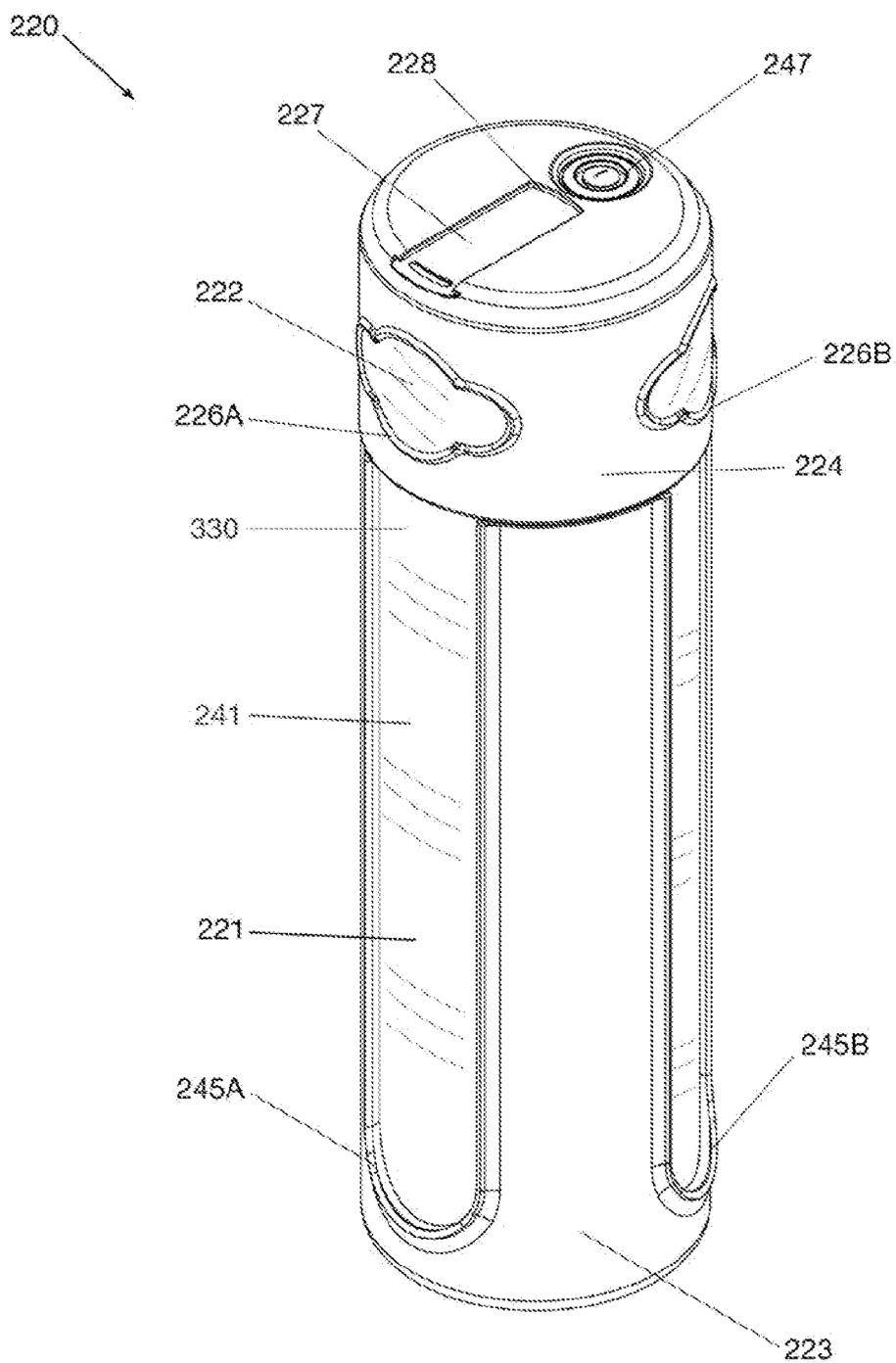


FIG. 3H



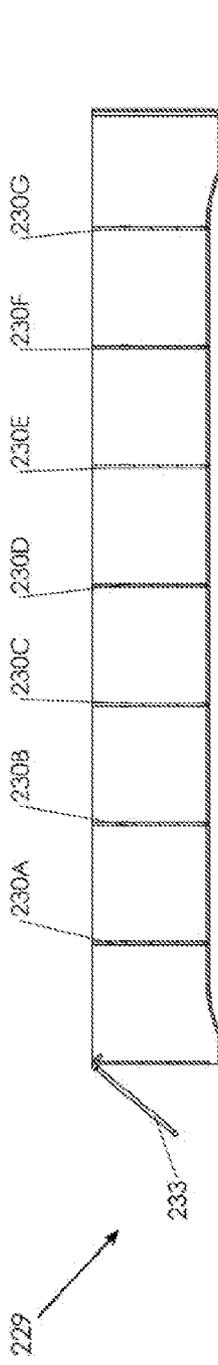


FIG. 4D

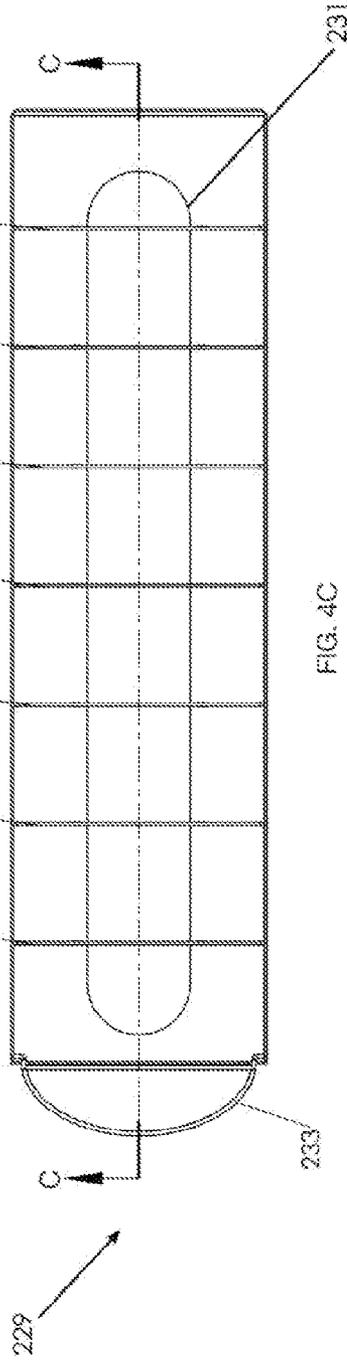


FIG. 4C

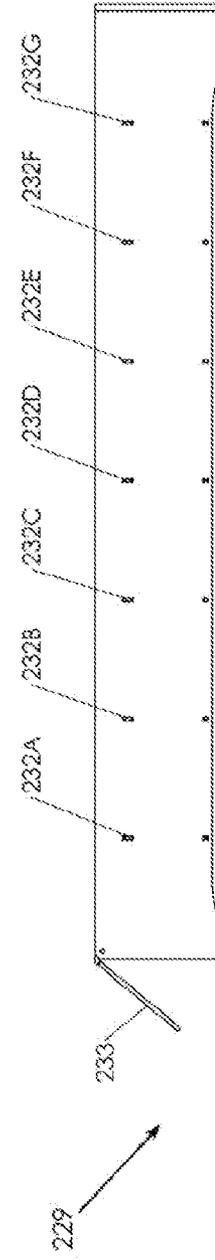


FIG. 4B

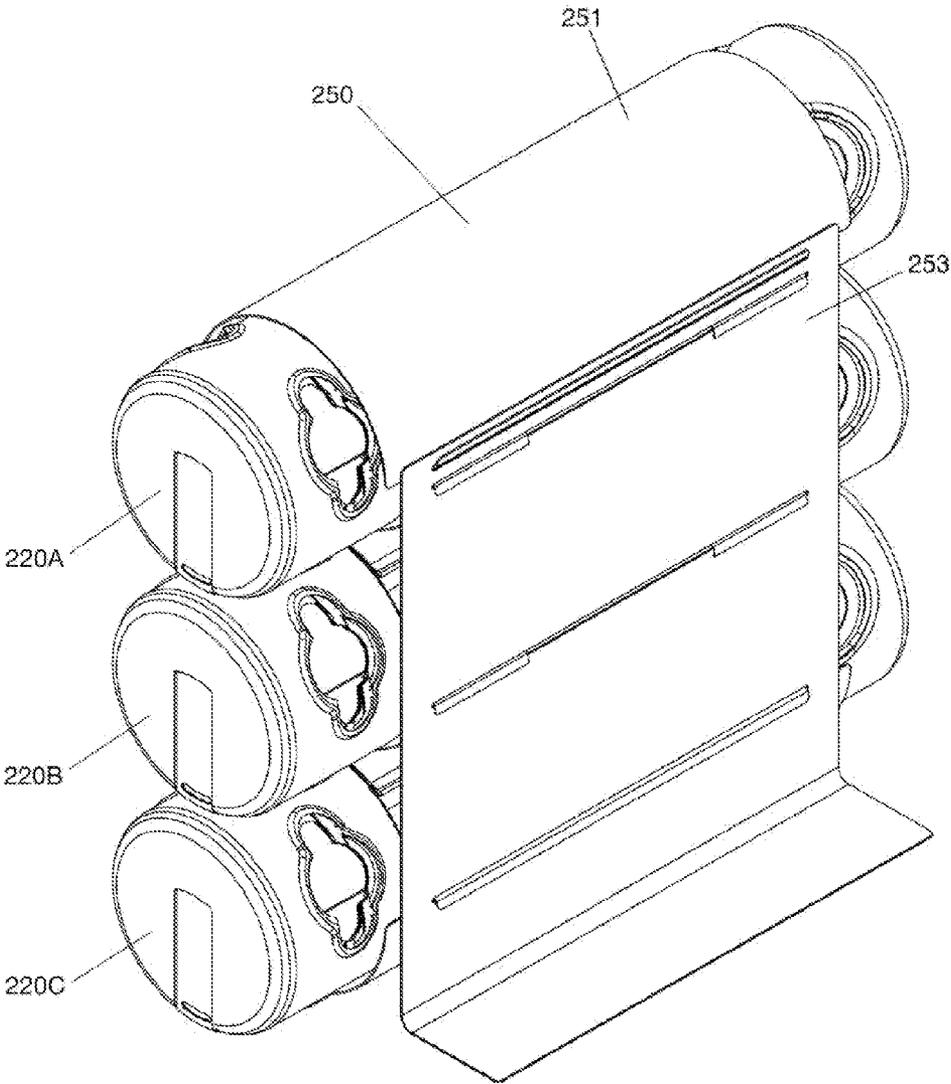


FIG. 5A

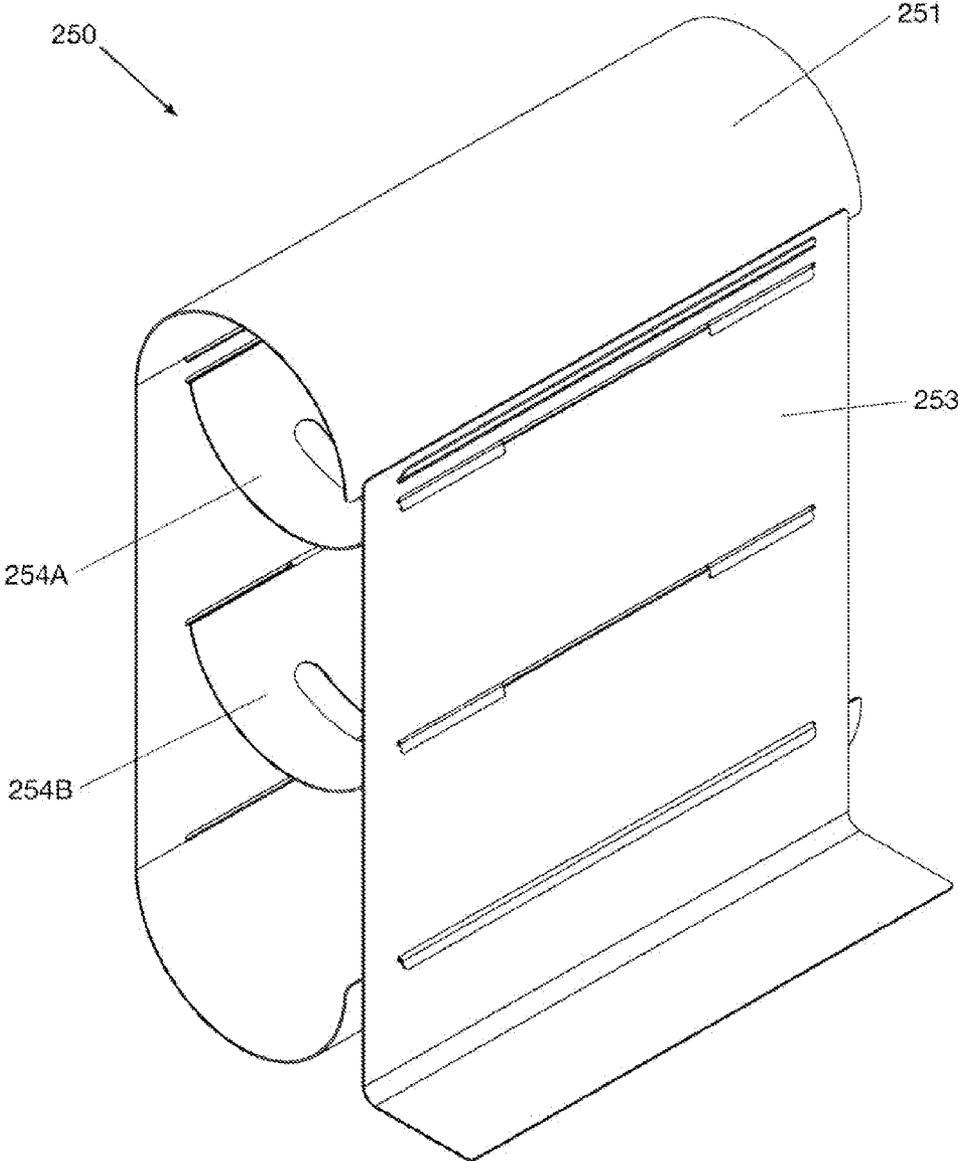


FIG. 5B

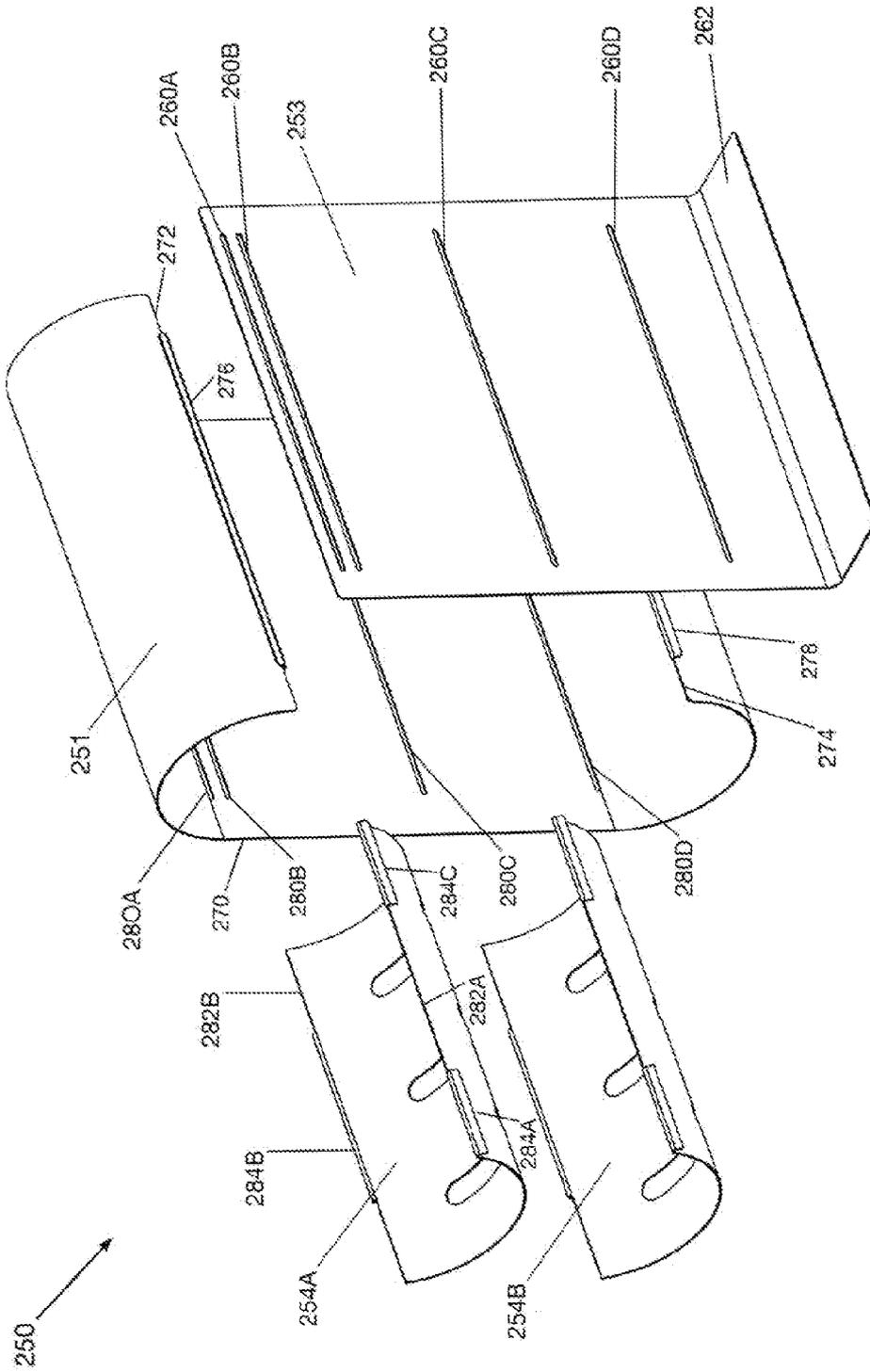


FIG. 5C

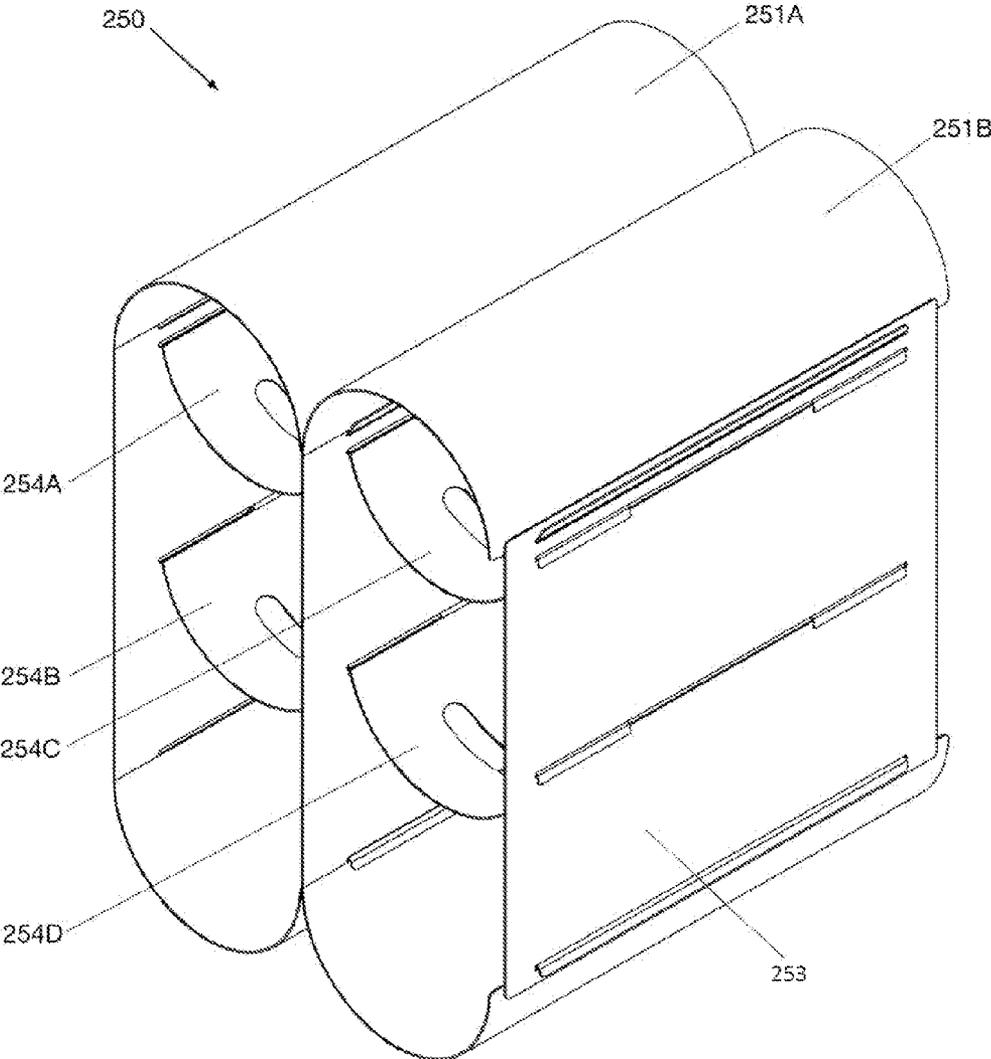


FIG. 5D

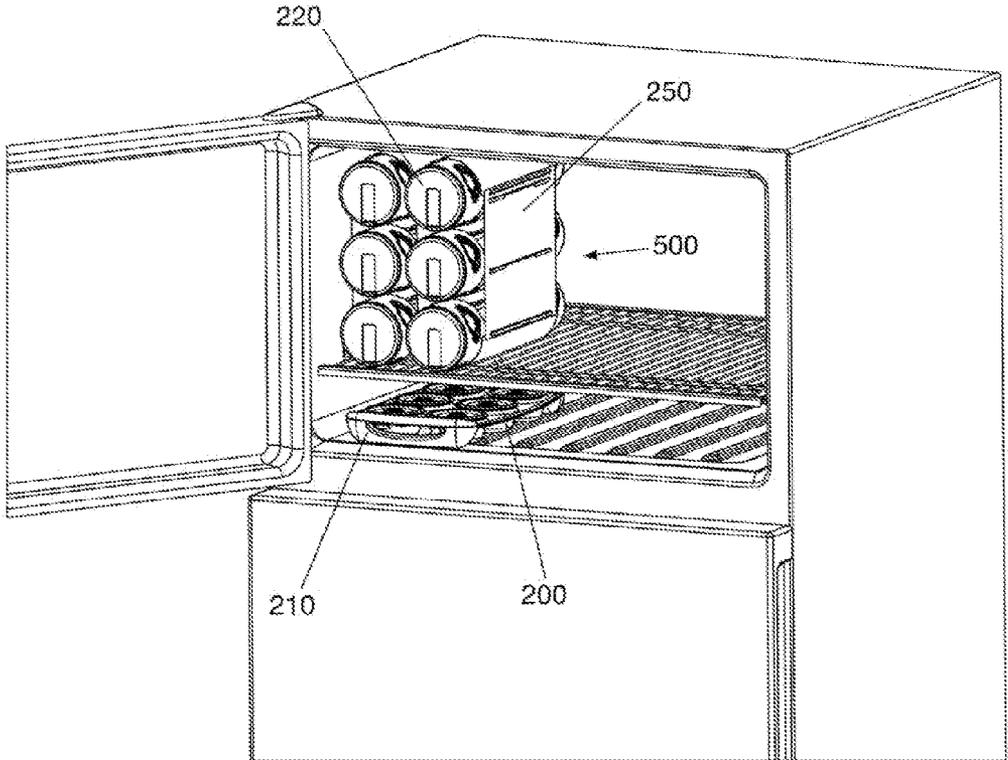


FIG. 6

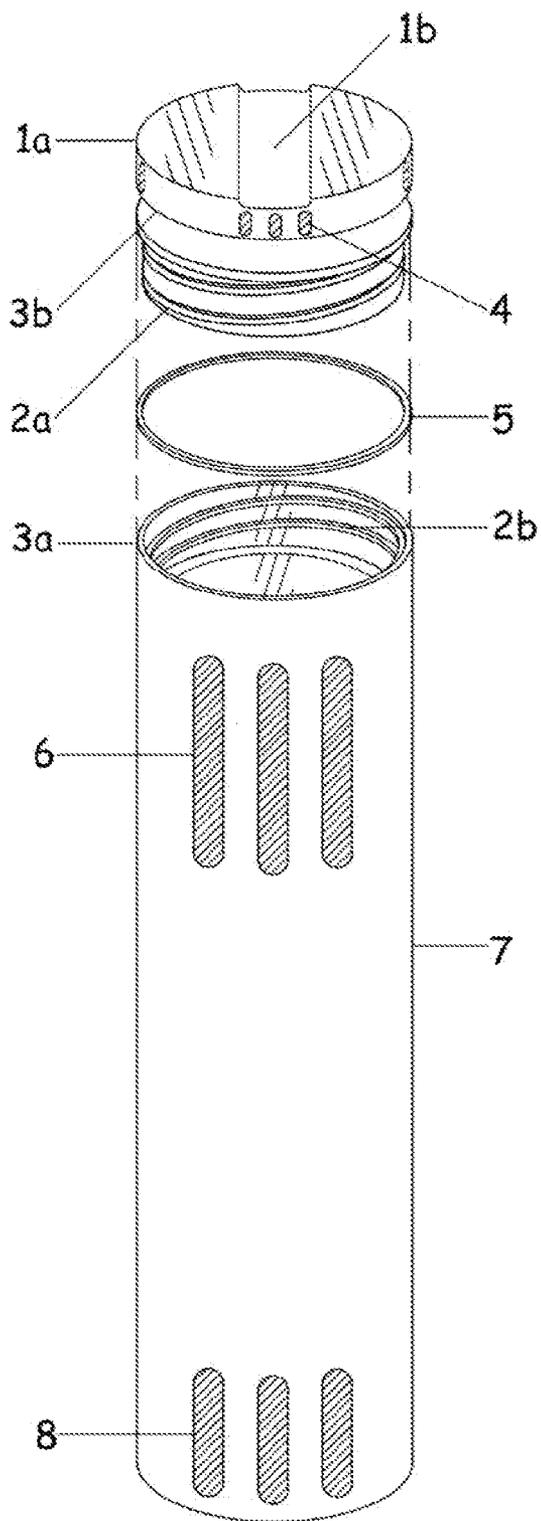


FIG. 7

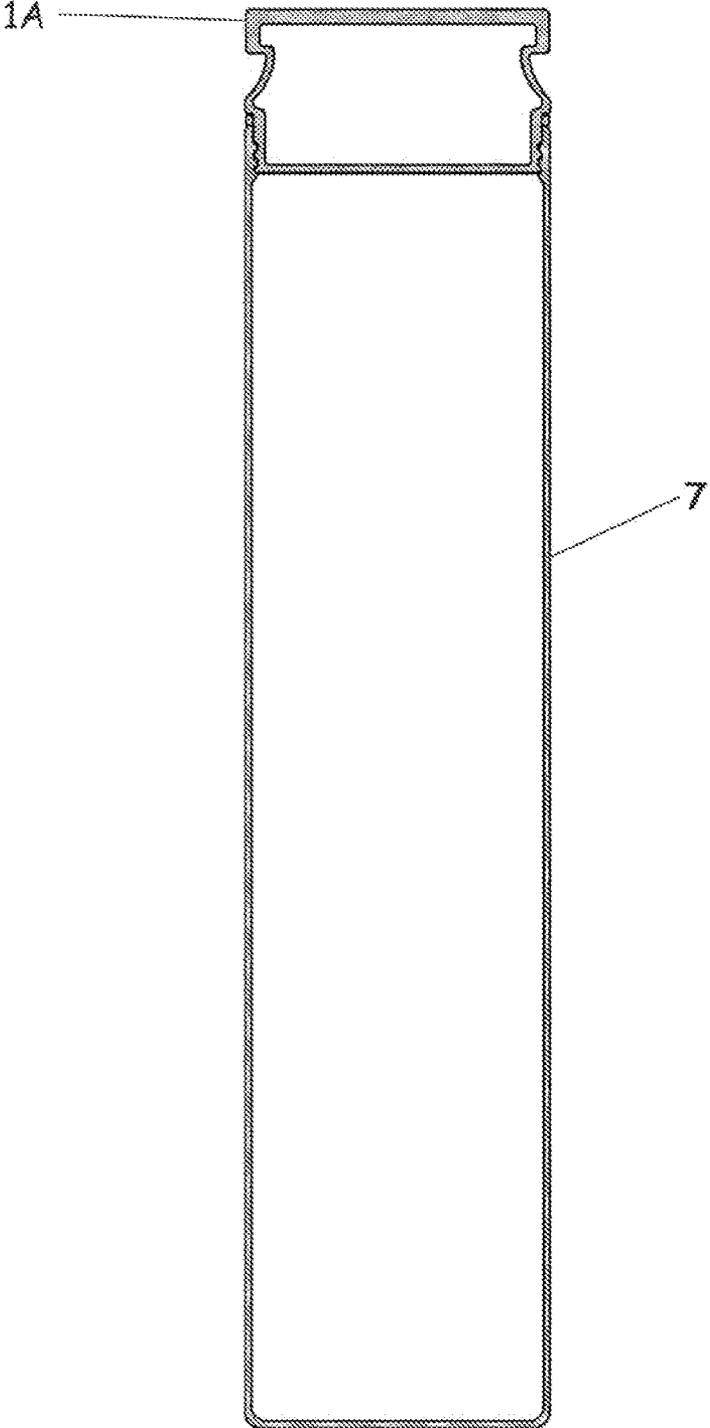


FIG. 8

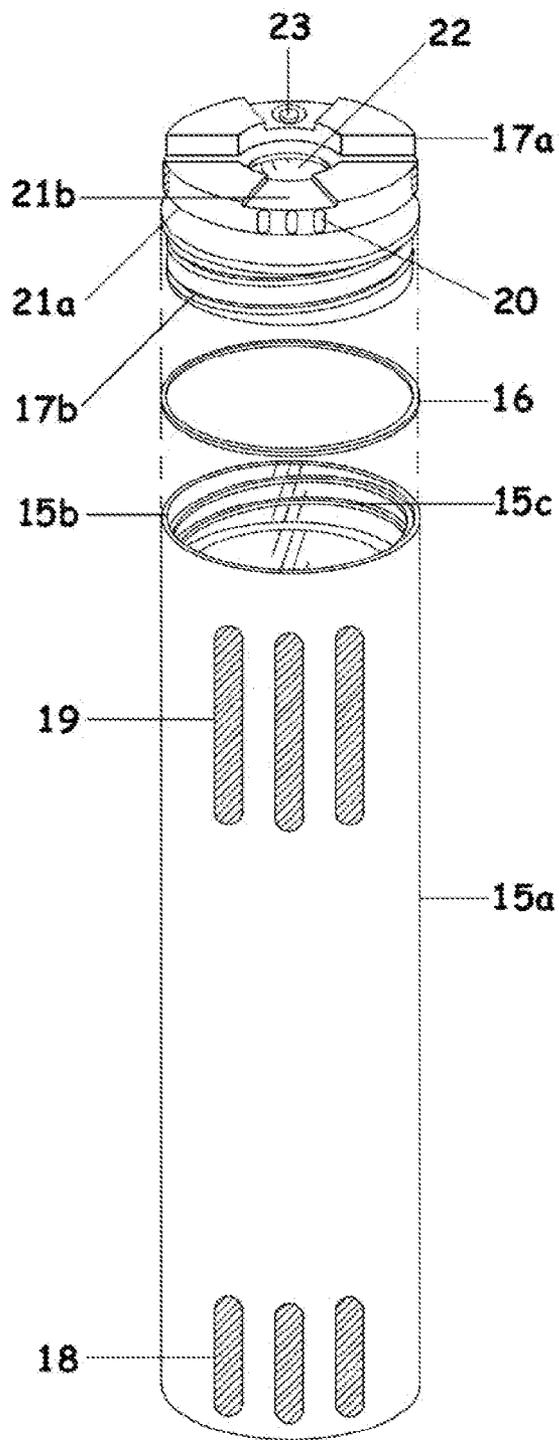


FIG. 9

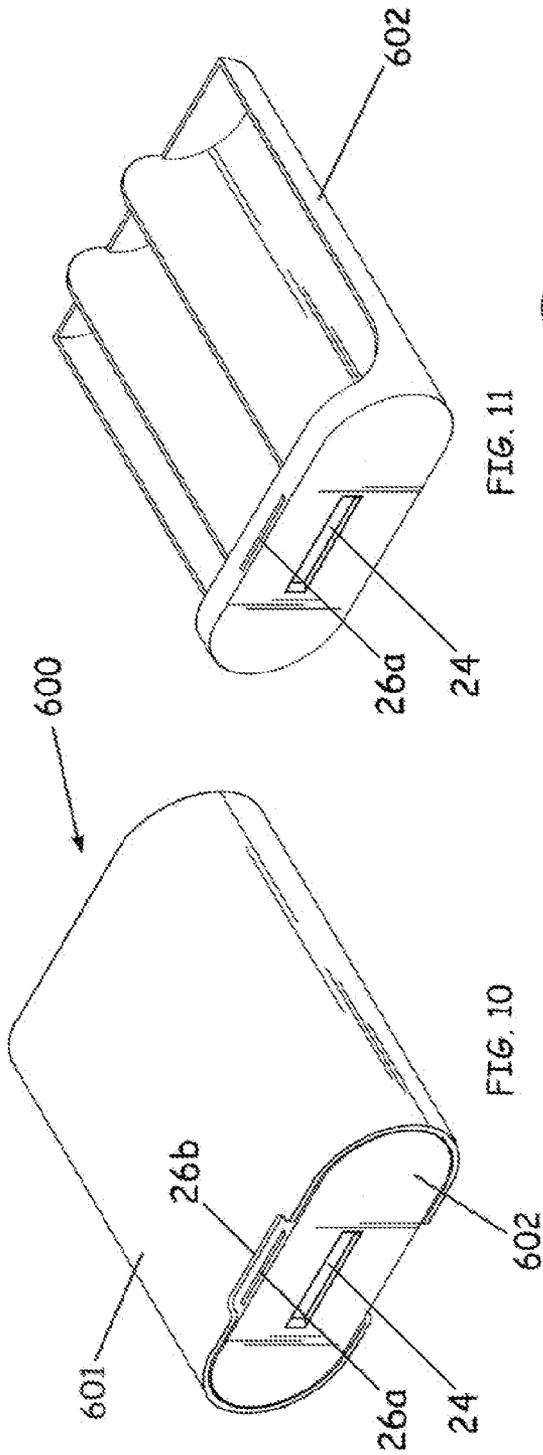


FIG. 11

FIG. 10

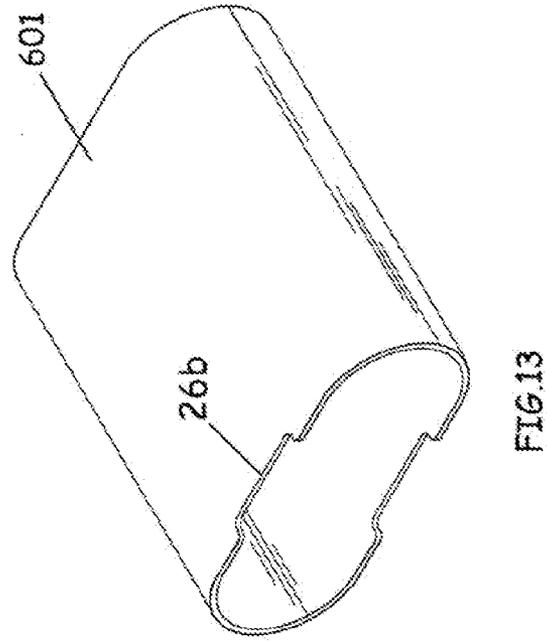


FIG. 13

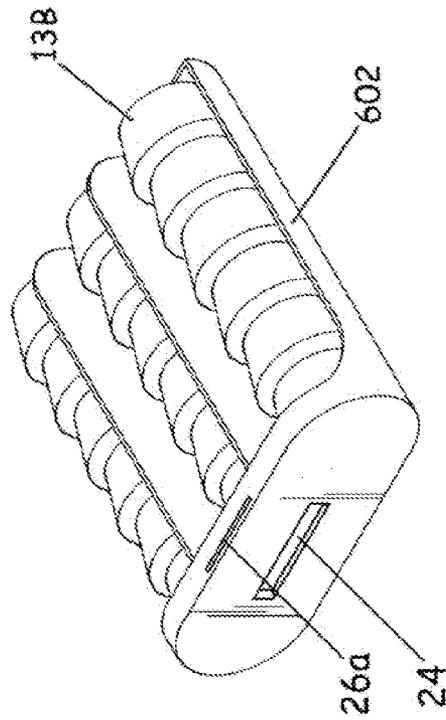


FIG. 12

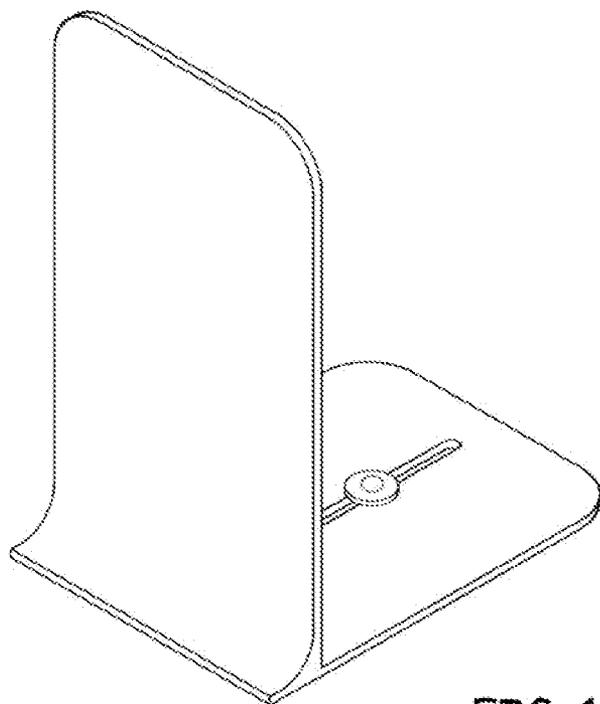


FIG. 14

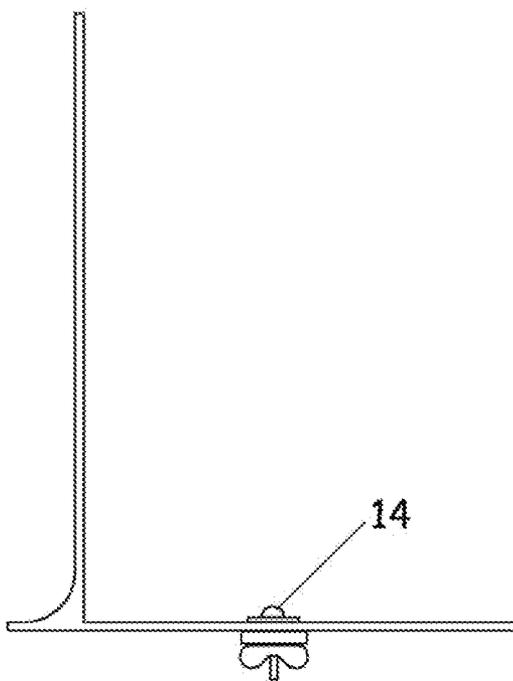


FIG. 15

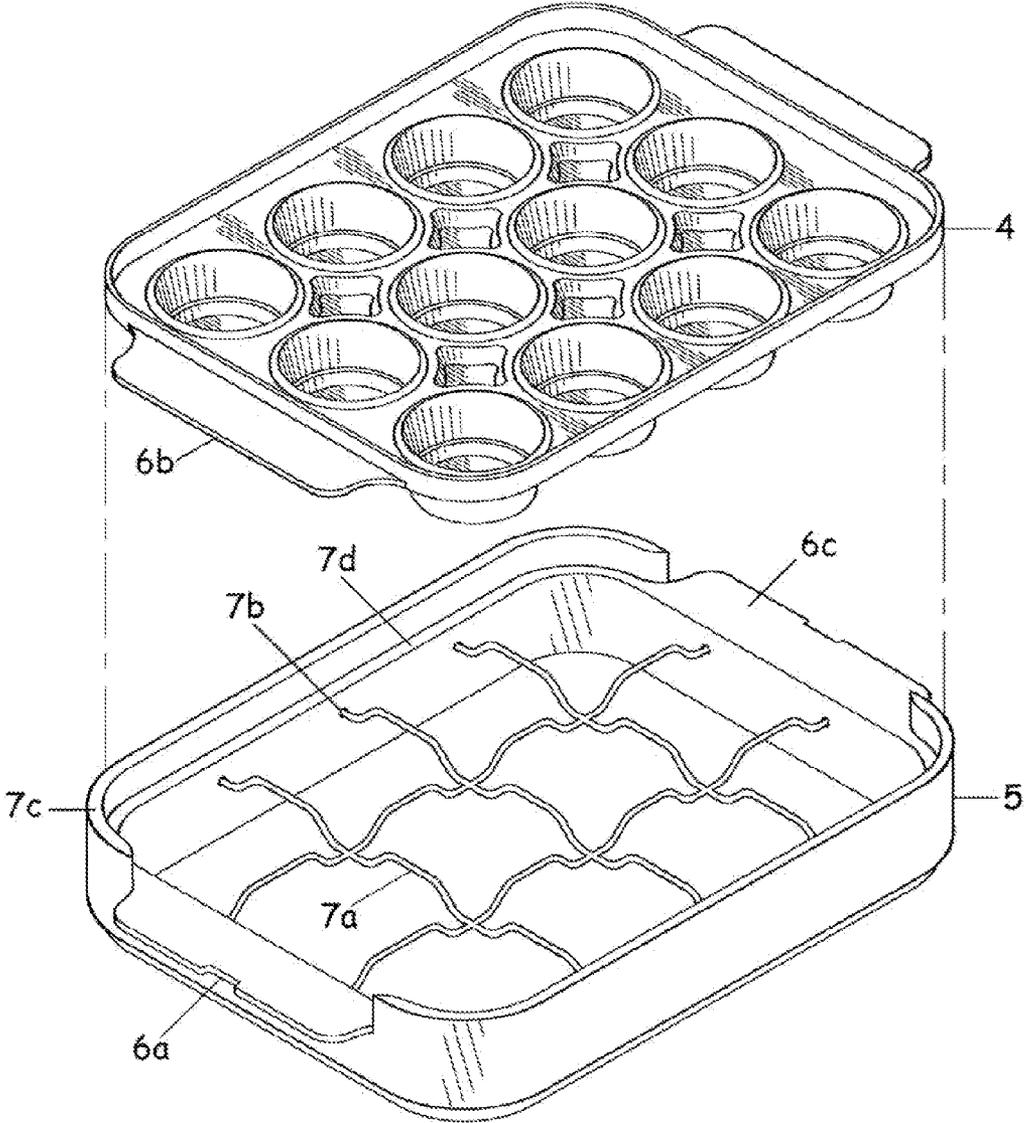


FIG. 16

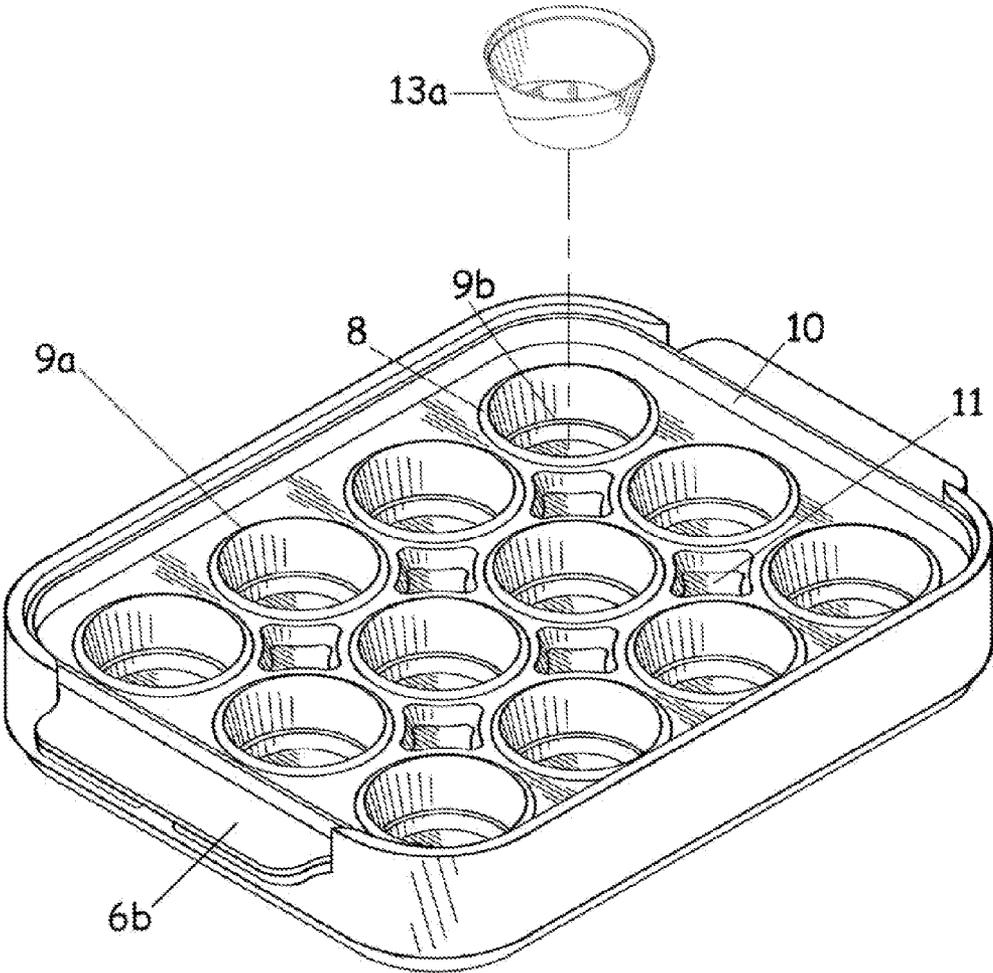


FIG. 17

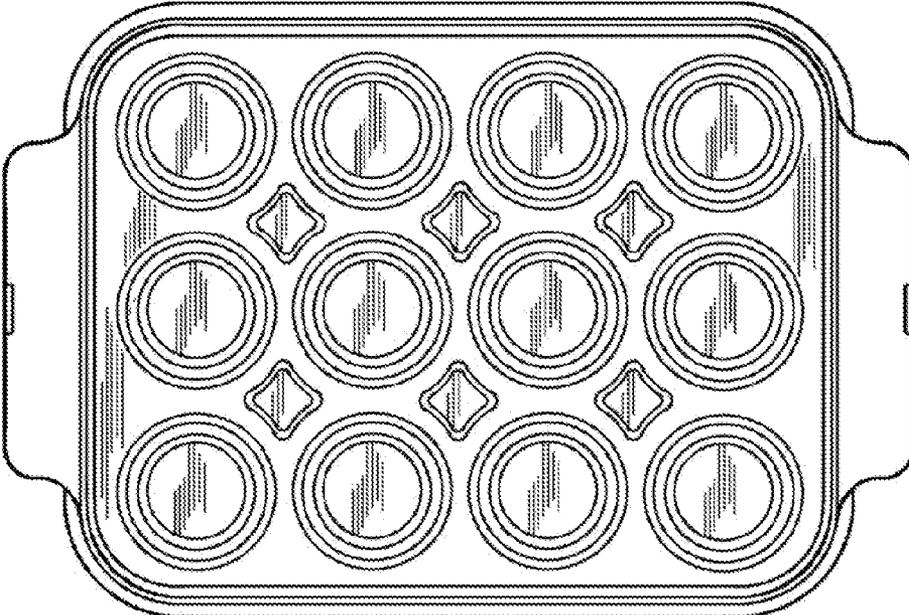


FIG. 18

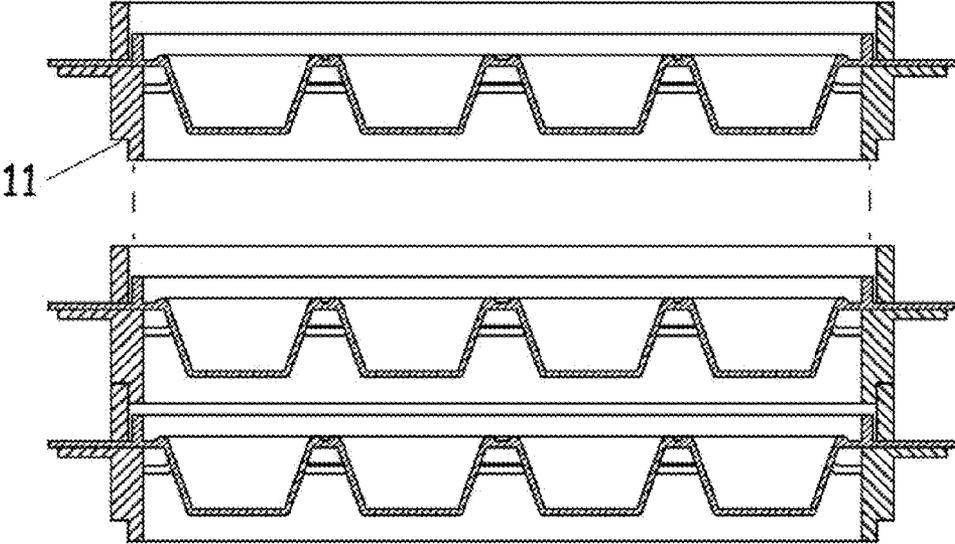


FIG. 19

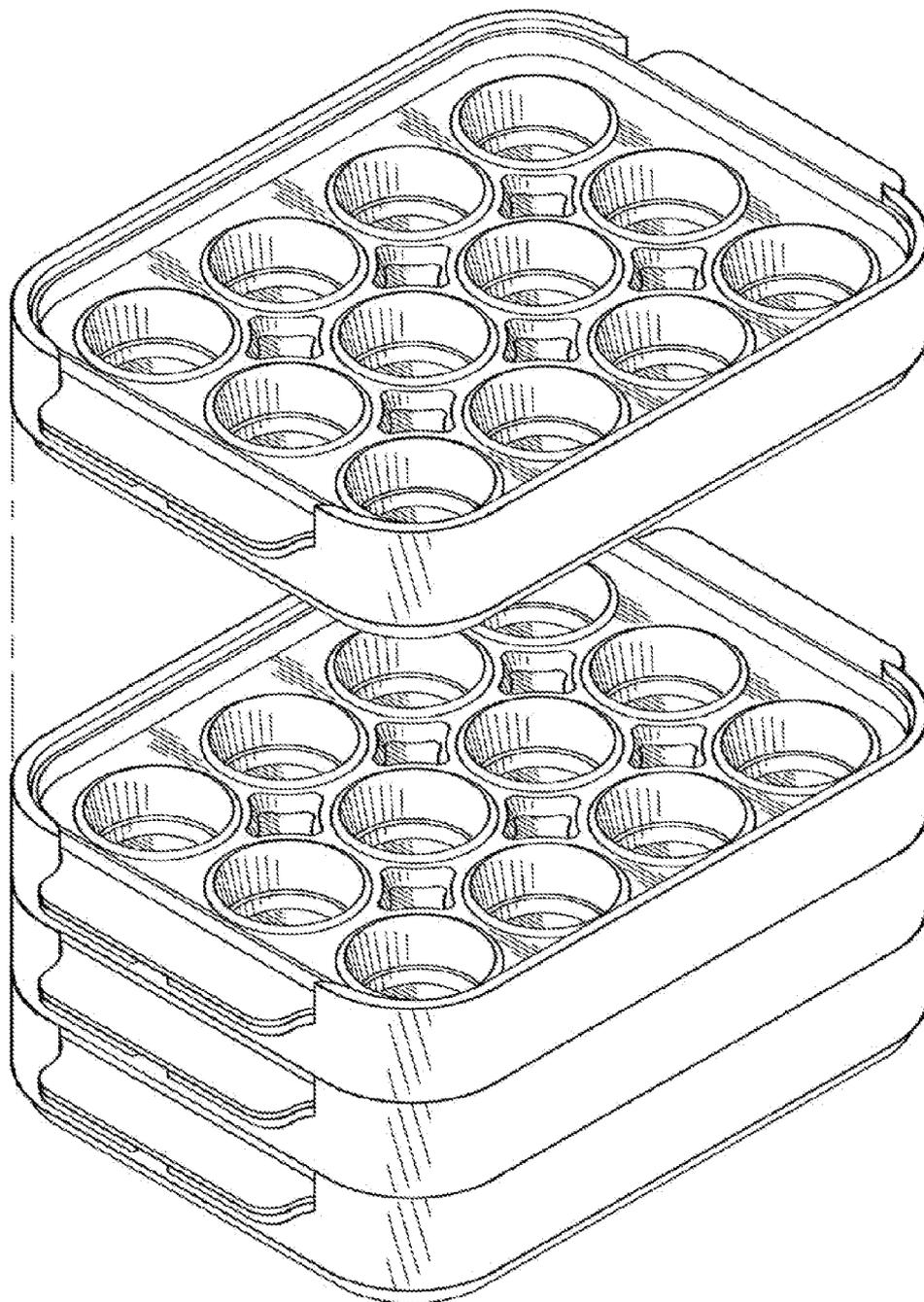
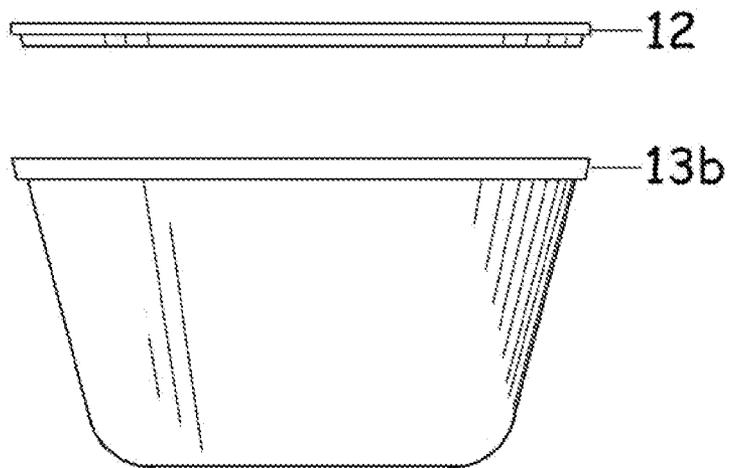
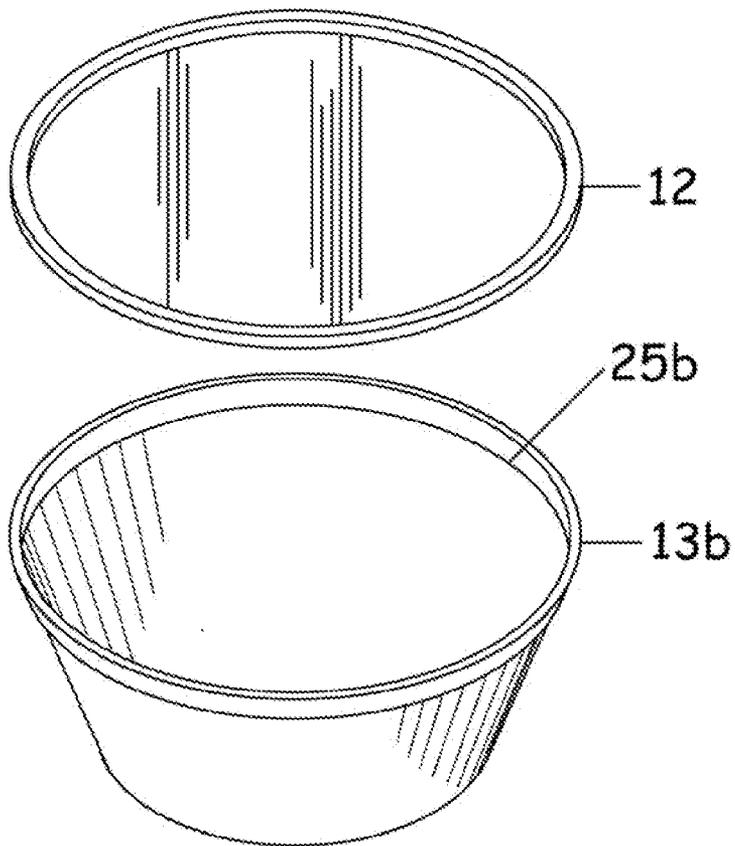


FIG. 20



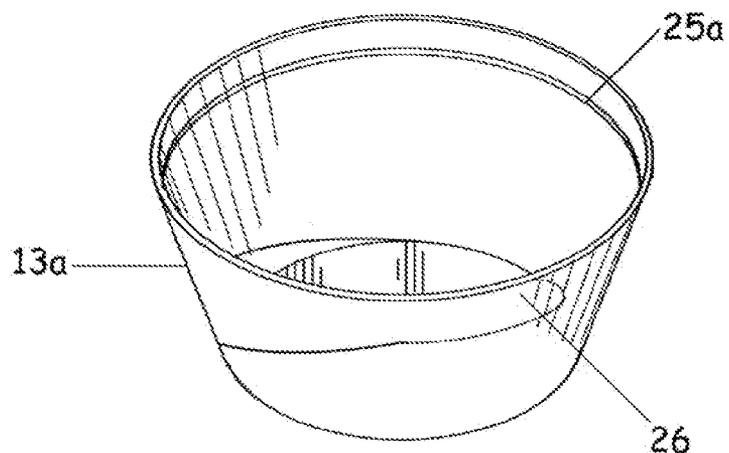


FIG. 23

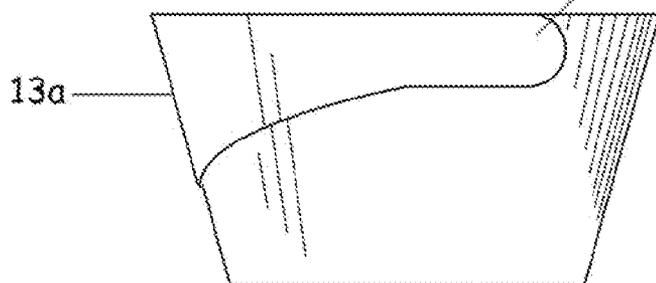


FIG. 24

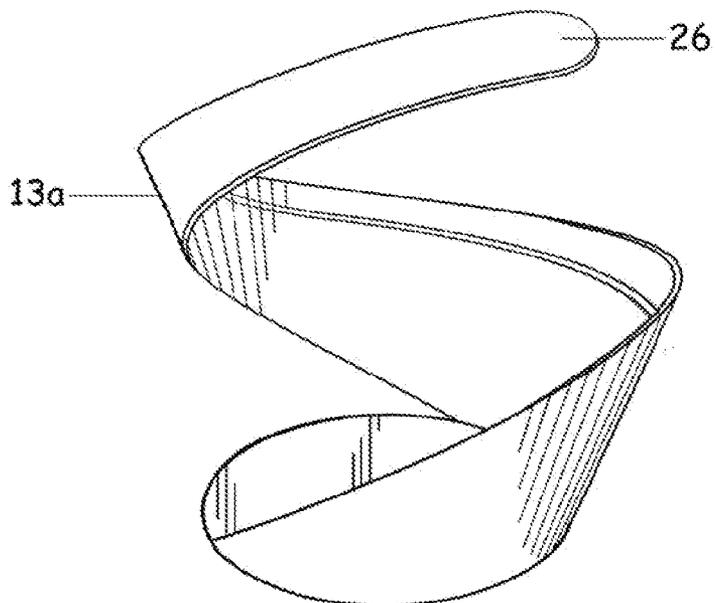


FIG. 25

## METHOD AND SYSTEM FOR STORING FOOD PREPARATIONS

### FIELD OF INVENTION

[0001] This invention relates a food storage system and methods for storing food, particularly in a freezer.

### BACKGROUND

[0002] Unfortunately, most containers for storing food in the freezer are made of plastic which directly contacts the food. There is growing concern over the potentially adverse health effects from plastic food containers. Plastic food containers after disposal find their way into landfill, contaminating the environment. There are containers that are made of other materials ceramics or metallic; these however are not efficiently designed to save space in the freezer. As population density grows living space decreases in urban areas. There will be a need for a compact space saving frozen food storage system. Time for preparing food is also a commodity. Saving time in the kitchen with an efficient means to defrost frozen food in measured portions would help meet demands of modern life. There is no system that molds food into frozen portions that are then stored in tandem within stackable tubes and or storage bins free of contact with plastic. The present invention full fills this need.

### SUMMARY OF INVENTION

[0003] The invention is a system and method for storing food into modular units (preferably single serving sizes) that help reduce freezer burn, while maintaining an organized and efficient storage area. These units, referred to as containment units or frozen food cups, are stored in an organized manner inside a refrigeration system, free from contact with plastic. The invention is a combination of containment units that can be organized with holders.

[0004] The holder may be trays and storage containers. The trays are generally flat with a plurality of cavities, each cavity configured to hold one containment unit. Food in containment units can be temporarily stored in the freezer until frozen, then transferred to a storage container for longer term storage. In the preferred embodiment, the storage containers are in the form of tubes, but other shapes may be used. The containment units and/or storage containers may be made of metallic or ceramic materials that have high standards in food safety, such as food grade stainless steel or food safe ceramics. The stainless steel storage containers may be 18-8 gauge, approximately 3" in diameter by lengths of 12, 13, and 14 inches, although other dimensions may be used in keeping with the spirit of this invention. The containers may have a cap comprised of both stainless steel and silicon.

[0005] The caps or covers for the storage containers have an area on the top face designated for the placing of magnetic or other suitable labeling of the tubes' contents. Some caps may have a one way valve used to create a vacuum within the container. This vacuum will reduce the effects of freezer burn.

[0006] Containment units are intended, but not restricted, to being stored horizontally in storage containers with the cap top facing the user.

[0007] In some embodiments, the food storage system may further comprise silicon freezing trays, freezer gloves, paper cup freezing tray liners, wire rack for stacking containers and other shapes in the freezer, dry erase board with marker, and magnetic label strips.

[0008] In the preferred use, the containment units are placed in the trays and each containment unit filled with food. A lid may be applied to the containment unit and, optionally, vacuum sealed. The tray and containment unit may be placed in the freezer until the contents of the containment unit are frozen. Then the containment units can be transferred to the storage container, and optionally, vacuum sealed. In particular, if the individual containment units were not vacuum sealed, then the storage container should be vacuum sealed. Conversely, if the individual containment units were vacuum sealed, then the storage container need not be vacuum sealed, but can be for added protection.

[0009] In another embodiment, prepared food such as soups, stews, or stocks are portioned into a silicone freezer tray that has been lined with wax paper cup freezing liners. The silicone tray which is held by a wire or other suitable support rack is then placed in a freezer. After the food has been frozen solid, the tray is removed from the freezer. The portions of food, now referred to as frozen food cups, are removed from the tray, covered with an amount of water and placed back into the freezing tray and then returned to the freezer. After the water coating is frozen, the food cup is removed from the tray with a coating of ice that seals the food cup from freezer burn. In the preferred embodiment, a pre-chilled storage container is removed from the freezer, with a freezer glove for protection, and the ice-coated frozen food cups are placed into the storage container. Magnetic or other suitable labels may then be placed on the frozen food container and/or the dry erase board can be marked accordingly as to the content of the containers. Multiple containers can then be stacked in the freezer and held up by a support rack with the cap facing out.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1A is a perspective view of an embodiment of a containment unit.

[0011] FIG. 1B is an exploded view of the containment unit in FIG. 1A.

[0012] FIG. 1C is a top view of the containment unit in FIG. 1A.

[0013] FIG. 1D is a side view of the containment unit in FIG. 1A.

[0014] FIG. 1E is a cross-section through the middle of the containment unit in FIG. 1A.

[0015] FIG. 2A is a perspective view of an embodiment of a tray.

[0016] FIG. 2B is a perspective view of an embodiment of the tray with containment units in place.

[0017] FIG. 2C is a side view of the tray with containment units in place.

[0018] FIG. 2D is a perspective view of multiple trays being stacked on top of each other.

[0019] FIG. 3A is a perspective view of a storage container.

[0020] FIG. 3B is a partial exploded view of the storage container in FIG. 3A.

[0021] FIG. 3C is a side view of the storage container in FIG. 3A.

[0022] FIG. 3D is a cross-sectional view through line A-A shown in FIG. 3C.

[0023] FIG. 3E is a side view of a storage container filled with containment units.

[0024] FIG. 3F is a cross-sectional view of the storage container filled with containment units taken along line B-B in FIG. 3E.

- [0025] FIG. 3G is a perspective view of a storage container with the cap open.
- [0026] FIG. 3H is a perspective view of another embodiment of a storage container.
- [0027] FIG. 4A is a perspective view of an embodiment of a divider.
- [0028] FIG. 4B is a side view of the divider shown in FIG. 4A.
- [0029] FIG. 4C is a top view of the divider shown in FIG. 4A.
- [0030] FIG. 4D is a cross-section of the divider taken along line C-C in FIG. 4C.
- [0031] FIG. 5A is a perspective view of a storage container in an embodiment of a rack.
- [0032] FIG. 5B is a perspective view of the rack in FIG. 5A without any storage containers.
- [0033] FIG. 5C is an exploded view of the rack in FIG. 5B.
- [0034] FIG. 5D is an embodiment of an expanded rack.
- [0035] FIG. 6 is an embodiment of the storage system inside a freezer.
- [0036] FIG. 7 is an exploded view of another embodiment of a storage container.
- [0037] FIG. 8 is a cross-sectional view of the storage container in FIG. 7.
- [0038] FIG. 9 is an exploded view of another embodiment of a storage container.
- [0039] FIG. 10 is a perspective view of another embodiment of the storage container.
- [0040] FIG. 11 is a perspective view of another embodiment of a divider that fits into the storage container shown in FIG. 10.
- [0041] FIG. 12 is a perspective view of another embodiment of a divider with containment units.
- [0042] FIG. 13 is a perspective view of an embodiment of the storage container without the lid.
- [0043] FIG. 14 is a perspective view of another embodiment of a rack.
- [0044] FIG. 15 is a side view of the rack shown in FIG. 14.
- [0045] FIG. 16 is an exploded view of another embodiment of a tray.
- [0046] FIG. 17 is another embodiment of a tray.
- [0047] FIG. 18 is a top view of the tray shown in FIG. 17.
- [0048] FIG. 19 is a side view of multiple trays being stacked.
- [0049] FIG. 20 is a perspective view of multiple trays being stacked.
- [0050] FIG. 21 is another embodiment of the containment unit.
- [0051] FIG. 22 is a side view of the containment unit shown in FIG. 21.
- [0052] FIG. 23 is a perspective view of another embodiment of a containment unit.
- [0053] FIG. 24 is a side view of the containment unit shown in FIG. 23.
- [0054] FIG. 25 is a perspective view of the containment unit shown in FIG. 23 being opened.

DETAILED DESCRIPTION

[0055] The detailed description set forth below in connection with the appended drawings is intended as a description of presently-preferred embodiments of the invention and is not intended to represent the only forms in which the present invention may be constructed or utilized. The description sets forth the functions and the sequence of steps for constructing

and operating the invention in connection with the illustrated embodiments. It is to be understood, however, that the same or equivalent functions and sequences may be accomplished by different embodiments that are also intended to be encompassed within the spirit and scope of the invention.

[0056] The food storage system 500 of the present invention comprises a plurality of containment units 200, preferably dimensioned for single serving portions. The containment units 200 may be configured to be stackable on top of each other and/or configured to be organized in a holder capable of holding a plurality of containment units 200. In some embodiments, the holder may be a storage tray 210 or a storage container 220 with a cap 222 attachable to the storage container 220 for an airtight seal. One or more holders, each containing a plurality of containment units 200, can be neatly organized inside a refrigeration system for compact and efficient storage of a plurality of single serving size food preparations. A plurality of holders can be placed neatly in the refrigeration system by stacking one holder on top of another, or by using a rack to neatly and efficiently store the holders in the refrigeration system. The refrigeration system includes refrigerators and freezers. However, the food storage system 500 has particular practicality for storage in freezers. Nonetheless, the food storage system 500 can be used to contain non-refrigerated food products as well.

The Containment Unit

[0057] Preferably, as shown in FIGS. 1A through 1E, the containment unit 200 is a single serving size unit comprising a base 201 having a closed bottom 300 and an open top 302 defined by a perimeter edge 304. Being intended for a single serving, the containment units 200 may range in size from approximately 2 ounces to approximately 20 ounces. Preferably, the containment units range in size from approximately 4 ounces to approximately 12 ounces. Most preferably, the containment units range in size from approximately 4 ounces to approximately 8 ounces. However, larger or smaller sizes can also be used without departing from the spirit and scope of the invention. Although the containment unit 200 can be any shape, preferably, the containment unit 200 is cylindrical. In some embodiments, the containment unit 200 may taper towards the closed bottom 300. In some embodiments, the containment unit has a lid 202.

[0058] In the preferred embodiment, the base 201 is made from stainless steel. The inner wall 306 may comprise etchings or lines 310 to demarcate specific volumes or fill-line so that precise volumes of food can be measured out. A tag 208A attachable to the base 201 or some other portion of the containment unit 200 may be provided. The tag 208A may be attachable via magnets, resistance fit, hook and loop fasteners, snaps, hooks, tongue and groove, rails, pockets, and the like. For example, the closed bottom 300 may comprise a slot to receive the tag 208A. Alternatively, the tag 208A may be positioned on the side of the containment unit 200. In some embodiments, the tag 208A may be on the lid 202. In some embodiments, multiple tags 208A may be placed on various places on the containment unit 200. The tag 208A can be used for identification purposes. As such, it may have a surface that can be written on, for example, with a dry erase marker or some other writing implement. In some embodiments, the tag 208A may have pre-designated markings. Useful information to put on the tags 208A include name, contents, expiration date, storage date, and the like.

[0059] In some embodiments, the containment unit 200 comprises a lid 202 to seal the base 201. The lid 202 may be a snap-fit, screw-on, clip-on, or the like. The lid 202 or the base 201 may comprise a gasket 206 therebetween used to create an airtight and/or water tight junction to prevent liquid materials from spilling out of the base 201. The lid 202 is preferably circular to fit a cylindrical base 201; however, other shapes can be used as well.

[0060] In some embodiments, the base 201 and lid 202 may be capable of maintaining a vacuum seal. In such an embodiment, the containment unit 200 may comprise a valve 203 through which air can be removed from the base 201 with a pump (not shown). The valve 203 can be positioned anywhere on the containment unit 200, but is preferably located on the lid 202. More preferably, the valve 203 is located at the center of the lid 202. Thus, the center of the lid 202, or any other location where the valve 203 may be placed, can be configured with a hole 314 to receive the valve 203. In some embodiments, the valve 203 may be on the base 201. A separate release valve may be positioned on the containment unit 200 to release the vacuum seal. In some embodiments, the valve 203 can also function as the release valve to, not only create the vacuum seal, but also to release the vacuum seal. For example, that valve 203 may be deformed to release the vacuum.

[0061] In the preferred embodiment, the containment unit 200 further comprises a sheath 204 to at least partially cover the base 201. The sheath 204 may be made of such material as silicone, rubber, cork, plastic, and the like, that is comfortable to touch even after being in the freezer for prolonged periods of time. In some embodiments, the sheaths 204 may come in a variety of colors so as to color code multiple containment units 200. Color coding can be an added way of determining the contents of the containment unit 200 or other information regarding the containment unit 200.

[0062] The sheath 204 may be reversibly attached to the base 201 with various fastening mechanism, such as snap-fit, resistance fit, screw-on, hook-and-loop fasteners, clamps, clips, magnets, and the like. The sheath 204 may also be irreversibly attached to the base with adhesives. Preferably, the sheath 204 is fitted over the bottom of the base 201, and held in place by placing a slot 209 formed in the sheath 204 over raised catch 207 formed in the base 201. In embodiments with a sheath 204, the sheath 204 may comprise a slot 208B to hold the tag 208A. In some embodiments, the closed bottom 300 is exposed even with the sheath 204 on. In such embodiments, the slot 208B may still be on the closed bottom 300. In some embodiments, the slot 208B may be on the side of the sheath 204.

[0063] In some embodiments, protruding from or adjacent to the perimeter edge 304 of the base 201 may be a lip 205. The lip 205 can function as a handle for the containment unit. Also, the lip 205 can be used with certain holders as a stop, as discussed below.

#### The Holder

[0064] The holder is designed to contain and/or organize a plurality of containment units 200. In some embodiments, the holder may be a tray-like container 210 to hold the containment units 200 in parallel with one containment unit 200A laterally adjacent to another containment unit 200B as shown in FIGS. 2A-2D. In other embodiments, the holder may be a tube-like storage container 220 to hold each containment unit 200A-H in series or in tandem stacked on top of each other as

shown in FIGS. 3A-3H. In other words the base of one containment unit 200A would be adjacent to the lid of another containment unit 200B.

[0065] In some embodiments, the holder may be configured as a tray 210 to contain and organize the containment units 200 laterally in parallel as shown in FIGS. 2A through 2D. The tray 210 may comprise a top surface 320, a bottom surface 322 opposite the top surface 320, and a perimeter edge 324 defined by the top and bottom surfaces 320, 322. A plurality of cavities 215 are created through the top and bottom surfaces 320, 322 within the perimeter edge 324. Each cavity 215 is dimensioned to allow one containment unit 200 to pass partially through the cavity 215.

[0066] In some embodiments, each cavity 215 may be surrounded by a raised lip 214 to prevent spillage from the containment units 200 from escaping the tray 210 and creating a mess. The raised lip 214 of the tray 210 may be configured to mate with the lip 205 of the containment unit 200.

[0067] In some embodiments, the top surface 320 of the tray 210 comprises at least one depression 217A-E. The depressions 217A-E create pockets throughout the tray 210, or a moat along the perimeter edge to prevent any spilled liquids from spilling off the tray 210. In some embodiments, in lieu of or in addition to the depressions, the perimeter edge 324 may be raised above the top surface 320 to create a barrier to prevent any spilled food items from flowing off the top surface. The depressions 217A-E may also create contours that function as a handle 216A, 216B to make the tray 210 easier to carry. Alternatively, the top surface 320 may have distinct handles 216A, 216B protruding outwardly and/or upwardly from the perimeter edge 324. Any handle 216A, 216B on the tray 210 can also be lined or covered with material similar to that of the sheath 204.

[0068] In some embodiments, the bottom surface 322 comprises feet 213A, 213B. Preferably, the feet 213A, 213B are dimensioned properly so that when the containment units 200A-F are placed in their respective cavities 215 and hang below the bottom surface 322 of the tray 210, the containment units 200A-F do not extend past the bottom of the feet 213A, 213B. Thus, when the tray 210 is placed on a surface, the containment units 200A-F remain above the surface or just makes contact with the surface without lifting the containment units 200A-F out of their respective cavities 215. In some embodiments, the top surface 320 comprises two opposing depressions 217A, 217B positioned above opposing feet 213A, 213B along the perimeter edge 324, each opposing depression 217A, 217B configured to receive one foot 213A, 213B of another tray 210C. This allows the trays 210A-C to be stackable as the opposing depressions of one tray 210C would be configured to receive the feet of another tray 210B as shown in FIG. 2D.

[0069] As shown in FIGS. 3A-3H, the storage container 220 comprises a body 221 and a cap 222. The body 221 is defined by at least one wall 241 having an outer side 330 and an inner side 332, the at least one wall 241 having a top end 334 and a bottom end 336. In the preferred embodiment, the body 221 is cylindrical, and therefore, defined by a single wall. However, any other shape can be used, such as an elliptical shape having two walls, triangular shape having three walls, rectangular shape having four walls, etc.

[0070] The top end 334 of the body 221 defines an opening 219. In the preferred embodiment, the top end 334 may have a threaded portion 221A around the outer side 330 to mate with the cap 222 having a threaded portion on its interior wall.

Conversely, the top end 334 may have the threading on the inner side 332 with the cap 222 having threading on its outer wall. Like the containment unit 200, a gasket may be placed in between the cap 222 and the body 221 to create an airtight and/or water-tight seal when the cap 222 is secured to the body 221. In some embodiments, the storage container 220 may have a valve 247 to create a vacuum inside the storage container 220. The valve 247 may be positioned on the cap 222 or the body 221. The valve 247 is engaged by a pump (not shown) to draw out air from the sealed storage container 220. A vacuum sealed chamber helps to prevent freezer burn.

[0071] In the preferred embodiment, the body 221 is at least partially covered with a sleeve 223 (much like the sheath described above for the containment unit 200). The sleeve 223 may be made of such material as silicone, rubber, cork and the like, that is still comfortable to touch even after being in the freezer for prolonged periods of time. The sleeve 223 assists in gripping the main body 221 for screwing it to the cap 222, as well as protecting the user's hands from contact with the cold stainless steel of the main body 221. In some embodiments, the sleeve 223 may come in a variety of colors so as to color code the storage container 220. Color coding can be an added way of determining the contents of or other information regarding the storage container 220. The sleeve 223 may be removable from the body 221. Preferably, the sleeve 223 is fitted over the bottom of the body 221, and held in place by any reversible or irreversible fastening mechanism described herein.

[0072] In some embodiments, the storage container 220 may have one or more windows 225A-C on the body 221, as shown in FIGS. 3A-3F. In some embodiments, the storage container 220 may not have any windows as shown in FIG. 3H. Therefore, the storage container 220 may or may not be vacuum sealable, and may or may not have a window, or any combination thereof. The windows 225A-C may be any transparent material, such as glass, plastic, ceramic, and the like, or just an opening. A window 225A-C will allow the containment units 200 to be quickly and easily visible without having to open the storage container 220. When used in conjunction with the color coded containment units 200, the user can quickly and easily identify the containment unit 200 desired before having to open the storage container 220. Since the storage container 220 can be vacuum sealed, it would be inconvenient to have to open the storage container to find out that the wrong storage container was opened. In embodiments with windows, preferably there would be a plurality of windows 225A-C intermittently and angularly spaced around the body. The windows 225A-C would extend substantially the length of the body 221 so that each containment unit 200 would be visible enough to see the color coding or tag 208A. Alternatively, since the dimensions of the containment unit 200 would be known, the windows 225A-C can be strategically placed along the body 221 so that the color coding or identification tags 208A can be visible through any of the windows 225A-C taking into consideration the potential for movement within the storage container 220. In some embodiments, the sleeve 223 may have cutouts 245A-C. Preferably, the cutouts 245A-C would match the location of the windows 225A-C so that the windows 225A-C are not blocked by the sleeve 223. Even in embodiments without windows, the sleeve 223 may have cutouts 245A-C.

[0073] Like the body 221, the cap 222 can be covered with a sleeve 224 to assist in gripping the cap 222 for attaching it to the body 221. The sleeve 224 on the cap 222 also protects

the user's hands from contact with the cold stainless steel cap 222 when it is removed from the freezer. The cap 222 may also have a multitude of windows 226A-C that allow the user to view the color coded containment units of the main body 221 is holding. The sleeve 224 for the cap 222 may also have cutouts 311A-C corresponding to the windows 226A-C so that the windows 226A-C are not obstructed. An identity tag 227 may be fastenable to the cap 222 or the body 221 as described above for the containment unit 200.

[0074] In embodiments utilizing the storage container 220, a divider 229 may be provided as shown in FIGS. 4A through 4D. The divider 229 is configured to slide into the storage container 220. In some embodiments, the divider 229 may comprise a handle 233, such as a recessed wire form handle 233 to pull the divider 229 out of the body 221. The divider 229 has removable separators 230A-230G that can be removed to accommodate various sized containment units 200. The separators 230A-230G may be attached to the divider via slots, notches, catches, tabs, and the like. For example, the separators 230A-230G may have teeth 234 which engage with any one of a set of slots 232A-232G to hold it in place. The separators 230A-230G allow each containment unit 200 to be housed independently in the divider 229. This allows the containment units 200 to be placed into the storage container 220 gently without being dropped. In addition, each containment unit 200 can be removed independently without causing any shifts in the other containment units in the same divider 229. In the preferred embodiment, since the containment units 200 and the storage container 220 are cylindrical, the divider 229 may be a half cylinder; thereby having a semi-circular cross section. This allows the containment units 200 to be placed one above the other in series.

#### The Rack

[0075] One or more storage containers 220 can be stored inside a refrigerator or freezer by a rack 250 as shown in FIGS. 5A-5D. The rack 250 may comprise a casing 251, a support stand 253, and a plurality of shelves 254A-B. The support stand 253 may comprise a plurality of slits 260A-D. In some embodiments, the support stand 253 may comprise a support base 262. The support base 262 may facilitate the support stand 253 standing upright in the refrigeration system. Some refrigeration systems come with a wire shelf. The support base 262 may engage the wire shelf to prevent unwanted movement of the rack 250.

[0076] The casing 251 may comprise a face 270, the face 270 terminating at two opposing terminal ends 272, 274, the terminal ends 272, 274 each comprising a hook 276, 278 to attach the casing 251 to the support stand 253 via two slits 260A, 260D of the plurality of slits of the support stand. Similarly, the face 270 may also comprise a plurality of slits 280A-D, and each shelf 254A, 254B may terminate at opposite ends 282A, 282B, each end comprising one or more hooks 284A and 284C, or 284B. These hooks 284A, 284C, and 284B may be used to connect the shelves 254A to the support stand 253 and the casing 251 via the slits 260B, 260C and 280B, 280C. Any additional shelves 254B-D can be assembled in a similar manner.

[0077] To make the rack 250 expandable, a first end 282A of the shelf 254A may have a pair of hooks 284A, 284C on opposite sides so as to create a gap in between the two hooks 284A, 284C along the first end 282A. The second end 282B may have a single hook 284B located in the middle corresponding with the location of the gap on the first end 282A.

With this configuration, the middle hook **284B** on the second end of a first shelf can be attached to a slot **280B** of the first face of the first shelf. The pair of hooks **284A**, **284C** on the first end of a second shelf can attach to the same slot **280B** by straddling the middle hook **284B** of the first shelf. Once assembled the rack **250** is placed against a wall inside the refrigeration system and is ready for use as shown in FIG. 6.

[0078] In use, the user places the number of needed containment units **200**, with their respective color coding, into the cavities **215** found in the tray **210**. Identity tags **208a** may be filled out and attached to the containment unit at any point prior to placing the containment units into the refrigeration unit. Each containment unit **200** is filled with prepared food up to but not exceeding its fill line **310**. After the containment units **200** are filled with prepared food they are covered with a lid **202**. In some embodiments, with the use of a vacuum pump, air is evacuated from the containment unit to create a vacuum seal. After the containment units **200** are vacuum sealed the freezer tray **210** is placed into the freezer until the contents of each containment unit **200** is frozen. In some embodiments, the containment units with or without lids **202** can be placed in the freezer without vacuum sealing. The food can be stored in this manner.

[0079] In some embodiments, the freezer tray **210** is removed from the freezer. After the contents of the containment units **200** are frozen and the freezer tray **210** is removed from the freezer, the containment units **200** can be placed in the storage container **220**.

[0080] A pre-frozen storage container **220** is removed from the freezer rack **250** that has already been set up inside the freezer. The cap **222** of the storage container **220** is removed from the main body **221**. The main body **221** is set on the kitchen counter on its side. The pull out divider **229** is engaged by pulling the recessed wire form handle **233** and removed from the body **221**. The now frozen containment units **200** are then placed into the pull out divider **229** in tandem (i.e. in series).

[0081] If necessary the pull out divider **229** has removable separators to accommodate larger containment units. The pull out tray **229** is inserted back into the main body **221** of the storage container **220**. The storage container cap **222** is placed back on the main body **221**. The identity tag **227** is marked with the desired information and inserted into the slot **228** on the cap **222**. This step can be done at any time prior to placing the storage container **220** back in the freezer. The storage container **220** is then placed back into freezer rack **250**. The identity tag **227** can be used to label an individual storage container (tube) or its contents, however the user decides.

[0082] In some embodiments, particularly where the individual containment units were not vacuum sealed, the storage containers **220** may be vacuum sealed by evacuating the air from the storage container **220** after sealed with the cap **222** with the use of a vacuum pump.

[0083] When the user now needs to access a containment unit **200** with specific contents the user can address the identity tag **227** on the storage container **220**. In embodiments with windows, the user may also look through the windows **225A**, **225B**, and **225C** to identify the containment units **200** by seeing the color coded sheath **204** which could represent a containment units contents. If the correct storage container **220** has been identified, the user can release the vacuum seal through valve **247** (if previously vacuum sealed) and open the cap **222**. Once a containment unit **200** is removed from the

storage container **220**, the user can address the identity tags **208a** on the bottom of each containment unit **200** for additional information.

[0084] When ready to eat, the desired frozen containment units **200** are removed from the storage containers **220**. The vacuum seal of containment unit can be released through the valve **203** (if previously vacuum sealed). The lid **202** is removed from the containment unit **200**. The containment units **200** contents are then defrosted either by being held under the faucet for a few seconds, by being set in bowl of water, or set on the counter for a several minutes enough to loosen the frozen contents and place into some other cookware. The containment units **200** are then washed and put away until the next use.

[0085] In embodiments in which the storage unit **220** is capable of a vacuum seal, the containment units **200** do not need to be vacuum sealed independently. The user may wish to simplify the process of storing the containment units **200** by not placing on a vacuum lid **202**. The user may not wish to use the silicone sheath **204** as well since there are no windows in storage container **220** to view its contents. The user may or may not wish to use the provided pull out tray **229** and place the containment units directly into the windowless vacuum storage container's main body **221**. A check valve **247** is provided in the top of the vacuum storage container **220** or cap **222**. The user may use the check valve **247** to create a vacuum within the vacuum storage container **220** to protect the non-capped containment units **200** from freezer burn. The user may then mark the identity tag **227** and insert this into slot **228** in the cap **222** found on the vacuum storage container **220**. The vacuum storage container **220** is then placed into the freezer rack **250** until needed.

[0086] FIGS. 7-8 show another embodiment of the storage container comprising a main body **7**, a cap **1a**, and a silicone gasket **5**. The main body **7** may be provided with an opening **3a** formed at its top with a female-threaded portion **2b** formed around the inner wall of the opening. The cap **1a** may be engaged with the opening **3a** of the main body **7**, provided with a male thread portion **2a** formed around the outer wall for engaging with the female threaded portion **2b** on the main body **7**. A silicone gasket **5** is fitted over the cap **1a** male threaded portion **2a** to create a tight seal when the cap **1a** is screwed tightly into the main body **7**. The threading can be reversed.

[0087] To assist in screwing open and screwing close the cap **1a** from the main body **7** textured indented grooves **6** and **8** may be placed on the main body **7** to enable a tight grip with one hand. The cap **1a** may have similar textured grooves **4** for gripping with the other hand.

[0088] At the top face of the cap **1a** there may be a slot or recessed area **1b** for placing magnetic label strips or tags. The magnetic label strips are to identify the container or the contents by number or name. Other mechanisms for securing the tags as described herein can also be used.

[0089] In the preferred embodiment, the storage containers are stored in the freezer stacked horizontally with the caps **1a** facing out. This way the containers identification and or contents magnetically labeled in **1b** are facing out of the freezer to be viewed. To remove the containers from the stack they should be pulled out horizontally. The cap **1a** has an edge **3b** formed into its circumference allowing a grip upon the containers.

[0090] As shown in FIG. 9 another embodiment of a vacuum chambered storage container in the present invention

comprises main body 15, a cap with a one-way valve for creating a vacuum seal 17a, a silicone gasket 16, a push action pump 22, and a vacuum release valve 23.

[0091] The cap with a one-way valve 17a is engaged with the opening 15b of the main body 15a, provided with a male threaded portion 17b formed around the outer wall for engaging with the female threaded portion 15c on the main body 15a. A silicone gasket 16 is fitted over the cap 17a male threaded portion 17b to create a tight seal when the cap 17a is screwed into the main body 15a. As in previous embodiments, the threading can be reversed.

[0092] To assist in screwing open and screwing close the cap 17a from the main body 15a textured indented grooves 18 and 19 have been placed on the main body 15a to enable a tight grip with one hand. The cap with a one-way valve 17a has similar textured grooves 20 for gripping with the other hand.

[0093] After the vacuum chambered storage container has been filled and the cap 17a has been screwed on tightly, the push action pump 22 can be engaged to create a vacuum with in the main body 15a. The push action pump 22 can be pressed any number of times to create a vacuum with in the main body 15a. The more times the push action pump is used, the less air there is in the main body 15a, reducing the likelihood of freezer burn. The vacuum chambered storage container is now ready for storage in the freezer.

[0094] At the top face of the cap 17a there is a slot or recessed area 21b for placing magnetic label strips or tags. The magnetic label strips or tags are to identify the container or the contents by name or number.

[0095] To store the vacuum chambered storage containers in the freezer they are preferably stacked horizontally with the caps 17a facing out. This way the containers identification magnetically labeled to 21b are facing out of the freezer to be viewed. To remove the containers from the stack they should be pulled out horizontally. The cap with a one-way valve 17a has an edge 21a formed into its circumference allowing a grip upon the containers.

[0096] To re-open the vacuum chambered storage container after it has been sealed with a vacuum, the vacuum release valve 23 is depressed. When air pressure is back to normal in the storage container, the cap 17a may now be screwed open.

[0097] FIGS. 10-13 show an embodiment of a stainless steel storage container 600 having a body 601 and a divider 602 capable of receiving three rows of containment units 13a or 13b. The divider 602 slides into the body 601 and serves as a cap for the storage container 600. Thus, the frozen food cups or containment units 13a or 13b are placed in the divider with three rows. The divider 602 can have one row, two rows, three rows, or even more.

[0098] To open the stainless steel dividers a notch 26b and dimple 26a has been provided for securing a grip on the two parts.

[0099] A recessed area 24 on the stainless steel divider is for the placing of magnetic label strips. The magnetic label strips are to identify the container or the contents by number or name.

[0100] The containers are stacked in the freezer one on top of the other in a horizontal manner. The stack is held in place by an L-shaped support rack as seen in FIGS. 14-15. The L-shaped rack may be fastened to the wire grid within the freezer with a wing nut 14.

[0101] FIG. 16 shows a preferred embodiment of a silicone freezer tray in the present invention composed of a wire holder 5 and a silicone tray 4. The silicone tray 4 is placed on the wire support rack. The wire holder 5 may have a stainless steel wire grid 7a to hold the silicone tray 4 in a level position. The stainless steel wire grid 7a is held in place at contact points 7b with in the rack 5. The silicone tray 4 is also held up by a support edge 7d along the inside wall of the support rack 5. The silicone tray 4 is easily separated from the support rack 5 by the aid of notches 6a placed in the handles 6c. The notches 6a allow for fingers to separate the handles 4a of the silicone tray 4 from the handles 6c of the support tray 5. The handles 6c of the support tray are used to lift the fully loaded silicon freeze tray from counter to freezer.

[0102] The silicone tray 4 has a plurality of cavities 9a for holding wax paper food cup liners 13a or stainless steel food cup liners 13b. Once the cavities 9a are filled with either freezer liner food may now be placed with in the cavities 9a. A line 25a around the interior circumference of the wax paper freezer cup liner 13a indicates how much food should be placed with in the liner. A similar line 25b is within the interior circumference of the stainless steel food cup liner 13b. The silicone freezer tray is now ready to be placed within the freezer.

[0103] The identification of each wax paper frozen food cup 13a can be written on its bottom in wax pencil. The identification of each stainless steel food cup 13b can placed on its stainless steel lid 12 with magnetic label strips.

[0104] After freezing the food contents the silicone freezer tray is removed from the freezer. The wax paper frozen food cups 13a (a type of containment unit) are removed from the silicone tray 4. Water is poured into the silicone tray's 4 cavities 9a up to the water indication line 9b. The wax paper frozen food cups are then placed back into the silicone freezer tray 4 cavities 9a.

[0105] If using the stainless steel food cups 13b (another type of containment unit) this step of adding water as a lid can be skipped. Water is then added to the top of each wax paper frozen food cup 13a or stainless steel frozen food cup 13b. If using the stainless steel food cup liners 13b now is the time to place on the stainless steel cap 12. The silicon freezer tray FIG. 3 is then placed back into the freezer. The silicone tray 4 has three added features to prevent food or water from spilling when moving from counter to freezer: a spill guard 10 around its outer edge, a lip 8 around each cavity 9a, and catch pockets 11 to hold excess spillage.

[0106] The silicone freezer trays are stackable as seen in FIGS. 19-20 so multiple silicone freezer trays can be placed in the freezer at once. The support rack 5 has an interlocking edge 11 along its bottom edge.

[0107] The silicon freezer tray is removed from the freezer after the water freezes creating a seal of ice around the wax paper food cups 13a or stainless steel food cups 13b.

[0108] The frozen food cups are then removed from the silicon freezer tray and placed in a storage container. The storage container may be pre-chilled from the freezer. The storage container are then labeled by name or number by a magnetic label strip or tag and returned to the freezer for storage.

[0109] The frozen food cups 13a or 13b, as shown in FIGS. 21-25 can now be easily removed from the frozen food storage containers at any time the user cares to prepare them for cooking. To prepare the frozen food cups after they have been removed from the freezer simply hold them upside down

under the faucet. Let warm water rinse away the coating of ice and this will allow the frozen food to easily separate from the wax paper food cup **13a** or the stainless steel food cup **13b**. The wax paper food cup **13a** is designed with a tear away tab **26** so it can be peeled away from the frozen food.

**[0110]** The foregoing description of the preferred embodiment of the invention has been presented for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Many modifications and variations are possible in light of the above teaching. It is intended that the scope of the invention not be limited by this detailed description, but by the claims and the equivalents to the claims appended hereto.

#### INDUSTRIAL APPLICABILITY

**[0111]** This invention may be industrially applied to the development, manufacture, and use of a food storage system for efficiently storing serving size portions of food in the freezer and minimizing freezer burn.

What is claimed is:

1. A food container system, comprising:
  - a. a plurality of containment units, wherein each containment unit comprises:
    - i. a base having a closed bottom and an open top, the open top terminating at a perimeter edge,
    - ii. a lid to cover the open top, and
    - iii. a sheath that at least partially covers one containment unit, wherein the sheath is reversibly attached to the containment unit; and
  - b. a holder configured to hold the plurality of containment units.
2. The system of claim 1, wherein each containment unit comprises a valve to create a vacuum seal.
3. The system of claim 1, further comprising a tag attachable to the base, the sheath, or the lid.
4. The system of claim 1, wherein the holder is a tray, comprising:
  - a. a top surface;
  - b. a bottom surface opposite the top surface;
  - c. a perimeter edge defined by the top and bottom surfaces;
  - d. a plurality of cavities within the perimeter edge passing through the top and bottom surfaces, each cavity dimensioned to allow one containment unit to pass partially through its respective cavity;
  - e. a plurality of depressions defining pockets on the top surface of the tray, at least one depression in between two cavities;
  - f. a pair of handles extending from opposite ends of the perimeter edge; and
  - g. a pair of feet positioned below two depressions and dimensioned substantially the same as the two depressions.
5. The system of claim 4, wherein the perimeter edge of each base comprises a lip, wherein a diameter of the lip of the base of each containment unit is greater than a diameter of its respective cavity.
6. The system of claim 1, wherein the holder is a storage container, comprising:
  - a. a body defined by at least one wall having an outer side and an inner side, the at least one wall having a top end and a bottom end, an opening at the top end of the body;
  - b. a sleeve at least partially covering the storage container; and
  - c. a cap attachable to the storage container.
7. The system of claim 6, wherein the storage container comprises a valve to create a vacuum seal.
8. The system of claim 6, wherein the body of the storage container comprises at least one window that allows a user to view the containment units housed inside the body.
9. The system of claim 6, further comprising a divider that fits inside the storage container, wherein the divider is half-cylinder shaped with a semi-circular cross section and comprises a plurality of separators dividing the divider into a plurality of sections, each section configured to receive one containment unit.
10. The system of claim 6, further comprising a tag attachable to the body, the sleeve, or the cap.
11. The system of claim 6, further comprising a rack configured to house one or more storage containers inside a refrigeration system.
12. The system of claim 11, wherein the rack comprises:
  - a. a support stand, comprising
    - i. a plurality of slits, and
    - ii. a support base;
  - b. a casing comprising a face, the face terminating at two opposing terminal ends, the terminal ends each comprising a hook to attach the casing to the support stand via two of the plurality of slits of the support stand, wherein the face comprises a plurality of slits; and
  - c. at least one shelf, the at least one shelf terminating at opposite ends, each end comprising a hook to connect the at least one shelf to the support stand at one end and the casing at the opposite end.
13. The system of claim 12, wherein the rack is expandable to accommodate more storage containers.
14. A food container system, comprising:
  - a. a plurality of containment units, wherein each containment unit comprises:
    - i. a base having a closed bottom and an open top, the open top terminating at a perimeter edge, the perimeter edge comprising a lip,
    - ii. a lid to cover the open top,
    - iii. a sheath that at least partially covers one containment unit, wherein each sheath is a different color, and
    - iv. a tag attachable to the base;
  - b. a tray, comprising:
    - i. a top surface,
    - ii. a bottom surface opposite the top surface,
    - iii. a perimeter edge defined by the top and bottom surfaces,
    - iv. a plurality of cavities within the perimeter edge passing through the top and bottom surfaces, each cavity dimensioned to allow one containment unit to pass partially through the cavity, wherein a diameter of the lip of the base of each containment unit is greater than a diameter of each respective cavity,
    - v. a plurality of depressions on the top surface of the tray,
    - vi. a pair of handles extending from opposite ends of the perimeter edge, and
    - vii. a pair of feet positioned below two depressions and dimensioned substantially the same as the two depressions,
  - c. a storage container, comprising:
    - i. a body defined by at least one wall having an outer side and an inner side, the at least one wall having a top end and a bottom end, an opening at the top end of the body, and threading at the top end adjacent the opening,

- ii. a sleeve at least partially covering the storage container,
  - iii. a cap attachable to the storage container,
  - iv. a tag attachable to the body or the cap, and
  - v. a divider configured to fit completely inside the storage container, the divider comprising a handle, and a plurality of separators dividing the divider into a plurality of sections, each section configured to receive one containment unit; and
- d. a rack configured to house one or more storage containers inside a refrigeration system, wherein the rack comprises:
- i. a support stand, comprising a plurality of slits and a support base,
  - ii. a casing comprising a face, the face terminating at two opposing terminal ends, the terminal ends each comprising a hook to attach the casing to the support stand via two of the plurality of slits of the support stand, wherein the face comprises a plurality of slits; and
  - iii. at least one shelf, the at least one shelf terminating at opposite ends, each end comprising a hook to connect the at least one shelf to the support stand at one end and the casing at the opposite end, wherein the rack is expandable to accommodate more storage containers.
- 15.** The system of claim **14**, wherein each containment unit comprises a valve to create a vacuum seal.
- 16.** The system of claim **14**, wherein the storage container comprises a valve to create a vacuum seal.
- 17.** The system of claim **14**, wherein the body of the storage container comprises at least one window that allows a user to view the containment units housed inside the body.

- 18.** The system of claim **14**, wherein the cap comprises a second sleeve.
- 19.** A method of storing food, comprising:
- a. providing a plurality of containment units, wherein each containment unit comprises:
    - i. a base having a closed bottom and an open top, the open top terminating at a perimeter edge,
    - ii. a lid to cover the open top,
    - iii. a sheath that at least partially covers one containment unit, and
    - iv. a tag attachable to the base;
  - b. providing a tray comprising a plurality of cavities;
  - c. placing each containment unit into one of the cavities of the tray;
  - d. placing food items into each of the containment units;
  - e. covering each containment unit with their respective lids;
  - f. labeling an identification tag for each containment unit;
  - g. freezing the plurality of containment units in a freezer;
  - h. once the food items are frozen, placing the containment units into a storage container; and
  - i. placing the storage container on a rack in the freezer.
- 20.** The method of claim **19**, further comprising vacuum sealing the food items in the containment unit prior to freezing.
- 21.** The method of claim **19**, further comprising vacuum sealing the storage container prior to placing the storage container on the rack.

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