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(54) **REUSABLE BIN**

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USPC **220/7**

(57) **ABSTRACT**

A collapsible bulk bin has floating hinges with no moving parts that allow the walls of the bin to lay flat on top of each other. The collapsible bulk bin can include removable support feet that may be easily replaced thereby extending the usable life of the collapsible bulk bin.

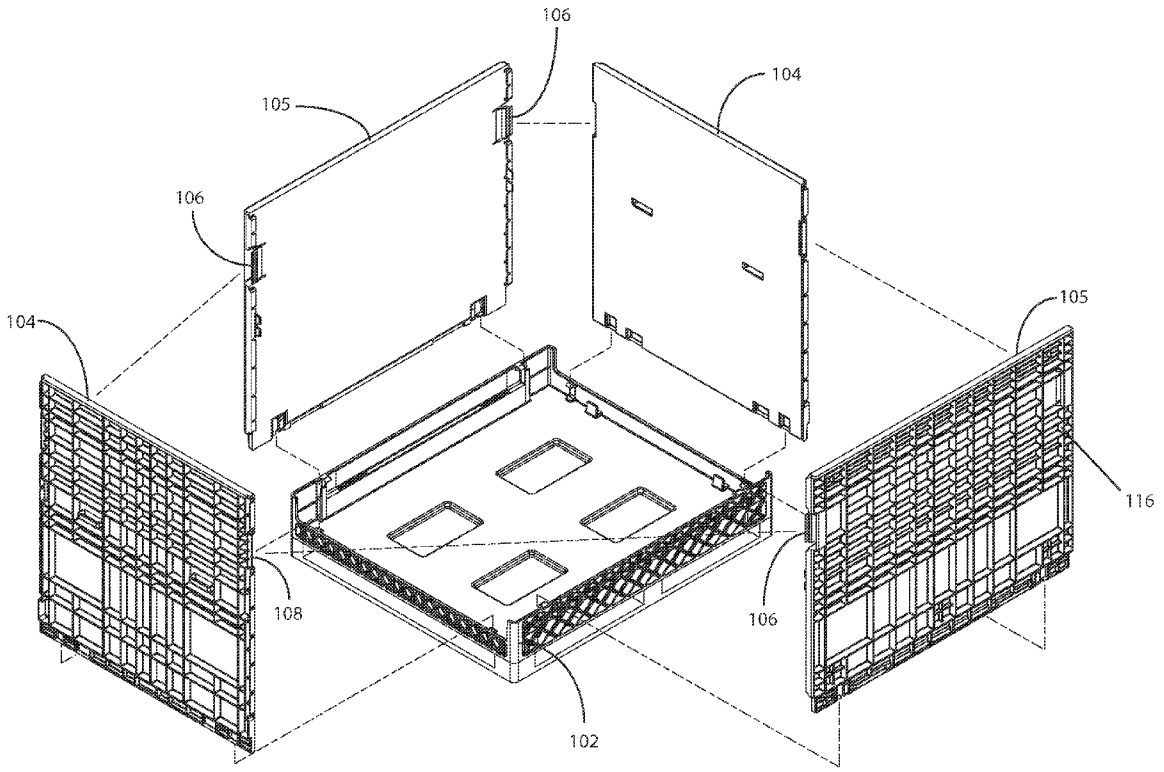


FIG. 1

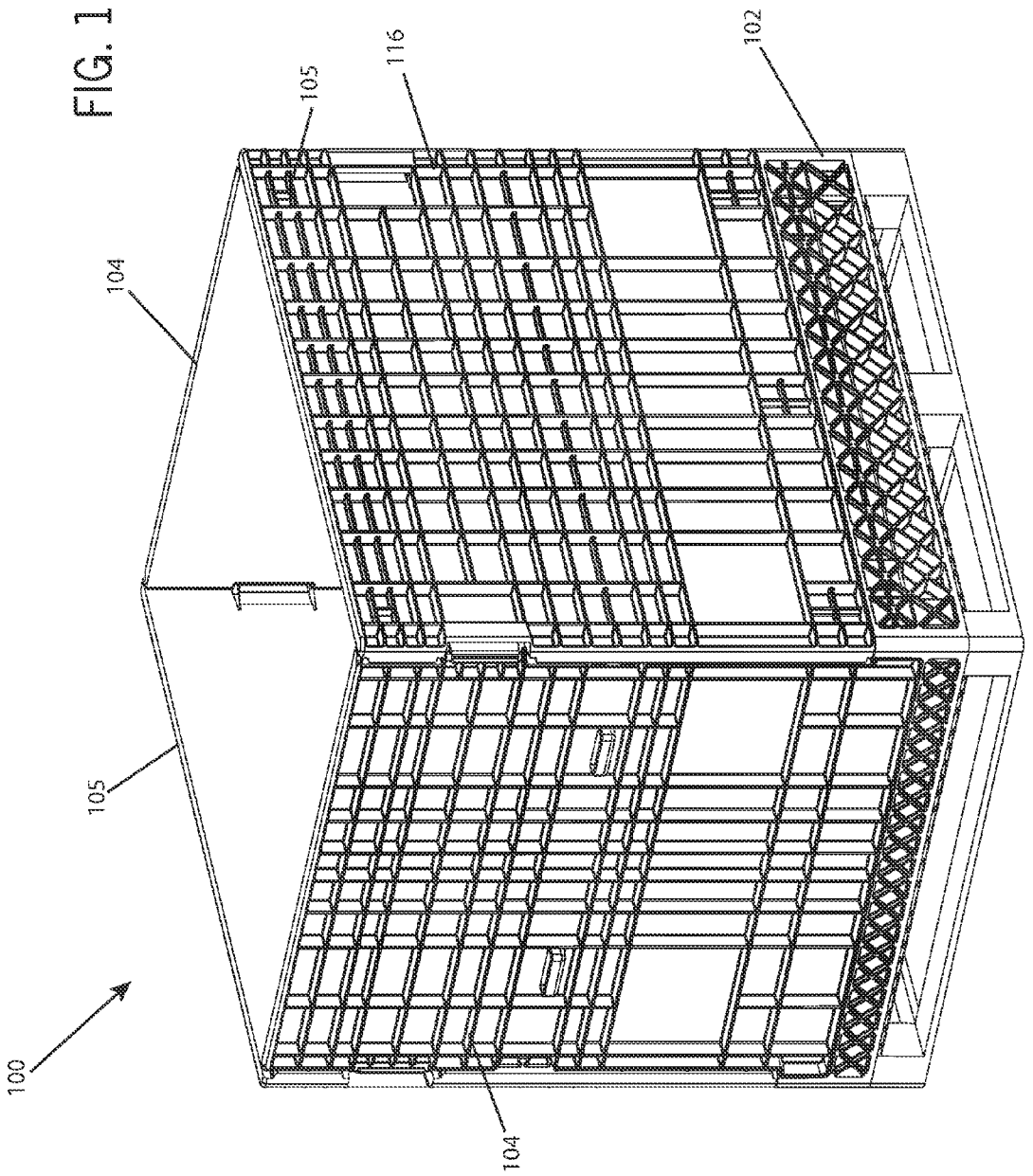
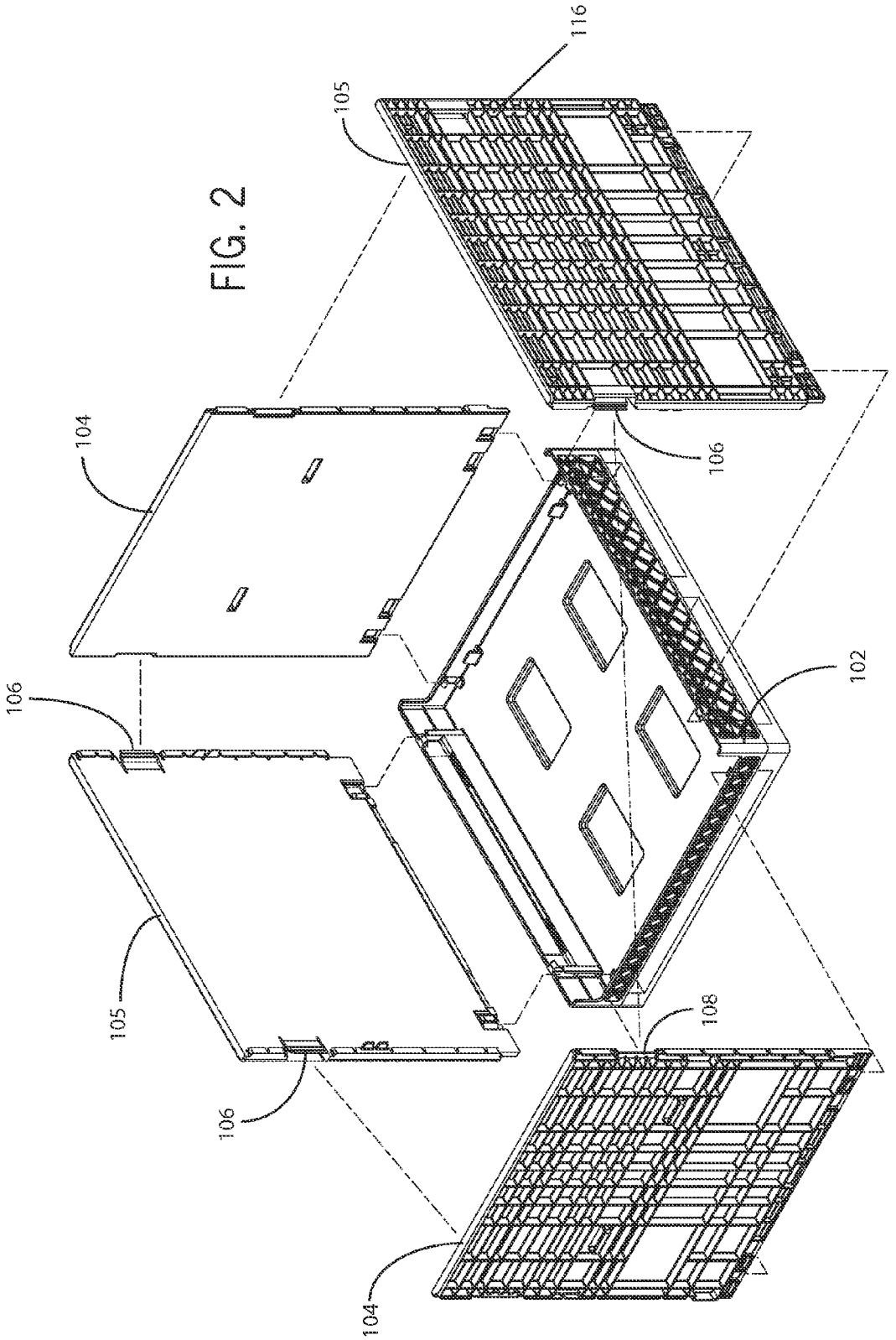


FIG. 2



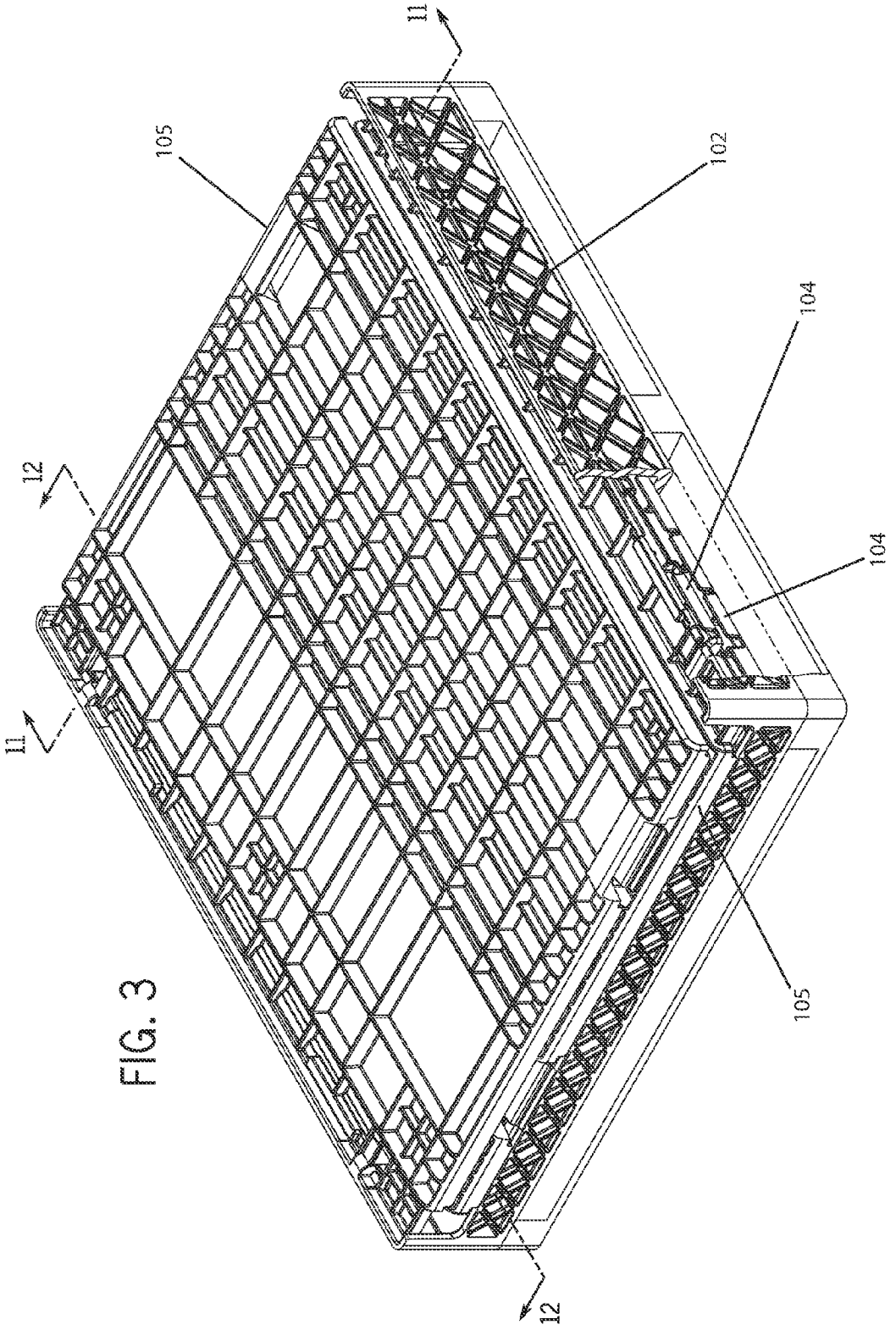


FIG. 3

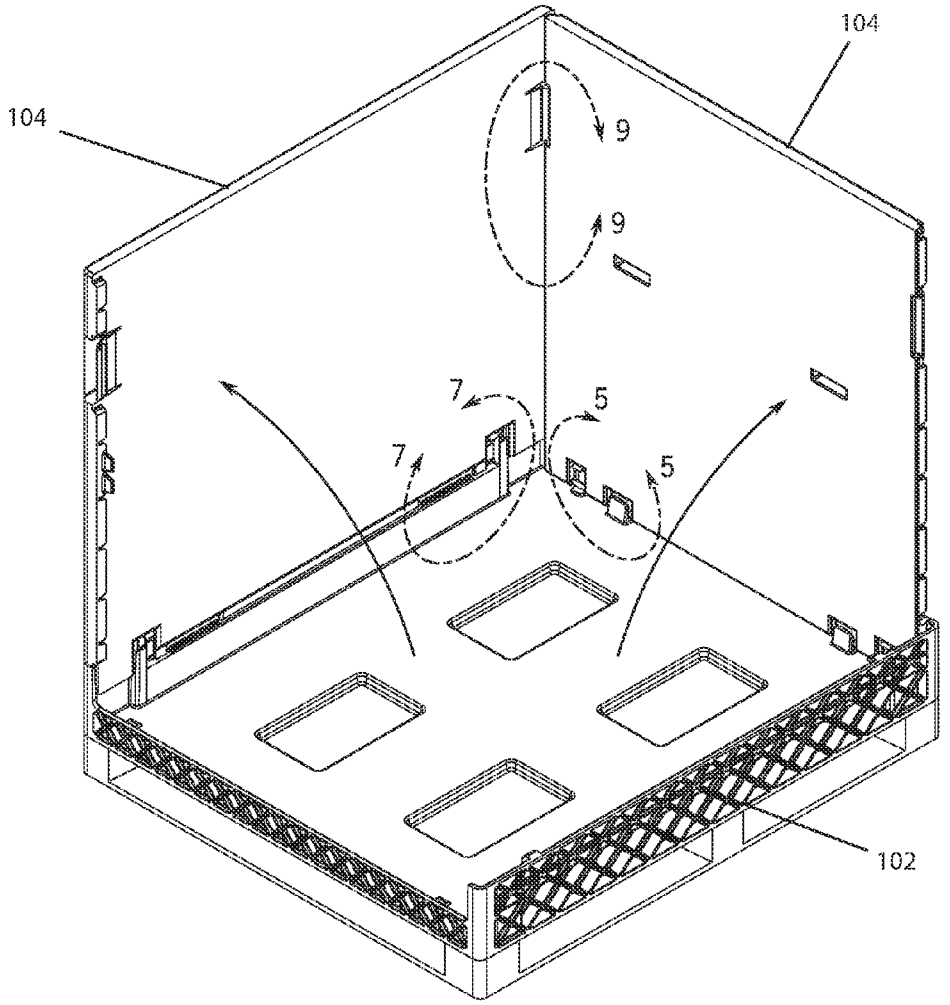
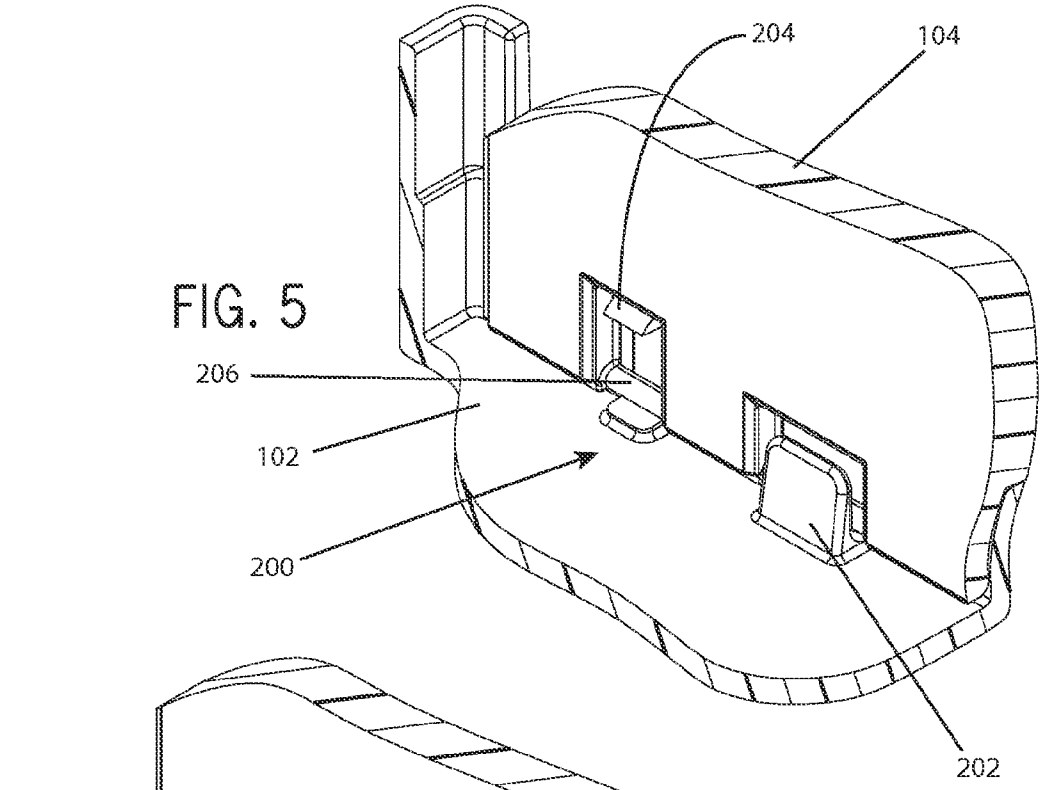


FIG. 4

FIG. 5



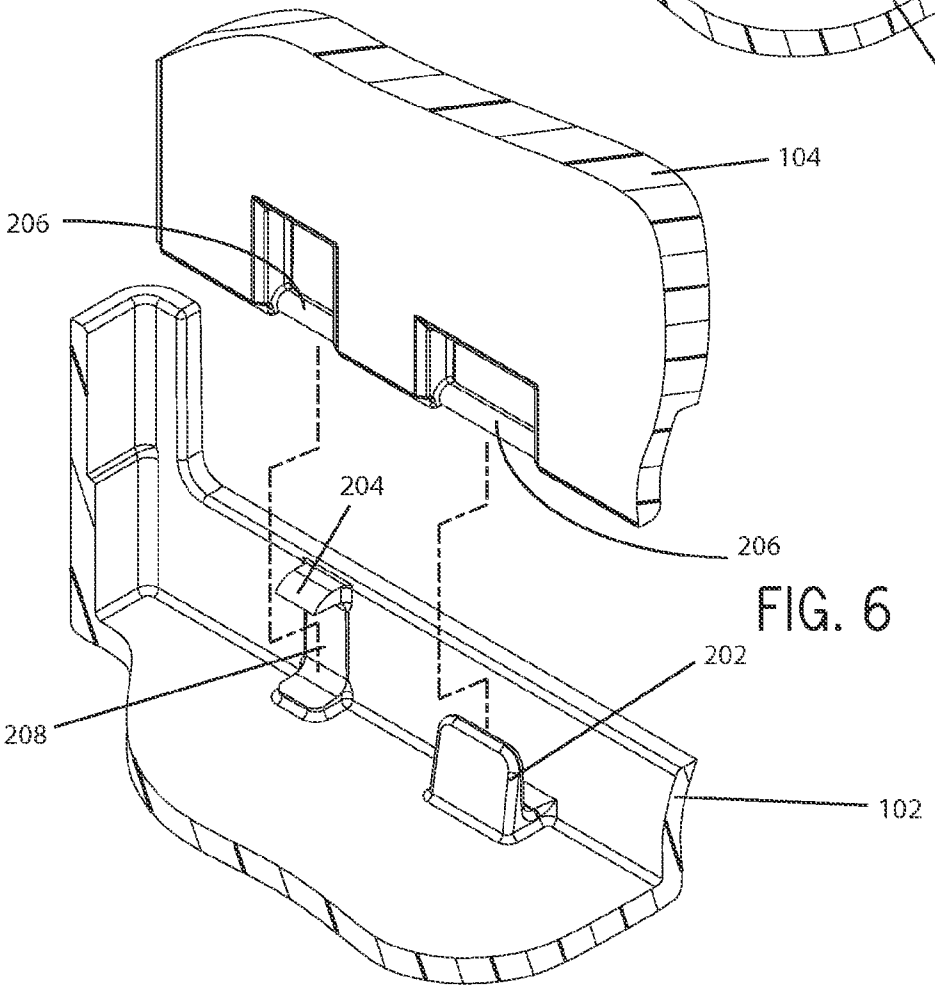


FIG. 6

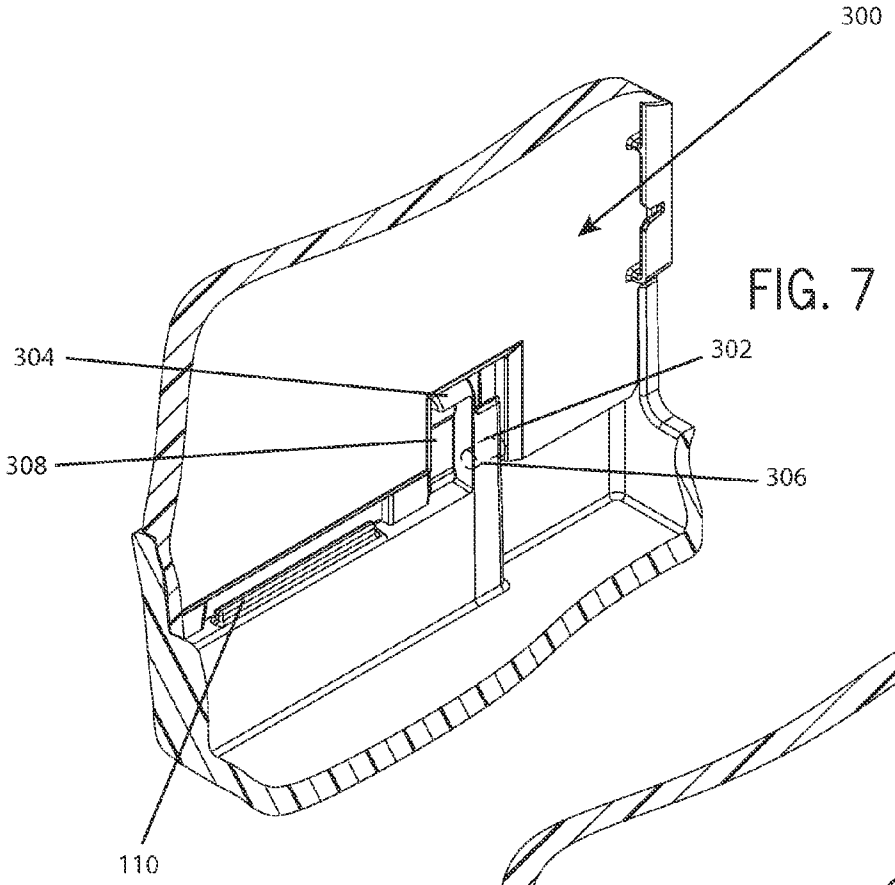


FIG. 7

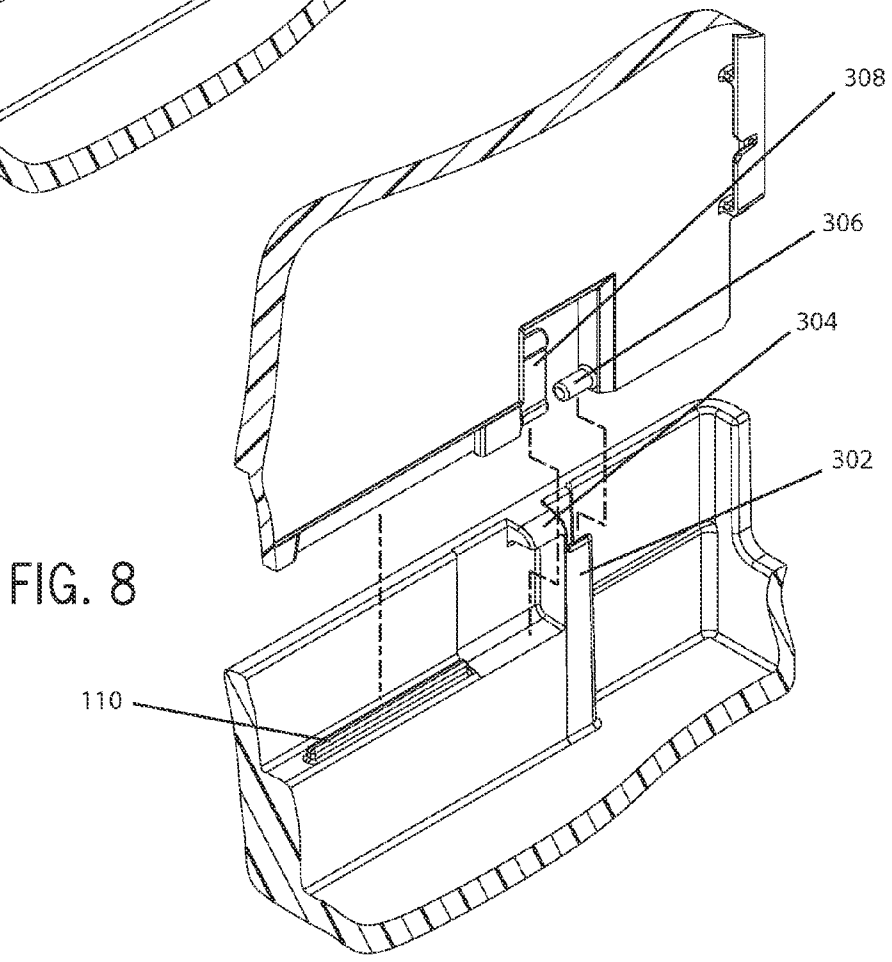


FIG. 8

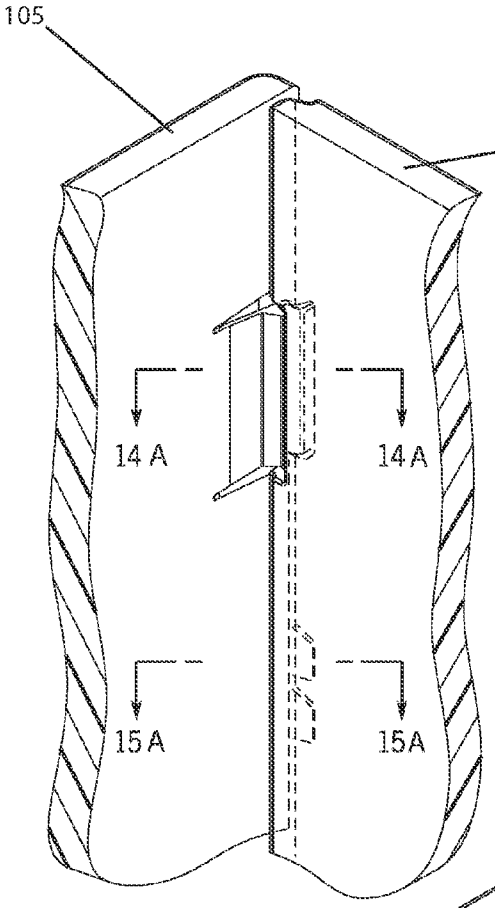


FIG. 9

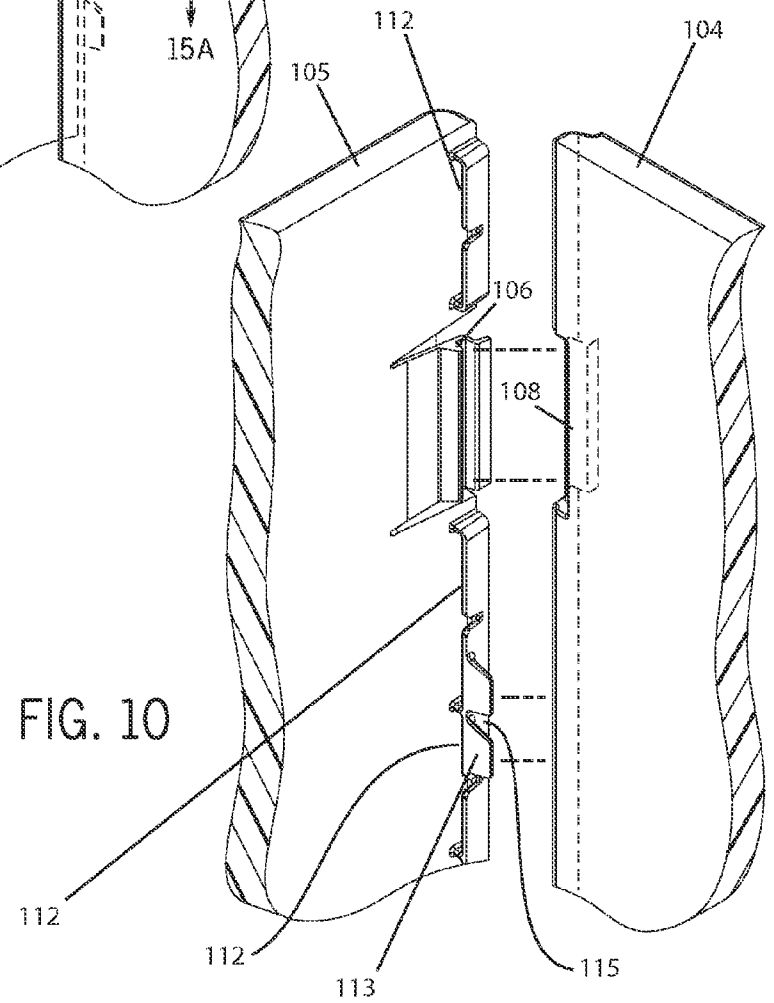


FIG. 10

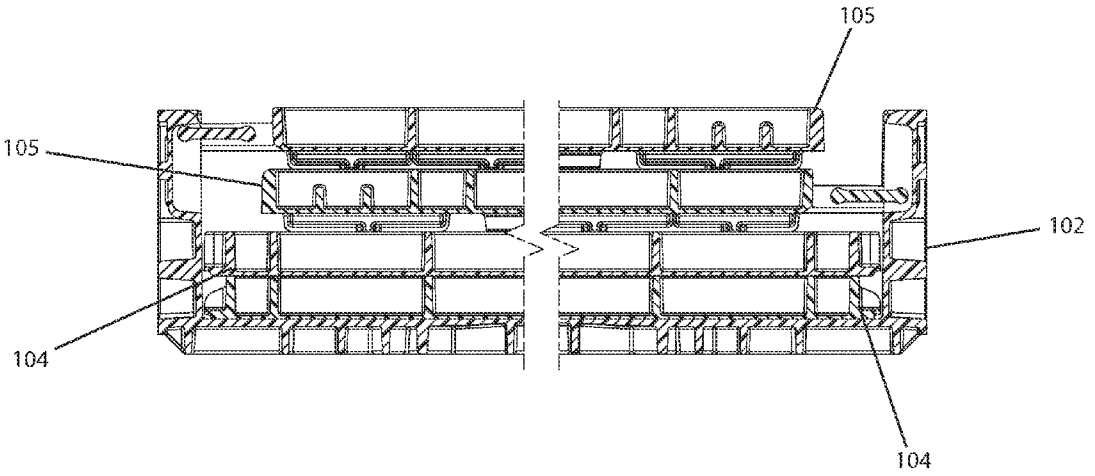


FIG. 11

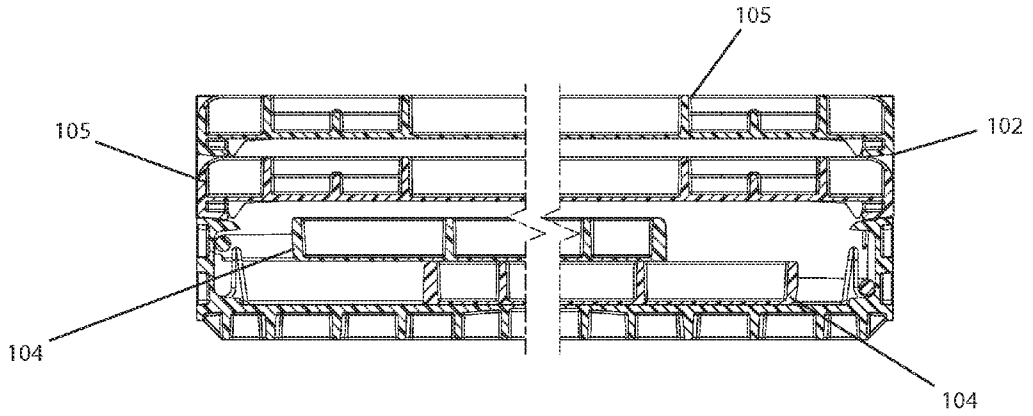


FIG. 12

FIG. 13A

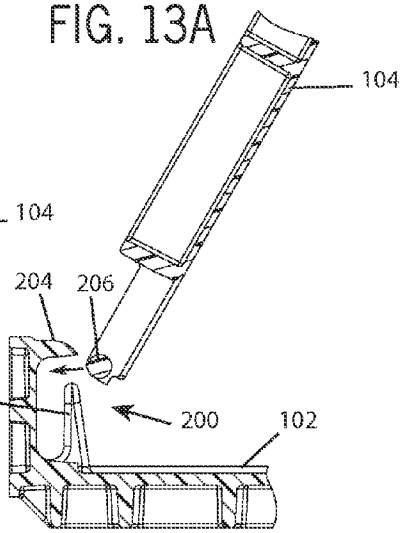


FIG. 13B

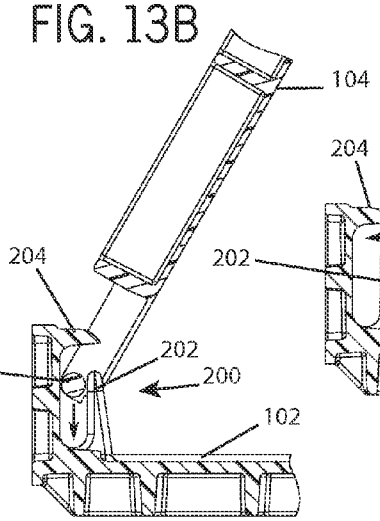
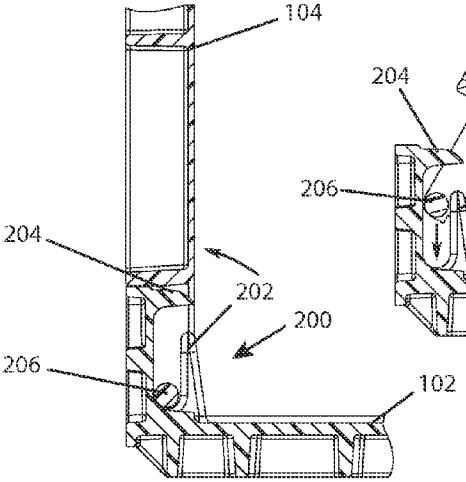


FIG. 13C



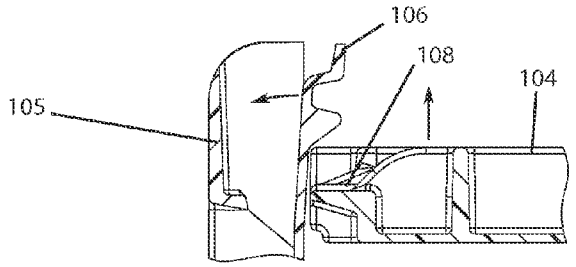


FIG. 14B

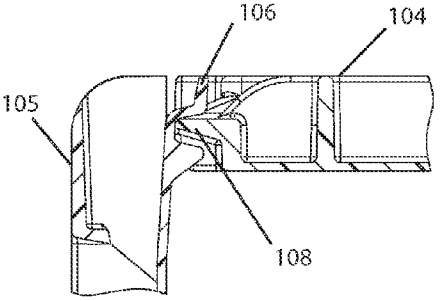


FIG. 14A

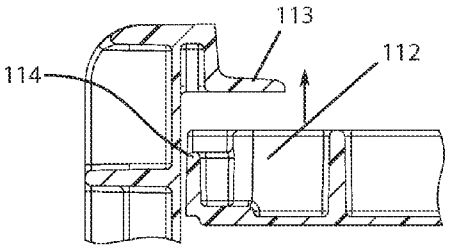


FIG. 15B

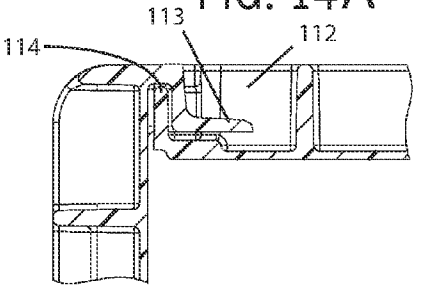


FIG. 15A

FIG. 16

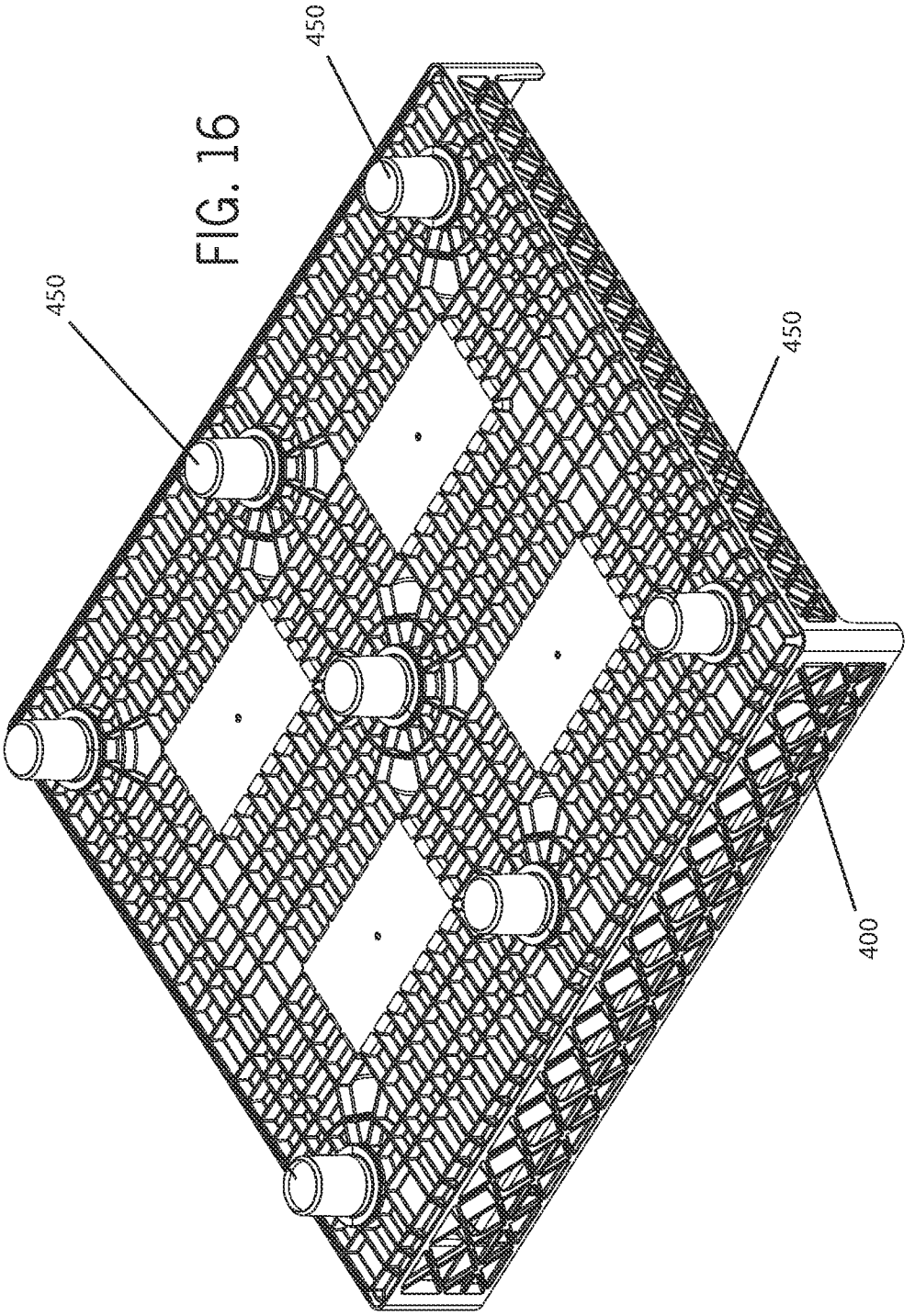
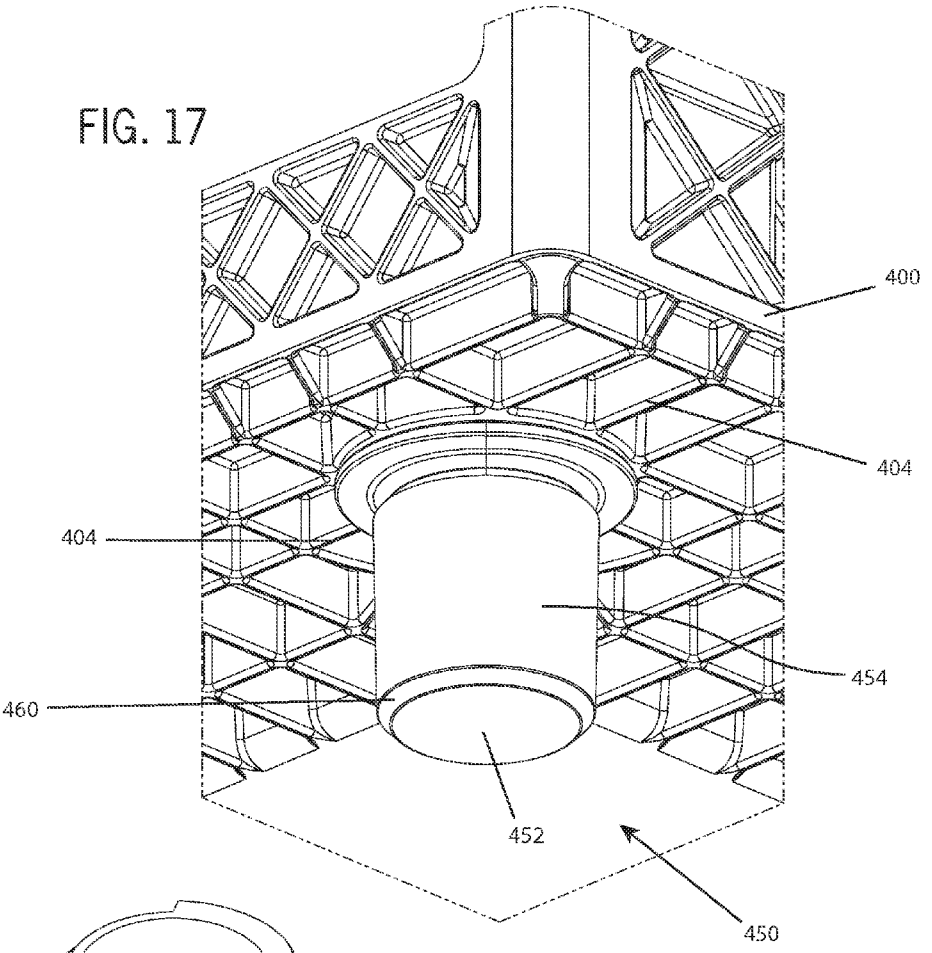


FIG. 17



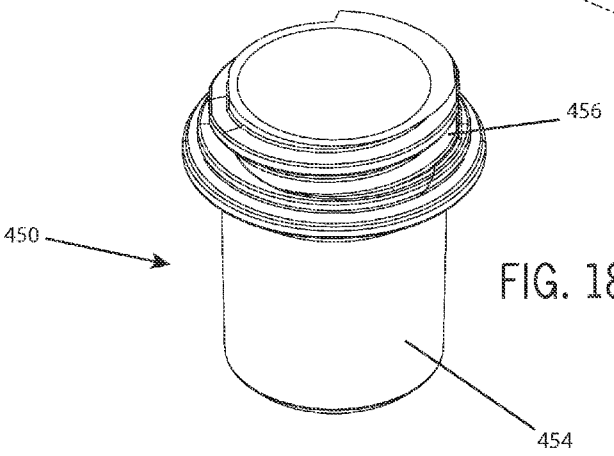


FIG. 18

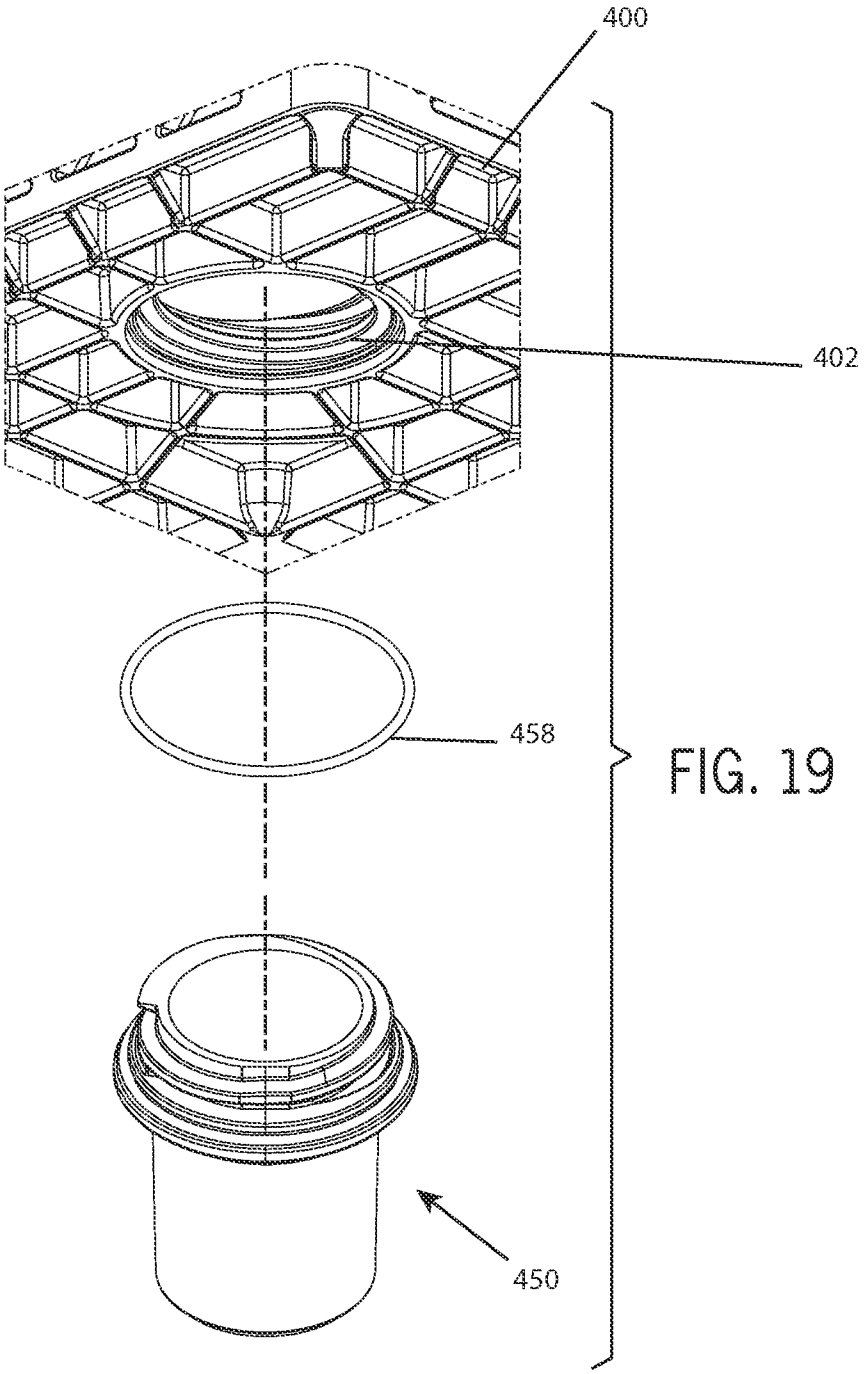


FIG. 19

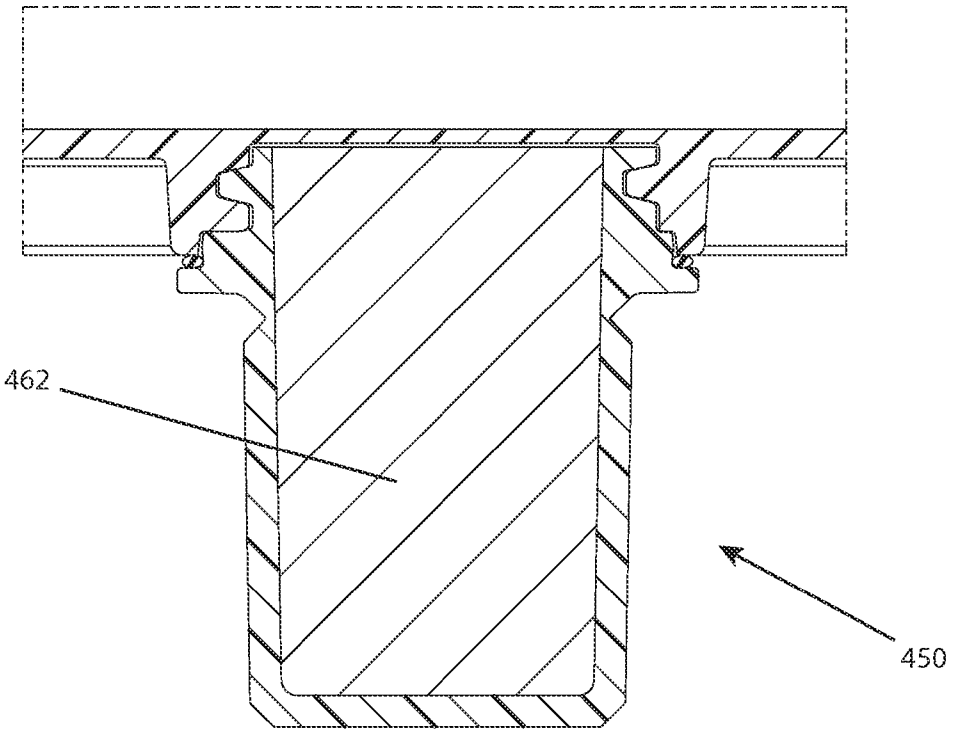


FIG. 20

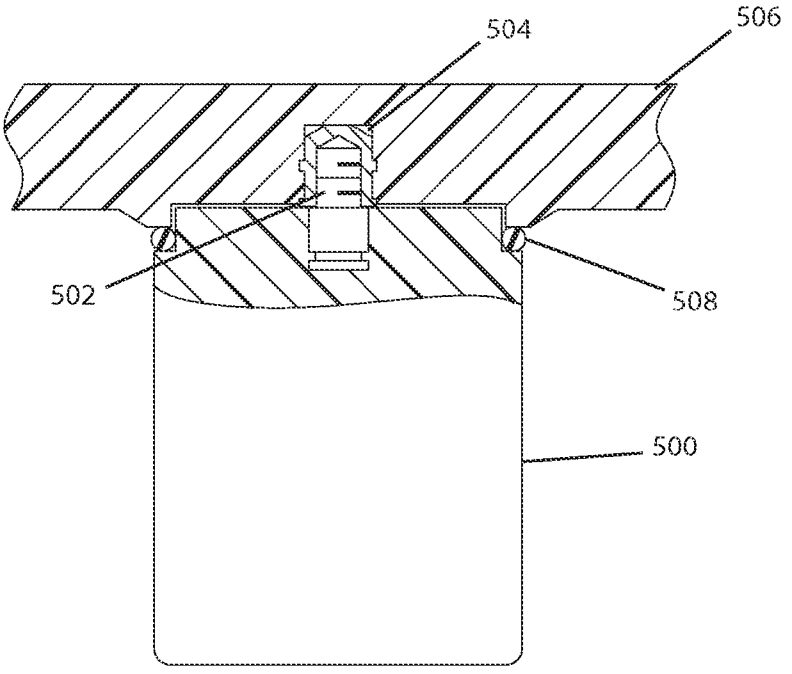


FIG. 21A

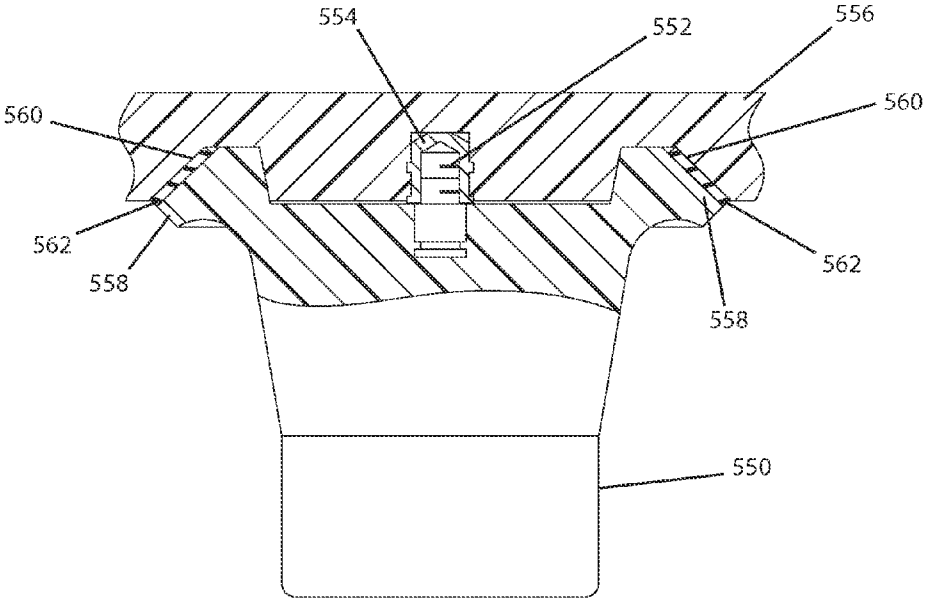


FIG. 21B

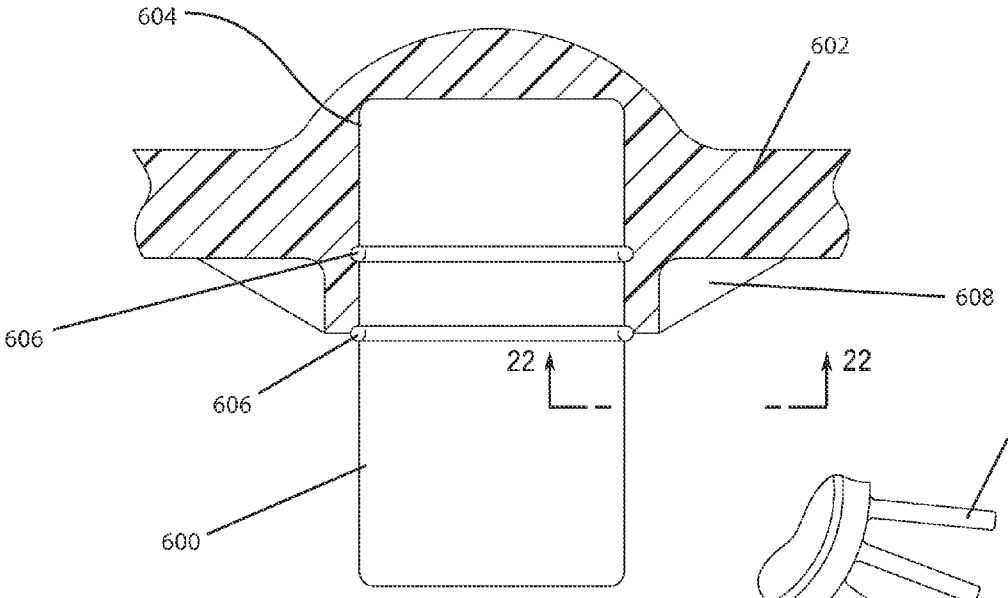


FIG. 21C

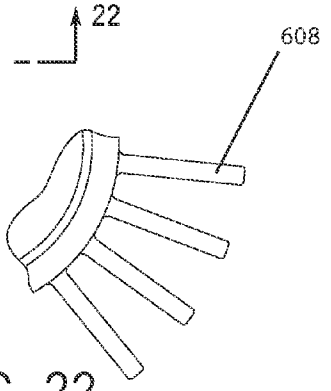


FIG. 22

FIG. 23

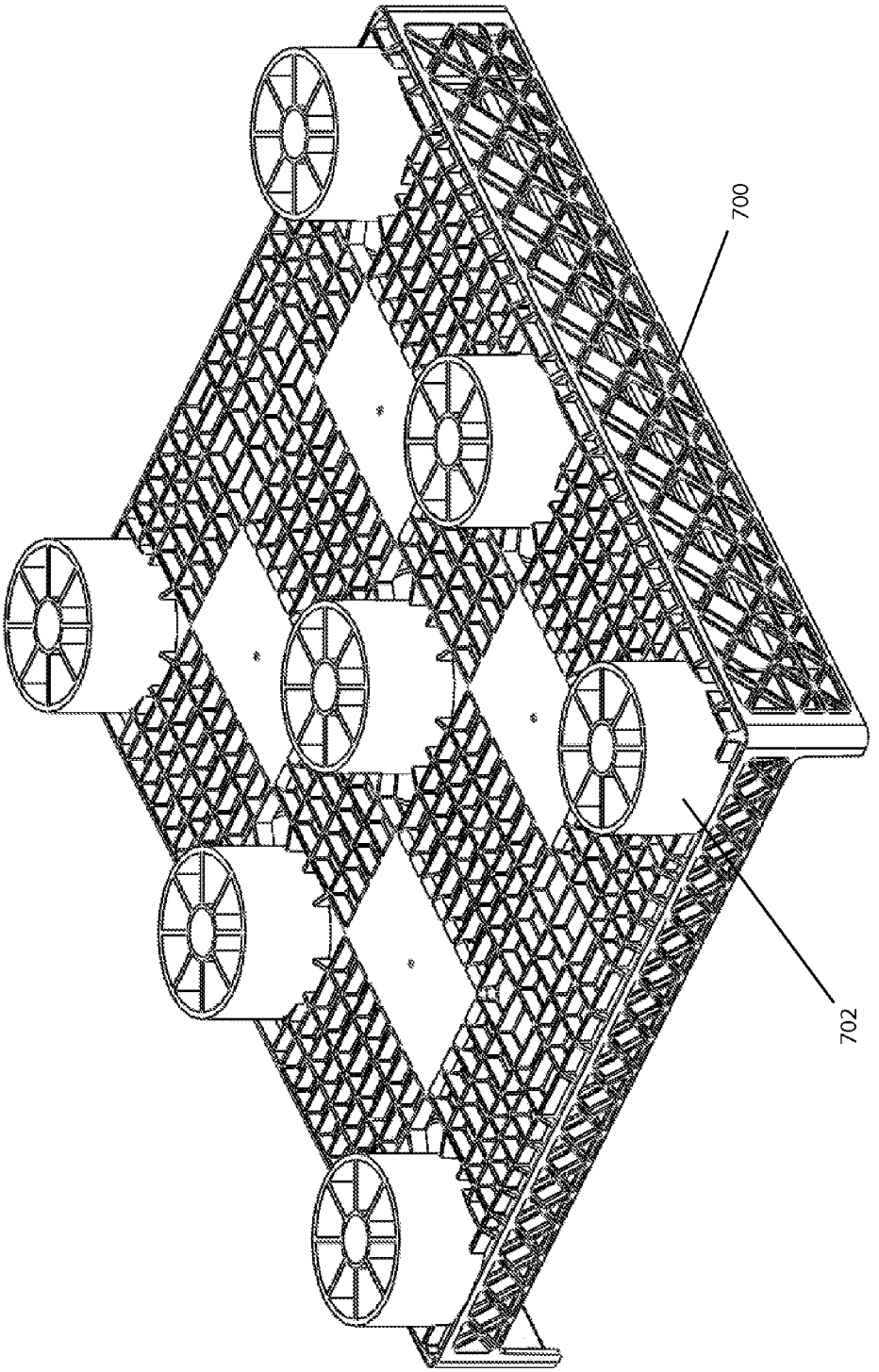
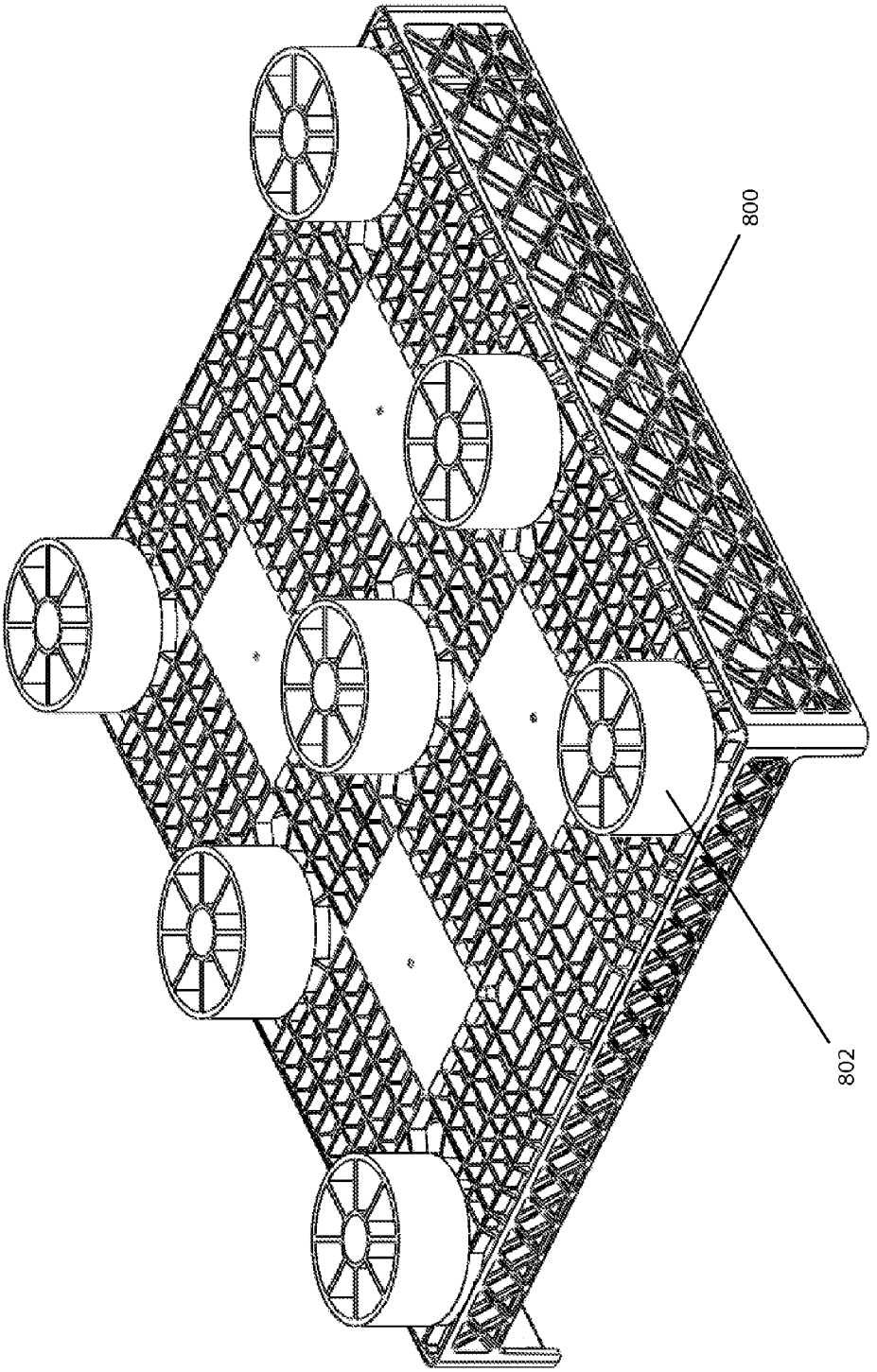


FIG. 24



REUSABLE BIN

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application is based on and claims priority to U.S. Provisional Patent Application No. 61/644,247 filed on May 8, 2012, which is incorporated herein by reference in its entirety for all purposes.

FIELD OF THE INVENTION

[0002] The present invention relates generally to the field of bulk bins. More particularly, the present invention relates to a bulk bin that can accommodate removable feet and collapsible sidewalls.

BACKGROUND

[0003] A bulk bin, also known as a bulk box, skid box, tote box, or gaylord, is a pallet-sized box used to store and ship bulk quantities of material. Bulk bins are often made of corrugated fiberboard, molded plastic, sheet metal, or metal wire. Many bulk bins have covers. Bulk bins are preferably at least semi-reusable, with molded plastic and metal wire being the most durable. Corrugated fiberboard bins may be used only a handful of times, but molded plastic, sheet metal, and metal wire bulk bins may be used hundreds of times before needing to be replaced.

[0004] Bulk bins are widely used in the food industry, where they are used to transport bulk meat or produce. In food applications, it is necessary to be able to thoroughly and completely clean the bulk bins between uses. The equipment and manpower necessary to clean the bulk bins cause many food producers to use services that provide a steady supply of clean bulk bins to the producer, and accept used bulk bins in return, which are then washed and reused. It is thus advantageous for the service providers to use a bulk bin that may be collapsed thereby reducing the space requirements of the bulk bin during transport.

[0005] Existing bulk bins present a number of limitations that reduce the efficiency and cost-effectiveness of returnable container services. Typical collapsible bulk bins connect each side wall to a bottom surface via a hinge or plurality of hinges. When not in use, the side walls may be folded down onto the bottom surface.

[0006] Depending on the overall size of the bulk bin, it is common for two side walls to have a height greater than half the width of the bottom surface so that only one of the side walls will lie flat on the bottom surface, while the opposing side wall will overlap and lie on top thereof. This causes the overlying side wall to be in a final nonparallel folded position relative to the bottom surface, i.e., at an angle of incidence greater than zero. Thus, the overall height of the folded bulk bin is significantly increased by the angled, overlapping side wall when in the folded position.

[0007] Existing bulk bins utilize a wide variety of folding hinges and configurations to minimize the profile of the collapsed bulk bin. Existing designs suffer from the use of metal hinge pins that present nooks and spaces for bacteria to grow and that make cleaning particularly difficult. Additionally, existing collapsible bulk bins often require that the walls be collapsed in a specific order to achieve the smallest overall height of the collapsed bulk bin.

[0008] Bulk bins are typically moved around a production facility or warehouse by forklifts or pallet jacks. The rough nature of such movement causes the bottom of the bulk bin, specifically the legs or sidewalls that raise the bulk bin base from the floor, to be particularly susceptible to damage. Damage to the legs or sidewalls of the bulk bin is a common failure point, and often causes otherwise usable bulk bins to need replacement.

[0009] As such, there is a need for a bulk bin that may be easily collapsed, does not use metal hinges, and has feet that may be removed and replaced to extend the usable life of the bulk bin.

SUMMARY

[0010] One version of the present invention is a collapsible bulk bin that includes a base having a plurality of horizontal retention tabs and vertical retention tabs arranged to form hinge channels. A plurality of first side walls having at least one hinge pin body and at least one wall retention tab are rotatably attached to the base by inserting the at least one hinge pin body into the hinge channels, thereby allowing the first side walls to rotate between a vertical and collapsed position. Adjacent to the plurality of first side walls, a plurality of second side walls having at least one hinge pin body and at least one resilient latch are rotatably attached to the base by inserting the at least one hinge pin body into the hinge channels allowing the second side walls to rotate between a vertical and collapsed position. The first and second side walls are removably attached to each other when in the vertical position by engaging the at least one resilient latch with the at least one wall retention tab. The first and second side walls lay parallel to each other and to the base when in the collapsed position.

[0011] In one embodiment, the collapsible bulk bin includes removable support feet inserted into the base. The support feet include threaded portions that engage corresponding threads included in the base. Instead of feet, the bin could use standard openings to accommodate the forks of a moving device. Permanently attached feet could also be used.

[0012] It will be understood by those skilled in the art that one or more aspects of this invention can meet certain objectives, while one or more other aspects can lead to certain other objectives. Other objects, features, benefits and advantages of the present invention will be apparent in this summary and descriptions of the disclosed embodiment, and will be readily apparent to those skilled in the art. Such objects, features, benefits and advantages will be apparent from the above as taken in conjunction with the accompanying figures and all reasonable inferences to be drawn therefrom.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. **1** is a perspective view of a reusable bulk bin in accordance with the invention;

[0014] FIG. **2** is an exploded perspective view of the reusable bulk bin of FIG. **1**;

[0015] FIG. **3** is a perspective view of the bulk bin of FIG. **1** with the side walls in a folded configuration;

[0016] FIG. **4** is another perspective view of the bulk bin of FIG. **1** showing only two of the side walls attached;

[0017] FIG. **5** is a detail view of the bulk bin of FIG. **1** taken generally along the line **5-5** in FIG. **4** showing one embodiment of a floating hinge in accordance with the invention;

[0018] FIG. **6** is a detail view of the floating hinge of FIG. **5** showing how the hinge is assembled;

[0019] FIG. **7** is a detail view of the bulk bin of FIG. **1** taken generally along the line **7-7** in FIG. **4** showing another embodiment of a floating hinge in accordance with the invention;

[0020] FIG. **8** is a detail view of the floating hinge of FIG. **7** showing how the hinge is assembled;

[0021] FIG. **9** is a detail view of the bulk bin of FIG. **1** taken generally along the line **9-9** in FIG. **4** showing two side walls removably attached to each other;

[0022] FIG. **10** is another detail view of the two side walls of FIG. **9** showing how the walls are removably attached to each other;

[0023] FIG. **11** is a section view of the bulk bin of FIG. **1** taken generally along the line **11-11** in FIG. **3** showing how the side walls fold on top of each other;

[0024] FIG. **12** is a section view of the bulk bin of FIG. **1** taken generally along the line **12-12** in FIG. **3** showing how the side walls fold on top of each other;

[0025] FIG. **13**A is a section view of the floating hinge of FIG. **5** showing the side wall removed from the base;

[0026] FIG. **13**B is another section view of the floating hinge of FIG. **5** showing the side wall being inserted onto the base;

[0027] FIG. **13**C is another section view of the floating hinge of FIG. **5** showing the side wall removably attached to the base;

[0028] FIG. **14**A is a section view of the bulk bin of FIG. **1** taken generally along the line **14**A-**14**A in FIG. **9** showing two side walls removably attached to each other;

[0029] FIG. **14**B is another section view of the two side walls of FIG. **14**A showing the side walls disconnected from each other;

[0030] FIG. **15**A is a section view of the bulk bin of FIG. **1** taken generally along the line **15**A-**15**A in FIG. **9** showing two side walls removably attached to each other;

[0031] FIG. **15**B is another section view of the two side walls of FIG. **15**A showing the side walls disconnected from each other;

[0032] FIG. **16** is a perspective view of another embodiment of a reusable bulk bin base in accordance with the invention;

[0033] FIG. **17** is a perspective view of a removable support foot in accordance with the invention shown attached to the reusable bulk bin base of FIG. **16**;

[0034] FIG. **18** is a perspective view of the removable support foot of FIG. **17**;

[0035] FIG. **19** is an exploded perspective view of the removable support foot and corresponding threaded section of the reusable bulk bin base of FIG. **17**;

[0036] FIG. **20** is a cross-sectional view of the removable support foot and corresponding threaded section of the reusable bulk bin base of FIG. **17**;

[0037] FIG. **21**A is a partial cross-sectional view of another embodiment of a removable support foot and corresponding threaded section of a reusable bulk bin base in accordance with the invention;

[0038] FIG. **21**B is a partial cross-sectional view of another embodiment of a removable support foot and corresponding threaded section of a reusable bulk bin base in accordance with the invention;

[0039] FIG. **21**C is a partial cross-sectional view of another embodiment of a removable support foot and corresponding threaded section of a reusable bulk bin base in accordance with the invention;

[0040] FIG. **22** is a detail view of the removable support foot and corresponding threaded section of a reusable bulk bin base of FIG. **21** C;

[0041] FIG. **23** is a perspective view of another embodiment of a reusable bulk bin base in accordance with the invention; and

[0042] FIG. **24** is a perspective view of another embodiment of a reusable bulk bin base in accordance with the invention.

DETAILED DESCRIPTION

[0043] FIGS. **1-15** show one embodiment of a collapsible bulk bin **100** in accordance with the present invention. Collapsible bulk bin **100** includes a base **102** removably attached to each of two first side walls **104** and two second side walls **105** via a plurality of floating hinges. The side walls **104**, **105** form an enclosure with the base **102** when the side walls are in a vertical position. FIG. **2** shows the side walls **104**, **105** removed from the base **102**. In the embodiment shown, the side walls **104**, **105** may be removed from the base **102** without tools, which improves the ease with which the side walls may be cleaned and/or replaced.

[0044] FIG. **3** shows the side walls **104**, **105** in a collapsed or folded position. The side walls **104**, **105** may be folded down inwardly across the base **102** to a position parallel with the bottom of the base. Folding the side walls **104**, **105** onto the base **102** causes the collapsible bulk bin **100** to occupy less space, which is advantageous when storing or shipping empty bins.

[0045] FIG. **4** shows the collapsible bulk bin **100** with one first side wall **104** and one second side wall **105** attached to the base **102** so that the interior of the bin is viewable.

[0046] FIGS. **5-6** are detail views of a first floating hinge **200** for the first side wall **104** in accordance with the invention. The first floating hinge **200** includes a horizontal retention tab **202** and a vertical retention tab **204**. The horizontal retention tab **202** is offset from the base **102** a distance slightly larger than the diameter of a hinge pin body **206** to allow the hinge pin body to freely rotate and be displaced vertically along the horizontal retention tab **202**. In the embodiment shown, a plurality of hinge pin bodies **206** are integrally formed into the first side wall **104**. The hinge pin bodies **206** engage the floating hinge **200** along vertical bearing surface **208** and are retained within the hinge by vertical retention tab **204**. Additionally, the vertical retention tab **204** prevents inadvertent removal of the first side wall **104**. In the embodiment shown, each first side wall **104** is removably attached to the base **102** by two first floating hinges **200**, but more or less floating hinges may be used without departing from the invention.

[0047] The first floating hinge **200** allows the first side walls **104** to be collapsed in either order, yet still lay flat on top of the base **102**. FIGS. **13**A-C show how the first side wall **104** is inserted or removed from the base **102**. The hinge pin body **206** is inserted below the vertical retention tab **204** and over the horizontal retention tab **202**. The first side wall can then be lowered onto the floating hinge **200**. During normal operation, the first side wall **104** is not removed from the base **102**, but it may be removed for cleaning or replaced if needed.

[0048] Turning now to FIGS. **7-8**, detail views of a second floating hinge **300** for the second side walls **105** in accordance with the invention are shown. Each second floating hinge **300** includes a horizontal retention body **302** and a vertical retention body **304**. The horizontal retention bodies **302** are offset

from the base **102** a distance slightly larger than the diameter of hinge pin bodies **306** to allow the hinge pin bodies **306** to freely rotate and be displaced vertically along the vertical retention body **304**. As shown, the hinge pin bodies **306** are integrally formed with the second side walls **105**. The hinge pin bodies **306** engage the floating hinge **300** along horizontal retention body **302** and are retained within the hinge by vertical retention tab **304**.

[0049] In addition to the hinge pins **306**, the second side walls **105** also include locking tabs **308** that engage the vertical retention body **304** when the second side walls are in the vertical position. The locking tabs **308** prevent the second side walls **105** from displacing vertically when the second side walls are in the vertical position. When the second side walls **105** are folded, the locking tabs **308** disengage from the vertical retention body **304**, which allows the hinge pin bodies **306** to float vertically in the second floating hinge **300**, which allows the second side walls to lay flat on top of each other when folded.

[0050] In the embodiment shown, the floating hinges **200**, **300** do not include any moving parts, which combined with the ability to move the hinge pin bodies **206**, **306** in the vertical as well as rotational directions allows easy cleaning and sterilization of the floating hinges. Of course, alternative floating hinge designs may be used without departing from the invention.

[0051] Turning now to FIGS. **9-10**, in the embodiment shown, the first side walls **104** are removably attached to the second side walls **105** by resilient latches **106** that are integrally formed in the second side walls and engage corresponding wall retention tabs **108** integrally formed in the adjoining first side walls. FIGS. **14**A-B show how the resilient latch **106** displaces as the second side wall **105** is rotated into the vertical position adjacent to the first side wall. The resilient latch **106** then snaps into engagement with the wall retention tab **108** to removably attach the adjacent side walls **104**, **105** to each other. Like the floating hinges **200**, **300**, the resilient latch **106** does not include any moving parts, which allows easy cleaning and sterilization of the resilient latch. Adjacent side walls **104**, **105** may be removably attached to each other in the vertical position using any suitable latch or fastening mechanism. Of course, other latch or attachment configurations may be used without departing from the invention.

[0052] The base **102** also includes a plurality of securing tabs **110** (see FIG. **7**) that engage the base of the side walls **104**, **105** to further prevent rotation when the side walls are in the vertical position. To provide additional structure and support to the collapsible bulk bin **100**, the embodiment shown also includes interlocking features on the first and second side walls **104**, **105**. As shown, a plurality of vertical side cavities **112** run along both sides of the second side walls **105**. Corresponding vertical side tabs **114** (see FIGS. **15**A-B) run along both sides of the first side walls **104**. As shown in FIGS. **15**A-B, when the side walls **104**, **105** are rotated into the vertical position, the vertical side tabs **114** engage the vertical side cavities **112**.

[0053] At least one side support tab **113** extends from the vertical side cavities **112**. The side support tab **113** includes a notch **115** that interlocks a rib **116** (see FIG. **1**) on the side wall **104**, **105** when the side walls are in the folded configuration. The support tab **113** prevents the second side walls **105** from excessive movement when the collapsible bulk bin **100** is in the folded configuration. Of course, any other suitable means for providing additional structure and support to the collapsible bulk bin **100**, whether in the vertical or folded configurations, may be used without departing from the invention.

[0054] FIGS. **11-12** are section views of the collapsible bulk bin **100** with the side walls **104**, **105** in the folded configuration. As is shown, the hinge pin bodies **206**, **306** float as needed within the floating hinges **200**, **300** to allow the side walls **104**, **105** to lay flat on top of the base **102** and each other. To fold a side wall **104**, **105**, an operator depresses the resilient latch **106**, releasing it from the wall retention tab **108** and rotates the side wall so that it lays flat on top of the base **102**. The floating hinges **200**, **300** allow the side walls **104**, **105** to be folded in any order, yet lay parallel to the base **102** when folded. The first side walls **104** are folded first, with the second side walls **105** folded on top of the first side walls. The floating configuration of the floating hinges **200**, **300** allow the first side walls **104** to be folded in any order, with the second side walls **105** folded in any order on top thereof.

[0055] In the alternative embodiment shown in FIG. **16**, a plurality of support feet **450** are removably attached to a base **400** and protrude a sufficient distance from the base to allow forks from forklifts and pallet jacks to pass under the base. The inclusion of removable support feet **450** may prolong the usable life of the base **400** because the area below the base where the forks of a forklift or pallet jack are inserted is the hardest wearing part of the collapsible bulk bin. Often perfectly usable bins must be replaced because of damage suffered to the support below the base. Using removable feet enables quick, cost-effective replacement of broken parts without having to discard the entire bin. Of course, standard walls with openings to accept the forks of a moving device could also be used.

[0056] Turning now to FIGS. **17-20**, a support foot **450** in accordance with the present invention is shown. The support foot **450** includes a bottom **452**, a cylindrical portion **454**, a threaded section **456**, an o-ring **458**, and a wear-indicator **460**. As shown, the support foot **450** is hollow to save weight and to ensure that the support foot is weaker than the base **400** so that the inexpensive support foot fails before the base and without damaging the base. Additionally, the interior void **462** of the support foot may be shaped, e.g., into a hexagonal shape, to facilitate removal of the support foot **450** in the event that a portion of the support foot breaks. The interior void **462** may be hollow or filled with any suitable material such as polyurethane foam. The support feet **450** are constructed of any suitable material to provide necessary support and wear characteristics.

[0057] The threaded section **456** removably attaches each support foot **450** to a corresponding receiving threaded section **402** in the base **102**. The threaded section **456** preferably transfers any side load generated if the support foot **450** is impacted by the forks of a fork lift or pallet jack into vertical ribs **404** integrated into the base rather than into the floor of the base, which could buckle or crack. The threaded section **456** further allows an operator to relatively easily replace a support foot **450** in the event it becomes damaged or worn out.

[0058] At the base of the threaded section **456** is an o-ring **458** that seals the threaded section from the outside environment. Additionally, an anti-microbial sealant may be used to further enhance the seal and prevent contamination of the interior void **462** of the support foot. Of course, other seal designs may be used in place of the o-ring **158** without departing from the invention.

[0059] A wear-indicator **460** may be integrated into the support foot **450**. As shown, the wear-indicator **460** is a chamfer formed between the bottom **452** and the cylindrical portion **454** of the support foot. As the bottom **452** wears, which may occur for a variety of reasons, material is scraped off of the bottom **452** and the support leg **450** is shortened. A visual inspection for the presence of the wear-indicator **460** lets an operator know when the support foot **450** is worn to a point where a pallet jack or forklift may be unable to fit underneath the base **400**. Rather than a chamfer, other profiles may be used for the wear indicator without departing from the invention.

[0060] FIGS. **21**A-C, and FIG. **22** reflect alternative foot designs that could be used. FIG. **21**A shows a removable support foot **500** that includes a threaded stud **502** that engages a threaded insert **504** in the bottom of a bin **506**. Like the previous embodiment, an o-ring **508** is included between the removable support foot **500** and the bin **506** to seal the interior of the removable support foot **500** from the outside environment.

[0061] FIG. **21**B shows a removable support foot **550** that includes a threaded stud **552** that engages a threaded insert **554** in the bottom of a bin **556**. The treaded stud **552** further includes a bearing surface **558** that engages a corresponding bearing cavity **560** in the bin **556**. Between the bearing surface and the bearing cavity is a gasket **562** to seal the interior of the removable support foot **550** from the outside environment. The bearing surface **558** engagement with the bearing cavity **560** provides increased resistance to breaking of the threaded stud **552** in the event of an impact to the removable support foot **550**.

[0062] FIG. **21**C shows a removable support foot **600** that is press-fit into a base **602**. The removable support foot **600** uses friction to retain the support foot in a receiving hollow **604** in the bottom of the base **602**. Like the previously discussed designs, o-rings **606** are included between the base **602** and the removable support foot **600** to seal the interior of the support foot from the outside environment. Around the opening of the receiving hollow **604** a plurality of support ribs **608** provide increased rigidity to the connection between the base **602** and the removable support foot **600** (see FIG. **22**). Of course, other removable or permanent leg designs could be developed without departing from the invention.

[0063] FIG. **23** shows another embodiment of a base **700** in accordance with the invention. The base **700** includes a plurality of support feet **702** that are integrally formed into the base and are not removable. Similarly, FIG. **24** shows yet another embodiment of a base **800** in accordance with the invention. The base **800** includes a plurality of support feet **802** that are welded or adhered to the base and are not removable. Of course, any suitable support means may be used to raise the base **700**, **800** from the ground without departing from the invention.

[0064] Although the invention has been herein described in what is perceived to be the most practical and preferred embodiments, it is to be understood that the invention is not intended to be limited to the specific embodiments set forth above. Rather, it is recognized that modifications may be made by one of skill in the art of the invention without departing from the spirit or intent of the invention and, therefore, the invention is to be taken as including all reasonable equivalents to the subject matter of the appended claims and the description of the invention herein.

What is claimed is:

1. A collapsible bulk bin comprising:
- a base having a plurality of horizontal retention tabs and vertical retention tabs arranged to form hinge channels;
- a plurality of first side walls having at least one hinge pin body and at least one wall retention tab;
- the plurality of first side walls rotatably attached to the base by inserting the at least one hinge pin body into the hinge channels allowing the first side walls to rotate between a vertical and collapsed position;
- a plurality of second side walls having at least one hinge pin body and at least one resilient latch;
- the plurality of second side walls rotatably attached to the base by inserting the at least one hinge pin body into the hinge channels allowing the second side walls to rotate between a vertical and collapsed position;
- the plurality of first side walls and second side walls being adjacent to each other when in the vertical position and removably attached to each other by engaging the at least one resilient latch with the at least one wall retention tab; and
- the first and second side walls laying parallel to each other and to the base when in the collapsed position.

2. The collapsible bulk bin claim **1** wherein the hinge pin bodies float vertically within the hinge channels.

3. The collapsible bulk bin of claim **1** wherein the hinge pin bodies are integrally formed into the first and second side walls.

4. The collapsible bulk bin of claim **1** wherein the first side wall further includes vertical side tabs on at least one side of the first side wall.

5. The collapsible bulk bin of claim **4** wherein the second side wall further includes vertical side cavities that engage the vertical side tabs when the first and second side walls are in the vertical position.

6. The collapsible bulk bin of claim **1** wherein a plurality of support feet are removably attached to the base.

7. The collapsible bulk bin of claim **6** wherein the plurality of support feet include a male treaded portion engaged with a female threaded portion included in the base.

8. A collapsible bulk bin comprising:
- a base having a plurality of female threaded portions, retention tabs, and vertical retention tabs arranged to form hinge channels;
- a plurality of first side walls having at least one hinge pin body and at least one retention tab;
- the plurality of first side walls rotatably attached to the base by inserting the at least one hinge pin body into the hinge channels allowing the first side walls to rotate between a vertical and collapsed position;
- a plurality of second side walls having at least one hinge pin body and at least one resilient latch;
- the plurality of second side walls rotatably attached to the base by inserting the at least one hinge pin body into the hinge channels allowing the second side walls to rotate between a vertical and collapsed position;
- the plurality of first side walls and second side walls being adjacent to each other when in the vertical position and removably attached to each other by engaging the at least one resilient latch with the at least one retention tab;
- the first and second side walls laying parallel to each other and to the base when in the collapsed position; and
- a plurality of support feet having a male threaded portion and removably inserted into the plurality of female threaded portions.

9. The collapsible bulk bin of claim **6** wherein an o-ring is included between the plurality of support feet and the plurality of female threaded portions.

10. The collapsible bulk bin of claim **6** wherein the plurality of support feet further include chamfer proximate the bottom of the support feet to indicate the level of wear on the support feet.

11. The collapsible bulk bin of claim **6** wherein a gasket is included between the plurality of support feet and the plurality of female threaded portions.

12. The collapsible bulk bin of claim **6** wherein the plurality of support feet include a hollow portion.

13. A bulk bin comprising:

a base having a plurality of first threaded portions;

a plurality of side walls attached to the base; and

a plurality of support feet having a second threaded portion and removably engaged with the plurality of first threaded portions.

14. The bulk bin of claim **13** wherein the plurality of support feet further include chamfer proximate the bottom of the support feet to indicate the level of wear on the support feet.

15. The bulk bin of claim **13** wherein an o-ring is included between the plurality of support feet and the plurality of female threaded portions.

16. The bulk bin of claim **13** wherein a gasket is included between the plurality of support feet and the plurality of female threaded portions.

17. The bulk bin of claim **13** wherein the plurality of support feet include a hollow portion.

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