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(54) **TOTE WITH LOCKING DIVIDER FEATURES**

(57) The invention is directed to a container with divider panels that lock to prevent flexing or bulging. The container includes end to end divider panels and side to side panels that include aligned slots where the panels

intersect. The panels include grooves or channels for holding the edges of the slots of the intersecting panel to hold the upper or lower portion of the intersecting panel in place.

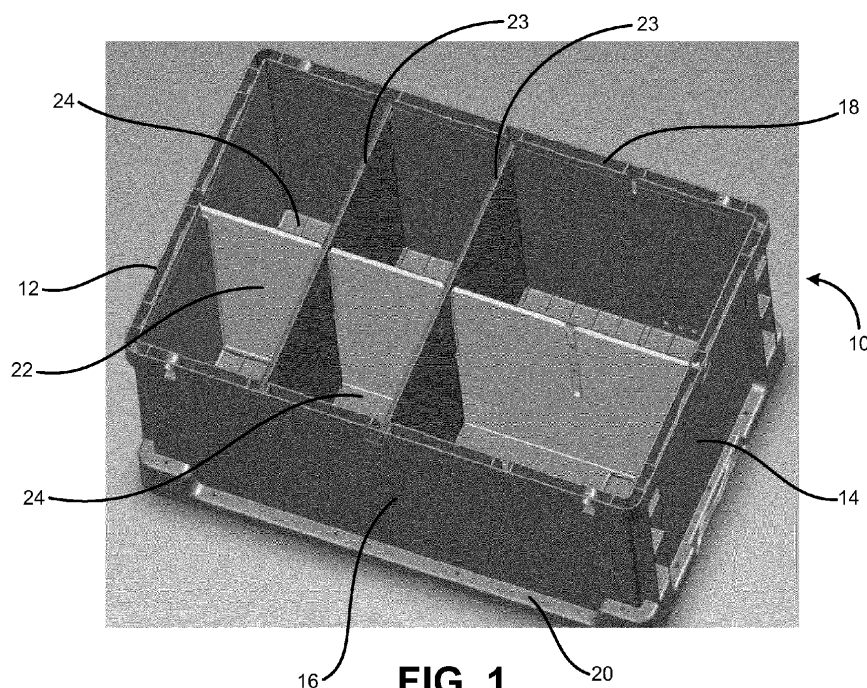


FIG. 1

Description

FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0001] N/A

FIELD OF THE INVENTION

[0002] The present invention is generally directed to containers with divider panels that lock together along the length of the intersection of such panels to prevent flexing or bending of the upper or lower portions of the panels, and more particularly, to containers with a first divider panel having grooves or channels for locking the edges of a second intersecting divider panel.

DESCRIPTION OF THE PRIOR ART

[0003] Totes and other types of containers that use optional divider panels are a primary packaging product used in the industry to distribute a wide array of products. Such containers are typically provided in a returnable loop system (e.g., an ASRS system - automatic storage and retrieval system) where they are used to fulfill orders from inventory. The containers quite often contain and transport multiple SKU's (i.e., code assigned to a particular product) of different products.

[0004] To keep the different products inside the container from mixing, divider panels are provided to separate and compartmentalize the products into distinct locations in the container. The container can include one or more panels that can be inserted to extend from a first end of the container to the second end, as well as one or more panels that can be inserted to extend from one side of the container to the other side (e.g., perpendicular to the end to end panels). Slots are provided in the various panels that enable each panel to engage with the other panels where they intersect.

[0005] The panels divide the container into separate areas for each of the products loaded in the container. In some instances, the products can be heavy and can become a shifting load during transport. This shifting of the load can create pressure on the upper and lower portions of the divider panels causing the panels to flex, bend or bulge under such side loading conditions. This can damage the panels and lead to mixing of products from different portions of the container.

[0006] The present invention provides a container with divider panels that lock together at intersecting edges to prevent flexing or bulging of the panels during transport.

SUMMARY OF THE INVENTION

[0007] The present invention is generally directed to a tote with locking divider features. The locking features keep the upper and lower walls of the divider in position, and prevents flexing or bending of these walls during load

transport. Specifically, the dividers are provided with locking grooves or channels that trap the upper or lower end of a divider wall the length of the intersection with another divider extending perpendicular thereto. The grooves or channels also help guide the dividers during assembly, ensuring proper fit and location.

[0008] In accordance with an aspect of the invention, a tote with dividers having locking features is provided. The tote comprises a container having a first side wall, an opposing second side wall, a first end wall, an opposing second end wall and a bottom extending between the first and second side walls and the first and second end walls. A first divider extends between the first end wall and the second end wall of the container. The first divider has a first slot extending from a top edge of the first divider downward part way toward a bottom edge of the first divider. A first channel aligned with the first slot extends downward from a bottom of the first slot on a first side of the first divider and a second channel aligned with the first slot extends downward from the bottom of the first slot on a second side of the first divider. A second divider extends between the first side wall and the second side wall. The second divider has a first slot extending from a bottom edge of the second divider upward part way toward a top edge of the second divider. The first slot of the second divider includes a first edge configured to engage the first channel of the first divider and a second edge configured to engage the second channel on the first divider to prevent flexing of the lower portions of the second divider.

[0009] The second divider can include a first channel aligned with the first slot of the second divider which extends upward from a top of the first slot on a first side of the second divider and a second channel aligned with the first slot which extends upward from the top of the first slot on a second side of the second divider. A first edge of the first slot of the first divider is configured to engage the first channel on the second divider and a second edge of the first slot of the first divider is configured to engage the second channel on the second divider.

[0010] The first slot of the first divider can include a first projection and the second edge of the first slot of the first divider includes a second projection. The first projection and the second projection can have a generally T-shaped cross-sectional shape with the rest of the first divider, or other useful shape.

[0011] The first channel on the first divider is formed from a first rib extending outward from the first side of the first divider and a second rib extending outward from the first side of the first divider and spaced from the first rib. Similarly, the second channel on the first divider is formed from a first rib extending outward from the second side of the first divider and a second rib extending outward from the second side of the first divider and spaced from the first rib on the second side of the first divider.

[0012] Also, the first channel on the second divider is formed from a first rib extending outward from the first

side of the second divider and a second rib extending outward from the first side of the second divider and spaced from the first rib. The second channel on the second divider is formed from a first rib extending outward from the second side of the second divider and a second rib extending outward from the second side of the second divider and spaced from the first rib on the second side of the second divider.

[0013] The first divider can also have a second slot spaced from the first slot and extending from the top edge of the first divider downward part way toward the bottom edge of the first divider. A third channel is aligned with the second slot and extends downward from a bottom of the second slot on the first side of the first divider and a fourth channel is also aligned with the second slot and extends downward from the bottom of the second slot on the second side of the divider.

[0014] Additionally, the container can include a third divider extending between the first side wall and the second side wall. The third divider can have a first slot extending from a bottom edge of the third divider upward part way toward a top edge of the third divider. The first slot of the third divider includes a first edge configured to engage the third channel of the first divider and a second edge configured to engage the fourth channel on the first divider to prevent flexing of the lower portions of the third divider. Additional dividers and/or slots with the channel structures can be utilized in the container depending on the size of the container, the size of the products to be transported, desired number of compartments, etc.

[0015] The first divider can include a first locking tab on a first end of the first divider for locking the first divider to the first end wall and a second locking tab on a second end of the first divider for locking the first divider to the second end wall. Similarly, the second divider can include a first locking tab on a first end of the second divider for locking the second divider to the first side wall and a second locking tab on a second end of the second divider for locking the second divider to the second side wall. Alternatively, the container can include grooves or channels on the interior of the end walls and side walls for locking the edges of the dividers.

[0016] Preferably, the first slot in the first divider extends about halfway between the top edge and the bottom edge of the first divider. Similarly, the first slot of the second divider extends about halfway between the top edge and the bottom edge of the second divider.

[0017] The container and the dividers are formed from plastic. Other similar or suitable materials can also be used.

[0018] In accordance with another aspect of the invention, a tote with dividers comprises a container having a first side wall, an opposing second side wall, a first end wall, an opposing second end wall and a bottom extending between the first and second side walls and the first and second end walls. A first divider extends between the first end wall and the second end wall of the container

and includes a first slot extending from a top edge of the first divider downward part way toward a bottom edge of the first divider. A second divider extends between the first side wall and the second side wall and includes a first slot extending from a bottom edge of the second divider upward part way toward a top edge of the second divider. The second divider includes a first channel aligned with the first slot of the second divider and extends upward from a top of the first slot on a first side of the second divider and a second channel aligned with the first slot and extends upward from the top of the first slot on a second side of the second divider. A first edge of the first slot of the first divider is configured to engage the first channel on the second divider and a second edge of the first slot of the first divider is configured to engage the second channel on the second divider.

[0019] The first divider can include a first channel aligned with the first slot and extending downward from a bottom of the first slot on a first side of the first divider and a second channel aligned with the first slot and extending downward from the bottom of the first slot on a second side of the first divider. The first slot of the second divider include a first edge configured to engage the first channel of the first divider and a second edge configured to engage the second channel on the first divider to prevent flexing of the lower portions of the second divider.

[0020] The first edge of the first slot of the first divider includes a first projection and the second edge of the first slot of the first divider includes a second projection. The first projection and the second projection can have a generally T-shaped cross-sectional shape with the rest of the first divider.

[0021] The first channel on the second divider can be formed from a first rib extending outward from the first side of the second divider and a second rib extending outward from the first side of the second divider and spaced from the first rib. Similarly, the second channel on the second divider can be formed from a first rib extending outward from the second side of the second divider and a second rib extending outward from the second side of the second divider and spaced from the first rib on the second side of the second divider.

[0022] Other features and advantages of the invention will be apparent from the following specification taken in conjunction with the following Figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] To understand the present invention, it will now be described by way of example, with reference to the accompanying drawings in which:

FIG. 1 is an upper perspective view of a typical tote with typical, optional, intersecting divider panels extending end to end and side to side;

FIG. 2 is a perspective view illustrating inter-connection of slots in the divider panels where they intersect as shown in FIG. 1;

FIG. 3 is a top perspective view illustrating flexing of an upper wall of a divider panel;

FIG. 4 is a top perspective view illustrating flexing of a bottom wall of a divider panel;

FIGS. 5A-5B are perspective views of a container with divider panels having locking features in accordance with the present invention;

FIG. 6A is a perspective view of the container showing a top portion in cross-section;

FIG. 6B is an enlarged top cross-sectional view of divider panels locking an upper wall to prevent flexing in accordance with an aspect of the present invention;

FIG. 7A is a perspective view of the container showing a bottom portion in cross-section;

FIG. 7B is an enlarged top cross-sectional view of divider panels locking a bottom wall to prevent flexing in accordance with an aspect of the present invention;

FIG. 8 is a perspective view of a container with dividers in accordance with the present invention.

DETAILED DESCRIPTION

[0024] While this invention is susceptible of embodiments in many different forms, there is shown in the drawings and will herein be described in detail preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated.

[0025] Figure 1 illustrates a known container 10 having a body formed from a first end wall 12, an opposing second end wall 14, a first side wall 16 and an opposing second side wall 18, all of which are extending upward from a bottom wall 20. The container 10 - typically referred to in the industry as a tote - is also shown having a plurality of divider panels 22, 23 separating the interior of the container 10 into a plurality of sections or compartments 24. The container 10 and divider panels 22, 23 are typically formed from plastic or other similar or suitable materials.

[0026] The divider panels 22, 23 are optionally added to the interior of the container body when it is desired to create the sections or compartments 24 for shipping items that need to be separated. As shown in Figure 1, the panels 22, 23 include a first end to end divider panel 22 that extends from the first end wall 12 to the second end wall 14, and two side to side divider panels 23 that extend from the first side wall 16 to the second side wall 18. As illustrated in Figure 2, the first end to end divider panel 22 is provided with slots 26 that extend about half way down the panel 22 from an upper edge, and the side to side divider panels 23 include slots 28 that extend half way up the panel 23 from a lower edge. The slots 26, 28 are positioned and configured to interact with each other where the divider panels 22, 23 intersect.

[0027] The slots 26, 28 break up the upper or lower portions of the panels 22, 23 into sections (sometimes referred to as "pedals") which can be prone to flexing, bulging or breaking when transporting a load in one or more of the compartments 24. Figure 3 illustrates an upper wall portion 30 flexing out of a planar alignment with the rest of the divider panel 22. Similarly, Figure 4 shows a lower wall portion 32 bulging from the planar alignment.

[0028] The present invention provides structure between the edges of the slots on one panel and the body of an intersecting panel to lock the upper or lower wall portions 30, 32 in place and prevent any flexing or bulging of the wall portions.

[0029] Figures 5A-5B, 6A-B, 7A-B and 8 show a container 34 in accordance with the present invention. The container 34 includes a first end wall 36, an opposing second end wall 38, a first side wall 40 and a second side wall 42. All of the end walls 36, 38 and side walls 40, 42 extend upward from a bottom wall 44.

[0030] A first end to end divider panel 46 is shown extending between the end walls 36, 38 and having three, spaced apart slots 48 extending from an upper edge of the panel 46 downward to about midway toward a bottom edge of the panel 46 (as used herein, directional or positional words like upper, lower, top etc. are made with respect to the structures as shown in the drawings and as normally positioned during use, and are not meant to limit the invention to being in such positions). A first side to side divider panel 50 and a second side to side divider panel 52 are shown extending from the first side wall 40 to the second side wall 42. Each of the side to side divider panels 50, 52 include a slot 54 extending from a bottom edge of the panel upward to approximately midway toward a top edge of the panel 50, 52.

[0031] Similar to the known containers with dividers, the slots of the end to end divider panel and the side to side divider panels are positioned to align so that the panels can intersect each other. However, unlike the known containers, the portions of each of the panels between the slots is not allowed to freely flex or move. Instead, such portions are held in place by structures in the cross panel.

[0032] Figure 6 provides an enlarged view of an intersection of an upper portion of one of the side to side divider panels 50, 52 with an upper portion of the end to end divider panel 46. As shown, the side to side divider panel includes a first groove or channel 58 on a first side 60 of the panel and a second groove or channel 62 on a second side 64 of the panel which enclose the edges 66, 68 of one of the slots 48 of the end to end panel 46. The first channel 58 is formed from a first rib 70 extending outward from the first side 60 and a second rib 72 spaced from the first rib, extending outward from the first side 60. Similarly, the second channel 62 is formed from a first rib 74 and a second rib 76 extending outward from the second side 64. The edges 66, 68 of the slot 48 of the end to end divider panel are shown having projecting ribs giving the edges 66, 68 a generally T-shaped cross-

sectional appearance.

[0033] The channels 58, 62 hold the upper portions of the end to end divider 46 in place and prevent flexing at this location. Each of the side to side panels is provided with similar channels to lock in the upper portions of the end to end divider panel 46 at each slot 48 location. While the edges 66, 68 of the slots 48 are shown having a T-shaped cross-section, other shapes (including more complex ones) can be used as desired or necessary to maintain the upper portions in a locked configuration depending on the size of the container or load or other factors relating to the use of the container. Additionally, the channels can be continuous along the entire length of the slots, or can be intermittent along this length.

[0034] Similar to the channels formed on the upper portions of the side to side divider panels 50, 52, the end to end divider panel 46 includes a first groove or channel 78 formed from a first rib 80 and second rib 82 on a first side 84 of the divider panel 46, and a second groove or channel 86 formed from a first rib 88 and second rib 90 on a second side 92 of the divider panel 46. The channels 78, 86 cooperate with the edges 94, 96 of the slots 54 of the side to side divider panels to hold the lower portions of such panels in place to prevent flexing or bulging.

[0035] Similar to the divider panels, the end walls and side walls of the container can include interior facing grooves or channels for receiving the side edges of the panels, or other structures for securing such side edges.

[0036] While one end to end divider panel and two side to side panels are shown, additional (or fewer - for the side to side panels) divider panels can be provided with the slot edge locking structures described herein. Moreover, while the end to end divider panel is shown slots extending from a top edge, and the side to side divider panels have slots extending from a bottom edge, this can be reversed.

[0037] The container 34 can also include a drainage system having holes 100 extending through a bumper 102 proximate the bottom of the container. The holes are spaced above ribs extending upward from the bottom and allow liquid to first accumulate in the bottom before draining through the bumper 102 in accordance with the disclosure of U.S. Provisional Patent Application 63/265,598 filed December 17, 2021.

[0038] The following numbered items are disclosed herein.

1. A tote with dividers having locking features comprising:

a container having a first side wall, an opposing second side wall, a first end wall, an opposing second end wall and a bottom extending between the first and second side walls and the first and second end walls;

a first divider extending between the first end wall and the second end wall of the container, the first divider having a first slot extending from

a top edge of the first divider downward part way toward a bottom edge of the first divider, a first channel aligned with the first slot and extending downward from a bottom of the first slot on a first side of the first divider and a second channel aligned with the first slot and extending downward from the bottom of the first slot on a second side of the first divider; and,

a second divider extending between the first side wall and the second side wall, the second divider having a first slot extending from a bottom edge of the second divider upward part way toward a top edge of the second divider, wherein the first slot of the second divider includes a first edge configured to engage the first channel of the first divider and a second edge configured to engage the second channel on the first divider to prevent flexing of the lower portions of the second divider.

2. The tote of item 1 wherein the second divider includes a first channel aligned with the first slot of the second divider and extending upward from a top of the first slot on a first side of the second divider and a second channel aligned with the first slot and extending upward from the top of the first slot on a second side of the second divider wherein a first edge of the first slot of the first divider is configured to engage the first channel on the second divider and a second edge of the first slot of the first divider is configured to engage the second channel on the second divider.

3. The tote of item 2 wherein the first edge of the first slot of the first divider includes a first projection and the second edge of the first slot of the first divider includes a second projection.

4. The tote of item 3 wherein the first projection and the second projection have a generally T-shaped cross-sectional shape with the rest of the first divider.

5. The tote of item 2 wherein the first channel on the first divider is formed from a first rib extending outward from the first side of the first divider and a second rib extending outward from the first side of the first divider and spaced from the first rib, and the second channel on the first divider is formed from a first rib extending outward from the second side of the first divider and a second rib extending outward from the second side of the first divider and spaced from the first rib on the second side of the first divider.

6. The tote of item 5 wherein the first channel on the second divider is formed from a first rib extending outward from the first side of the second divider and a second rib extending outward from the first side of the second divider and spaced from the first rib, and

the second channel on the second divider is formed from a first rib extending outward from the second side of the second divider and a second rib extending outward from the second side of the second divider and spaced from the first rib on the second side of the second divider.

7. The tote of item 2 wherein the first divider having a second slot spaced from the first slot and extending from the top edge of the first divider downward part way toward the bottom edge of the first divider, a third channel aligned with the second slot and extending downward from a bottom of the second slot on the first side of the first divider and a fourth channel aligned with the second slot and extending downward from the bottom of the second slot on the second side of the divider.

8. The tote of item 7 further comprising a third divider extending between the first side wall and the second side wall, the third divider having a first slot extending from a bottom edge of the third divider upward part way toward a top edge of the third divider, wherein the first slot of the third divider includes a first edge configured to engage the third channel of the first divider and a second edge configured to engage the fourth channel on the first divider to prevent flexing of the lower portions of the third divider.

9. The tote of item 1 wherein the first divider includes a first locking tab on a first end of the first divider for locking the first divider to the first end wall and a second locking tab on a second end of the first divider for locking the first divider to the second end wall.

10. The tote of item 9 wherein the second divider includes a first locking tab on a first end of the second divider for locking the second divider to the first side wall and a second locking tab on a second end of the second divider for locking the second divider to the second side wall.

11. The tote of item 2 wherein the first slot in the first divider extends halfway between the top edge and the bottom edge of the first divider.

12. The tote of item 11 wherein the first slot of the second divider extends halfway between the top edge and the bottom edge of the second divider.

13. The tote of item 1 wherein the container and the first divider and the second divider are formed from plastic.

14. The tote of item 8 wherein the first divider having a third slot spaced from the first slot and second slot and extending from the top edge of the first divider downward part way toward the bottom edge of the

first divider, a fifth channel aligned with the third slot and extending downward from a bottom of the third slot on the first side of the first divider and a sixth channel aligned with the third slot and extending downward from the bottom of the third slot on the second side of the first divider.

15. A tote with dividers comprising:

a container having a first side wall, an opposing second side wall, a first end wall, an opposing second end wall and a bottom extending between the first and second side walls and the first and second end walls;

a first divider extending between the first end wall and the second end wall of the container, the first divider having a first slot extending from a top edge of the first divider downward part way toward a bottom edge of the first divider;

a second divider extending between the first side wall and the second side wall, the second divider having a first slot extending from a bottom edge of the second divider upward part way toward a top edge of the second divider wherein the second divider includes a first channel aligned with the first slot of the second divider and extending upward from a top of the first slot on a first side of the second divider and a second channel aligned with the first slot and extending upward from the top of the first slot on a second side of the second divider wherein a first edge of the first slot of the first divider is configured to engage the first channel on the second divider and a second edge of the first slot of the first divider is configured to engage the second channel on the second divider.

16. The tote of item 15 wherein the first divider includes a first channel aligned with the first slot and extending downward from a bottom of the first slot on a first side of the first divider and a second channel aligned with the first slot and extending downward from the bottom of the first slot on a second side of the first divider wherein the first slot of the second divider includes a first edge configured to engage the first channel of the first divider and a second edge configured to engage the second channel on the first divider to prevent flexing of the lower portions of the second divider.

17. The tote of item 16 wherein the first edge of the first slot of the first divider includes a first projection and the second edge of the first slot of the first divider includes a second projection.

18. The tote of item 17 wherein the first projection and the second projection have a generally T-shaped cross-sectional shape with the rest of the

first divider.

19. The tote of item 15 wherein the first channel on the second divider is formed from a first rib extending outward from the first side of the second divider and a second rib extending outward from the first side of the second divider and spaced from the first rib, and the second channel on the second divider is formed from a first rib extending outward from the second side of the second divider and a second rib extending outward from the second side of the second divider and spaced from the first rib on the second side of the second divider.

20. The tote of item 15 wherein the container, first divider and second divider are formed from plastic.

21. A container with divider panels that lock to prevent flexing or bulging. The container includes end to end divider panels and side to side panels that include aligned slots where the panels intersect. The panels include grooves or channels for holding the edges of the slots of the intersecting panel to hold the upper or lower portion of the intersecting panel in place.

[0039] Many modifications and variations of the present invention are possible in light of the above teachings. It is, therefore, to be understood within the scope of the appended claims the invention may be protected otherwise than as specifically described.

Claims

1. A tote with dividers having locking features comprising:

a container having a first side wall, an opposing second side wall, a first end wall, an opposing second end wall and a bottom extending between the first and second side walls and the first and second end walls;

a first divider extending between the first end wall and the second end wall of the container, the first divider having a first slot extending from a top edge of the first divider downward part way toward a bottom edge of the first divider, a first channel aligned with the first slot and extending downward from a bottom of the first slot on a first side of the first divider and a second channel aligned with the first slot and extending downward from the bottom of the first slot on a second side of the first divider; and,

a second divider extending between the first side wall and the second side wall, the second divider having a first slot extending from a bottom edge of the second divider upward part way toward a

top edge of the second divider, wherein the first slot of the second divider includes a first edge configured to engage the first channel of the first divider and a second edge configured to engage the second channel on the first divider to prevent flexing of the lower portions of the second divider.

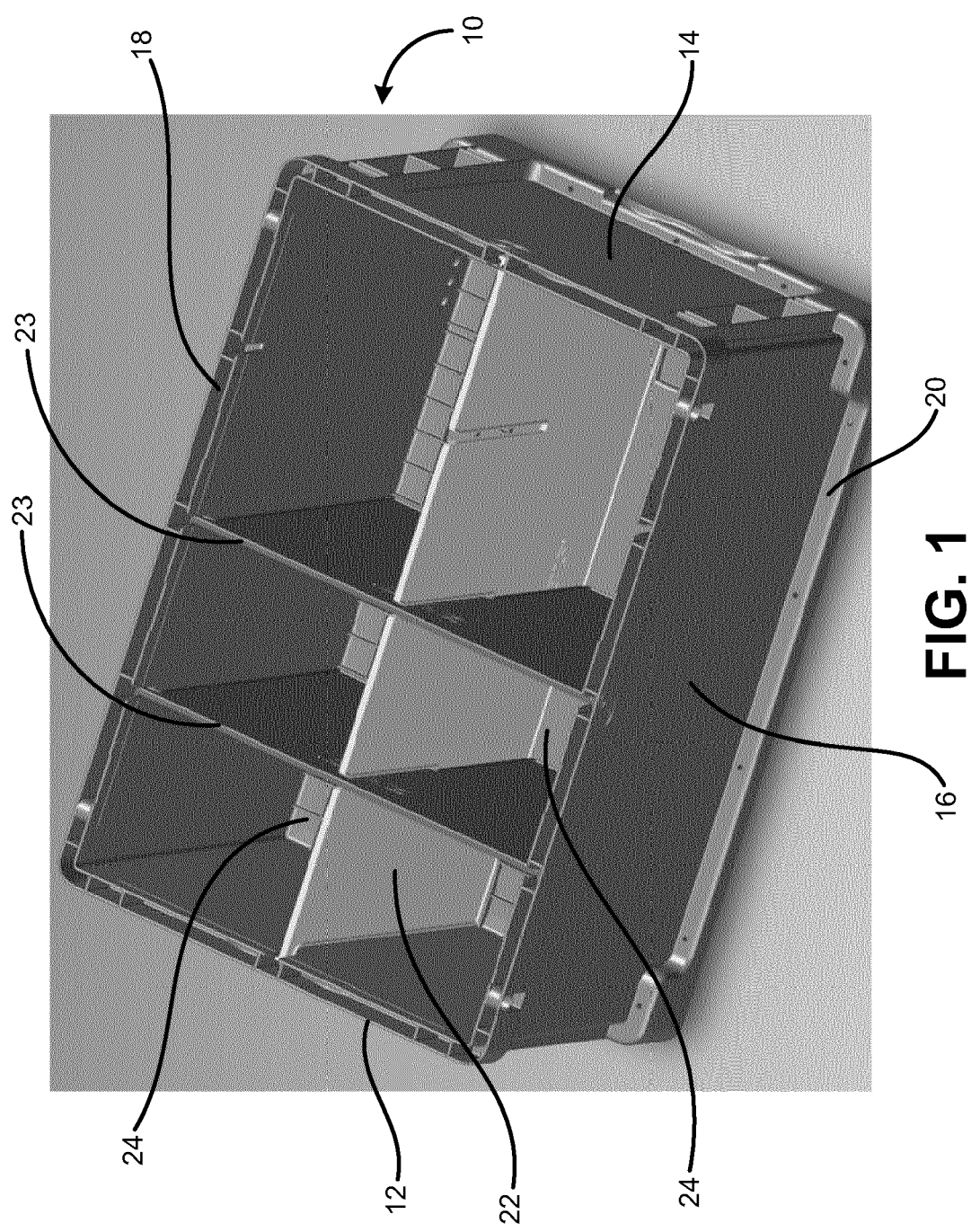
2. The tote of claim 1 wherein the second divider includes a first channel aligned with the first slot of the second divider and extending upward from a top of the first slot on a first side of the second divider and a second channel aligned with the first slot and extending upward from the top of the first slot on a second side of the second divider wherein a first edge of the first slot of the first divider is configured to engage the first channel on the second divider and a second edge of the first slot of the first divider is configured to engage the second channel on the second divider.
3. The tote of claim 2 wherein the first edge of the first slot of the first divider includes a first projection and the second edge of the first slot of the first divider includes a second projection.
4. The tote of claim 3 wherein the first projection and the second projection have a generally T-shaped cross-sectional shape with the rest of the first divider.
5. The tote of claim 2 wherein the first channel on the first divider is formed from a first rib extending outward from the first side of the first divider and a second rib extending outward from the first side of the first divider and spaced from the first rib, and the second channel on the first divider is formed from a first rib extending outward from the second side of the first divider and a second rib extending outward from the second side of the first divider and spaced from the first rib on the second side of the first divider.
6. The tote of claim 5 wherein the first channel on the second divider is formed from a first rib extending outward from the first side of the second divider and a second rib extending outward from the first side of the second divider and spaced from the first rib, and the second channel on the second divider is formed from a first rib extending outward from the second side of the second divider and a second rib extending outward from the second side of the second divider and spaced from the first rib on the second side of the second divider.
7. The tote of claim 2 wherein the first divider having a second slot spaced from the first slot and extending from the top edge of the first divider downward part way toward the bottom edge of the first divider, a third channel aligned with the second slot and ex-

tending downward from a bottom of the second slot on the first side of the first divider and a fourth channel aligned with the second slot and extending downward from the bottom of the second slot on the second side of the divider.

5

8. The tote of claim 7 further comprising a third divider extending between the first side wall and the second side wall, the third divider having a first slot extending from a bottom edge of the third divider upward part way toward a top edge of the third divider, wherein the first slot of the third divider includes a first edge configured to engage the third channel of the first divider and a second edge configured to engage the fourth channel on the first divider to prevent flexing of the lower portions of the third divider. 10 15
9. The tote of any preceding claim, wherein the first divider includes a first locking tab on a first end of the first divider for locking the first divider to the first end wall and a second locking tab on a second end of the first divider for locking the first divider to the second end wall. 20
10. The tote of claim 9 wherein the second divider includes a first locking tab on a first end of the second divider for locking the second divider to the first side wall and a second locking tab on a second end of the second divider for locking the second divider to the second side wall. 25 30
11. The tote of claim 2 wherein the first slot in the first divider extends halfway between the top edge and the bottom edge of the first divider. 35
12. The tote of claim 11 wherein the first slot of the second divider extends halfway between the top edge and the bottom edge of the second divider.
13. The tote of any preceding claim, wherein the container and the first divider and the second divider are formed from plastic. 40
14. The tote of claim 8 wherein the first divider having a third slot spaced from the first slot and second slot and extending from the top edge of the first divider downward part way toward the bottom edge of the first divider, a fifth channel aligned with the third slot and extending downward from a bottom of the third slot on the first side of the first divider and a sixth channel aligned with the third slot and extending downward from the bottom of the third slot on the second side of the first divider. 45 50

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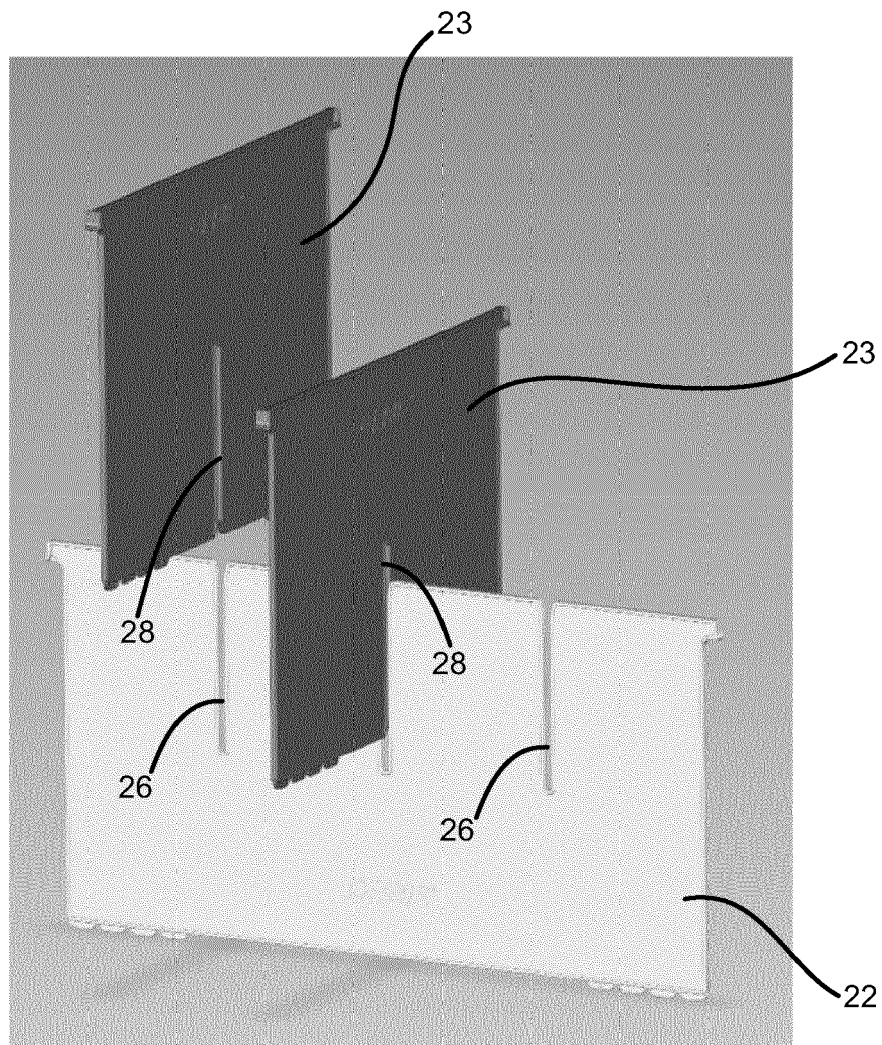


FIG. 2

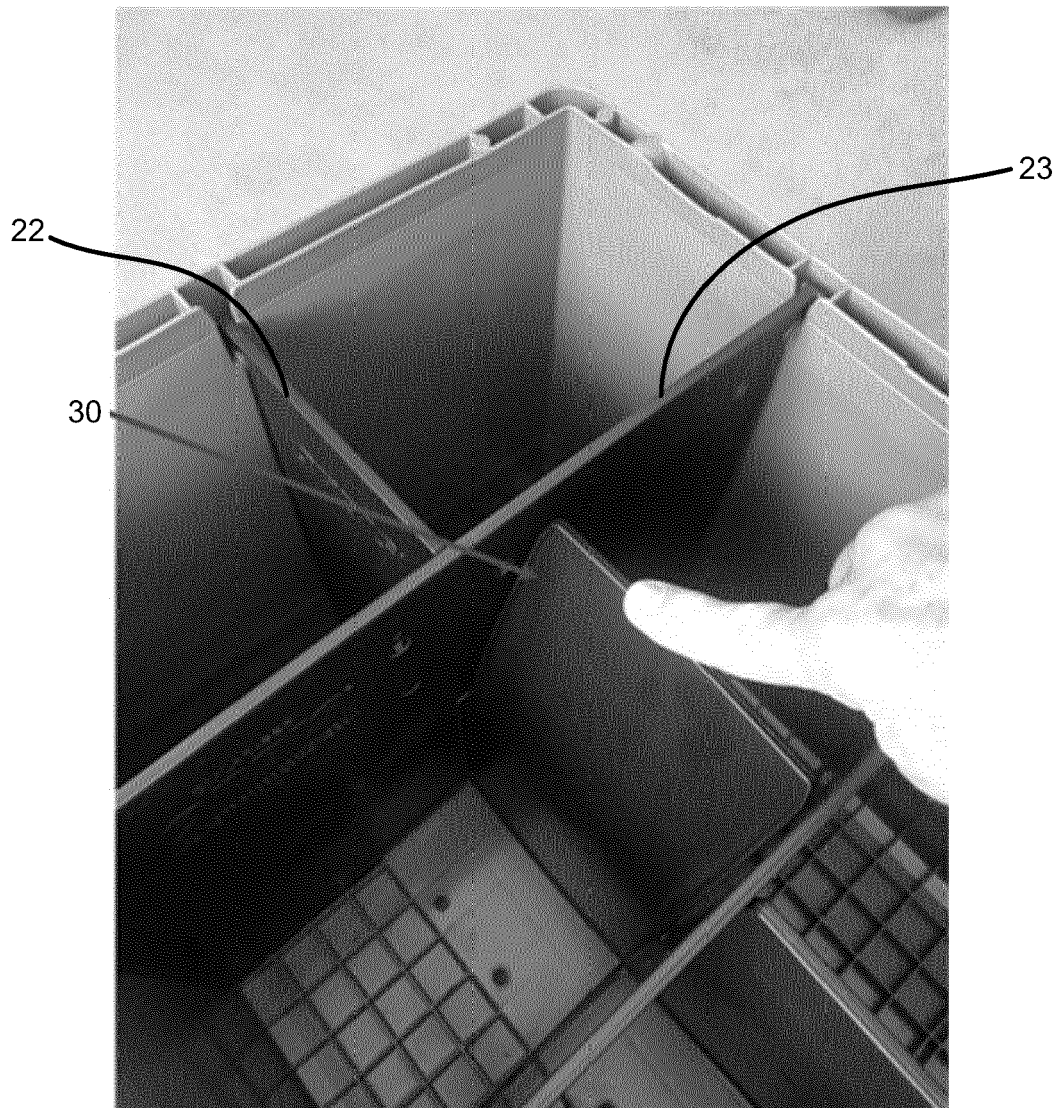


FIG. 3

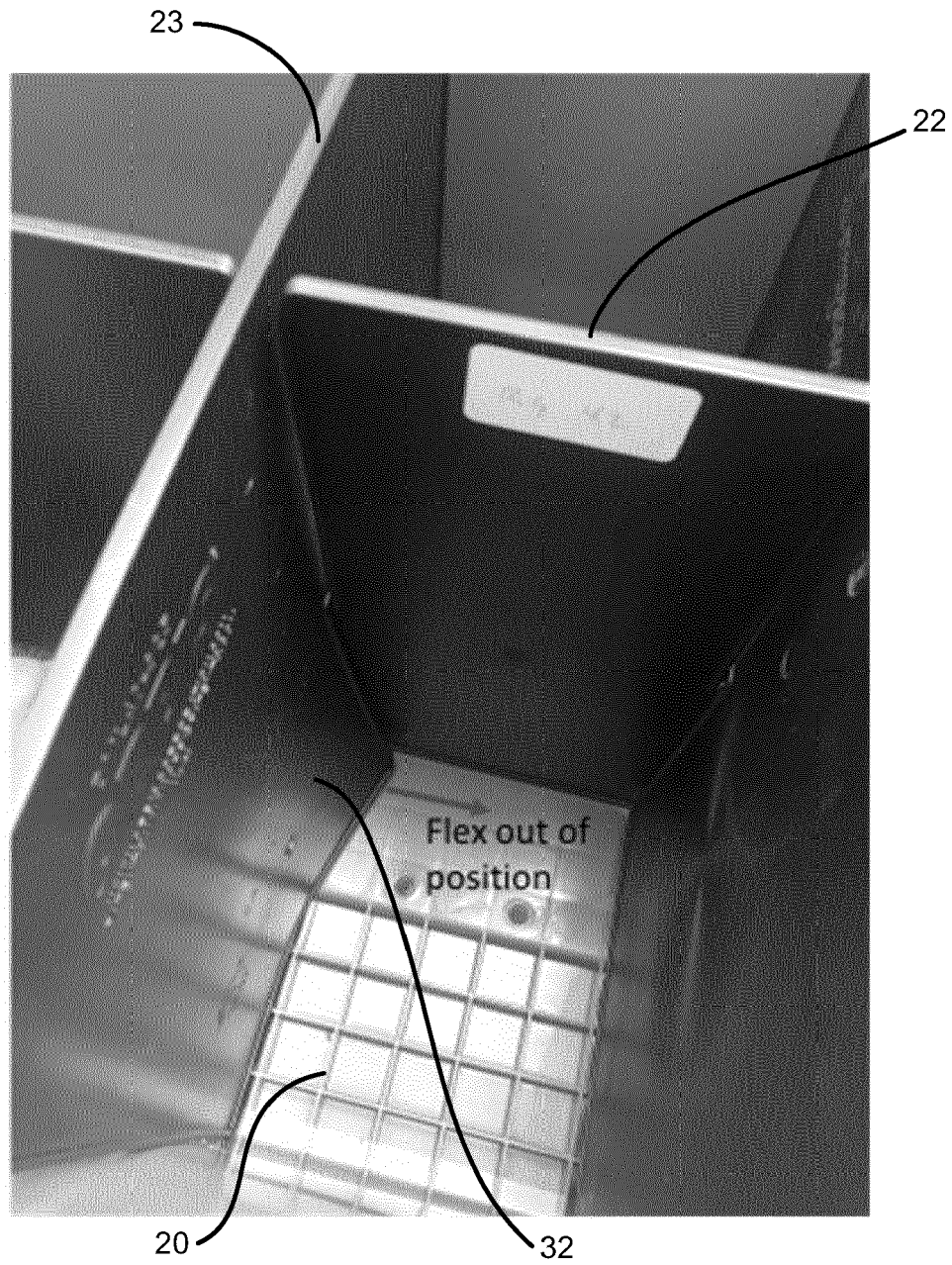


FIG. 4

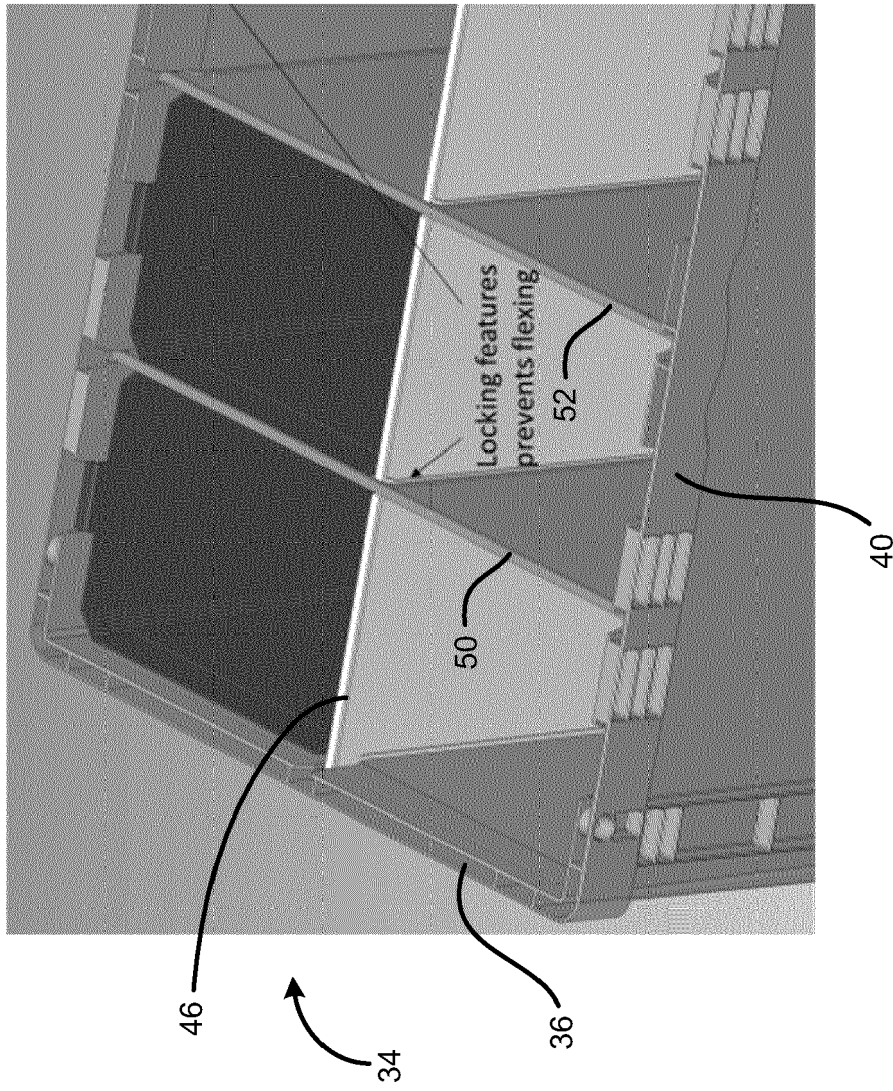


FIG. 5A

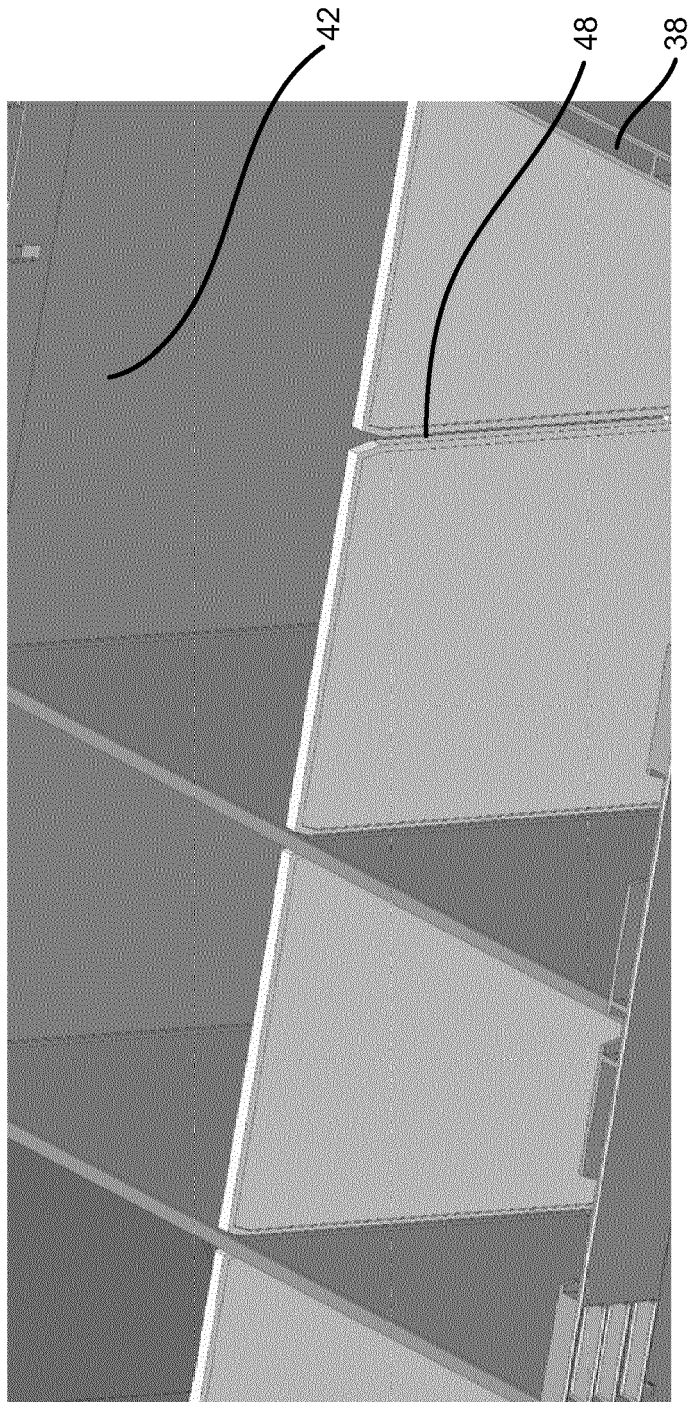


FIG. 5B

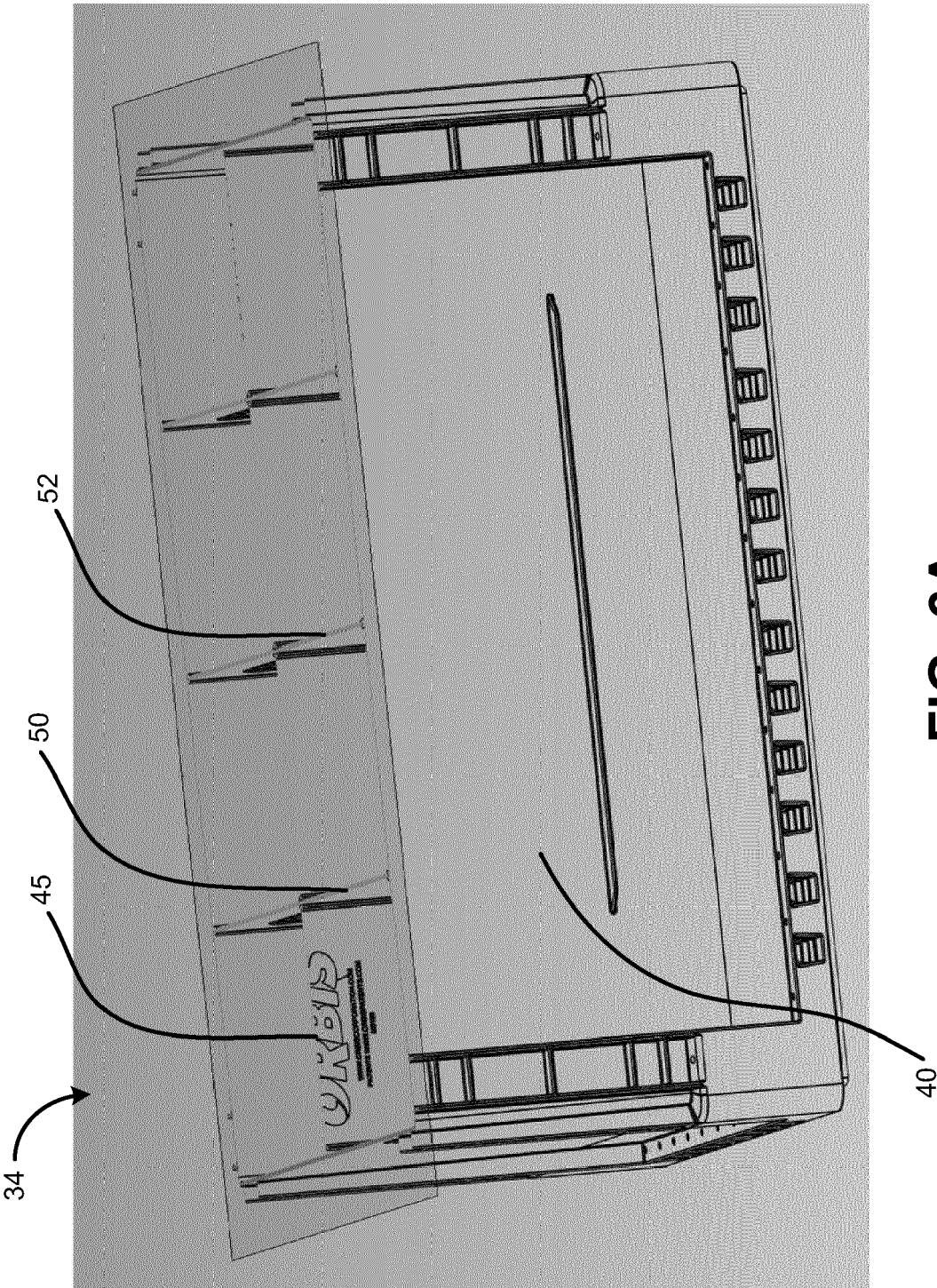


FIG. 6A

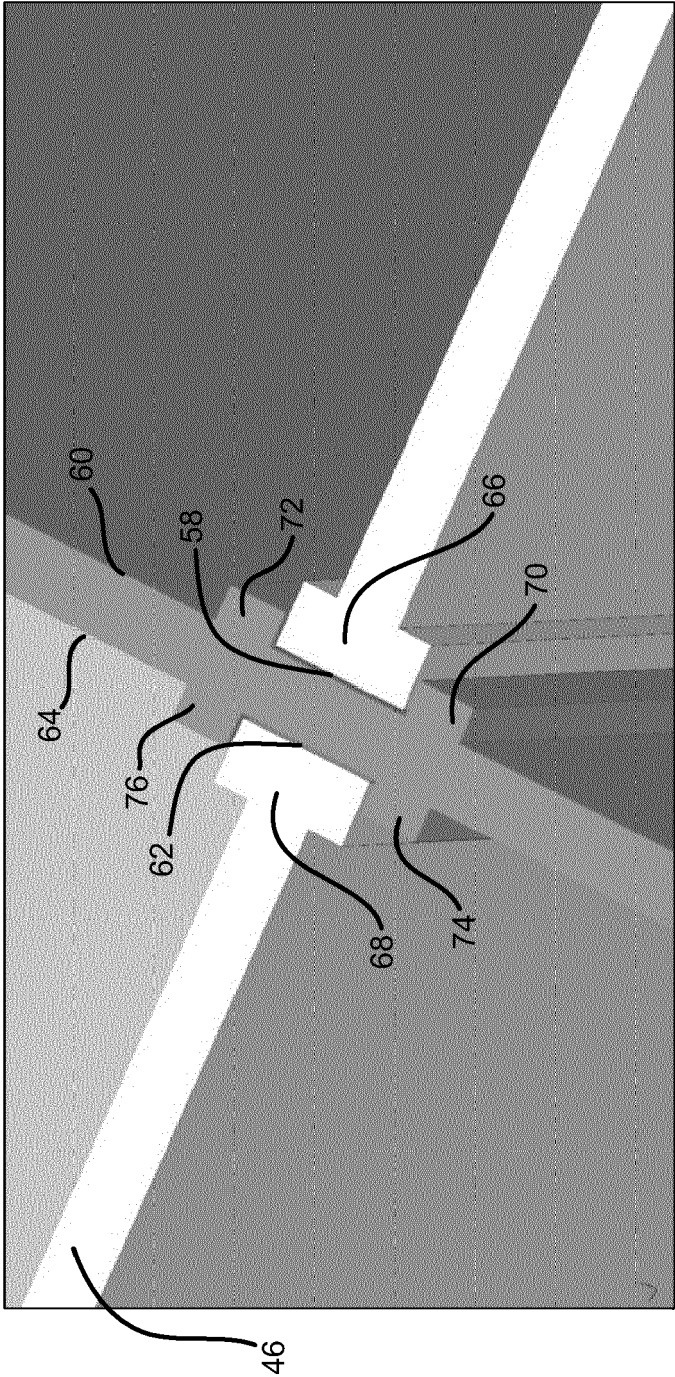


FIG. 6B

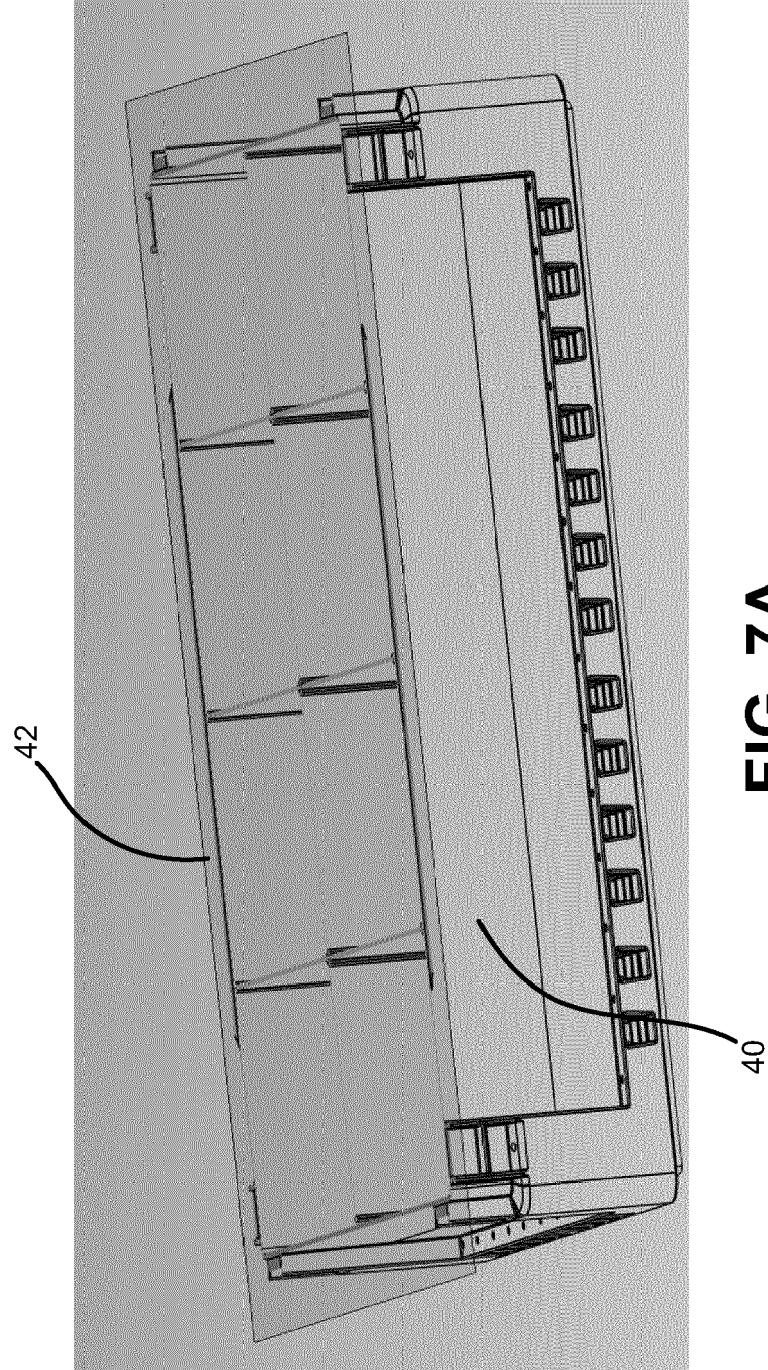


FIG. 7A

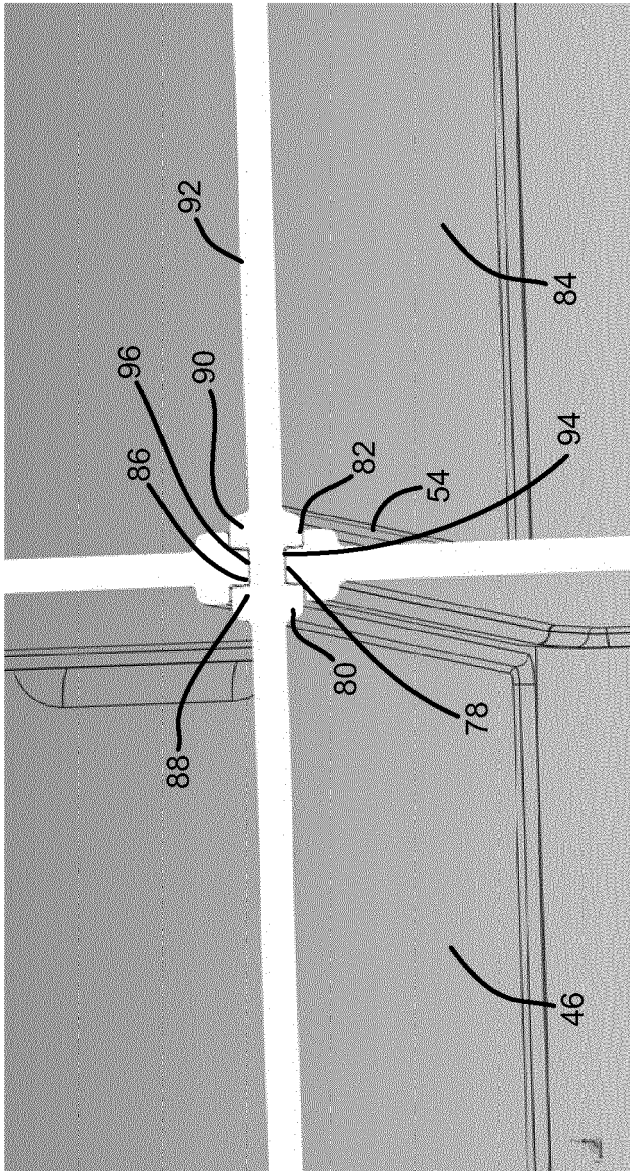


FIG. 7B

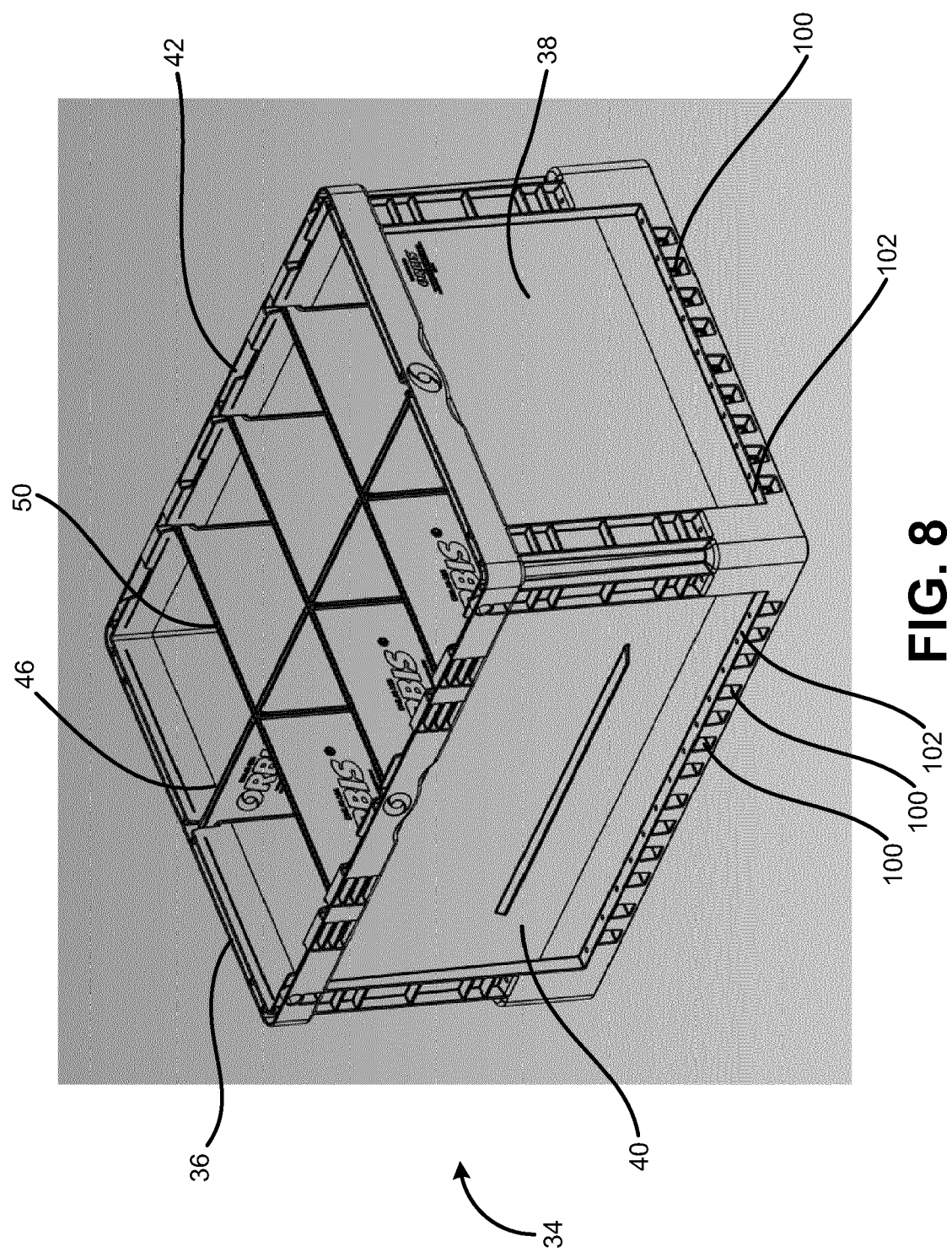


FIG. 8



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Place of search Munich		Date of completion of the search 2 May 2023	Examiner Gabrich, Katharina
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