



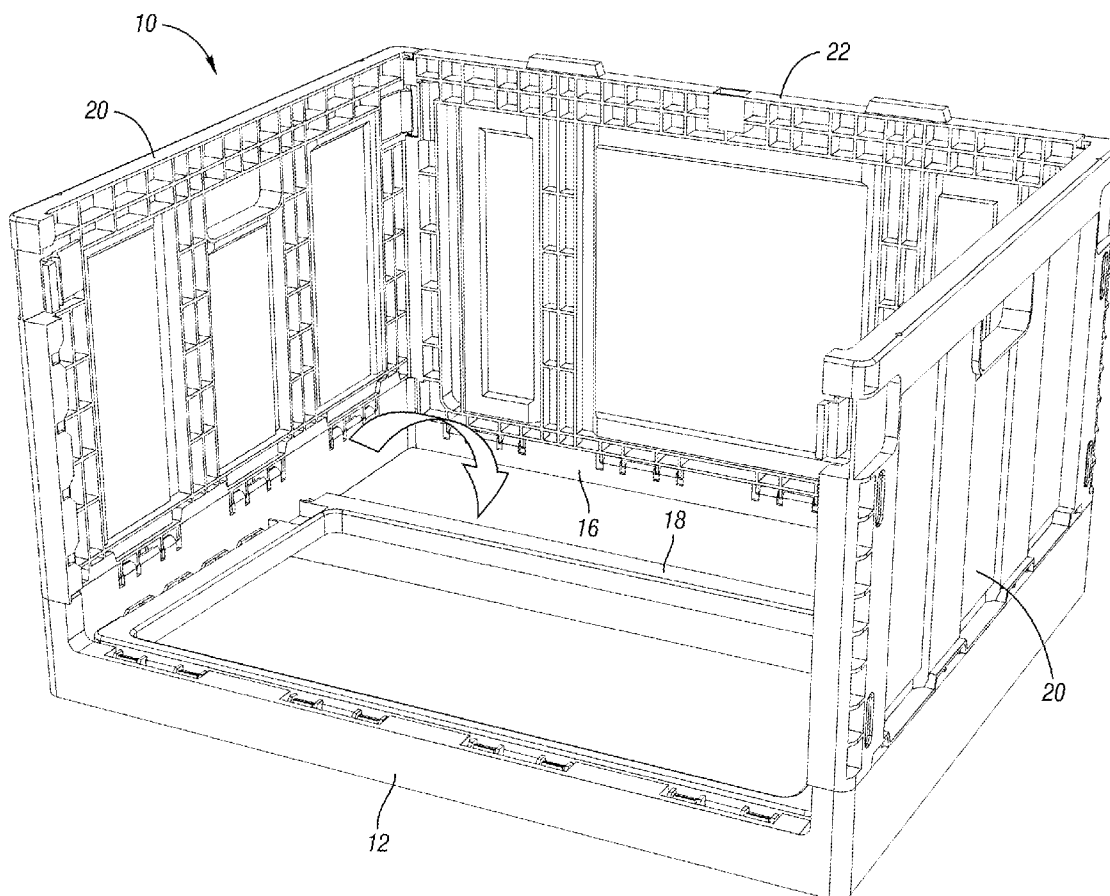
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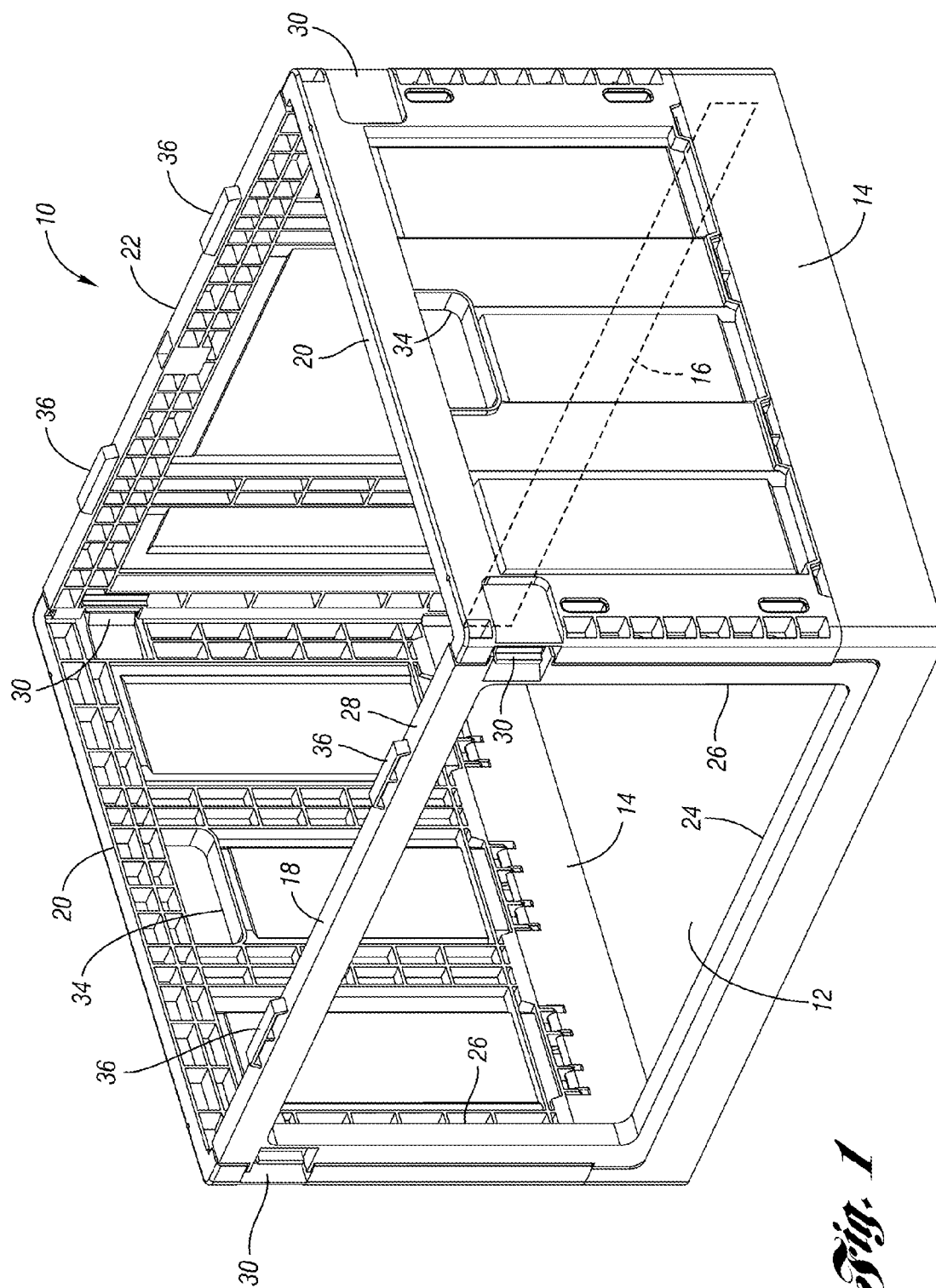
(19) **United States**(12) **Patent Application Publication**  
**Barbalho et al.**(10) **Pub. No.: US 2008/0296308 A1**(43) **Pub. Date: Dec. 4, 2008**(54) **COLLAPSIBLE CONTAINER****Publication Classification**(76) Inventors: **Daniel Barbalho**, Atlanta, GA  
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GA (US)(51) **Int. Cl.**  
**B65D 8/04** (2006.01)(52) **U.S. Cl.** ..... **220/666**(57) **ABSTRACT**

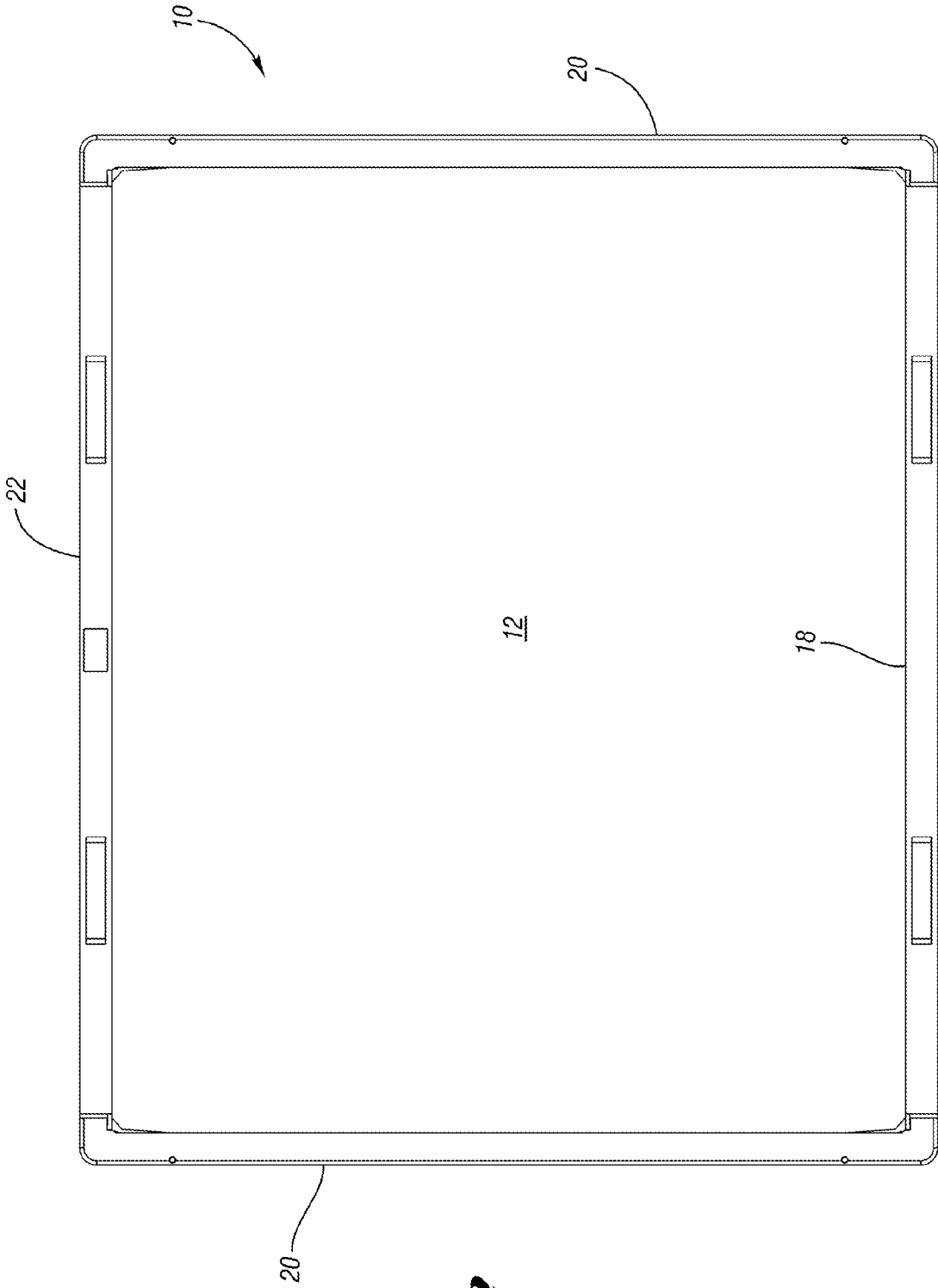
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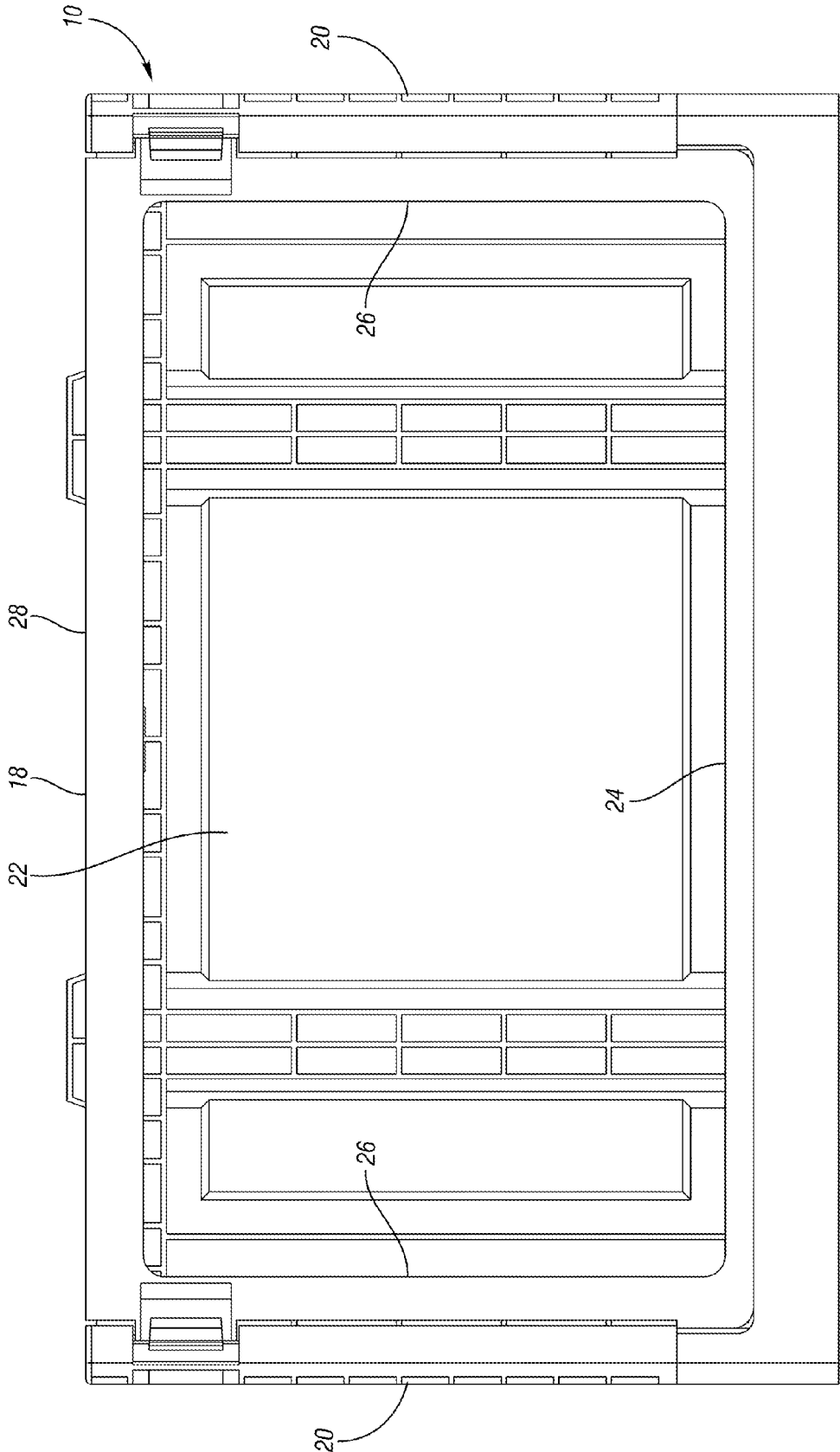
A container for shipping, displaying and selling items, such as flower bulbs, includes a base to which four walls are hingeably connected, such that the walls can be collapsed onto the base. A front wall is a substantially open frame, providing access to the interior of the container. A rear wall, opposite the front wall, is hingeably connected to the base. The front wall and rear wall are latchable to a pair of opposed side walls, which are also hingeably attached to the base.

(21) Appl. No.: **11/755,181**(22) Filed: **May 30, 2007**

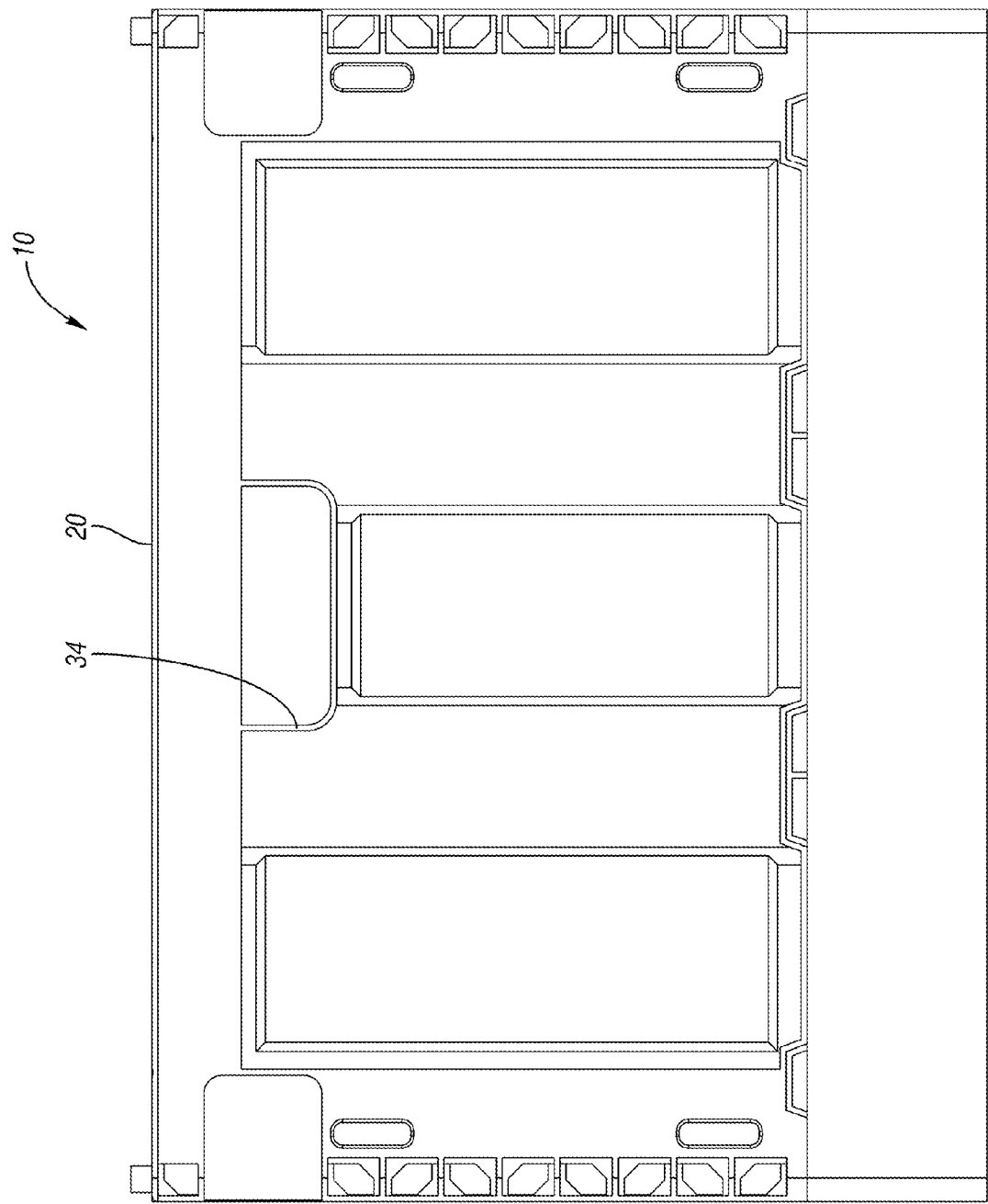




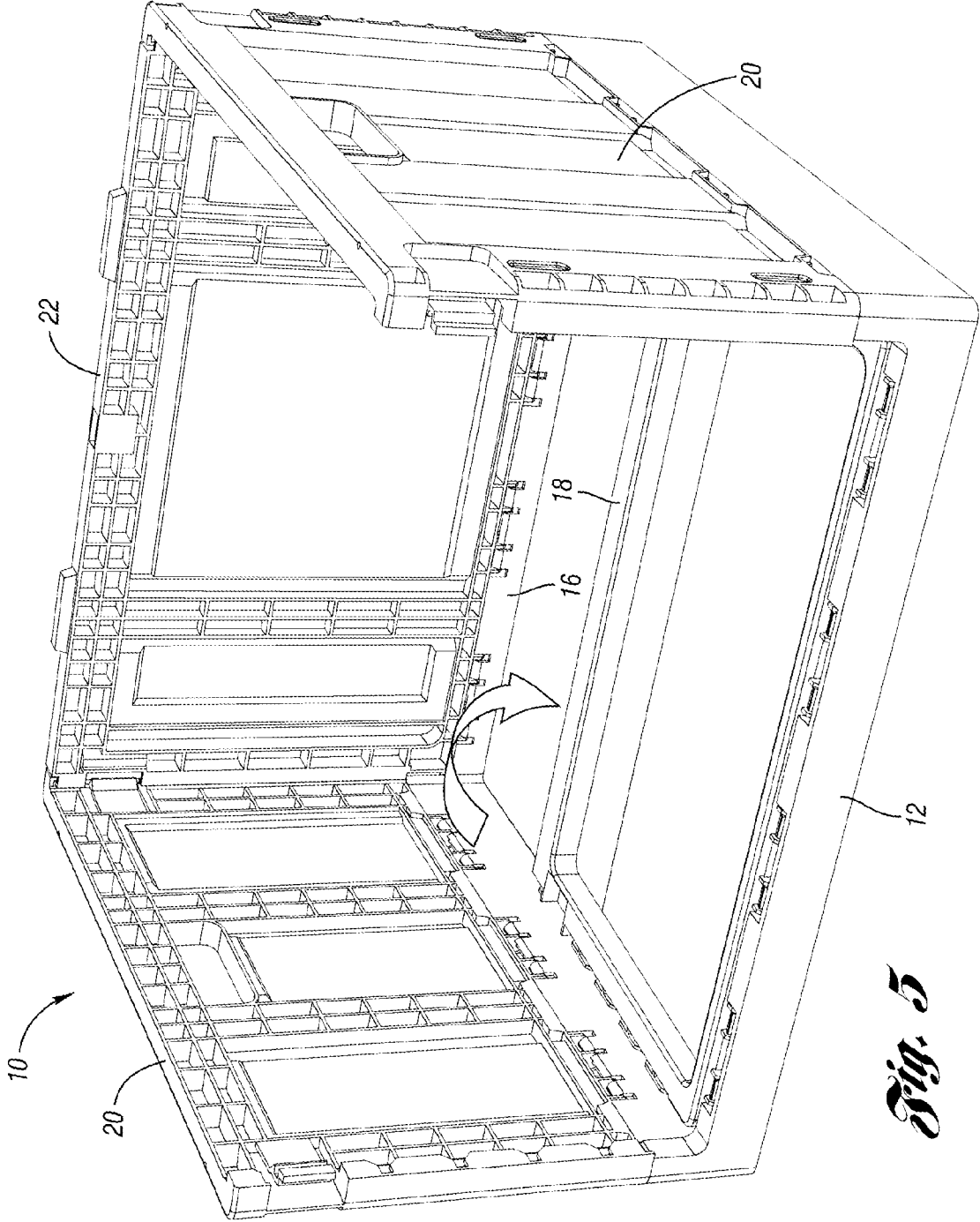
*Fig. 2*



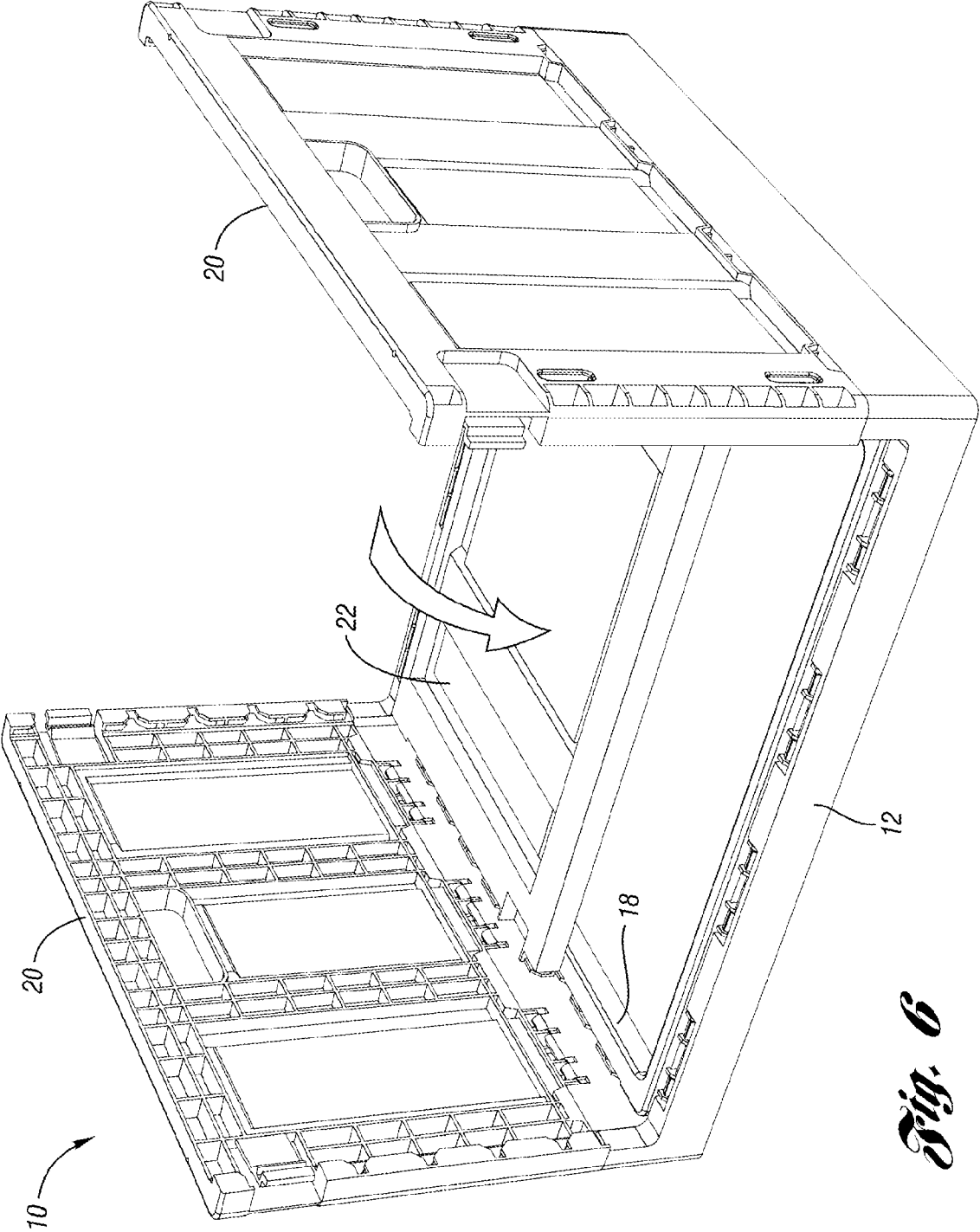
*Fig. 3*

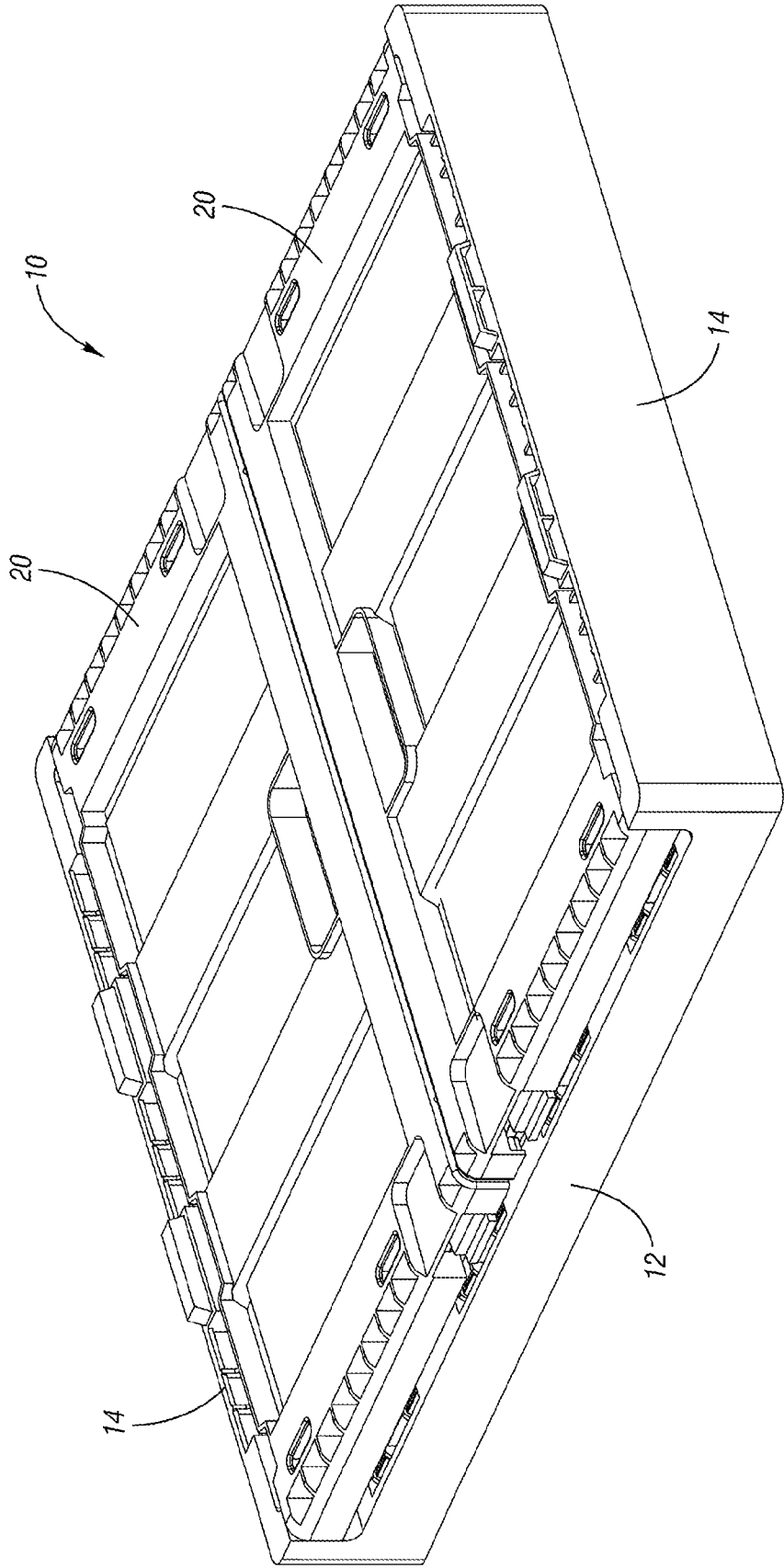


*Fig. 4*



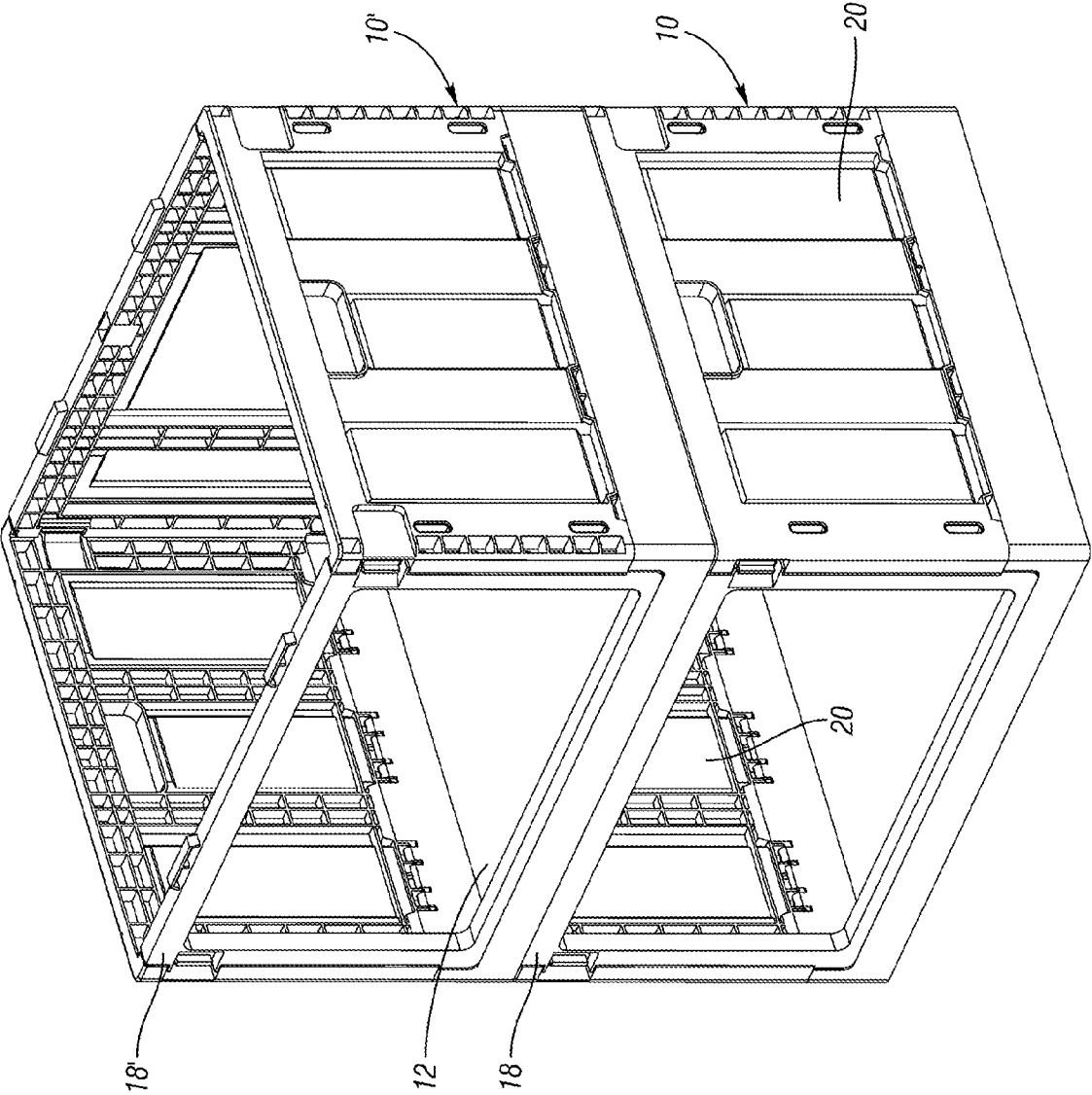
*Fig. 5*



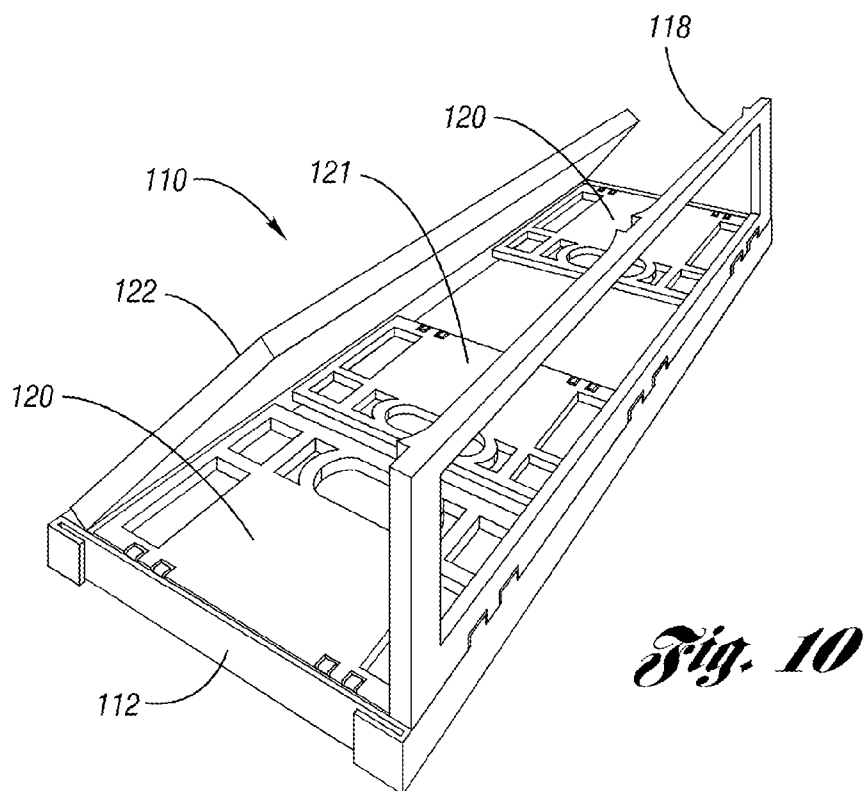
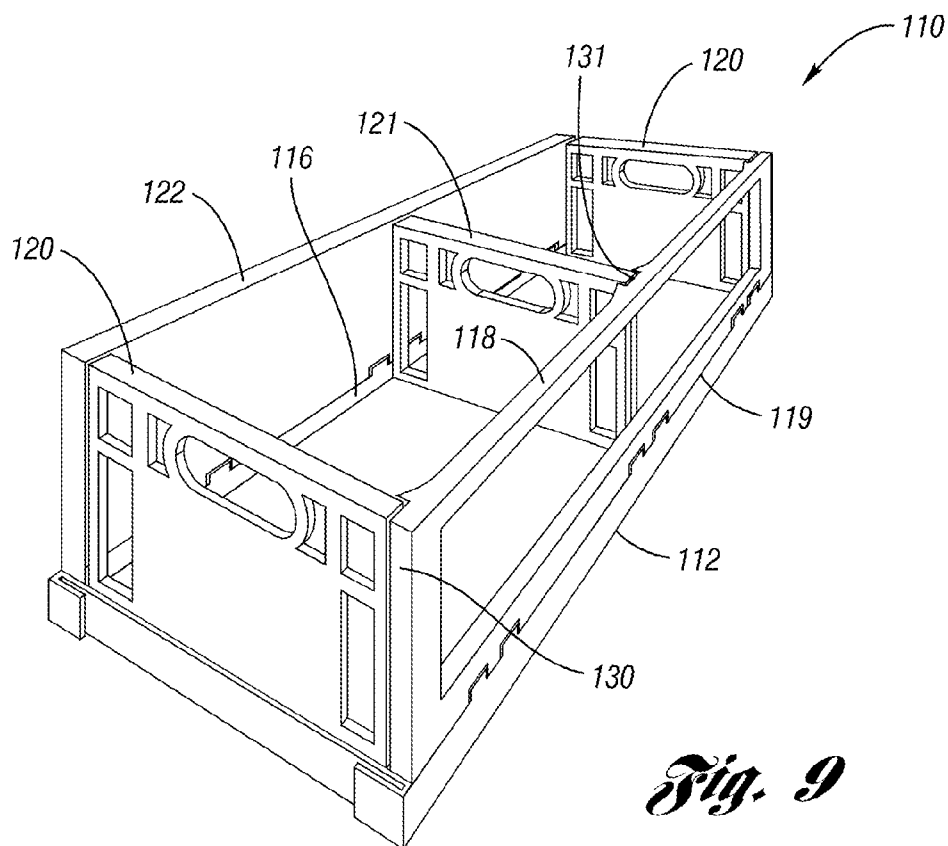


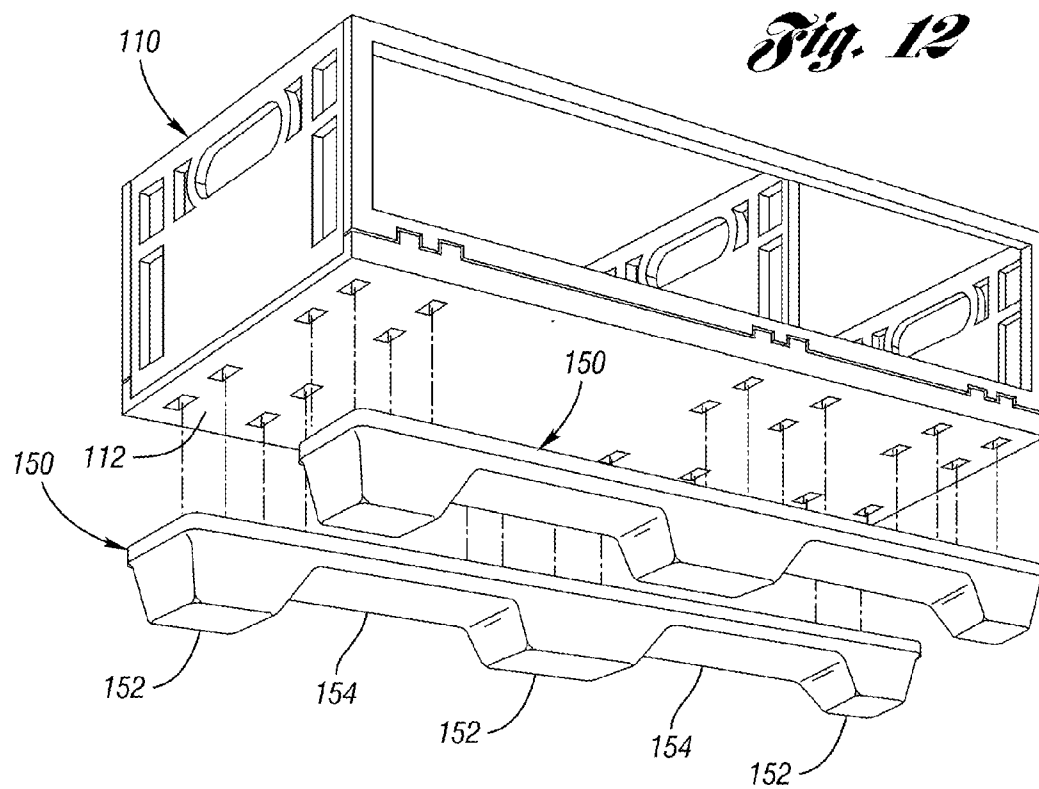
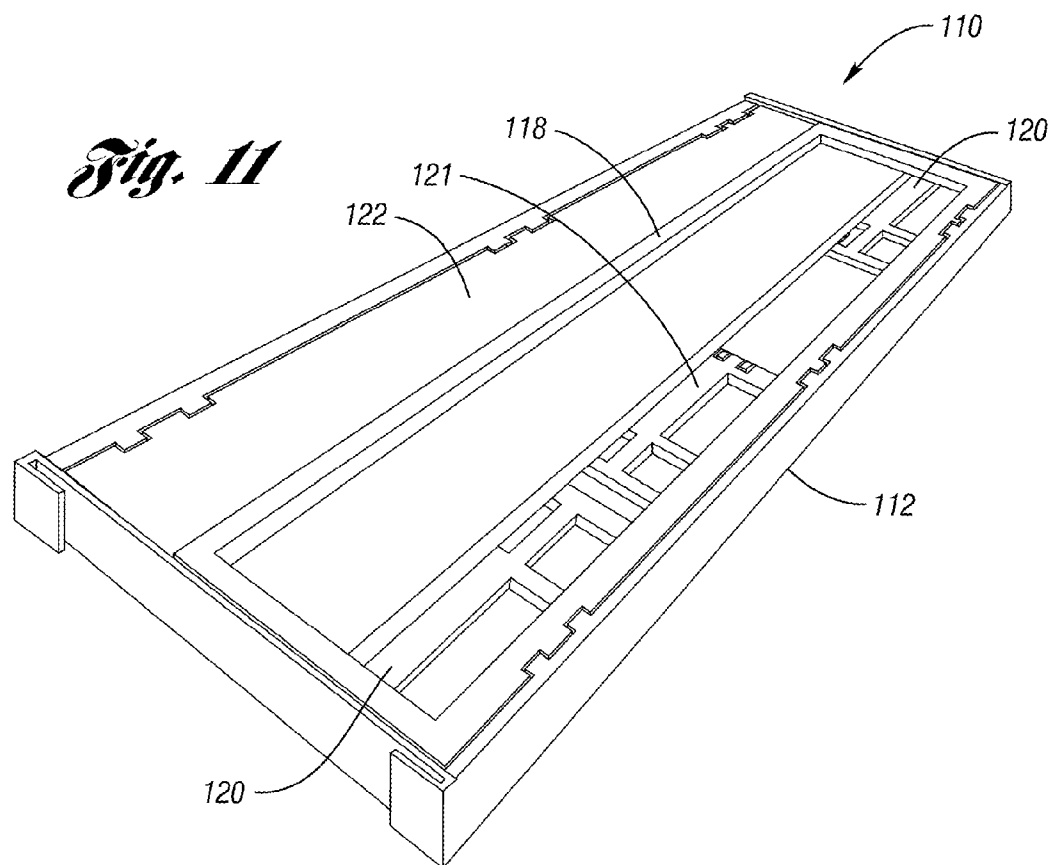
*Fig. 7*





*Fig. 8*





## COLLAPSIBLE CONTAINER

### BACKGROUND OF THE INVENTION

[0001] The present invention relates generally to a collapsible container.

[0002] Currently some flower bulbs are packed in plastic nets which are then placed in corrugated cardboard boxes. The corrugated boxes in turn are placed on a wooden display.

[0003] The wooden displays are shipped to the stores for sale of the flower bulbs. Once the flower bulbs are sold, the wooden displays are discarded. The displays are heavy and occupy a great deal of space. The wooden displays and the cardboard boxes are not reused.

### SUMMARY OF THE INVENTION

[0004] The present invention provides a plastic, reusable, collapsible container in which flower bulbs (or other items) can be shipped and displayed. The container includes a base and a pair of opposed side walls hingeably attached to the base. A rear wall is hingeably attached to the base opposite a front wall. The front wall is a substantially open frame which is hingeably attached to the base. The opening through the front wall displays the contents of the container and provides access to the contents of the container even when the containers are stacked. Because the front wall is just a frame, the front wall is optionally made from a different material from the rest of the container. In particular, the front wall may be made from a stiffer material.

[0005] These and other features of the application can be best understood from the following specification and drawings, the following of which is a brief description.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is a perspective view of the container in an assembled position.

[0007] FIG. 2 is a top view of the container of FIG. 1.

[0008] FIG. 3 is front view of the container of FIG. 1.

[0009] FIG. 4 is a side view of the container of FIG. 1.

[0010] FIG. 5 illustrates a first step in collapsing the container of FIG. 1.

[0011] FIG. 6 illustrates a second step in collapsing the container of FIG. 1.

[0012] FIG. 7 is a perspective view of the container of FIG. 1 in the collapsed position.

[0013] FIG. 8 illustrates the container of FIG. 1 with a similar container stacked thereon.

[0014] FIG. 9 illustrates an alternate embodiment of a container.

[0015] FIG. 10 illustrates the process of collapsing the container of FIG. 9.

[0016] FIG. 11 illustrates the container of FIG. 9 in a collapsed position.

[0017] FIG. 12 is a bottom perspective view of the container of FIG. 9 showing the attachment of optional runners.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] A container 10 according to a first embodiment of the present invention is shown in FIGS. 1-8. Referring to FIG. 1, the container 10 includes a base 12 having intricately molded upstanding side flanges 14 and upstanding rear flange 16 extending upwardly from three of the four edges of the base 12. A front wall 18 is hingeably connected to the remain-

ing edge of the base 12. Side walls 20 are hingeably connected to upper edges of the upstanding side flanges 14. A rear wall 22 is hingeably connected to an upper edge of the rear flange 16. The rear flange 16 is shorter than the side flanges 14, and the front wall 18 is pivotable about an axis that is lower than the rear wall 22 and the side walls 20.

[0019] The front wall 18 is a substantially open frame having an opening defined by a lower frame member 24, side frame members 26 and an upper frame member 28.

[0020] The side walls 20 are connected to the rear wall 22 and front wall 18 by latches 30. Suitable latches 30 are used in known collapsible containers. The side walls 20 include openings for handles 34. Locating members 36 may protrude upwardly from upper edges of the front wall 18 and rear wall 22 to interlock with complementary recesses (not shown) in the bottom of the base 12. This improves the stacking of similar containers 10.

[0021] Referring to FIG. 3, the opening in the front wall 18 is preferably more than  $\frac{2}{3}$  of the area of the front wall 18 and in the embodiment shown is approximately  $\frac{4}{5}$  of the area of the front wall 18. Because of the large opening in the front wall 18, it may be desirable to form the front wall 18 of a different material from the rest of the container 10. For example, the front wall 18 may be made from a stiffer material than the rest of the container 10. For example, the front wall 18 may be molded from glass-reinforced polypropylene or glass-reinforced nylon, while the remainder of the container 10 is molded from polypropylene or high-density polyethylene.

[0022] As shown in FIGS. 5-7, the container 10 can be collapsed when empty to reduce the necessary space for storing and shipping the empty containers. In a first step, shown in FIG. 5, the front wall 18 is collapsed onto the base 12. Because the front wall 18 has its axis closest to the base 12 in order to maximize the size of the opening in the front wall 18, it must be pivoted first onto the base 12. As shown in FIG. 6, the rear wall 22 is collapsed on top of the front wall 18. As shown in FIG. 7, the side walls 20 are then collapsed on top of the front wall 18 and rear wall 22. The side walls 20 do not stack on one another.

[0023] FIG. 8 illustrates the container 10 with a similar container 10' stacked thereon. In the assembled position, the side walls 20, front wall 18 and rear wall 22 (FIG. 1) support the base 12' of the upper container 10'. The interiors of the containers 10, 10' are accessible through the opening in the front walls 18, 18' even when stacked. Again, the front wall 18 may optionally be molded of a stiffer, stronger material so that it can support the upper container 10' when loaded. Although only one container 10' is shown stacked on the container 10, at least four loaded containers could be stacked on the container 10.

[0024] In use, the container 10 can be loaded with items, such as flower bulbs, and shipped to the store in the container 10. In the store, multiple containers 10 can be stacked, displaying the flower bulbs for sale. Customers can access the flower bulbs inside the containers 10 for purchase. When empty, the containers 10 are collapsed and returned to the warehouse and reused.

[0025] FIGS. 9-12 illustrate an alternate container 110 according to the present invention. Referring to FIG. 9, the container 110 includes a base 112, hingeably connected side walls 120, a hingeably connected rear wall 122 and a hingeably connected, substantially open front wall 118.

[0026] In this embodiment, the base 112 is twice as wide as the base 12 of FIGS. 1-8, as are the front wall 118 and rear wall 122. Also, the front wall 118 is hingeably connected to an upstanding front flange 119, such that its pivot axis is higher than the pivot axes of the side walls 120, which are hinged as low as possible. This is to accommodate a divider 121 which is also hingeably connected to the base 112, approximately midway between the side walls 120, and generally perpendicular to the front wall 118 and the rear wall 122. The divider 121 may be latched to the front wall 118 by a latch 131, which as shown may be a simple recess. The divider could alternatively or additionally be latched to the rear wall 122 (not shown). The divider 121 assists in supporting a similar container (not shown) stacked on container 110.

[0027] As in the first embodiment, the front wall 118 is substantially open, preferably more than  $\frac{2}{3}$  open and in this embodiment approximately  $\frac{4}{5}$  open, by area. The front wall 118 may be molded of a stiffer material than the rest of the container 110, and the front wall 118 and the rest of the container 110 may be the same materials as in the first embodiment. The rear wall 122 is hingeably connected to an upper edge of a rear flange 116.

[0028] As shown in FIG. 10, in order to save space when the container 110 is empty, the side walls 120 and divider 121 are first collapsed onto the base 112, without overlapping one another. The rear wall 122 and front wall 118 are then collapsed onto the base 112 (more specifically, onto the side walls 120 and divider 121), as shown in FIG. 11.

[0029] As shown in FIG. 12, optional runners 150 can be attached to the underside of the base 112. The runners 150 would only be attached to the lowermost container 110 in a stack of similar containers. The runners 150 include feet extending downward to define openings for receiving the prongs of a fork-lift or lift-truck. Smaller runners (not shown) could also be attached to the container 10 of FIGS. 1-8.

[0030] The container 110 is used similarly to the first container 10. Items, such as flower bulbs, are shipped to the store in a stack of containers 110. Stacks of containers 110 are displayed in a store, where customers can access the flower bulbs through the opening in the front wall 118. When empty, the containers 110 can be collapsed and returned to the warehouse for reuse.

[0031] With respect to the container 10 and the container 110, the front wall 18, 118 could alternatively be reinforced by a separate reinforcement instead of, or in addition to, using reinforced material. For example, a reinforcement rod (metal, glass filled Nylon, etc) could be attached to or insert-molded in the upper frame member. Alternatively, a reinforcement ring could be added around the entire front wall 18, 118.

[0032] Although a preferred embodiment has been disclosed, a worker of ordinary skill in this art would recognize that certain modifications would come within the scope of the claims. For that reason, the following claims should be studied to determine their true scope and content.

What is claimed is:

1. A collapsible container comprising:
  - a base;
  - a plurality of walls hingeably connected to the base, such that the walls can be pivoted between an upright position and a collapsed position on the base, wherein at least one of the walls has a frame circumscribing an opening.
2. The collapsible container of claim 1 wherein the opening in the at least one of the walls is more than  $\frac{2}{3}$  of the wall by area.

3. The collapsible container of claim 1 wherein the opening in the at least one of the walls is approximately  $\frac{4}{5}$  of the wall by area.

4. The collapsible container of claim 1 wherein the at least one of the walls includes a lower frame member and an upper frame connected by opposed side frame members to circumscribe the opening.

5. The collapsible container of claim 1 wherein the at least one of the walls is reinforced.

6. The collapsible container of claim 5 wherein the at least one of the walls is of a reinforced material.

7. The collapsible container of claim 1 wherein the at least one of the walls is a front wall and wherein the front wall is of a material different from a remainder of the plurality of walls.

8. The collapsible container of claim 1 wherein the opening in the at least one of the walls is more than  $\frac{2}{3}$  of the wall by area.

9. The collapsible container of claim 1 wherein the opening in the at least one of the walls is approximately  $\frac{4}{5}$  of the wall by area.

10. The collapsible container of claim 1 further including a divider movable between an upright position and a collapsed position on the base.

11. The collapsible container of claim 10 wherein the divider is pivotably connected to the base.

12. The collapsible container of claim 10 wherein the at least one of the plurality of walls includes a front wall, the plurality of walls further including a pair of opposed side walls and an end wall, the divider generally transverse to the front wall when in the upright position.

13. The collapsible container of claim 12 wherein the divider and the pair of opposed side walls are collapsible onto the base and do not overlap one another.

14. The collapsible container of claim 1 wherein the at least one of the walls is a front wall and wherein the base includes a pair of opposed, upstanding side flanges to which a pair of the plurality of side walls are hingeably attached, such that the front wall pivots about an axis lower than axes about which the side walls pivot.

15. The collapsible container of claim 14 wherein the plurality of walls further includes a rear wall pivotably mounted to an upstanding rear flange, shorter than the side flanges.

16. A collapsible container comprising:

a base;

a pair of side walls and a rear wall pivotably connected to the base such that the side walls and rear wall can be pivoted between an upright position and a collapsed position; and

a substantially open front wall hingeably connected to the base, such that the front wall can be pivoted between an upright position and a collapsed position, the front wall molded of a material different from the side walls and the rear wall.

17. The collapsible container of claim 16 wherein an opening in the front wall is more than  $\frac{2}{3}$  of the front wall by area.

18. The collapsible container of claim 17 wherein the opening in the front wall is approximately  $\frac{4}{5}$  of the front wall by area.

19. The collapsible container of claim 17 wherein the front wall includes a lower frame member and an upper frame connected by opposed side frame members to circumscribe the opening.

**20.** A collapsible container comprising:  
a base;

a pair of side walls and a rear wall pivotably connected to the base such that the side walls and rear wall can be pivoted between an upright position and a collapsed position;

a substantially open front wall hingeably connected to the base, such that the front wall can be pivoted between an upright position and a collapsed position; and

a divider movable between an upright position and a collapsed position on the base.

**21.** The collapsible container of claim **20** wherein the divider is pivotably connected to the base.

**22.** The collapsible container of claim **21** wherein the divider is generally transverse to the front wall when in the upright position.

**23.** The collapsible container of claim **22** wherein the divider and the pair of opposed side walls are collapsible onto the base and do not overlap one another.

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