

(12) STANDARD PATENT
(19) AUSTRALIAN PATENT OFFICE

(11) Application No. **AU 2005294891 B2**

(54) Title
Container, lid and clip therefor

(51) International Patent Classification(s)
B65D 21/04 (2006.01) **B65D 45/16** (2006.01)

(21) Application No: **2005294891** (22) Date of Filing: **2005.10.14**

(87) WIPO No: **WO06/041321**

(30) Priority Data

(31) Number	(32) Date	(33) Country
536011	2004.10.15	NZ

(43) Publication Date: **2006.04.20**

(44) Accepted Journal Date: **2013.01.31**

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(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 April 2006 (20.04.2006)

PCT

(10) International Publication Number
WO 2006/041321 A3

(51) International Patent Classification:
B65D 21/04 (2006.01) **B65D 45/16** (2006.01)

(21) International Application Number:
PCT/NZ2005/000268

(22) International Filing Date: 14 October 2005 (14.10.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
536011 15 October 2004 (15.10.2004) NZ

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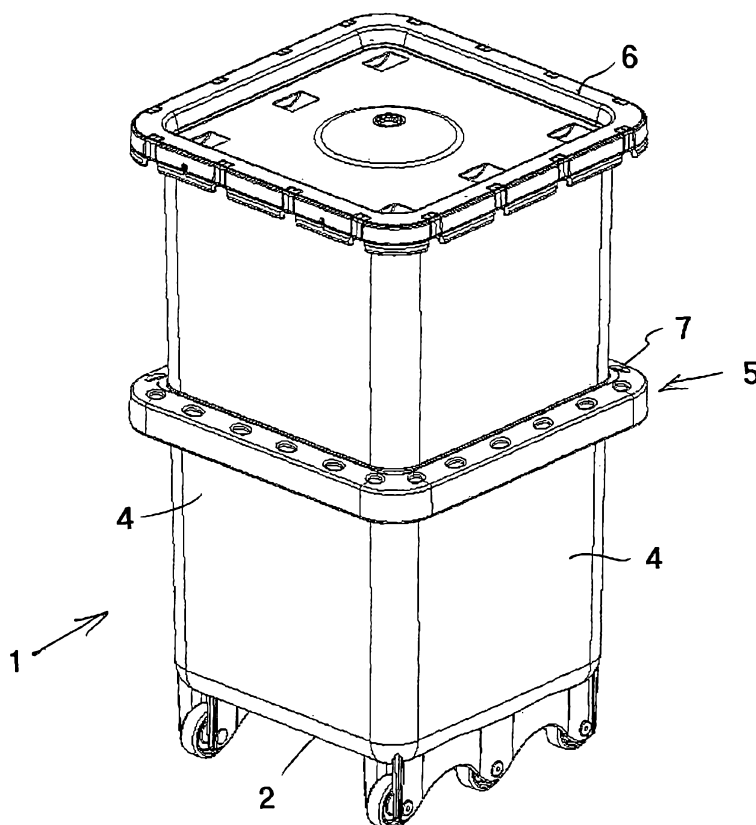
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

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(54) Title: CONTAINER, LID AND CLIP THEREFOR



(57) Abstract: A container (1) for meat storage, treatment and distribution has an external rib (5) to facilitate handling and provide strength. Clips (32) are provided for attaching a lid (6) to the container, and a clip removal tool (52) which allows clips to be removed to open the container.



(88) Date of publication of the international search report:

1 June 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

CONTAINER, LID AND CLIP THEREFOR**Field of the Invention**

5 This invention relates to containers for storage, treatment or transportation of perishable food products. The invention has a particular application in the storage, treatment or transportation of meat.

Background

10 Containers for meat storage, treatment or transportation are described in US patents 5670195 and 6194012. Securely affixing a lid on to containers of this type is advantageous to ensure that the container is effectively sealed, as a fluid tight seal is important to maintaining a desired atmosphere for the products within the container.

15 The integrity of the container seal, or at least the attachment of the lid to the container is important also for hygiene reasons and to prevent contamination of the container contents.

20 Containers of this type may hold significant quantities of product which can be very heavy (for example 150 kg), so it is desirable that the container can be easily and securely handled by lifting apparatus. It also follows that the container needs to have significant structural integrity.

Summary of the Invention

25 It is an object of the present mentioned to provide an improved container for the storage, treatment or transportation of perishable food products.

30 In the alternative is an object of the invention to provide improved apparatus or methods for affixing or detaching a lid to or from such a container.

As another alternative, it is an object of the present invention to at least provide the public with a useful alternative.

35 Accordingly in one aspect the invention consists in apparatus for storage, treatment or distribution of meat comprising,

a container having:

a base and four side walls dependent therefrom;
a mouth at an opposite end of the container from the base; and
an external rib dependent from the side walls, the external rib being

continuous about the walls;

wherein the external rib comprises a flange that extends outwardly from the walls and toward the base such that a cavity is provided between the flange and the walls and wherein the external rib is provided in a central region of the walls remote from the base and the mouth;

a lid for the container;

a plurality of lid securing clips which secure the lid to the container; and

a clip removal tool for removal of the plurality of lid securing clips, the clip removal tool comprising:

a body having a handle and a plurality of clip engaging members disposed at an angle to the handle;

wherein location of the plurality of clip engaging members each under a respective end of the plurality of lid securing clips and location of a base of each clip engaging member on a surface of the container allow the handle to be rotated toward the base of the container to disengage the plurality of lid securing clips simultaneously from the container using the clip removal tool.

Preferably the external rib comprises a first flange part that extends from the walls and a second flange part that extends toward the base.

Preferably the first flange part extends perpendicular to the walls, and the second flange part extends parallel to the walls.

Preferably the external rib includes a plurality of support webs provided between the external rib and the walls.

Preferably the external rib is a unitary item affixed to the walls of the container.

Preferably the walls between the external rib and the base are tapered to allow the container to be nested with a like container.

Preferably each lid securing clip is unable to be removed from the apparatus without use of the clip removal tool.

5 Preferably the plurality of lid securing clips engage with a rim of the container.

Preferably the rim is provided adjacent to, or comprises a part of, the mouth of the container.

10 Preferably each of the plurality of lid securing clips comprises a body having two ends, one end of the body having two parallel legs dependent therefrom, a projection being provided on one of the legs to engage with the lid, the other end of the body having a projection to engage with the rim.

15 Preferably the plurality of lid securing clips can be removed in a single operation using the clip removal tool.

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Preferably the external rib comprises a plurality of apertures arranged on the flange to facilitate air movement or liquid drainage from around the container.

Preferably the external rib is a unitary item formed separately to the container and thereafter is affixed to the container.

Preferably the external rib and the defined cavity are used to engage with a manoeuvring apparatus to move the container.

In a further aspect the present invention consists in **apparatus for storage, treatment or distribution of meat** substantially as herein described with reference to any one of the embodiments shown in the drawings.

Drawing Description

One or more embodiments of the invention will be described with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a container,

Figure 2 is a plan view from below of the container of Figure 1.

Figure 3 is an end elevation of the container of the preceding Figures,

Figure 4 is a side elevation of the container of the preceding Figures,

Figure 5 is a side elevation in cross-section of the container of the preceding Figures,

Figure 6 is an expanded view of detail A of Figure 5,

Figure 7 is a plan view of a lid of the container of the preceding Figures,

Figure 8 is a cross-section through the lid as affixed to a mouth or rim of the container of the preceding Figures taken through line B-B of Figure 7, and

Figure 9 is a diagrammatic perspective view of a clip disengagement tool.

Detailed Description

Referring to **Figure 1**, a container for storage, treatment or transportation of a perishable product such as meat for example is shown, generally referenced 1. The container includes a base 2 and at least one sidewall, but preferably from side walls 4. The side walls preferably taper slightly outwardly from the base toward a mouth of the container (which is obscured in this view by the lid 6) to allow the container to be stacked within a like container.

A rib 5 is provided externally about the walls 4. As can be seen, the rib 5 is provided remote from both the base and the mouth of the container, and in a preferred embodiment is provided substantially midway between the base and the mouth of the container as

A rib 5 is provided externally about the walls 4. As can be seen, the rib 5 is provided remote from both the base and the mouth of the container, and in a preferred embodiment is provided substantially midway between the base and the mouth of the container as shown in Figure 1. The rib 5 may contain a number of apertures 7 to facilitate air movement about the container, allow rapid drainage of any liquid about the container (for example when the container is washed or sterilised), and reduce material usage and weight. We have found that Acetal has desirable properties for manufacture of the container, being sufficiently strong and robust and also preventing any movement of gases through the container walls. This material is also food safe.

Turning to Figure 2, the base of the container can be seen, having wheels 8 which allow the container to be transported across a surface such as a production facility or through an aisle of a retail store.

The container is shown in end elevation in Figure 3 and in side elevation in Figure 4, both views showing the rib 5. In these Figures recesses 10 in the periphery of the lid 6 are also clearly visible.

Turning to Figures 5 and 6, the rib 5 can be viewed in greater detail. As can be seen, the rib comprises a generally outwardly projecting flange portion 12 and a downwardly projecting flange portion 14. Although these portions are shown as being generally planar in the drawings, those skilled in the art will appreciate that the rib could be substantially curved. Flange portion 12 projects roughly perpendicularly outwards from the walls 4, and flange portion 12 is directed in a generally parallel direction to the walls 4. The flange 5 may be provided in a variety of different ways, but in the preferred embodiment of flange is constructed as a unitary item which is affixed to the container walls after the container walls have been formed. A shoulder 16 is preferably provided in the walls 4 and a corresponding shoulder 18 is provided on the flange. The flange can then be moved upwardly from the base of the container into abutment as shown in Figure 6 and may be glued or welded to affix it in place.

The rib 5 provides a number of practical advantages. Firstly, it provides additional strength to the overall container structure. It also limits the extent to which one container may be nested into another container. Therefore, the containers may be easily nested and de-nested. The rib provides a space between containers when containers are provided adjacent to each other. In practice this has the advantage that air may flow

between the walls of adjacent containers which is beneficial when the contents of the containers needs to be kept at a required temperature, for example when placed in a cool store or chiller. Also, the rib defines a cavity 20 within which lifting or manoeuvring apparatus (in particular automated lifting or manoeuvring apparatus) may be disposed to engage the container with a lifting or transport mechanism to thereby facilitate safe transportation, lifting or other movement of the container.

In Figure 7 the lid 6 is shown in plan view. As can be seen, the lid has a number of depressions 22 which are adapted to support wheels 8 of another container and thereby facilitate stacking of containers one above the other.

A valve 24 is also shown in Figure 7. This may be used to introduce a desired atmosphere into the container, for example flush the interior of the container with a gas or mixture of gases such as carbon dioxide.

Turning to Figure 8, a clipping mechanism is shown in cross-section. A peripheral portion of the lid 6 has a groove or recess 30. A clip 32 has a body 34 which has two legs 36 and 38 dependent from one end thereof. The other end of body 34 has a projection 40. Leg 38 has a projection 42 which extends into recess 30. Therefore, the legs 36 and 38 secure the clip to the lid 6. A rim 44 provided about the mouth 46 of the container projects so as to engage with projection 40 of the clip, preventing the clip from being moved in an upward direction to remove the lid 6 from the container.

As can be seen from the drawings, a number of clips 34 are provided. To use the clips to secure the lid to the container, the user simply engages the clips with the lid by pressing the clips onto the lid so that the legs 36 and 38 slide over the appropriate peripheral section of the lid to allow projection 42 to engage with recess 30. Then, the lid is placed over the container, causing projection 40 to slide over the projecting rim 44.

The projection 40 is located very close to the rim of the container, making it very difficult for user to insert a finger for example into the space indicated by arrow 48 to prise the clip away from the container. However, an appropriate tool may be used to disengage the clip. Such a tool is shown diagrammatically in Figure 9. Referring to that Figure, the tool has a handle 50, dependent from which are a series of curved or angled projections 52. In practice, the tips of the projections 52 may be placed within the space indicated by arrow 48 in Figure 8, and the tool may be then rotated on a downward direction so that

regions 54 act as a fulcrum which engages with the rim of the container, thereby allowing the user to prise the clips away from the rim of the container which in turn allows the lid to be removed.

5 Those skilled in the art to which the invention relates will see that a plurality of tools such as those shown in figure 9 may be arranged, one about each side of the container, in an automated fashion so that the clips can be prised away simultaneously, so that the lid can be removed in one single operation.

10 The lid clipping mechanism described above allows the container to be sealed in a fluid tight manner, and also provides increased structural rigidity or integrity to the container.

EDITORIAL NOTE

APPLICATION NUMBER – 2005294891

There is no claim number 6

Claims:**1. Apparatus for storage, treatment or distribution of meat comprising:**

a container having:

a base and four side walls dependent therefrom;

a mouth at an opposite end of the container from the base; and

an external rib dependent from the side walls, the external rib being continuous about the walls;

wherein the external rib comprises a flange that extends outwardly from the walls and toward the base such that a cavity is provided between the flange and the walls and wherein the external rib is provided in a central region of the walls remote from the base and the mouth;

a lid for the container;

a plurality of lid securing clips which secure the lid to the container; and

a clip removal tool for removal of the plurality of lid securing clips, the clip removal tool comprising:

a body having a handle and a plurality of clip engaging members disposed at an angle to the handle,

wherein location of the plurality of clip engaging members each under a respective end of the plurality of lid securing clips and location of a base of each clip engaging member on a surface of the container allow the handle to be rotated toward the base of the container to disengage the plurality of lid securing clips simultaneously from the container using the clip removal tool.

2. Apparatus as claimed in claim 1 wherein the external rib comprises a first flange part that extends from the walls and a second flange part that extends toward the base.

3. Apparatus as claimed in claim 2 wherein the first flange part extends perpendicular to the walls, and the second flange part extends parallel to the walls.

4. Apparatus as claimed in any one of claims 1 to 3 wherein the external rib includes a plurality of support webs provided between the external rib and the walls.

5. Apparatus as claimed in any one of claims 1 to 4 wherein the external rib is a unitary item affixed to the walls of the container.

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7. Apparatus as claimed in any one of claims 1 to 6 wherein each lid securing clip is unable to be removed from the container without use of the clip removal tool.
8. Apparatus as claimed in any one of claims 1 to 7 wherein the plurality of lid securing clips engage with a rim of the container.
9. Apparatus as claimed in claim 8 wherein the rim is provided adjacent to, or comprises a part of, the mouth of the container.
10. Apparatus as claimed in either of claims 8 or 9 wherein each of the plurality of lid securing clips comprises a body having two ends, one end of the body having two parallel legs dependent therefrom, a projection being provided on one of the legs to engage with the lid, the other end of the body having a projection to engage with the rim.
11. Apparatus as claimed in any one of claims 1 to 10 wherein the plurality of lid securing clips can be removed in a single operation using the clip removal tool.
12. Apparatus as claimed in any one of claims 1 to 11 wherein the external rib comprises a plurality of apertures arranged on the flange to facilitate air movement or liquid drainage from around the container.
13. Apparatus as claimed in any one of claims 1 to 13 wherein the external rib is a unitary item formed separately to the container and thereafter is affixed to the container.
14. Apparatus as claimed in any one of claims 1 to 14 wherein the external rib and the defined cavity are used to engage with a manoeuvring apparatus to move the container.
15. Apparatus for storage, treatment or distribution of meat substantially as herein described with reference to any one of the embodiments shown in the drawings.

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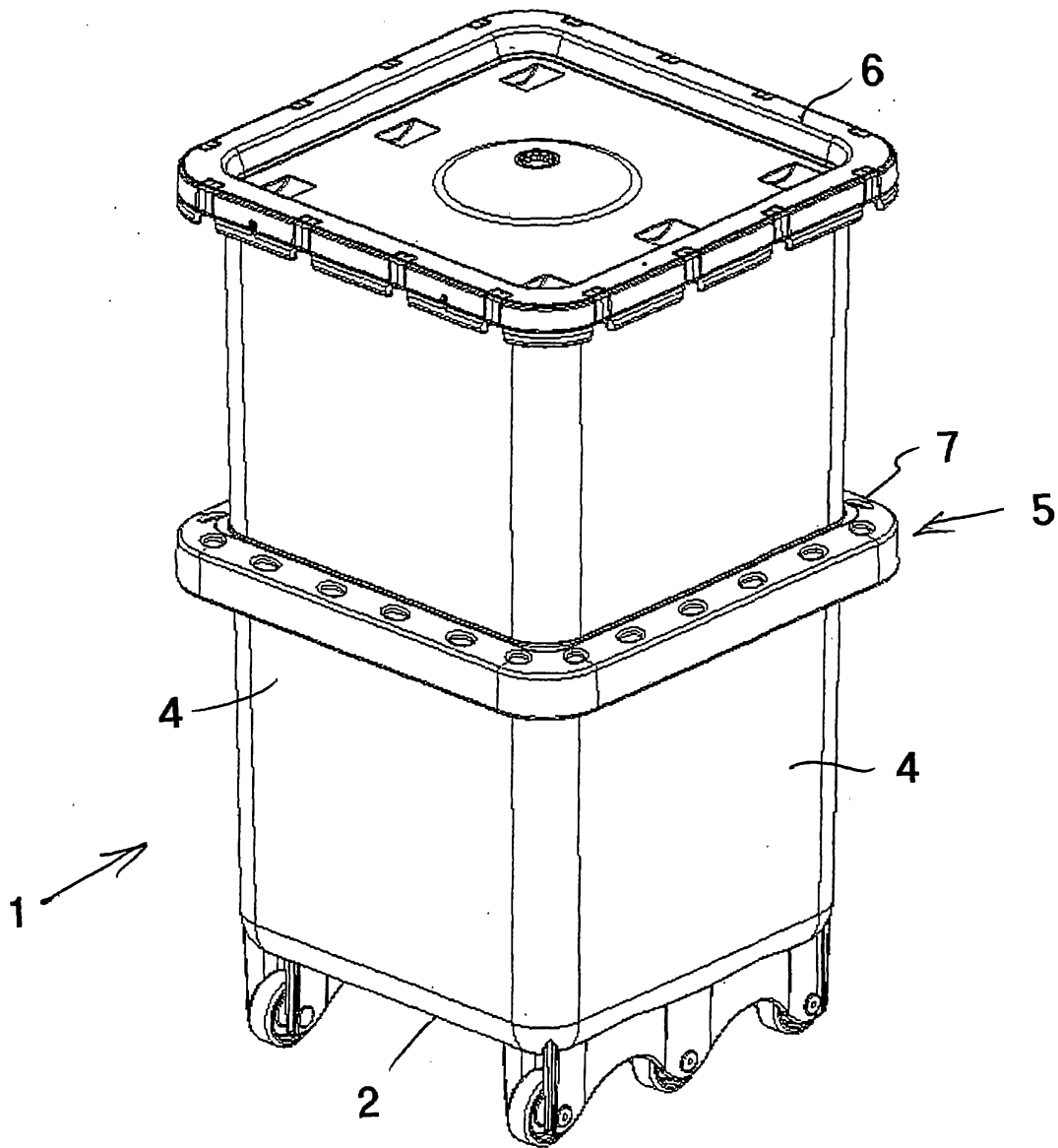


FIGURE 1

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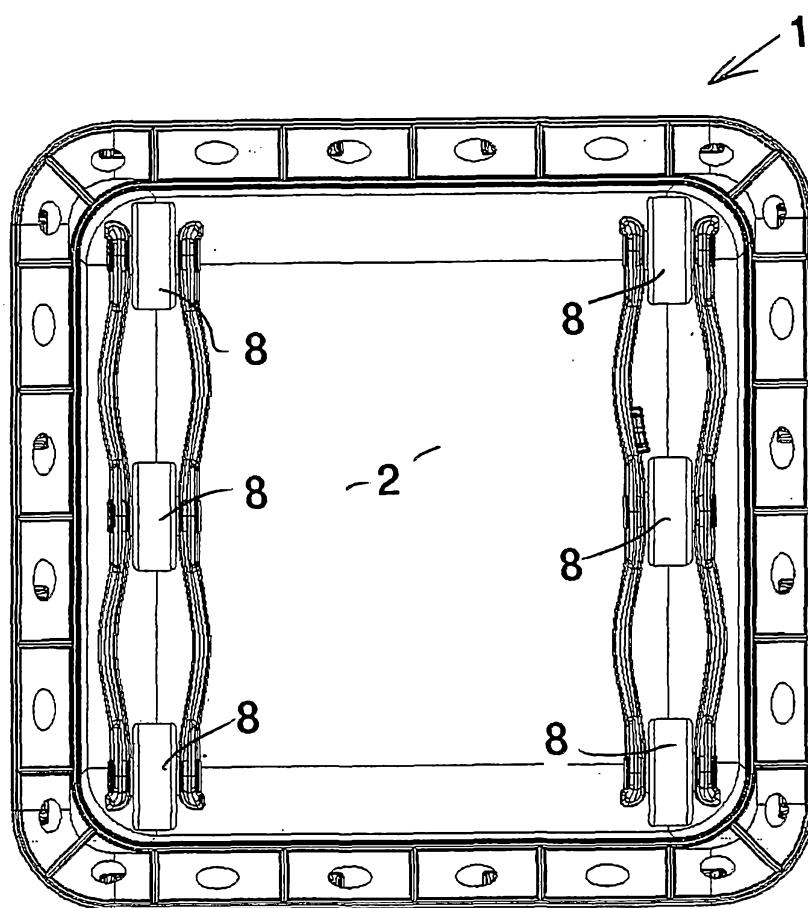


FIGURE 2

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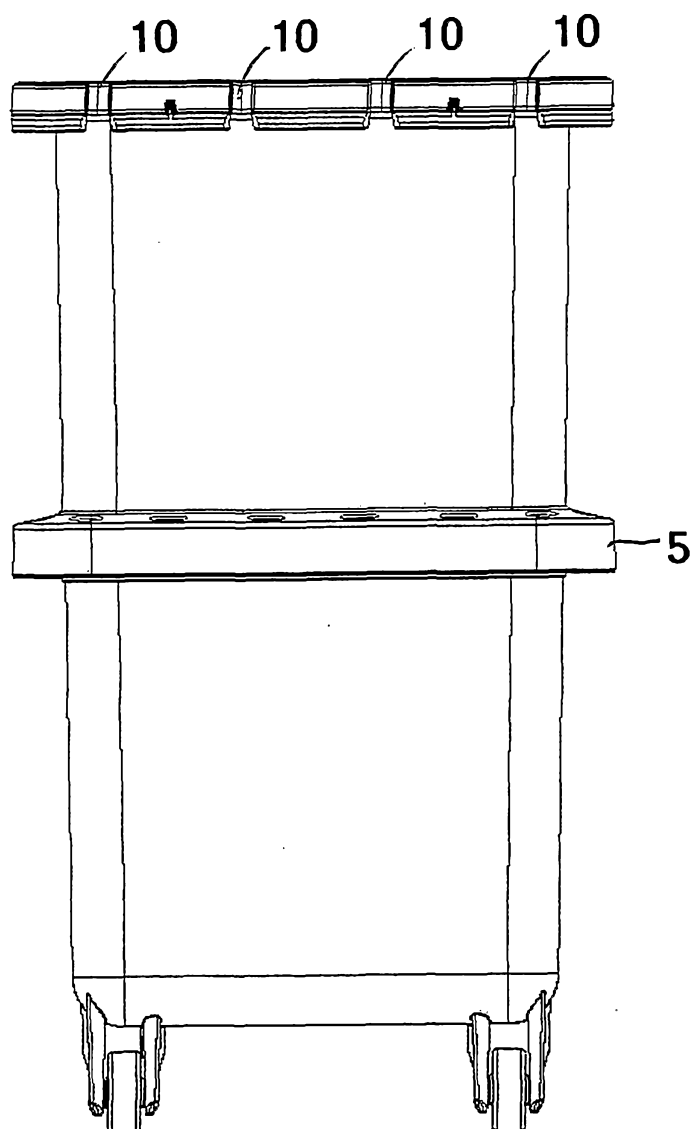


FIGURE 3

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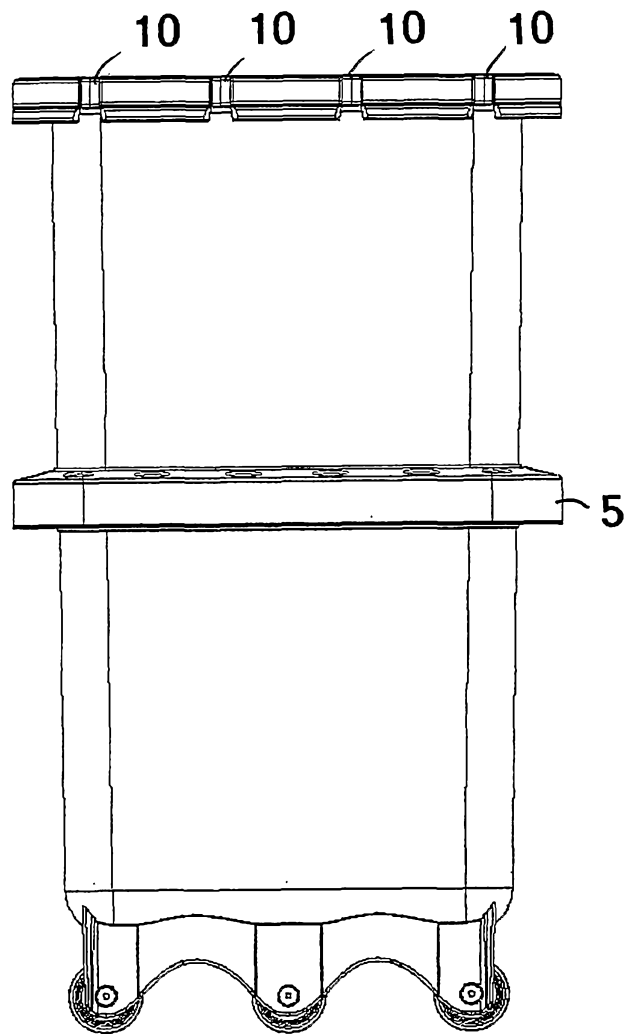


FIGURE 4

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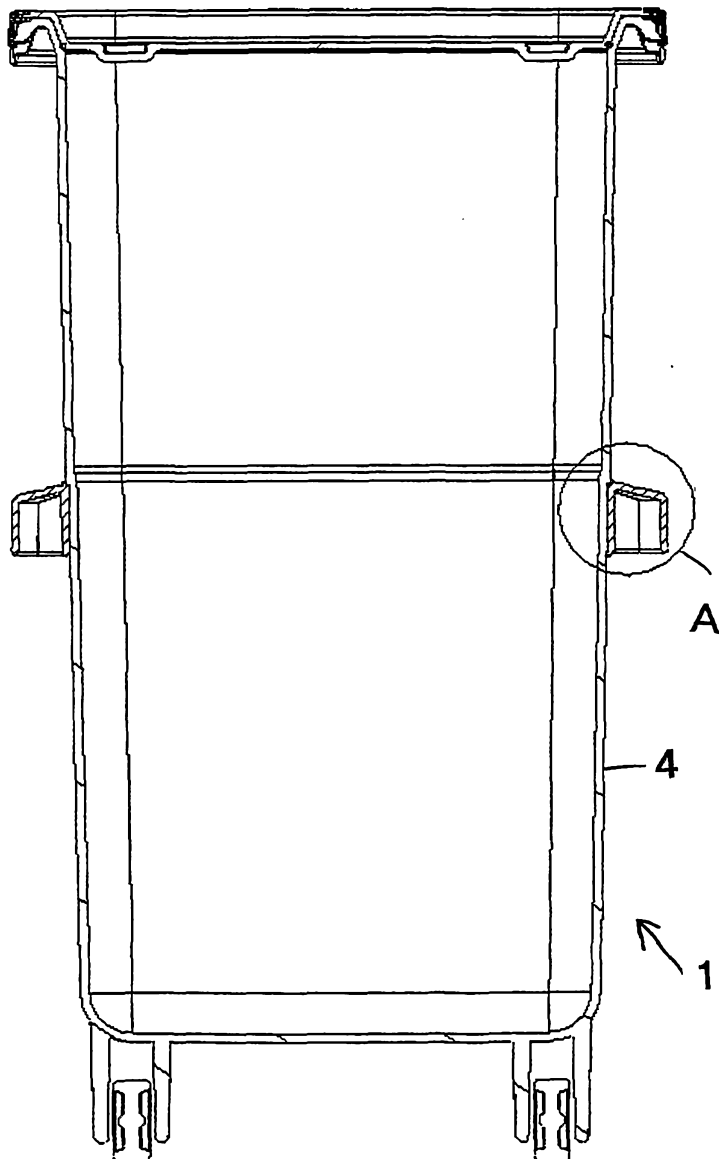


FIGURE 5

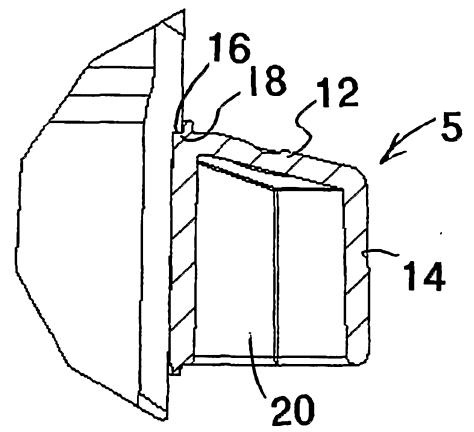


FIGURE 6

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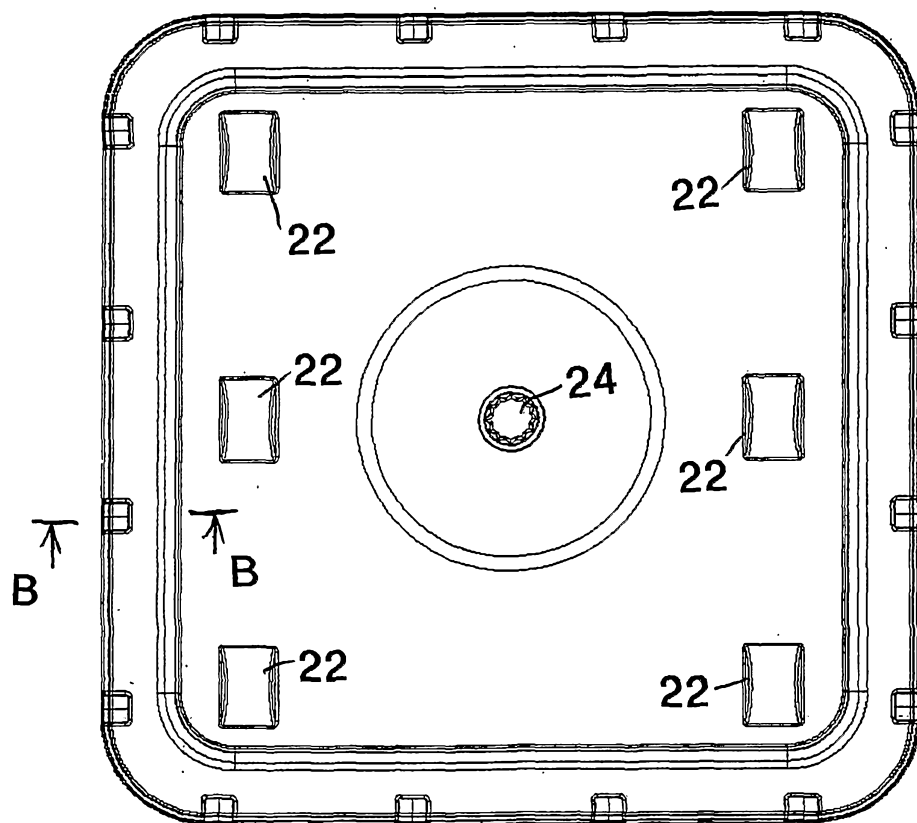


FIGURE 7

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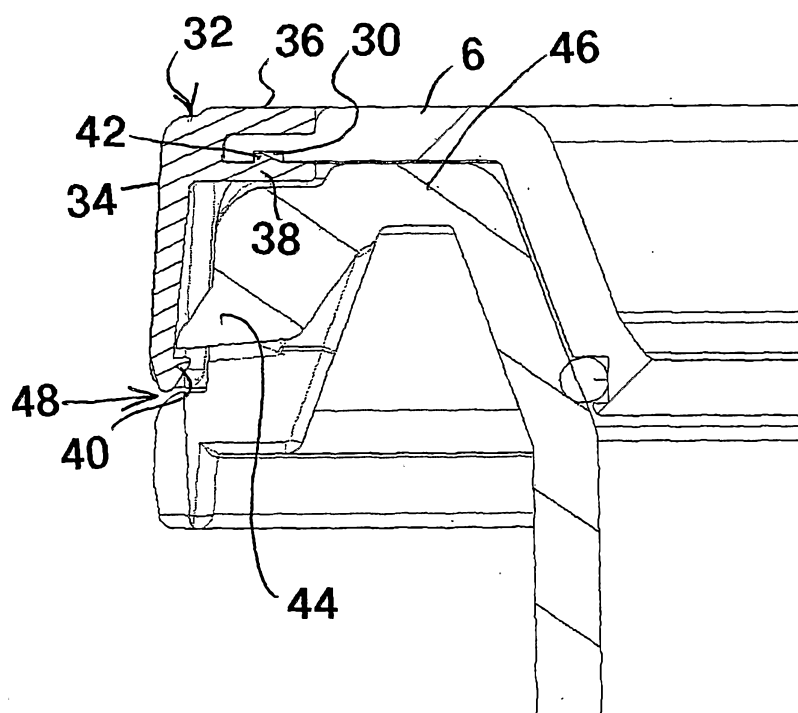


FIGURE 8

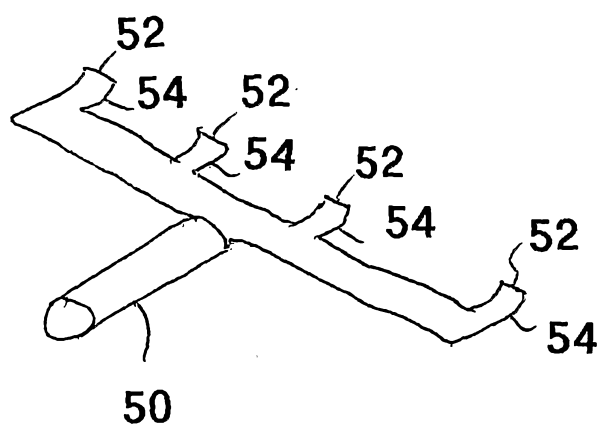


FIGURE 9