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Thomas(10) **Pub. No.: US 2013/0240552 A1**(43) **Pub. Date: Sep. 19, 2013**(54) **RECLOSEABLE PAPERBOARD CONTAINER****Publication Classification**(75) Inventor: **Laurel Thomas**, Portland, OR (US)(51) **Int. Cl.**
B65D 53/02 (2006.01)(73) Assignee: **MEADWESTVACO CORPORATION**, Richmond, VA (US)(52) **U.S. Cl.**
CPC **B65D 53/02** (2013.01); **B65D 43/0268** (2013.01)(21) Appl. No.: **13/989,832**USPC **220/806**(22) PCT Filed: **Oct. 27, 2011**(86) PCT No.: **PCT/US11/57964**§ 371 (c)(1),
(2), (4) Date: **May 28, 2013**(57) **ABSTRACT**

A recloseable paperboard container (10) is disclosed that includes: a body (12) defining an internal volume (18) and an opening (20) into the internal volume, a connector member (14) connected to the body, and a lid (16) releasably engaged with the connector member to form a seal between the connector member and the lid. The connector member may include a flange (44) extending about the opening of the body and releasably engaging with the lid.

Related U.S. Application Data

(60) Provisional application No. 61/418,568, filed on Dec. 1, 2010.

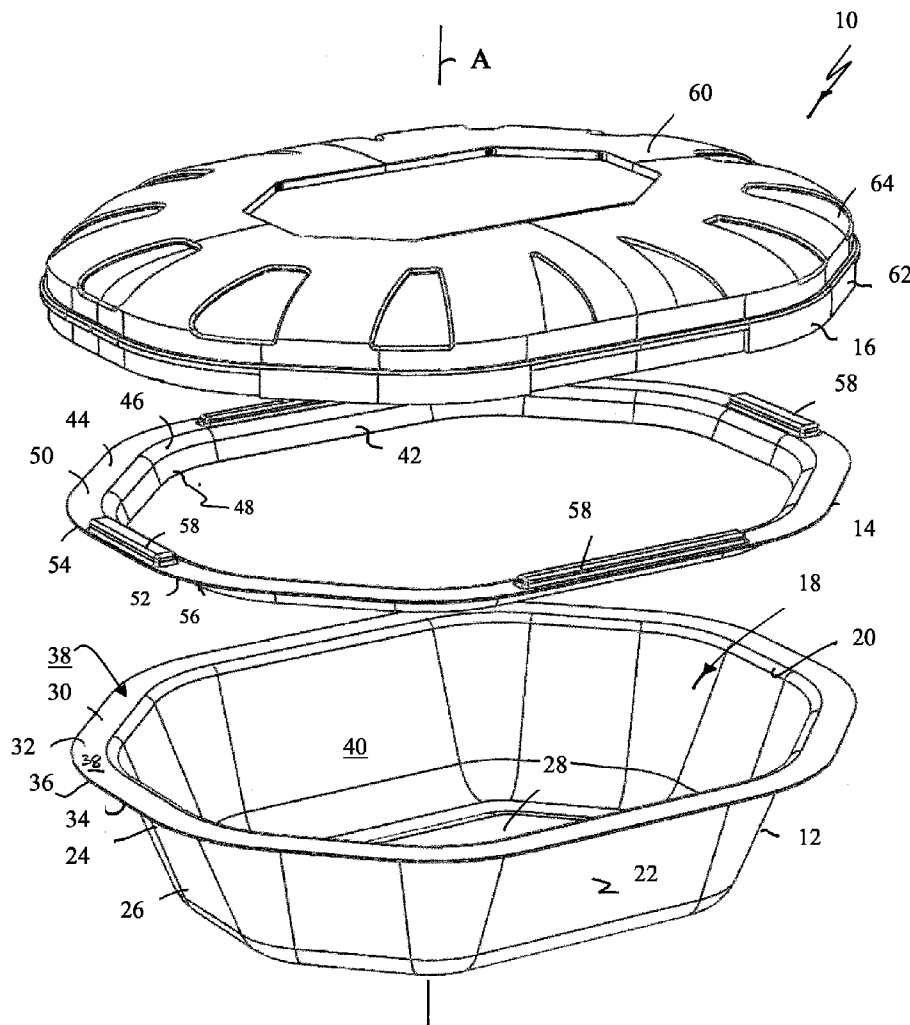


FIGURE 1

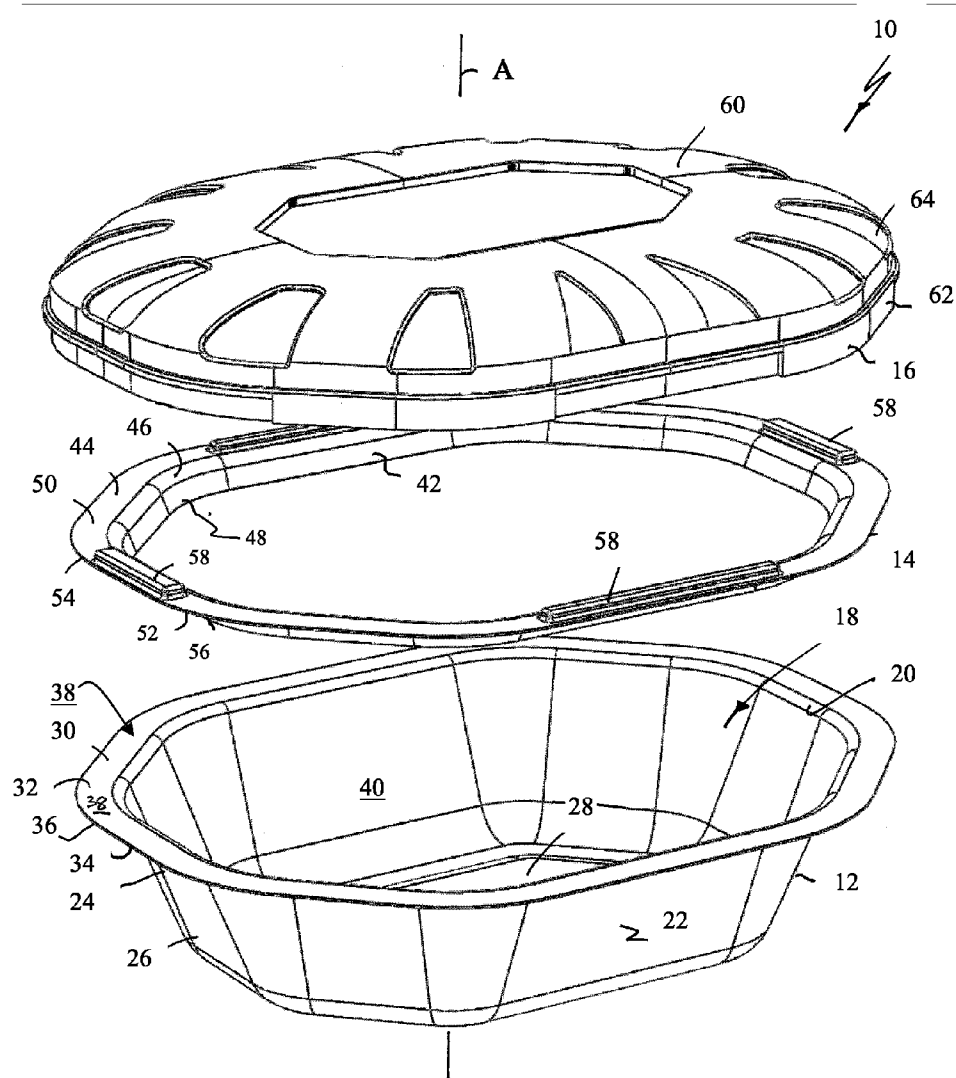


FIGURE 2

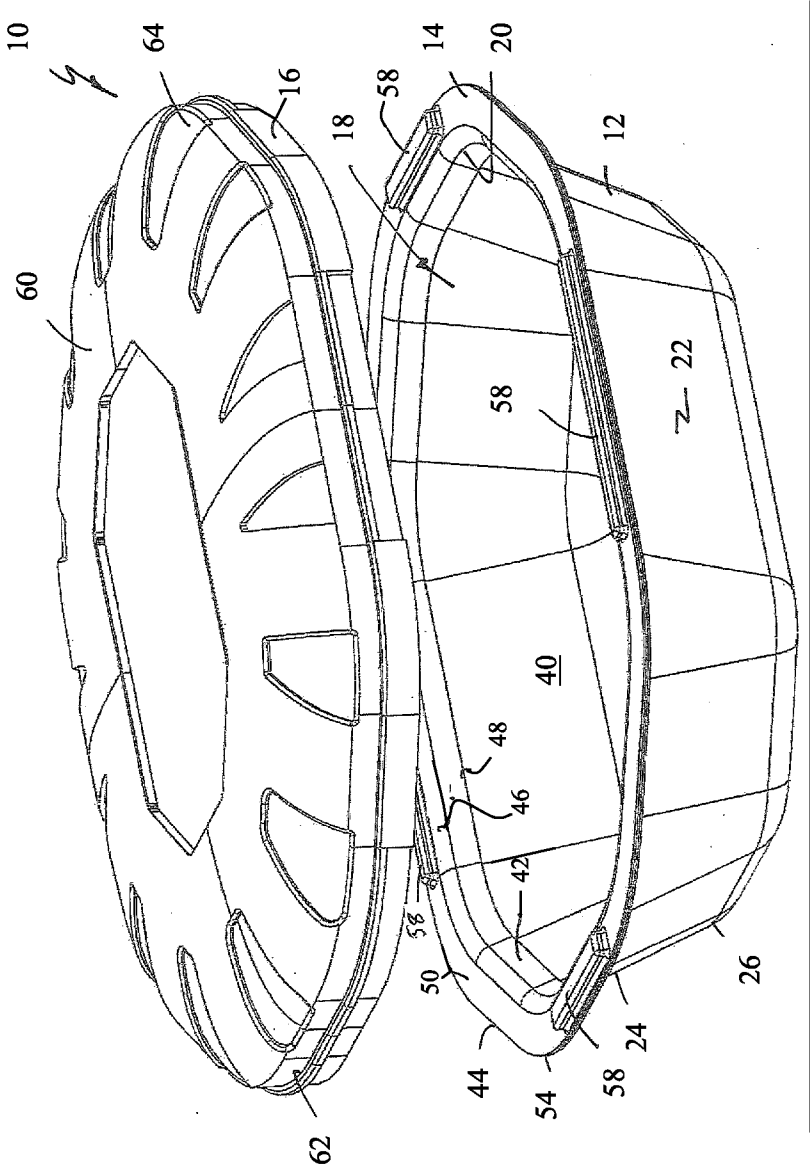


FIGURE 3

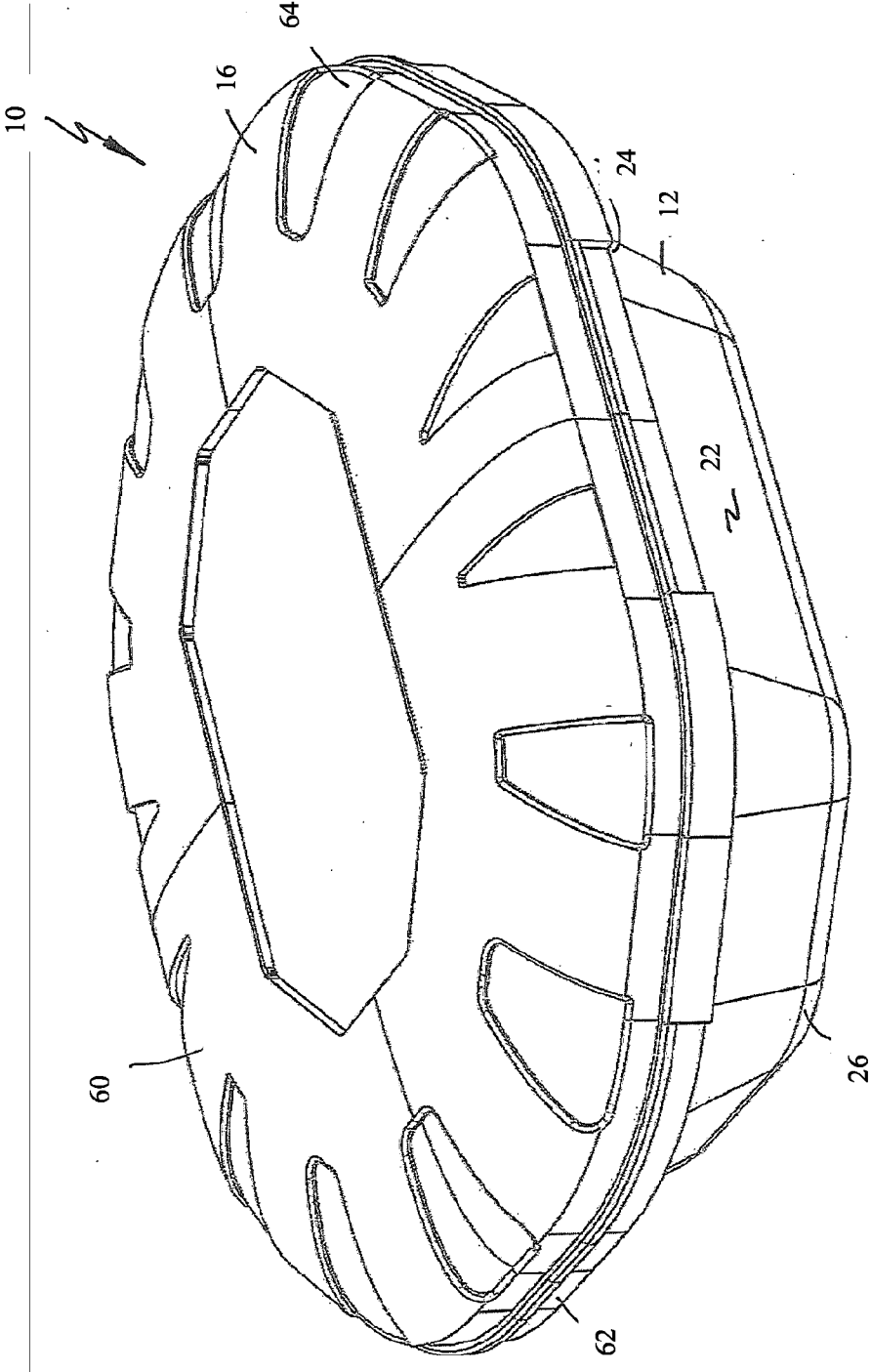


FIGURE 4

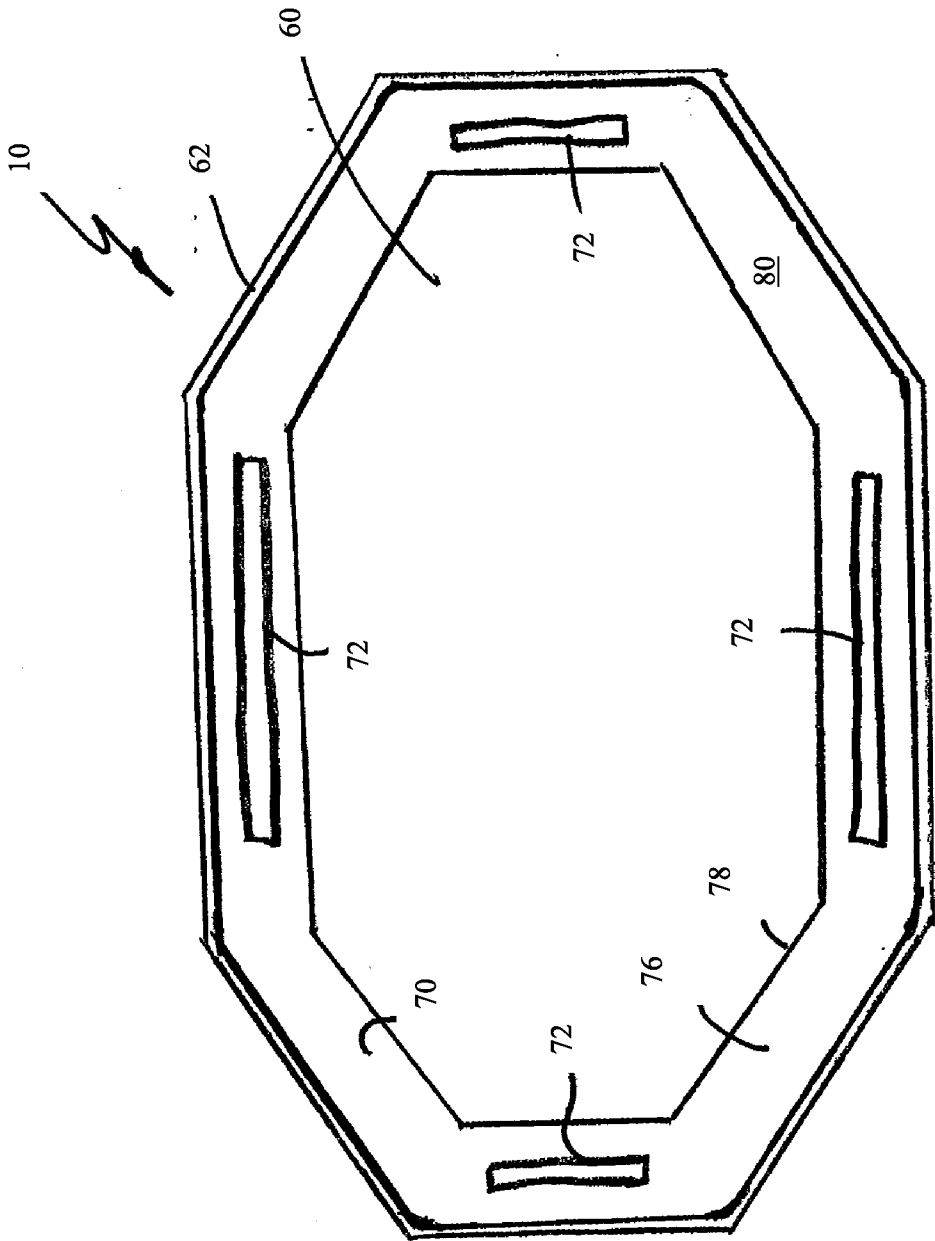
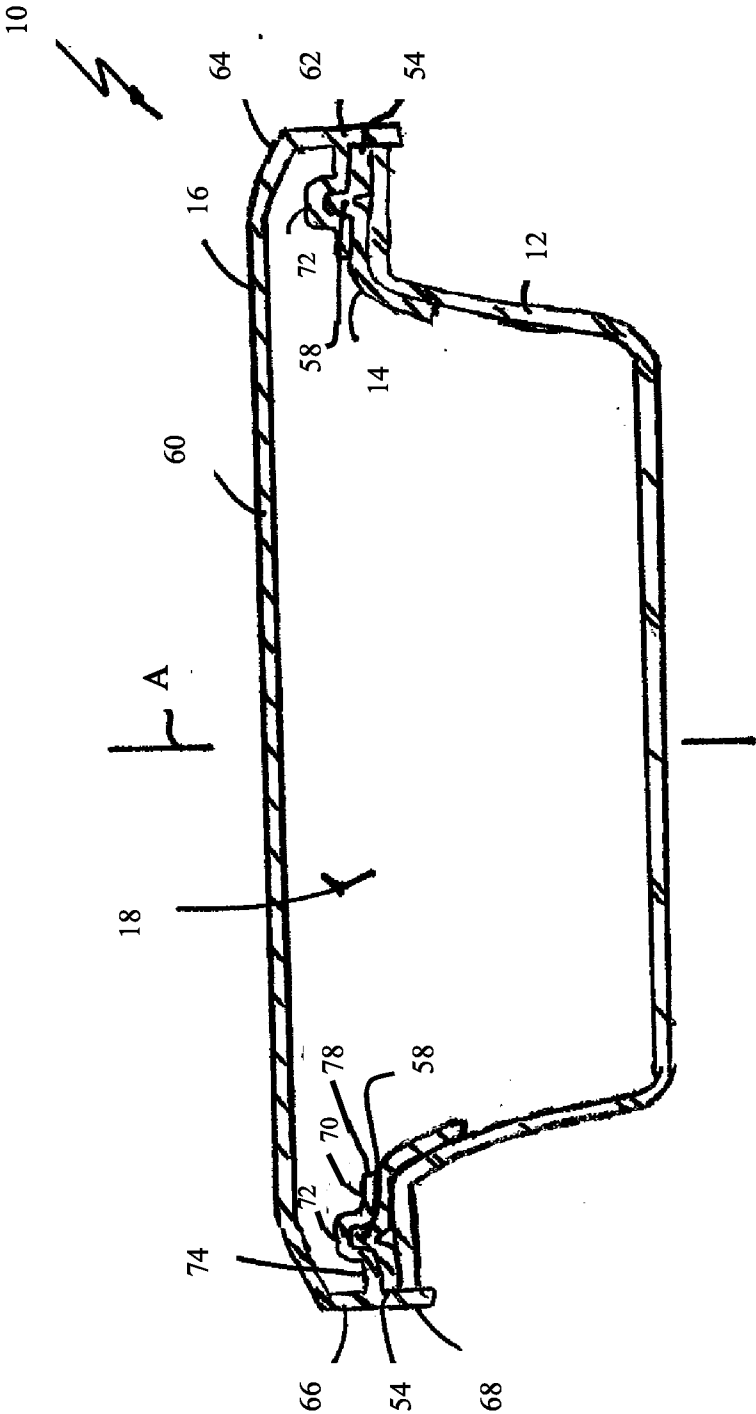


FIGURE 5



RECLOSEABLE PAPERBOARD CONTAINER

FIELD

[0001] This application relates to recloseable containers and, more particularly, to recloseable paperboard containers.

BACKGROUND

[0002] Recloseable containers are well-known in the art. For example, recloseable plastic containers having a lid sealingly connectable to a body have been sold under the TUPPERWARE brand since the mid-1900's. More recently, container manufacturers introduced disposable, recloseable plastic containers.

[0003] The retail success of recloseable plastic containers is often attributed to their ability to form substantially air-tight and liquid-tight seals. For example, TUPPERWARE® brand recloseable plastic containers have a so-called burping seal, wherein a small quantity of air is expelled from the container as the lid is applied to the body, thereby creating a partial vacuum within the container that draws the lid into engagement with the body to maintain an air-tight and liquid-tight seal. The ability to form air-tight and liquid-tight seals has rendered recloseable plastic containers particularly useful for packaging and storing foodstuffs, particularly foodstuffs that contain a liquid.

[0004] Paperboard containers have been developed as a lower cost and more environmentally-friendly alternative to plastic containers. Specifically, the raw material costs (wood pulp) associated with manufacturing paperboard containers are generally lower than the costs (petroleum by-products) associated with plastic containers. Furthermore, paperboard containers may be significantly more biodegradable than plastic containers and/or may be more compactable such that they occupy less volume in a landfill.

[0005] Unfortunately, paperboard is typically less rigid than the plastic used to form recloseable plastic containers. Therefore, an air-tight and liquid-tight seal is difficult to achieve in a recloseable paperboard container.

[0006] Accordingly, those skilled in the art continue with research and development efforts in the field of recloseable containers

SUMMARY

[0007] In one aspect, the disclosed recloseable paperboard container may include a body defining an internal volume and an opening into the internal volume, a connector member fixedly connected to the body, the connector member including a flange extending about the opening, and a lid releasably engaged with the flange to seal the opening.

[0008] In another aspect, the disclosed recloseable paperboard container may include a body defining an internal volume and an opening into the internal volume, the body including a first flange extending about the opening, a connector member fixedly connected to the body, said connector member including a second flange positioned over said first flange, and a lid releasably engaged with the connector member to form a seal between the lid and the second flange, the seal sealing the opening.

[0009] In yet another aspect, the disclosed recloseable paperboard container may include a paperboard body defining an internal volume and an opening into the internal volume, the body including a side wall and a first flange extending outward from the side wall, a connector member

comprising a neck having an upper end portion and a lower end portion, and a second flange extending outward from the upper end portion, wherein the second flange is connected to the first flange, and wherein the lower end portion is received in the internal volume and connected to the side wall, and a lid releasably engaged with the second flange to seal the opening.

[0010] Other aspects of the disclosed recloseable paperboard container will become apparent from the following description, the accompanying drawings and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is an exploded front perspective view of one aspect of the disclosed recloseable paperboard container;

[0012] FIG. 2 is a front perspective view of the recloseable paperboard container of FIG. 1 in a partially assembled configuration;

[0013] FIG. 3 is a front perspective view of the recloseable paperboard container of FIG. 1 in a fully assembled configuration;

[0014] FIG. 4 is a schematic plan view of the underside of the lid of the recloseable paperboard container of FIG. 1; and

[0015] FIG. 5 is a schematic front elevational view, in section, of the recloseable paperboard container of FIG. 3.

DETAILED DESCRIPTION

[0016] Referring to FIGS. 1-3, one aspect of the disclosed recloseable paperboard container, generally designated 10, may include a container body 12, a connector member 14 and a lid 16. The connector member 14 may be fixedly connected to the container body 12, as shown in FIG. 2. The lid 16 may be releasably engaged with the connector member 14 to seal the container 10, as shown in FIGS. 3 and 5.

[0017] The container body 12 may be formed as a tray, a cup, a bowl or the like that defines an internal volume 18 and an opening 20 into the internal volume 18. Those skilled in the art will appreciate that the size and shape of the container body 12 and, hence, the size and shape of the internal volume 18 may be dictated by the size and shape of the goods that will be housed within the container body 12.

[0018] In one particular construction, the container body 12 may include a side wall 22 extending about a vertical axis A of the container 10. The side wall 22 may include an upper end portion 24 and a lower end portion 26 longitudinally spaced from the upper end portion 24. The opening 20 into the internal volume 18 of the container body 12 may be defined by the upper end portion 24 of the side wall 22. A base wall 28 may be connected to the lower end portion 26 to enclose the lower end portion 26 of the side wall 22.

[0019] The upper end portion 24 of the side wall 22 may further define a flange 30 extending about the opening 20. The flange 30 may radiate outward from the side wall 22 relative to the vertical axis A of the container 10. The flange 30 may define an upper face 32, an underside face 34 longitudinally opposed from (i.e., subjacent) the upper face 32, and a peripheral edge 36. The upper face 32 of the flange 30 may define a sealing surface 38.

[0020] The container body 12 may be formed from a paperboard material using any available technique. In one implementation, the container body 12 may be formed by shaping a paperboard fiber slurry into the desired shape. In another implementation, the container body 12 may be formed by shaping a paperboard blank (e.g., between one or more dies)

to obtain the desired shape. Examples of suitable techniques for shaping a paperboard blank include thermoforming, in which pressure and heat (e.g., steam) are used to shape the paperboard blank, and vacuum forming, in which a paperboard blank is drawn into a mold by a vacuum.

[0021] The paperboard blank used to form the container body 12 may be formed as a layered structure that includes a paperboard layer and a sealing layer. The sealing layer of the paperboard blank may be exposed on the interior surface 40 of the container body 12 and may form the sealing surface 38 of the flange 30. Optionally, a barrier layer may be positioned between the paperboard layer and the sealing layer. Additional layers, such as additional paperboard layers and/or additional functional layers, may be included in the layered structure of the paperboard blank without departing from the scope of the present disclosure.

[0022] The paperboard layer of the paperboard blank used to form the container body 12 may be formed from various paperboard substrates. Examples of suitable paperboard substrates include, but are not limited to, coated natural kraft board (CNK), solid bleached sulfate board (SBS), solid unbleached sulfate board (SUS), coated recycled board (CRB), coated white lined chipboard (WLC) and folding boxboard (FBB). However, those skilled in the art will appreciate that any paper-based substrate suitable for forming containers may be used without departing from the scope of the present disclosure.

[0023] The sealing layer of the paperboard blank used to form the container body 12 may be formed from various materials capable of being activated, such as with heat, ultrasonic energy, radiation or the like, to form a seal. Examples of suitable sealing materials include, but are not limited to, polyester, low density polyethylene, high density polyethylene, ethylene-vinyl acetate copolymer, ethylene methyl acrylate copolymer, ionomer polymers (e.g., poly(ethylene-co-methacrylic acid) copolymer) and combinations thereof.

[0024] The barrier layer of the paperboard blank used to form the container body 12 may be formed from various materials having moisture and/or oxygen barrier properties. Examples of suitable barrier materials include, but are not limited to, nylon polymers, ethylene-vinyl alcohol copolymer (EVOH), polyethylene terephthalate (PET), materials derived from water-based barrier coatings, polyamide, polyvinylidene chloride, cyclic olefin copolymer, metalized polymer film and combinations thereof.

[0025] The connector member 14 may be fixedly connected to the container body 12 to structurally reinforce the flange 30 of the container body 12. Furthermore, the connector member 14 may include structure for forming a releasable engagement with the lid 16.

[0026] The connector member 14 may include a neck 42 and a flange 44. The neck 42 may extend about the vertical axis A of the container 10 and may include an upper end portion 46 and a lower end portion 48 longitudinally spaced from the upper end portion 46. The flange 44 may be connected to, and may radially extend from, the upper end portion 46 of the neck 42. A connector member 14 without a neck 42 is also contemplated.

[0027] In one particular embodiment, the flange 44 may radiate outward (relative to the vertical axis A of the container 10) from the upper end portion 46 of the neck 42. The flange 44 may define an upper face 50, an underside face 52 longitudinally opposed from (i.e., subjacent) the upper face 50, and

a peripheral edge 54. The underside face 52 of the flange 44 may define a sealing surface 56.

[0028] The connector member 14 may be connected to the container body 12 such that the flange 44 of the connector member 14 sits on the flange 30 of the container body 12 and the neck 42 of the connector member 14 is received within, and generally co-axially aligned with, the upper end portion 24 of the side wall 22 of the container body 12, as shown in FIG. 2. Other configurations are also contemplated, such as a configuration wherein the neck 42 is radially outside of the side wall 22 of the container body 12.

[0029] In one realization, the connector member 14 may be connected to the container body 12 by sealingly connecting the underside face 52 of the flange 44 of the connector member 14 to the upper face 32 of the flange 30 of the container body 12. In another realization, the connector member 14 may be connected to the container body 12 by sealingly connecting the neck 42 of the connector member 14 to the upper end portion 24 of the side wall 22 of the container body 12. In yet another realization, the connector member 14 may be connected to the container body 12 by sealingly connecting both the flange 44 and the neck 42 of the connector member 14 to the container body 12.

[0030] The sealing connection between the connector member 14 and the container body 12 may be formed using any available technique. Those skilled in the art will appreciate that the sealing connection should be liquid-tight when the container 10 will be used to house liquids or wet goods.

[0031] In a first expression, the connection between the connector member 14 and the container body 12 may be effected with an adhesive. The type of adhesive used will depend on the compositions of the surfaces receiving the adhesive. As one example of the first expression, the adhesive may be positioned between the underside face 52 of the flange 44 of the connector member 14 and the upper face 32 of the flange 30 of the container body 12. As another example of the first expression, the adhesive may be positioned in the annular region between the side wall 22 and the neck 42.

[0032] In a second expression, the connection between the connector member 14 and the container body 12 may be formed by activating the optional sealing layer of the container body 12 to bond the relevant portion of the container body 12 to the connector portion 14. As one example of the second expression, the upper face 32 of the flange 30 of the container body 12 may be heated to melt (or at least tackify) the sealing layer prior to applying the connector member 14 to the container body 12.

[0033] At this point, those skilled in the art will appreciate that the neck 42 of the connector member 14 may reinforce the upper end portion 24 of the side wall 22 of the container body 12 and the flange 44 of the connector member 14 may reinforce the flange 30 of the container body 12.

[0034] The connector member 14 may be formed from one or more polymeric materials, such as low density polyethylene, high density polyethylene and polypropylene. The selected polymeric material may be molded into the connector member 14 using known molding techniques, such as injection molding or vacuum forming. The amount of polymeric material ultimately used to form the connector member 14 may depend on the inherent rigidity of the selected polymeric material.

[0035] While it may be advantageous to form the connector member 14 from polymeric materials due to the low cost, the light weight, the rigidity and the workability of polymeric

materials, those skilled in the art will appreciate that various materials may be used. Specifically, those skilled in the art will appreciate that the selected materials may provide the connector member 14 with the rigidity necessary to reinforce the container body 12 such that the container body 12 is capable of securely receive the lid 16. For example, connector members 14 formed from paperboard or paperboard-containing substrates are also contemplated.

[0036] As shown in FIGS. 1 and 2, the connector member 14 may include a plurality of protrusions 58 extending upward from (e.g., normal to) the upper face 50 of the flange 44 of the connector portion 14. The protrusions 58 may be sized and shaped to be closely received in corresponding recesses 72 in the lid 16, as is described in greater detail below. A single, continuous rib in lieu of multiple protrusions 58 is also contemplated.

[0037] The lid 16 may be releasably connected to the connector member 14 to seal the opening 20 of the container 10. Specifically, the lid 16 may be constructed to form a releasable sealing engagement with the flange 44 of the connector member 14 to seal the opening 20 of the container 10.

[0038] The lid 16 may be formed from the same or similar materials as the connector member 14. For example, the lid 16 may be formed from a polymeric material, such as low density polyethylene, high density polyethylene and polypropylene.

[0039] In one particular assembly, the lid 16 may include a sealing panel 60 and a rim 62. The sealing panel 60 may be sized and shaped to cover the opening in the container body 12. The rim 62 may extend circumferentially about the periphery 64 of the sealing panel 60, and may include an upper end portion 66 connected to the sealing panel 60 and a lower end portion 68 longitudinally spaced from the upper end portion 66.

[0040] As shown in FIG. 5, the rim 62 may be sized as shaped to be received over the peripheral edge 54 of the connector member 14, while minimizing, if not eliminating, the annular gap between the peripheral edge 54 of the connector member 14 and the rim 62. Therefore, the close-fitting engagement between the rim 62 and the peripheral edge 54 of the connector member 14 may form a seal between the lid 16 and the connector member 14, which may be sufficient to seal the opening 20.

[0041] As shown in FIGS. 4 and 5, a flange 70 may extend radially inward from the rim 62 of the lid 16. The flange 70 may define an underside face 76 (FIG. 4), an upper face 74 longitudinally opposed from (i.e., superjacent) the underside face 76, and an internal edge 78. The underside face 76 of the flange 70 may define a sealing surface 80.

[0042] Thus, a face-to-face engagement between the underside face 76 of the flange 70 of the lid 16 with the upper face 50 of the flange 44 of the connector member 14 may seal the opening 20 of the container 10. Such a face-to-face seal may be an alternative to, or in addition to, the seal created by the close-fitting engagement between the rim 62 and the peripheral edge 54 of the connector member 14.

[0043] The flange 70 may define a plurality of recesses 72 sized and shaped to closely receive the protrusions 58 extending from the flange 44 of the connector member 14. Therefore, the lid 16 may be releasably and sealingly connected to the connector member 14 and, ultimately, to the container body 12 by (1) positioning the lid 16 over the connector member 14, (2) aligning the flange 70 of the lid 16 with the flange 44 of the connector member 14 such that the protrusions 58 of the connector member 14 are aligned with the recesses 72 of the lid 16, and (3) pressing the lid 16 into engagement with the connector member 14 such that the protrusions 58 are urged into the recesses 72. A sufficient pulling force should separate the lid 16 from the connector member 14.

sions 58 of the connector member 14 are aligned with the recesses 72 of the lid 16, and (3) pressing the lid 16 into engagement with the connector member 14 such that the protrusions 58 are urged into the recesses 72. A sufficient pulling force should separate the lid 16 from the connector member 14.

[0044] Accordingly, the disclosed container 10 includes a connector member 14 connected to a paperboard container body 12 and a lid 16 that sealingly engages the connector member 14 to seal the opening 20 in the container body 12. Without being limited to any particular theory, it is believed that the structure and rigidity of the connector member 14 forms a tighter seal with the lid 16 than would be achievable by connecting the lid 16 directly to the paperboard container body 12. Indeed, the use of a connector member 14 may facilitate the formation of a liquid tight seal between the lid 16 and the paperboard container body 12.

[0045] Although various aspects of the disclosed recloseable paperboard container have been shown and described, modifications may occur to those skilled in the art upon reading the specification. The present application includes such modifications and is limited only by the scope of the claims.

What is claimed is:

1. A container comprising:

a body defining an internal volume and an opening into said internal volume;

a connector member fixedly connected to said body, said connector member comprising a flange extending about said opening; and

a lid releasably engaged with said flange.

2. The container of claim 1 wherein said body comprises paperboard.

3. The container of claim 1 wherein said body comprises a second flange, and wherein said flange of said connector member is connected to said second flange.

4. The container of claim 1 wherein said connector member further comprises a neck having an upper end portion and a lower end portion, said flange of said connector member extending from said upper end portion.

5. The container of claim 4 wherein said lower end portion is received in said internal volume.

6. The container of claim 4 wherein said neck is sealingly connected to said body.

7. The container of claim 1 wherein said engagement between said lid and said flange forms a water-tight seal.

8. The container of claim 1 wherein one of said flange and said lid comprises a protrusion and the other of said flange and said lid comprises a recess sized to closely receive said protrusion.

9. The container of claim 1 wherein said lid comprises a rim, and wherein said rim is sealingly engaged with said flange.

10. A container comprising:

a body defining an internal volume and an opening into said internal volume, said body comprising a first flange extending about said opening,

a connector member fixedly connected to said body, said connector member comprising a second flange, wherein said first flange is subjacent to said second flange; and

a lid releasably engaged with said second flange to seal said opening.

11. The container of claim 10 wherein said body comprises paperboard.

12. The container of claim **10** wherein said connector member further comprises a neck having an upper end portion and a lower end portion, said second flange extending from said upper end portion.

13. The container of claim **12** wherein said lower end portion is received in said internal volume.

14. The container of claim **12** wherein said neck is sealingly connected to said body.

15. The container of claim **10** wherein said engagement between said lid and said second flange forms a water-tight seal.

16. The container of claim **10** wherein one of said second flange and said lid comprises a protrusion and the other of said second flange and said lid comprises a recess sized to closely receive said protrusion.

17. The container of claim **10** wherein said lid comprises a rim, and wherein said rim is sealingly engaged with said second flange.

18. A container comprising:

a paperboard body defining an internal volume and an opening into said internal volume, said body comprising a side wall and a first flange extending outward from said side wall;

a connector member comprising a neck having an upper end portion and a lower end portion, and a second flange extending outward from said upper end portion, wherein said second flange is connected to said first flange, and wherein said lower end portion is received in said internal volume and connected to said side wall; and

a lid releasably engaged with said second flange to seal said opening.

19. The container of claim **18** wherein said engagement between said lid and said second flange forms a water-tight seal.

20. The container of claim **18** wherein one of said second flange and said lid comprises a protrusion and the other of said second flange and said lid comprises a recess sized to closely receive said protrusion.

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