



New connection on: : 22-03-2018 : 00:50:42 - Last disconnection on: :
21-03-2018 : 23:09:01

V 4.0.0.44358(LP,U,linux) (Rev:43856 2017-04-27 09:03:29 +0200#(D201802)) (RPM D201802)

Welcome to EPOQUE Rebuild under the Production Environment

[EPODOC: SS 6] ..fi

Select a database: ..FI EPODOC

 Database: EPODOC

[EPODOC: SS 6] diafragma and base and envase

Results in EPODOC 0

EPODOC: term 'ENVASE' not found in index 'BI'. WARNING(1)

[SS 7] diaphragm and base and container

Results in EPODOC 517

[SS 8] Pressure and reinforced and plastic and container

Results in EPODOC 211

[SS 9] 7 and 8

Results in EPODOC 0

[SS 10] TWO-STAGE AND CONTAINER AND BASE

Results in EPODOC 0

EPODOC: term 'TWO-STAGE' not found in index 'BI'. WARNING(1)

[SS 11] TWO STAGE AND CONTAINER AND BASE

Results in EPODOC 0

EPODOC: term 'TWO STAGE' not found in index 'BI'. WARNING(1)

[SS 12] CONTAINER AND BASE

Results in EPODOC 81.330

[SS 13] /ic B65D23/00

Results in EPODOC 11.760

[SS 14] 12 and 13

Results in EPODOC 637

[SS 15] 8 and 13

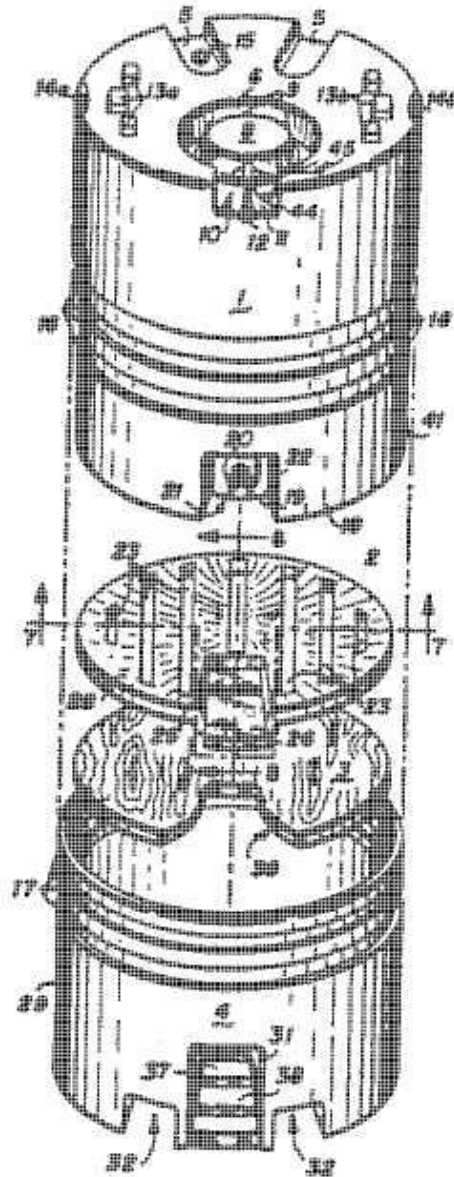
Results in EPODOC 1

[SS 16] ..li



1/1 © EPODOC / EPO

- PN - [US5226558](#) A 19930713
- PR - US19920877663 19920501
- AP - US19920877663 19920501
- DT - *
- CT - [US2620089](#) A []; [US3471114](#) A [];
[US4436216](#) A []; [US4609120](#) A [];
[US4733790](#) A []; [US4742931](#) A [];
[US5029734](#) A []; [US5052582](#) A [];
[US5099873](#) A []; [US5105947](#) A []
- CTNP - [] Poly Cal Plastics, Inc., advertising publication, pp. 14, 15 and product profile sheet with inset advertisement, Oct. 1985, publication title unknown
[] Bonar Plastics Ltd., 32 page Product Catalog, Oct. 1988
[] Poly Cal Plastics, Inc. 64 page Product Catalog for Zorb Tanks, Feb. 1, 1989
- CCI - [B65D25/24](#) ; [B65D25/38](#)
- PA - ROTONICS MANUFACTURING INC [US]; WESTERN POLY DRUM INC [US]
- TI - Transportable multi-use storage **container** and pallet system



AB

- A transportable, multi-use, non-corrodible, non-metallic, polyolefin **plastic** storage **container** and integral pallet system for all-weather storage, handling and transportation of a variety of liquid or free-flowing solid materials, including hazardous and human consumable materials. A preferred embodiment comprises a rotationally molded vertically-oriented polyethylene **container**, polyethylene **container** cushion with reinforcing wood base, and a cup-like polyethylene pallet which receives and is integrally attached by thermal shrinkage or welding to said **container** by locking and reinforcing ribs. The pallet includes integrally molded two-way access tunnels for handling by a fork lift or pallet jack. The **container** and integral pallet system can be stacked two or more containers high and is self-aligning when stacked. Additional features include a recessed manway and buttressed closure, recessed channels for a combination **pressure** and vacuum release valve, recessed off-set ballvalve with **reinforced** tunnel and sloping drain lip, an offset sump with bottom sloping to the sump for near 100% drainage without tipping, tie-down ears and wear pads on the pallet feet. The circumferential reinforcing and locking ribs prevent bowing of the **container** at its mid-point and the cup pallet provides double-walled protection for the **container** at

the lower 25-75% of the **container** height. The **container** and integral pallet system complies with Department of Transportation ("DOT") regulations for exempt steel hazardous waste containers, and the material of which complies with the federal Food and Drug Administration ("FDA") regulations for storage and transportation of human consumable materials.

[SS 16] 7 and 13

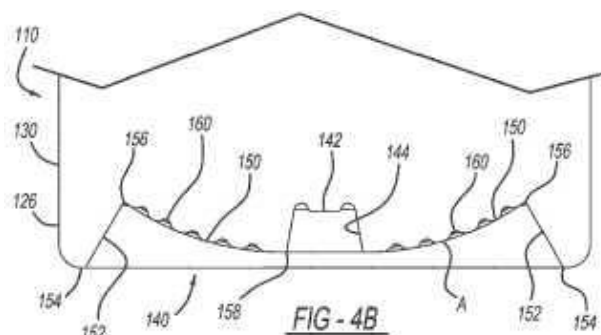
Results in EPODOC 8

[SS 17] ..li



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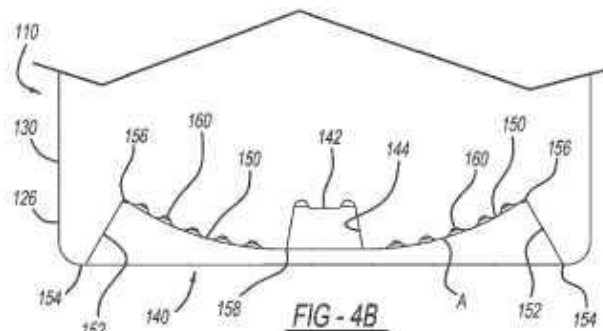
- PN - [MX2017002163](#) A 20170815
- PR - US201462040277P
20140821; US201562138190P
20150325; WO2015US46123
20150820
- AP - MX20170002163 20150820
- DT - I
- CCI - [B65D1/0276](#) ; [B65D79/005](#)
- CUI - [B29C49/12](#) ; [B29C49/46](#) ;
[B65B61/24](#)
- CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)
- CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;
[B65D23/00](#) ; [B29K2101/12](#)
- PA - AMCOR LTD [AU]
- TI - **CONTAINER BASE INCLUDING
HEMISPHERICAL
ACTUATING DIAPHRAGM**
- AB - A **container** including a finish
defining an opening at a first
end of the **container** that
provides access to an
internal volume defined by
the **container**. A **base** portion
of the **container** includes



a **diaphragm** that is concave relative to an exterior of the **container**. The **diaphragm** extends from a standing surface of the **container** to a center push-up portion of the **base** portion. The standing surface is at a second end of the **container** opposite to the first end. The **diaphragm** is configured to move from an as-blown first configuration to a second configuration in which the **diaphragm** is closer to the first end as compared to the first configuration in order to reduce residual vacuum within the **container**. The **diaphragm** is generally hemispherical in cross-section when in the second configuration.

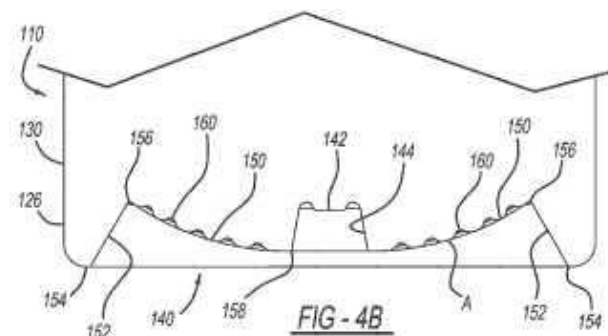
2/8 © EPODOC / EPO

- PN - [MX2017002165](#) A 20170815
- PR - US201462040277P
20140821; US201562138190P
20150325; WO2015US46110
20150820
- AP - MX20170002165 20150820
- DT - I
- CCI - [B65D1/0276](#) ; [B65D79/005](#)
- CUI - [B29C49/12](#) ; [B29C49/46](#) ;
[B65B61/24](#)
- CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)
- CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;
[B65D23/00](#) ; [B29K2101/12](#)
- PA - AMCOR LTD [AU]
- TI - TWO-STAGE **CONTAINER BASE**.
- AB - A blow-molded **container** including a finish and a **base**. The finish defines an opening at a first end of the **container** that provides access to an internal volume. The **base** includes a **diaphragm** and a standing surface.



The **diaphragm** extends radially outward from a central push-up portion. The standing surface of the **container** is at a second end of the **container**. In response to an internal vacuum caused by hot-filling and closing the **container**, the **diaphragm** is configured to move passively from an as-blown first configuration to a second configuration in which the **diaphragm** is closer to the first end of the **container** as compared to the as-blown first configuration. The **diaphragm** is configured to move from the second configuration to an activated third configuration in which the **diaphragm** is closer to the first end of the **container** in response to the **diaphragm** being externally actuated by a tool.

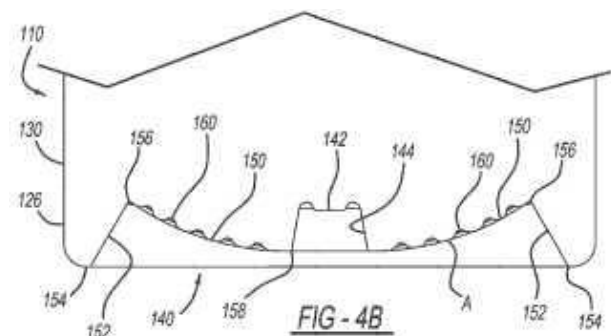
- 3/8** © EPODOC / EPO
- PN - [CA2958343](#) A1 20160225
- PR - US201462040277P
20140821; US201562138190P
20150325; WO2015US46123
20150820
- AP - CA20152958343 20150820
- DT - I
- CCI - [B65D1/0276](#) ; [B65D79/005](#)
- CUI - [B29C49/12](#) ; [B29C49/46](#) ;
[B65B61/24](#)
- CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)
- CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;
[B65D23/00](#) ; [B29K2101/12](#)
- PA - AMCOR LTD [AU]
- TI - **CONTAINER BASE INCLUDING
HEMISPHERICAL
ACTUATING DIAPHRAGM**
- AB - A **container** including a finish



defining an opening at a first end of the **container** that provides access to an internal volume defined by the **container**. A **base** portion of the **container** includes a **diaphragm** that is concave relative to an exterior of the **container**. The **diaphragm** extends from a standing surface of the **container** to a center push-up portion of the **base** portion. The standing surface is at a second end of the **container** opposite to the first end. The **diaphragm** is configured to move from an as-blown first configuration to a second configuration in which the **diaphragm** is closer to the first end as compared to the first configuration in order to reduce residual vacuum within the **container**. The **diaphragm** is generally hemispherical in cross-section when in the second configuration.

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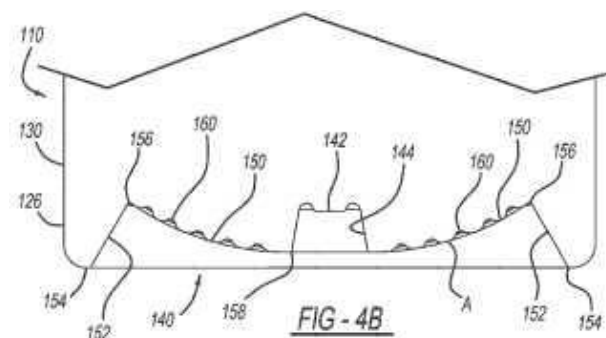
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- PR - US201462040277P
20140821; US201562138190P
20150325; WO2015US46110
20150820
- AP - CA20152958344 20150820
- DT - I
- CCI - [B65D1/0276](#) ; [B65D79/005](#)
- CUI - [B29C49/12](#) ; [B29C49/46](#) ;
[B65B61/24](#)
- CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)
- CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;
[B65D23/00](#) ; [B29K2101/12](#)
- PA - AMCOR LTD [AU]
- TI - TWO-STAGE **CONTAINER BASE**
- AB - A blow-molded **container** including a finish and a **base**.



The finish defines an opening at a first end of the **container** that provides access to an internal volume. The **base** includes a **diaphragm** and a standing surface. The **diaphragm** extends radially outward from a central push-up portion. The standing surface of the **container** is at a second end of the **container**. In response to an internal vacuum caused by hot-filling and closing the **container**, the **diaphragm** is configured to move passively from an as-blown first configuration to a second configuration in which the **diaphragm** is closer to the first end of the **container** as compared to the as-blown first configuration. The **diaphragm** is configured to move from the second configuration to an activated third configuration in which the **diaphragm** is closer to the first end of the **container** in response to the **diaphragm** being externally actuated by a tool.

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- PN - [EP3183179](#) A1 20170628
- PR - US201462040277P
20140821; US201562138190P
20150325; WO2015US46123
20150820
- AP - EP20150833820 20150820
- DT - I
- CCI - [B65D1/0276](#) ; [B65D79/005](#)
- CUI - [B29C49/12](#) ; [B29C49/46](#) ;
[B65B61/24](#)
- CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)
- CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;



[B65D23/00](#) ; [B29K2101/12](#)

PA - AMCOR LTD [AU]
TI - **CONTAINER BASE INCLUDING**
HEMISPHERICAL
ACTUATING **DIAPHRAGM**

6/8 © EPODOC / EPO

PN - [WO2016029023](#) A1 20160225
PR - US201462040277P
20140821; US201562138190P
20150325

AP - WO2015US46123 20150820

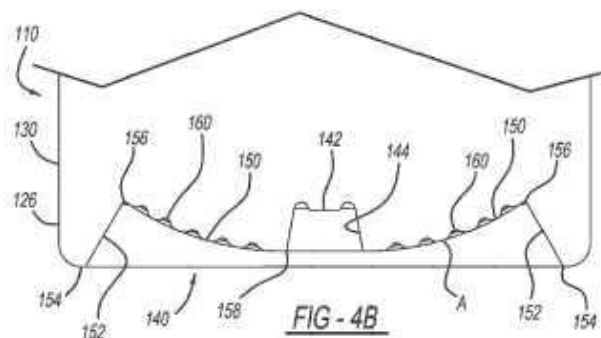
DT - **

CT - [KR] ISR (A1)
[US2013001235](#) A1 20130103
[XY] (PATCHEAK TERRY D [US],
et al)
[X] 1-21, 29-37
* See paragraphs [0010],
[0040]-[0050], [0056]-[0058];
and figures 1, 3-4, 7-8. *
[Y] 22-28, 38-40;
[US2008047964](#) A1 20080228
[Y] (DENNER JOHN [US], et al)
[Y] 22-28, 38-40
* See paragraph [0032]; and
figure 4. *;
[JP2013154907](#) A 20130815
[A] (YOSHINO KOGYOSHO CO
LTD)
[A] 1-40
* See paragraphs [0020],
[0027]; and figures 3-4. *;
[JP2000128140](#) A 20000509
[A] (AOKI TECHNICAL LAB INC)
[A] 1-40
* See paragraphs [0012]
-[0015]; and figure 1. *;
[US2011017700](#) A1 20110127
[A] (PATCHEAK TERRY D [US], et
al)
[A] 1-40
* See paragraphs [0084]
-[0086]; and figures 3-4. *

CCI - [B65D1/0276](#) ; [B65D79/005](#)

CUI - [B29C49/12](#) ; [B29C49/46](#) ;
[B65B61/24](#)

CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)



- CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;
[B65D23/00](#) ; [B29K2101/12](#)
- PA - AMCOR LTD [AU]; WOLOSZYK MARK [US]; DOLE OMKAR [US]; DOWNING DAVID [US]; MAKI KIRK EDWARD [US]; PHILIP BRADLEYS [US]; STELZER JAMES [US]
- TI - **CONTAINER BASE INCLUDING HEMISPHERICAL ACTUATING DIAPHRAGM**
- AB - A **container** including a finish defining an opening at a first end of the **container** that provides access to an internal volume defined by the **container**. A **base** portion of the **container** includes a **diaphragm** that is concave relative to an exterior of the **container**. The **diaphragm** extends from a standing surface of the **container** to a center push-up portion of the **base** portion. The standing surface is at a second end of the **container** opposite to the first end. The **diaphragm** is configured to move from an as-blown first configuration to a second configuration in which the **diaphragm** is closer to the first end as compared to the first configuration in order to reduce residual vacuum within the **container**. The **diaphragm** is generally hemispherical in cross-section when in the second configuration.

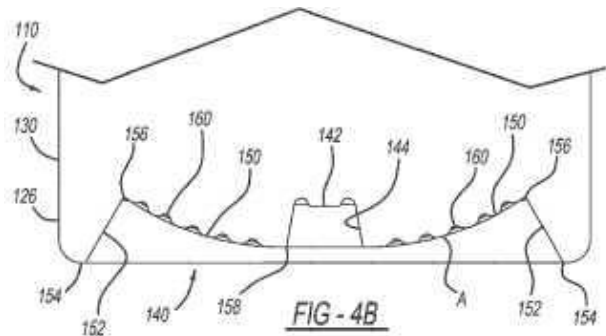
PN - [WO2016029016](#) A1 20160225

PR - US201462040277P
20140821; US201562138190P
20150325

AP - WO2015US46110 20150820

DT - *; Rep

CT - |KR| ISR (A1)
[US2014109517](#) A1 20140424
[Y] (MELROSE DAVID [NZ])
[Y] 1-37
* See abstract, paragraphs
[0029], [0032], [0033], [0036]
-[0040], and figures 6, 7, 8A-
8C, 9. *;
[US2005017013](#) A1 20050127
[Y] (PEISACH ALBERTO [US], et
al)
[Y] 1-37
* See abstract, paragraphs
[0049]-[0051], and figure 2a.
*;
[US2012181246](#) A1 20120719
[A] (ROSS JOHN R [US], et al)
[A] 1-37
* See abstract, paragraphs
[0021]-[0024], and figures 1-
5. *;
[US2008257856](#) A1 20081023
[A] (MELROSE DAVID [NZ], et
al)
[A] 1-37
* See abstract, paragraphs
[0047]-[0070], and figures 1A-
1E. *;
[US4863046](#) A 19890905
[A] (COLLETTE WAYNE N [US],
et al)
[A] 1-37
* See abstract, column 5, line
42 - column 6, line 44, and
figures 9, 10. *



CCI - [B65D1/0276](#) ; [B65D79/005](#)

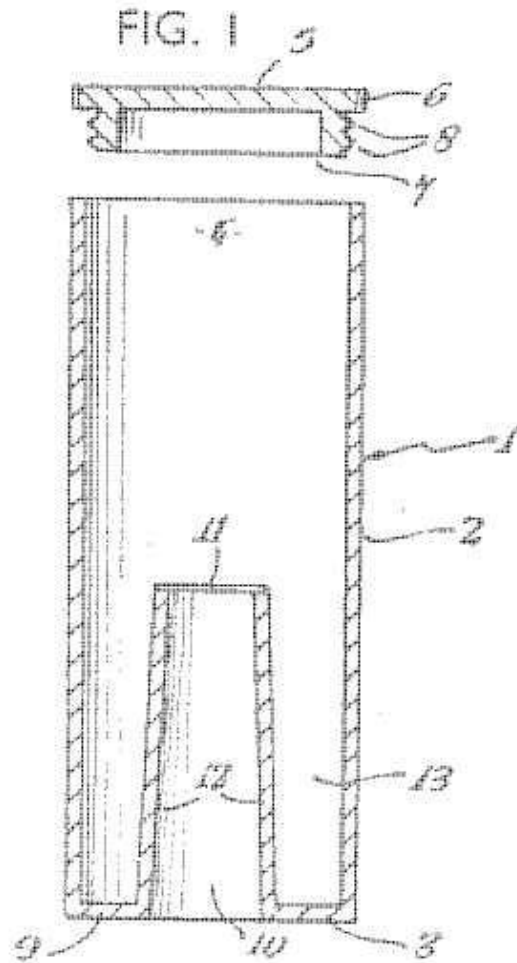
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[B65B61/24](#)

CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)

CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;
[B65D23/00](#) ; [B29K2101/12](#)

- PA - AMCOR LTD [AU]; MAST LUKE A [US]; STEIH RICHARD [US]; MAKI KIRK EDWARD [US]; DOLE OMKAR [US]; WOLOSZYK MARK [US]; DOWNING DAVID [US]
- TI - TWO-STAGE **CONTAINER BASE**
- AB - A blow-molded **container** including a finish and a **base**. The finish defines an opening at a first end of the **container** that provides access to an internal volume. The **base** includes a **diaphragm** and a standing surface. The **diaphragm** extends radially outward from a central push-up portion. The standing surface of the **container** is at a second end of the **container**. In response to an internal vacuum caused by hot-filling and closing the **container**, the **diaphragm** is configured to move passively from an as-blown first configuration to a second configuration in which the **diaphragm** is closer to the first end of the **container** as compared to the as-blown first configuration. The **diaphragm** is configured to move from the second configuration to an activated third configuration in which the **diaphragm** is closer to the first end of the **container** in response to the **diaphragm** being externally actuated by a tool.

PN - [GB1468801](#) A 19770330
 PR - GB19730011191 19730307
 AP - GB19730011191 19730307
 DT - *
 CCI - [B01L3/508](#)
 PA - ACCU TECH LTD
 TI - CONTAINERS
 AB - 1468801 Portable containers
 ACCU-TECH Ltd 27 Feb 1974 [7
 March 1973] 11191/73
 Heading B8D A
 sample **container** comprises a
 body part 1 having a top
 opening 4 sealingly closed by
 a cap or plug 5 and a bottom
 recessed portion 10 closed at
 its innermost end by a
 rupturable part 11 to
 facilitate the formation of a
 second aperture through
 which any of the contents can
 be withdrawn. The length of
 the recess is not less than one
 third and not more than two
 thirds of the length of
 the **container**. In use, a
 sample, e.g. blood, is inserted
 through the open end 4 and
 the plug applied.
 Subsequently the sample is
 removed by pushing a pipette
 through the **diaphragm**,
 the **container** having been
 inverted, Fig. 2 (not shown).
 Opening by rupturing a part
 at the **base** of a recess is said
 to prevent aeration and
 spillage. The body part is
 blow- or injection-moulded of
 polystyrene, polyethylene or
 polypropylene, and is
 preferably transparent.
 Graduations may be
 provided, e.g. on a label, to
 indicate a falling level. The
 rupturable part may be
 moulded integrally with
 the **container** body, formed by
 a preformed disc of film
 secured as by ultrasonic or
 heat-welding to the **base** of
 the recessed portion or



formed in situ by application of a solidifiable liquid composition which is supported during setting by a temporary plate. The rupturable part is preferably 0.006 inch thick at the most. The **container** may have a capacity of 1 c.c. to 500 c.c. and preferably between 2 and 3c.c.

[SS 17] hot filling and container

Results in EPODOC 0

EPODOC: term 'HOT FILLING' not found in index 'BI'. WARNING(1)

[SS 18] hot and filling and container

Results in EPODOC 1.473

[SS 19] 13 and 18

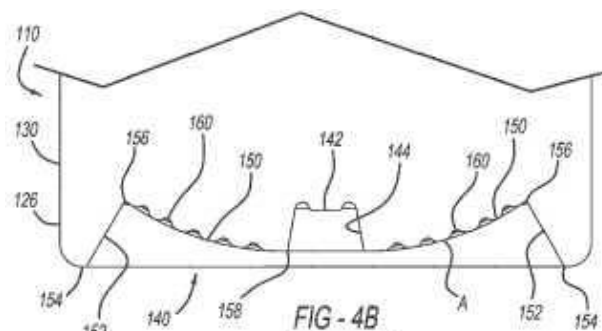
Results in EPODOC 28

[SS 20] ..li



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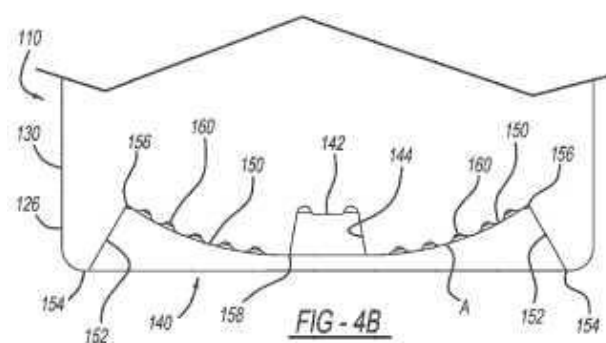
PN - [MX2017002165](#) A 20170815
 PR - US201462040277P
 20140821; US201562138190P
 20150325; WO2015US46110
 20150820
 AP - MX20170002165 20150820
 DT - I
 CCI - [B65D1/0276](#) ; [B65D79/005](#)
 CUI - [B29C49/12](#) ; [B29C49/46](#) ;
[B65B61/24](#)
 CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)
 CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;
[B65D23/00](#) ; [B29K2101/12](#)
 PA - AMCOR LTD [AU]
 TI - TWO-STAGE **CONTAINER**BASE.
 AB - A blow-molded **container**
 including a finish and a base.



The finish defines an opening at a first end of the **container** that provides access to an internal volume. The base includes a diaphragm and a standing surface. The diaphragm extends radially outward from a central push-up portion. The standing surface of the **container** is at a second end of the **container**. In response to an internal vacuum caused by **hot-filling** and closing the **container**, the diaphragm is configured to move passively from an as-blown first configuration to a second configuration in which the diaphragm is closer to the first end of the **container** as compared to the as-blown first configuration. The diaphragm is configured to move from the second configuration to an activated third configuration in which the diaphragm is closer to the first end of the **container** in response to the diaphragm being externally actuated by a tool.

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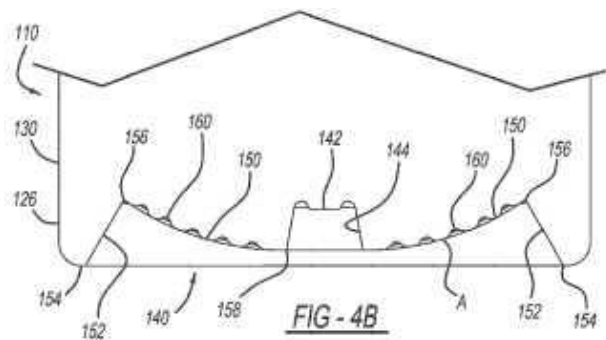
- PN - [CA2958344](#) A1 20160225
- PR - US201462040277P
20140821; US201562138190P
20150325; WO2015US46110
20150820
- AP - CA20152958344 20150820
- DT - I
- CCI - [B65D1/0276](#) ; [B65D79/005](#)
- CUI - [B29C49/12](#) ; [B29C49/46](#) ;
[B65B61/24](#)
- CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)
- CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;
[B65D23/00](#) ; [B29K2101/12](#)



PA - AMCOR LTD [AU]
 TI - TWO-STAGE **CONTAINER** BASE
 AB - A blow-molded **container** including a finish and a base. The finish defines an opening at a first end of the **container** that provides access to an internal volume. The base includes a diaphragm and a standing surface. The diaphragm extends radially outward from a central push-up portion. The standing surface of the **container** is at a second end of the **container**. In response to an internal vacuum caused by **hot-filling** and closing the **container**, the diaphragm is configured to move passively from an as-blown first configuration to a second configuration in which the diaphragm is closer to the first end of the **container** as compared to the as-blown first configuration. The diaphragm is configured to move from the second configuration to an activated third configuration in which the diaphragm is closer to the first end of the **container** in response to the diaphragm being externally actuated by a tool.

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PN - [WO2016029016](#) A1 20160225
 PR - US201462040277P
 20140821; US201562138190P
 20150325
 AP - WO2015US46110 20150820
 DT - *; Rep
 CT - |KR| ISR (A1)
[US2014109517](#) A1 20140424
 [Y] (MELROSE DAVID [NZ])
 [Y] 1-37
 * See abstract, paragraphs
 [0029], [0032], [0033], [0036]
 -[0040], and figures 6, 7, 8A-



8C, 9. *;
[US2005017013](#) A1 20050127
 [Y] (PEISACH ALBERTO [US], et al)
 [Y] 1-37
 * See abstract, paragraphs [0049]-[0051], and figure 2a.
 *;
[US2012181246](#) A1 20120719
 [A] (ROSS JOHN R [US], et al)
 [A] 1-37
 * See abstract, paragraphs [0021]-[0024], and figures 1-5.
 *;
[US2008257856](#) A1 20081023
 [A] (MELROSE DAVID [NZ], et al)
 [A] 1-37
 * See abstract, paragraphs [0047]-[0070], and figures 1A-1E.
 *;
[US4863046](#) A 19890905
 [A] (COLLETTE WAYNE N [US], et al)
 [A] 1-37
 * See abstract, column 5, line 42 - column 6, line 44, and figures 9, 10.
 *

- CCI - [B65D1/0276](#) ; [B65D79/005](#)
- CUI - [B29C49/12](#) ; [B29C49/46](#) ;
[B65B61/24](#)
- CCA - [B29C2049/4652](#) ;
[B29C2049/4664](#) ;
[B65D2501/0036](#) ;
[B67C2003/226](#)
- CUA - [B29K2105/258](#) ;
[B29L2031/7158](#) ;
[B65D23/00](#) ; [B29K2101/12](#)
- PA - AMCOR LTD [AU]; MAST LUKE A [US]; STEIH RICHARD [US]; MAKI KIRK EDWARD [US]; DOLE OMKAR [US]; WOLOSZYK MARK [US]; DOWNING DAVID [US]
- TI - TWO-STAGE **CONTAINER** BASE
- AB - A blow-molded **container** including a finish and a base. The finish defines an opening at a first end of the **container** that provides access to an internal volume. The base includes a diaphragm and a

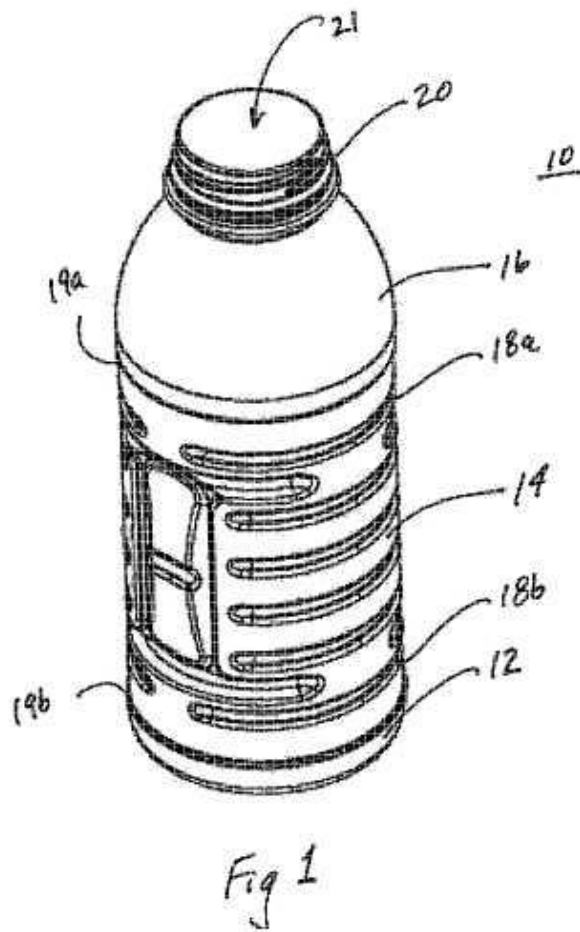
standing surface. The diaphragm extends radially outward from a central push-up portion. The standing surface of the **container** is at a second end of the **container**. In response to an internal vacuum caused by **hot-filling** and closing the **container**, the diaphragm is configured to move passively from an as-blown first configuration to a second configuration in which the diaphragm is closer to the first end of the **container** as compared to the as-blown first configuration. The diaphragm is configured to move from the second configuration to an activated third configuration in which the diaphragm is closer to the first end of the **container** in response to the diaphragm being externally actuated by a tool.

4/28 © EPODOC / EPO

- PN - [NZ564013](#) A 20101126
- PR - US20050146163 20050606; WO2006US21804 20060605
- AP - NZ20060564013 20060605
- DT - I
- CCI - [B65D1/0223](#) ; [B65D1/42](#) ; [B65D79/005](#)
- PA - AMCOR LTD
- TI - Inverting panels for a **container** to accommodate volume changes in contents during vacuum absorption
- AB - A sidewall portion of a plastic **container** (10) adapted for vacuum pressure absorption is disclosed. The sidewall portion (18) has generally rectangular shaped vacuum panels (32) equidistantly spaced about the **container** (10). The vacuum panels (32) have, at least in part, a convex shaped surface and a series of equidistantly spaced indents (36). The vacuum panels (32) move to accommodate vacuum forces generated within the **container** (10) during **filling**. After **hot filling** and sealing, the **container** (10) and contents are cooled. This decreases the volume of the contents causing a vacuum to develop. The movement of the vacuum panels (32) compensates for this, deforming in a predictable way so that the **container** (10) retains its proper shape.

5/28 © EPODOC / EPO

PN - [US2010176081](#) A1 20100715
 PR - WO2008US57053
 20080314; US20070895288P
 20070316
 AP - US20080531401 20080314
 DT - **
 CT - || R141 (A1)
[US2006180568](#) A1 [];
[US2004155008](#) A1 [];
[US6763969](#) B1 [];
[US5178289](#) A [];
[US5704503](#) A [];
[US6837390](#) B2 [];
[US4805788](#) A [];
[US6347417](#) B1 [];
[US2005035083](#) A1 [];
[US5092475](#) A [];
[US2004050851](#) A1 [];
[US2005051509](#) A1 [];
[US5199588](#) A [];
[US5407086](#) A [];
[US6044997](#) A [];
[US2005092708](#) A1 [];
[US6257433](#) B1 [];
[US2005150859](#) A1 [];
[US6920992](#) B2 [];
[US5141120](#) A [];
[US5141121](#) A [];
[US5337909](#) A [];
[US5341946](#) A [];
[US4863046](#) A [];
[US5054632](#) A [];
[US5261543](#) A [];
[US6494333](#) B2 [];
[US6830158](#) B2 []
 CCI - [B65D1/0223](#) ; [B65D79/005](#)
 CCA - [B65D2501/0027](#) ;
[B65D2501/0036](#)
 PA - CONSTAR INT INC
 TI - **CONTAINER** HAVING META-
 STABLE PANELS
 AB - A **container** has meta-stable
 panels to compensate for
 internal vacuum from **hot**
filling. The panels include a
 groove that yields during
 deformation such that the
 stiffness of the panel varies
 from its pre-yield stage to its
 post-yield stage.



- PN - [NZ563134](#) A 20091224
- PR - US20050671459P 20050415; US20060362416 20060227; US20060399430 20060407; WO2006US14055 20060413
- AP - NZ20060563134 20060413
- DT - I
- CCI - [B29C49/4802](#) ; [B29C49/482](#) ; [B29C49/541](#) ; [B65D1/0276](#)
- CCA - [B29K2995/0067](#) ; [B29L2031/7158](#) ; [B29K2023/06](#) ; [B29K2023/0633](#) ; [B29K2023/065](#) ; [B29K2023/086](#) ; [B29K2067/00](#) ; [B29K2077/00](#) ; [B29C49/06](#) ; [B29C49/22](#) ; [B29K2105/26](#) ; [B29B2911/1402](#) ; [B29B2911/14026](#) ; [B29B2911/14033](#) ; [B29B2911/1404](#) ; [B29B2911/14053](#) ; [B29B2911/14066](#) ; [B29B2911/1408](#) ; [B29B2911/14093](#) ; [B29B2911/14106](#) ; [B29B2911/14113](#) ; [B29B2911/1412](#) ; [B29B2911/14126](#) ; [B29B2911/14133](#) ; [B29B2911/1414](#) ; [B29B2911/14146](#) ; [B29B2911/14153](#) ; [B29C2049/4807](#) ; [B29C2049/4889](#) ; [B29C2049/4892](#)
- PA - GRAHAM PACKAGING CO
- TI - Blow moulded containers where the mould is adapted to increase the crystallinity of the plastic at certain features
- AB - A blow moulded **container** (500), a method for producing the **container** and a mould used in that method is disclosed. The **container** (500) has with a base having a moveable region (502) and a bearing surface (504). The method includes the steps of receiving a parison, enclosing the parison with a mould that includes a cavity, inflating the parison in the mould (300) to form a blow moulded **container** (500) with the moveable region (502) at the cavity and repositioning the moveable region (502) before **filling** the blow moulded **container** (500). Before the repositioning, at least a first portion of the moveable region (502) of the blow moulded **container** is arranged outwardly below the bearing surface (504), and at least a second portion of the moveable region (502) of the blow moulded **container** is arranged inwardly above the bearing surface (504). At this time the second portion of the moveable region (502) arranged inwardly, above the bearing surface (504) is located at the center of the moveable region of the blow moulded **container**. Also the first portion of the moveable region (502), arranged outwardly below the bearing surface (504), surrounds the second portion of the moveable region. This process increases the crystallinity of the plastic in the base, which enables the **container** to be 'hot filled' without uncontrolled physical distortion of the **container** as it cools.

PN - [US5279433](#) A 19940118

PR - US19920962243
19921016; US19920842228
19920226

AP - US19920962243 19921016

DT - **

CT - [US3335902](#) A []; [US4387816](#)
A [];
[US4512490](#) A []; [US4805788](#)
A [];
[US4818575](#) A []; [US4863046](#)
A [];
[US4946053](#) A []; [US4949861](#)
A [];
[US4993565](#) A []; [US5010013](#)
A [];
[US5064081](#) A []

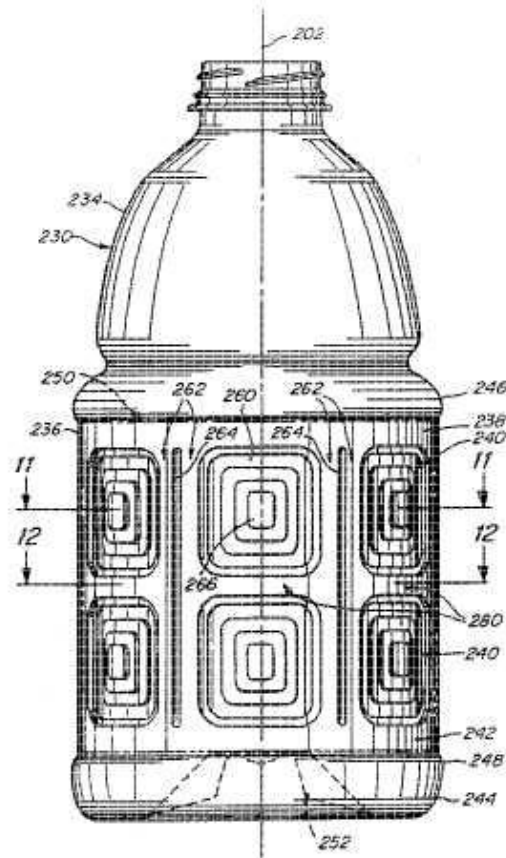
CCI - [B65D1/0223](#) ; [B65D79/005](#)

CCA - [B29C49/08](#) ;
[B65D2501/0027](#) ;
[Y10S215/90](#)

PA - CONTINENTAL PET
TECHNOLOGIES [US]

TI - Panel design for a **hot**-fillable
container

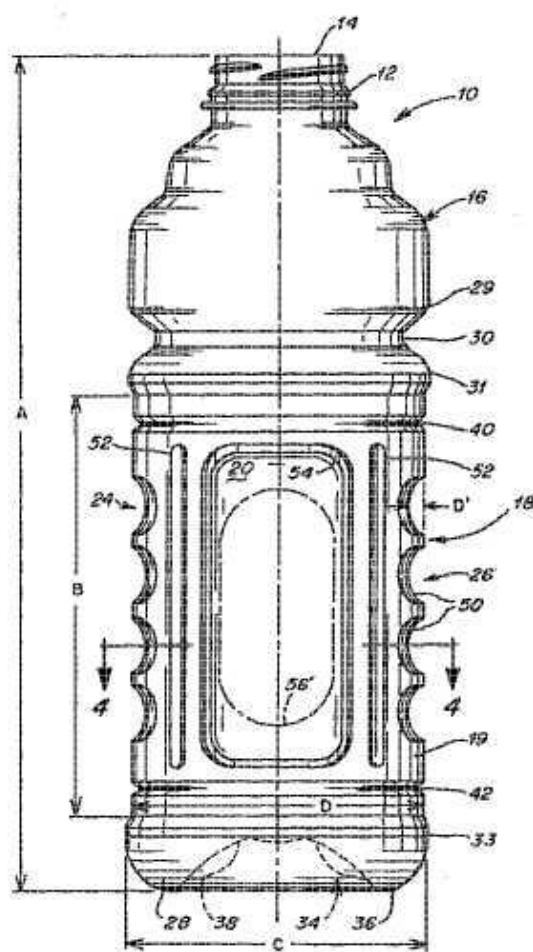
AB - A vacuum panel design for
a **hot**-fill **container** which
resists the increase
in **container** diameter
(barreling) which may occur
during **hot-filling** and/or when
the **container** is dropped on a
hard surface. In one
embodiment, adapted for a
full wrap (360 degrees) label,
a plurality of vacuum panels
are symmetrically disposed
about a vertical centerline of
the **container** and horizontal
stiffening ribs are provided
across select portions of the
panel, namely, across the
vacuum panel recesses and
across the post and panel
ribs. In another embodiment,
adapted for spot labeling, a
pair of vacuum panel regions
are symmetrically disposed
about a vertical plane
passing through the vertical
centerline of the **container**,



which regions form spot label areas and are joined by connecting end segments. The angular extent of the spot label areas and end segments may be varied to adjust the resistance to barreling and/or to provide a squeezable **container**, and horizontal stiffening ribs may further be provided to decrease barreling.

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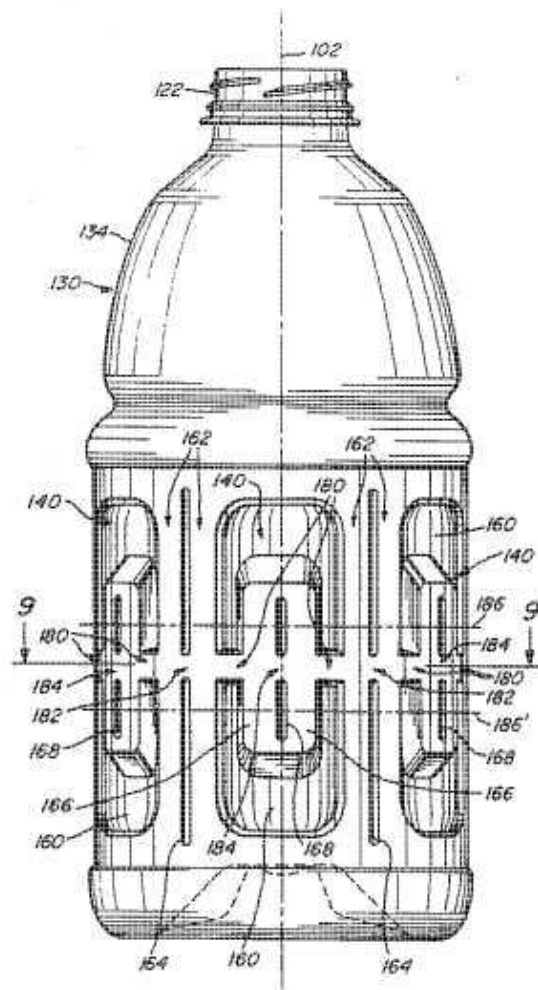
PN - [US5971184](#) A 19991026
 PR - US19970959423 19971028
 AP - US19970959423 19971028
 DT - **
 CT - [US2893678](#) A []; [US3185353](#) A [];
[US3536500](#) A []; [US3537498](#) A [];
[US4610366](#) A []; [US4749092](#) A [];
[US4804097](#) A []; [US4805788](#) A [];
[US4818575](#) A []; [US4863046](#) A [];
[US4877141](#) A []; [US4890752](#) A [];
[US4907709](#) A []; [US4993565](#) A [];
[US5054632](#) A []; [US5064081](#) A [];
[US5067622](#) A []; [US5092475](#) A [];
[US5141120](#) A []; [US5141121](#) A [];
[US5178289](#) A []; [US5199587](#) A [];
[US5226550](#) A []; [US5238129](#) A [];
[US5255889](#) A []; [US5279433](#) A [];
[US5303833](#) A []; [US5303834](#) A [];
[US5337909](#) A []; [US5341946](#) A [];
[US5392937](#) A []; [US5472105](#) A [];
[US5598941](#) A []; [US5758790](#) A [];



	US5762221 A []; EP0198587 A2 []; EP0423406 A1 []; EP0446352 A1 []; EP0505054 A1 []
CTNP	- [] Australian Design Application 3503/93 filed Nov. 5, 1993 [] Australian Design Application 3629/93 filed Nov. 17, 1993 [] Australian Design Application 1475/94 filed May 12, 1994 [] Schweppes Sport Plus Bottle (Jul. 1994) [] Mott s Apple Juice Product Specification (Mar. 1992) [] Photos of a glass Mott s Apple Juice Bottle [] Photos of a Tropicana Twister Light Bottle [] Photos of a Poconos Springs Water Bottle
CCI	- B65D23/102 ; B65D1/0223
PA	- CONTINENTAL PET TECHNOLOGIES [US]
TI	- Hot -fillable plastic container with grippable body
AB	- A hot -fillable plastic container having a panel section of a size suitable for gripping the container in one hand. The panel section includes two opposing vertically-elongated and radially-indented vacuum panels, and two opposing horizontally- disposed and radially- indented finger grips. Each vacuum panel preferably has an invertible central wall portion movable from a convex first position prior to hot-filling of the container , to a concave second position under vacuum pressure following hot-filling and sealing of the container .

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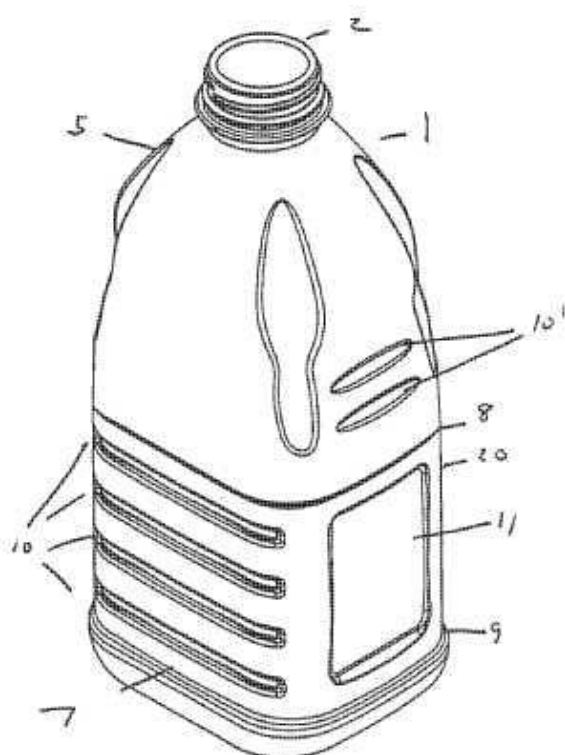
- PN - [US5178289](#) A 19930112
- PR - US19920842228 19920226
- AP - US19920842228 19920226
- DT - *
- CT - [US521501](#) A []; [US1249606](#) A [];
[US3335902](#) A []; [US3401826](#) A [];
[US4512490](#) A []; [US4749092](#) A [];
[US4805793](#) A []; [US4818575](#) A [];
[US4863046](#) A []; [US5002199](#) A [];
[US5005716](#) A []; [US5064081](#) A [];
[US5092475](#) A []
- CCI - [B65D1/0223](#) ; [B65D79/005](#)
- CCA - [B29C49/08](#) ;
[B65D2501/0027](#) ;
[Y10S215/90](#)
- PA - CONTINENTAL PET TECHNOLOGIES [US]
- TI - Panel design for a **hot-fillable container**
- AB - A vacuum panel design for a **hot-fill container** which resists the increase in **container** diameter (barreling) which may occur during **hot-filling** and/or when the **container** is dropped on a hard surface. In one embodiment, adapted for a full wrap (360 DEG) label, a plurality of vacuum panels are symmetrically disposed about a vertical centerline of the **container** and horizontal stiffening ribs are provided across select portions of the panel, namely, across the vacuum panel recesses and across the post and panel ribs. In another embodiment, adapted for spot labeling, a pair of vacuum panel regions are symmetrically disposed about a vertical plane passing through the vertical



centerline of the **container**, which regions form spot label areas and are joined by connecting end segments. The angular extent of the spot label areas and end segments may be varied to adjust the resistance to barreling and/or to provide a squeezable **container**, and horizontal stiffening ribs may further be provided to decrease barreling.

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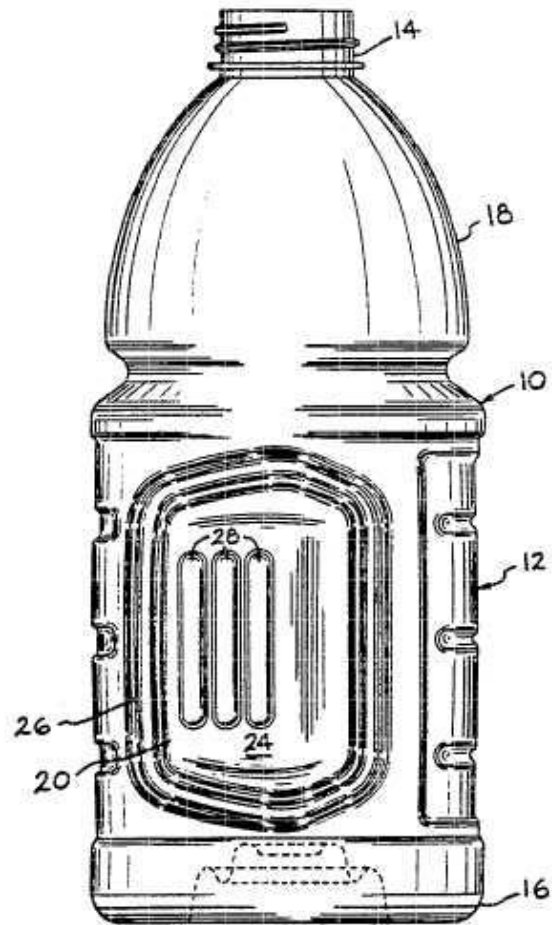
- PN - [US2004129669](#) A1 20040708
- PNFP - US6974047 B2 20051213
- PR - US20030727042
20031204; US20020430944P
20021205
- AP - US20030727042 20031204
- DT - **
- CT - || R141 (A1)
[US5178290](#) A 19930112 [] (OTA AKIHO [JP], et al);
[US5392937](#) A 19950228 [] (PREVOT ROGER M [US], et al);
[USD420919S](#) S 00000000 [];
[DE420919](#) C 19251103 [] (THOMAS E MURRAY JR, et al);
[US6036037](#) A 20000314 [] (SCHEFFER STEVEN M [CA], et al);
[US5199588](#) A 19930406 [] (HAYASHI YOSHIAKI [JP]);
[US6044997](#) A 20000404 [] (OGG RICHARD K [US]);
[US6223920](#) B1 20010501 [] (LANE MICHAEL T [US], et al);
[US5222615](#) A 19930629 [] (OTA AKIHO [JP], et al);
[US5758790](#) A 19980602 [] (EWING JR PAUL E [US]);
[US5762221](#) A 19980609 [] (TOBIAS JOHN W [US], et al);
[US6575321](#) B2 20030610 [] (BOURQUE RAYMOND A [US], et al);
[US5224614](#) A 19930706 [] (BONO JAMES L [US], et al);



[US6257433](#) B1 20010710 [
] (OGG RICHARD K [US], et al);
[US2003136754](#) A1 20030724
 [] (BOURQUE RAYMOND A
 [US], et al);
[US5238129](#) A 19930824 [
] (OTA AKIHO [JP]);
[US5337909](#) A 19940816 [
] (VAILLIENCOURT DWAYNE
 [US]);
[US6273282](#) B1 20010814 [
] (OGG RICHARD K [US], et al);
[US6277321](#) B1 20010821 [
] (VAILLIENCOURT DWAYNE G
 [US], et al);
[US5350078](#) A 19940927 [
] (POTTS JO LEE B [US], et al);
[US5803289](#) A 19980908 [
] (BRADY THOMAS E [US]);
[USD447411S](#) S 20010904 [
] (LICHTMAN JEFF [US], et al);
[US4877141](#) A 19891031 [
] (HAYASHI YOSHIAKI [JP], et
 al);
[US3537498](#) A 19701103 [
] (AMAND ELMER F ST);
[US5165557](#) A 19921124 [
] (OTA AKIHO [JP], et al);
[US5472105](#) A 19951205 [
] (KRISHNAKUMAR SUPPAYAN
 M [US], et al)
 - || STSE (B2)
[US3537498](#) A 19701103 [
] (AMAND ELMER F ST);
[US4877141](#) A 19891031 [
] (HAYASHI YOSHIAKI [JP], et
 al);
[US5165557](#) A 19921124 [
] (OTA AKIHO [JP], et al);
[US5178290](#) A 19930112 [
] (OTA AKIHO [JP], et al);
[US5199588](#) A 19930406 [
] (HAYASHI YOSHIAKI [JP]);
[US5222615](#) A 19930629 [
] (OTA AKIHO [JP], et al);
[US5238129](#) A 19930824 [
] (OTA AKIHO [JP]);
[US5472105](#) A 19951205 [
] (KRISHNAKUMAR SUPPAYAN
 M [US], et al);
[US5758790](#) A 19980602 [
] (EWING JR PAUL E [US]);
[US6036037](#) A 20000314 [
]

	] (SCHEFFER STEVEN M [CA], et al); US6223920 B1 20010501 [] (LANE MICHAEL T [US], et al); US6277321 B1 20010821 [] (VAILLIENCOURT DWAYNE G [US], et al); US2001030167 A1 20011018 [] (MOONEY MICHAEL R [US])
CCI	- B65D1/0223
CCA	- B65D2501/0081
PA	- (A1 B2) GRAHAM PACKAGING CO [US]
TI	- (A1 B2) Rectangular container with cooperating vacuum panels and ribs on adjacent sides
AB	- (A1 B2) The present invention provides an improved blow molded plastic non-round container having generally rectangular sidewalls that are adapted for hot-fill applications. The hot-fill container has two adjacent sides one with a vacuum panel and the other with a series of ribs in the label mounting area on the sidewalls. The opposing sidewalls are symmetric relative to the vacuum panel and rib shape and placement. The ribs and vacuum panel cooperate to resist container upon filling and cooling and also improves bumper denting resistance, ease of manufacture and light weight capability.

- PN - [US5141120](#) A 19920825
- PR - US19910663165 19910301
- AP - US19910663165 19910301
- DT - *
- CT - [US4381061](#) A []; [US4804097](#) A [];
[US4805788](#) A []; [US4863046](#) A [];
[US4877141](#) A []; [US4890752](#) A [];
[US5054632](#) A []; [FR90987E](#) E [];
[JPH07126310](#) A [
]; [GB2218395](#) A []
- CCI - [B65D1/0223](#) ; [B65D23/102](#) ;
[B65D79/005](#)
- PA - HOOVER UNIVERSAL [US]
- TI - **Hot** fill plastic **container** with vacuum collapse pinch grip indentations
- AB - A **hot**-fill PET **container** which includes opposed pinch grip indentations in the sidewall enabling the **container** to be grasped between the thumb and fingers of one hand to facilitate handling of the **container** and pouring of liquid from the **container**. Each indentation comprises an irregularly shaped surface having an outside edge and an integral hinge enabling the indentations to collapse inwardly toward each other to accommodate internal forces tending to collapse the **container** sidewall inwardly due to **filling** of the **container** with liquid at an elevated temperature and subsequent cooling of the liquid.



PN - [US4993567](#) A 19910219

PR - US19900492073 19900312

AP - US19900492073 19900312

DT - *

CT - [US4134510](#) A []; [US4174782](#) A [];
[US4249666](#) A []; [US4598831](#) A [];
[US4818575](#) A []; [US4863046](#) A [];
[US4877141](#) A [
]; [JPH01144012](#) A [];
[JPS6228335](#) A [
]; [JPH02146137](#) A []

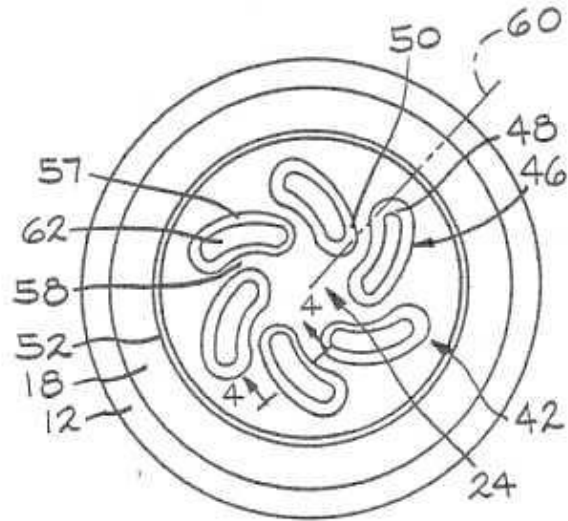
CCI - [B65D1/0276](#) ; [B29C49/48](#)

CCA - [B65D2501/0036](#)

PA - HOOVER UNIVERSAL [US]

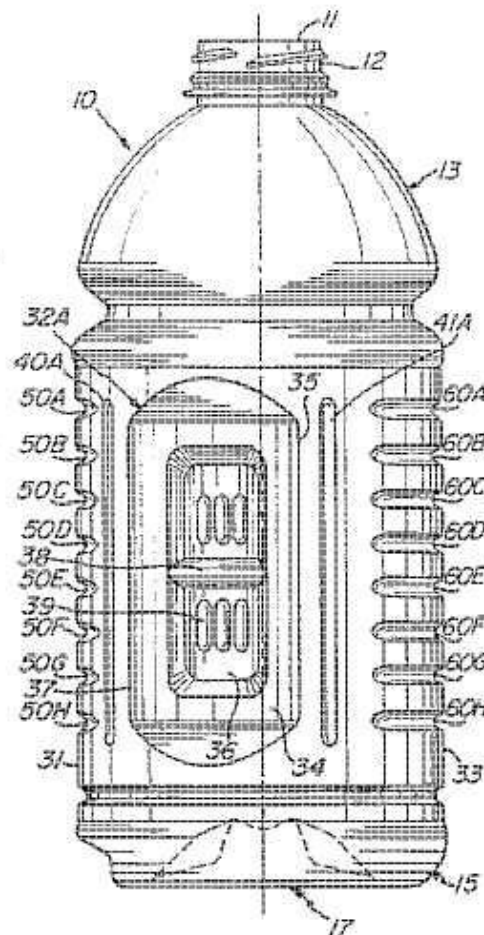
TI - Involute embossment base structure for **hot** fill PET **container**

AB - An improved base configuration for a blow molded plastic **container** used in **hot-fill** applications. The base consists of a peripheral support ring that is generally concentric with the **container** side walls and connected to a central dome portion. The dome extends upwardly into the body cavity of the **container** and terminates in a central disk region that is also concentric with the **container** side walls. A number of raised involute embossments radiate about the central disk in a substantially spiral fashion downward along the dome. The embossments are limited to that area of the dome where unrelaxed retractive stresses may be formed during blow molding of the **container**. The embossments increase the amount of material in the base which becomes sufficiently oriented so as to resist the deformation



induced by the unrelaxed retractive stresses during **hot filling** of the **container**.

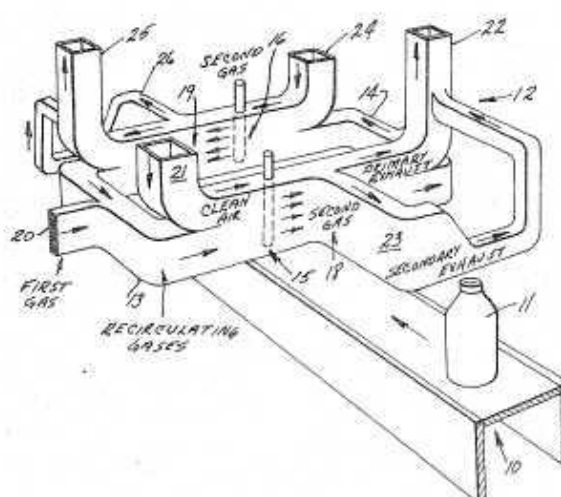
- 13/28** © EPODOC / EPO
- PN - [US5472105](#) A 19951205
- PR - US19940330970 19941028
- AP - US19940330970 19941028
- DT - *
- CT - [US4804097](#) A []; [US4863046](#) A [];
[US4890752](#) A []; [US4993565](#) A [];
[US5141120](#) A []; [US5141121](#) A [];
[US5178289](#) A []; [US5199587](#) A [];
[US5255889](#) A []; [US5279433](#) A [];
[US5303834](#) A []; [US5337909](#) A [];
[US5392937](#) A []; [EP0198587](#) A2 []
- CTNP - [] Mott's Apple Juice Product Specification Mar. 1992
[] Color photos of a glass Mott's Apple Juice Bottle
[] Color photos of a Tropicana Twister Light Bottle
[] Color photos of a Poconos Springs Water Bottle
- CCI - [B65D79/005](#) ; [B65D1/0223](#) ; [B65D23/102](#)
- CCA - [B65D2501/0027](#) ; [B65D2501/0036](#)
- PA - CONTINENTAL PET TECHNOLOGIES [US]
- TI - **Hot**-fillable plastic **container** with end grip
- AB - A **hot**-fillable plastic **container** having a panel section with vacuum panels and an end grip, which panel section resists ovalization and other deformation during **filling**, product cooling, and handling. The **container** has a substantially-cylindrical panel section, with a pair of



vertically-elongated vacuum panels disposed on opposing sides of a vertical plane passing through a vertical centerline of the **container**. Front and rear label attachment areas are provided between the vacuum panels. A pair of vertical ribs are disposed on either side of each vacuum panel which act as hinge points to maximize movement of a concave recess in the vacuum panel; the vertical ribs also resist longitudinal bending. The concave recess is formed at an initial inwardly-bowed position with respect to the panel circumference, and is movable outwardly to a second position within the panel circumference upon increased pressure during **filling**, and movable inwardly to a third position to accommodate the vacuum which forms during product cooling.

14/28 © EPODOC / EPO

- PN - [US4431692](#) A 19840214
- PR - US19810289429
19810803; US19800121843
19800215
- AP - US19810289429 19810803
- DT - *: Rep
- CT - || STSE (A)
[US2953483](#) A 19600920 [] (TOROK JULIUS J);
[US3438803](#) A 19690415 [] (DUBBLE ROGER D, et al);
[US3516811](#) A 19700623 [] (GATCHET GEORGE L, et al);
[US3623854](#) A 19711130 [] (FRANK CHARLES A);
[US3694299](#) A 19720926 [] (WAGNER WILLIAM E);
[US3827870](#) A 19740806 [] (FOGELBERG C, et al);
[US3850665](#) A 19741126 [] (POSSET R, et al);

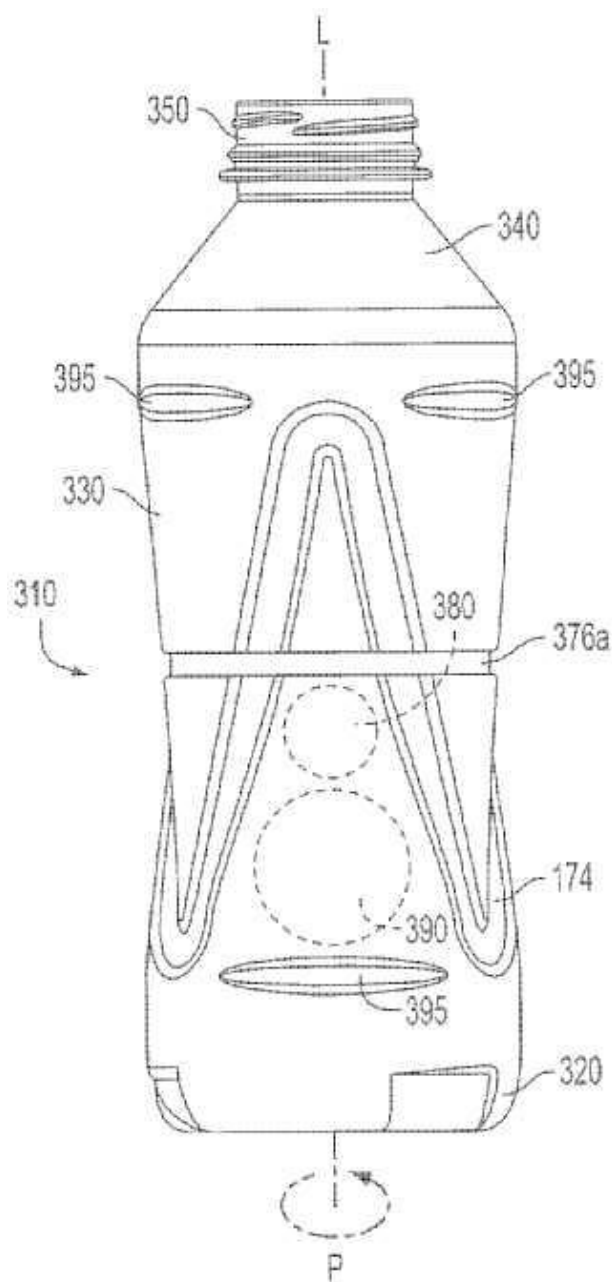


	US3887349 A 19750603 [] (AKASHI NAOTOMO, et al); US3925050 A 19751209 [] (KUSHIHASHI AKIRA, et al); US3952118 A 19760420 [] (NOVICE MICHAEL A); US4123244 A 19781031 [] (LECLERCQ ROBERT, et al); US4125391 A 19781114 [] (VAN LAETHEM ROBERT)
CCI	- C03C17/005 ; C03C17/245 ; C03C17/42
CCA	- C03C2217/23 ; C03C2218/152 ; Y10S428/938 ; Y10T428/1317
PA	- OWENS ILLINOIS INC [US]
TI	- Process for making glass surfaces abrasion-resistant and article produced thereby
AB	- The present invention relates to improving the scratch and abrasion resistance of glass surfaces, and especially the exterior surfaces of glass containers such as bottles, jars, tumblers, stemware, and the like. Hollow glassware for container use is subject to abrasive contact with similar articles as well as handling equipment in the normal processes of manufacturing, packaging, filling and shipping. This invention further relates to providing improved abrasion resistance to glass articles and particularly hollow glass containers which are treated by the present hot -end process while retaining considerable heat of formation. The articles are then able to be overcoated at a lower temperature such as by organic materials to further improve their lubricity and durability. The subject process of providing a primary coating is markedly more economical than

presently known processes.

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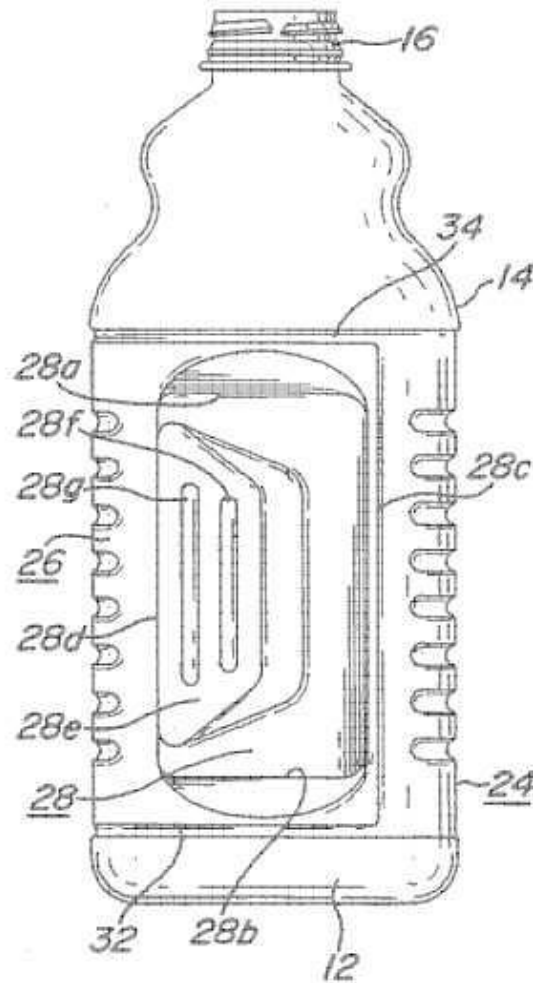
- PN - [US2003015491](#) A1 20030123
- PNFP - US6779673 B2 20040824
- PR - US20020196551
20020717; US20010305620P
20010717
- AP - US20020196551 20020717
- DT - *; Rep
- CT - || STSE (B2)
[US5054632](#) A 19911008 [
] (ALBERGHINI ALFRED C [US],
et al)
[US5060453](#) A 19911029 [
] (ALBERGHINI ALFRED C [US],
et al)
[US5337909](#) A 19940816 [
] (VAILLIENCOURT DWAYNE
[US])
[US5908127](#) A 19990601 [
] (WEICK ROBERT D [US], et al)
[US6347717](#) B1 20020219 [
] (EBERLE THEODORE F [US])
[US2002000421](#) A1 20020103
[] (OTA ATSUSHI [JP], et al)
- || R141 (A1)
[US5178290](#) A [];
[US5279433](#) A [];
[US5704503](#) A [];
[US5704504](#) A [];
[US4372455](#) A [];
[US4497855](#) A [];
[US4805788](#) A [];
[US5303834](#) A [];
[US6044996](#) A [];
[US5762221](#) A [];
[US5908128](#) A [];
[USD227861S](#) S [];
[US5141121](#) A [];
[US5238129](#) A [];
[US4877141](#) A [];
[US5060453](#) A [];
[US5971184](#) A [];
[US5690503](#) A []
- CCI - [B65D1/0223](#) ; [B65D79/005](#)
- CCA - [B65D2501/0018](#) ;
[B65D2501/0027](#) ;
[B65D2501/0036](#) ;
[B65D2501/0081](#)
- PA - (B2)



GRAHAM PACKAGING CO [US]

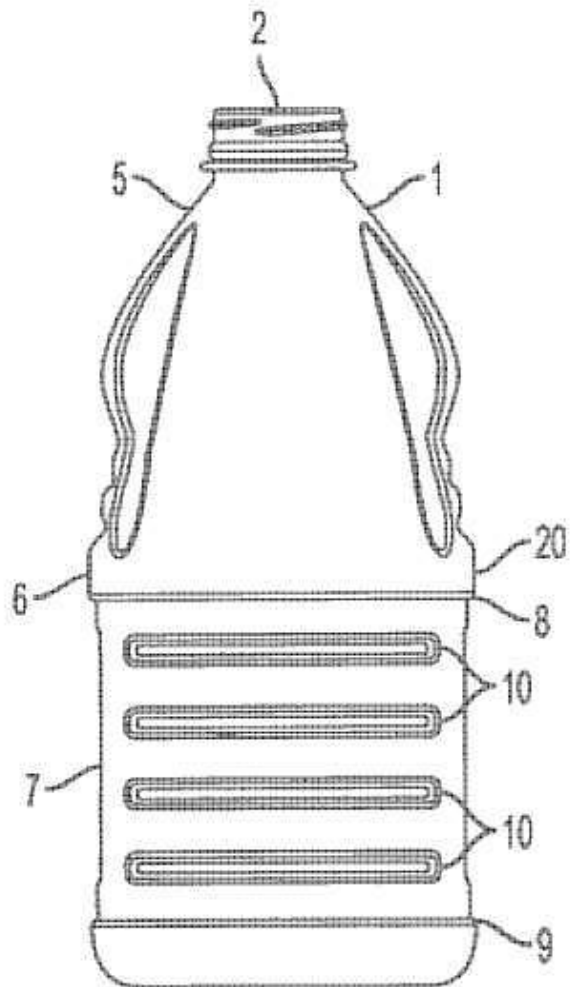
- TI - (A1 B2)
Plastic **container** having an inverted active cage
- AB - (A1 B2)
A **container** having an inverted active cage generally includes an enclosed base portion, a body portion extending upwardly from the base portion, and a top portion with a finish extending upwardly from the body portion. The body portion further includes a central longitudinal axis, a periphery, a plurality of active surfaces, and a network of pillars. Unlike the prior art, each of the plurality of active surfaces is outwardly displaced with respect to the longitudinal axis, while each of the network of pillars is inwardly displaced with respect to the longitudinal axis. The plurality of active surfaces, together with the network of pillars, are spaced about the periphery of the **container** in order to accommodate vacuum-induced volumetric shrinkage of the **container** resulting from a **hot-filling**, capping and cooling thereof.

PN - [US5392937](#) A 19950228
 PR - US19930115652 19930903
 AP - US19930115652 19930903
 DT - *
 CT - [US1636174](#) A []; [US3536223](#)
 A [];
 [US3923178](#) A []; [US4308955](#)
 A [];
 [US4381061](#) A []; [US4387816](#)
 A [];
 [US4610366](#) A []; [US4749092](#)
 A [];
 [US4804097](#) A []; [US4805788](#)
 A [];
 [US4890752](#) A []; [US4946053](#)
 A [];
 [US4993565](#) A []; [US5092474](#)
 A [];
 [US5092475](#) A []; [US5141120](#)
 A [];
 [US5141121](#) A []; [US5148930](#)
 A [];
 [US5165557](#) A []; [US5199587](#)
 A [];
 [US5226550](#) A []; [US5303834](#)
 A [];
 [FR1507327](#) A [
]; [WO9100829](#) A1 []
 CCI - [B65D1/0223](#) ; [B65D23/102](#) ;
 [B65D79/005](#)
 PA - GRAHAM PACKAGING CORP
 [US]
 TI - Flex and grip panel structure
 for **hot**-fillable blow-
 molded **container**
 AB - A **hot**-fillable, blow-
 molded **container** has a body
 portion with grip panels
 extending between a front
 label panel and a rear palm
 panel. The **container** body is
 configured to accommodate
 reductions in volume caused
 by **hot-filling**, capping, and
 subsequent cooling of
 contents in a manner which
 retains its aesthetic
 appearance when cooled yet
 which retains its structural
 integrity when opened and its
 contents poured.



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- PN - [WO2004052728](#) A2 20040624
- PNFP - WO2004052728 A3 20050113
- PR - US20020430944P 20021205
- AP - WO2003US38457 20031204
- DT - *, Rep
- CT - |US| ISR (A3)
[US5472105](#) A 19951205
 [Y] (KRISHNAKUMARSUPPAYAN M [US], et al);
[US5758790](#) A 19980602
 [Y] (EWING JR PAUL E [US]);
[US5222615](#) A 19930629
 [Y] (OTA AKIHO [JP], et al);
[US3537498](#) A 19701103
 [Y] (AMAND ELMER F ST);
[US6036037](#) A 20000314
 [A] (SCHEFFER STEVEN M [CA], et al);
[US5178290](#) A 19930112
 [A] (OTA AKIHO [JP], et al);
[US5392937](#) A 19950228
 [A] (PREVOT ROGER M [US], et al);
[US6223920](#) B1 20010501
 [A] (LANE MICHAEL T [US], et al)
- CCI - [B65D1/0223](#)
- CCA - [B65D2501/0081](#)
- PA - (A2)
 GRAHAM PACKAGING CO [US];
 KELLEY PAUL V [US]; HUNG SEUNGYEOL [US]; DENNER JOHN [US]; OGG RICHARD [US];
 MELROSE DAVID [NZ]
- (A3)
 GRAHAM PACKAGING CO [US];
 KELLEY PAUL V [US]; HONG SEUNGYEOL [US]; DENNER JOHN [US]; OGG RICHARD [US];
 MELROSE DAVID [NZ]
- TI - (A2 A3)
 ARECTANGULAR **CONTAINER**
 WITH COOPERATING VACUUM
 PANELS AND RIBS ON ADJACENT
 SIDES
- AB - (A2)
 The present invention
 provides an improved blow
 molded plastic non-
 round **container** having

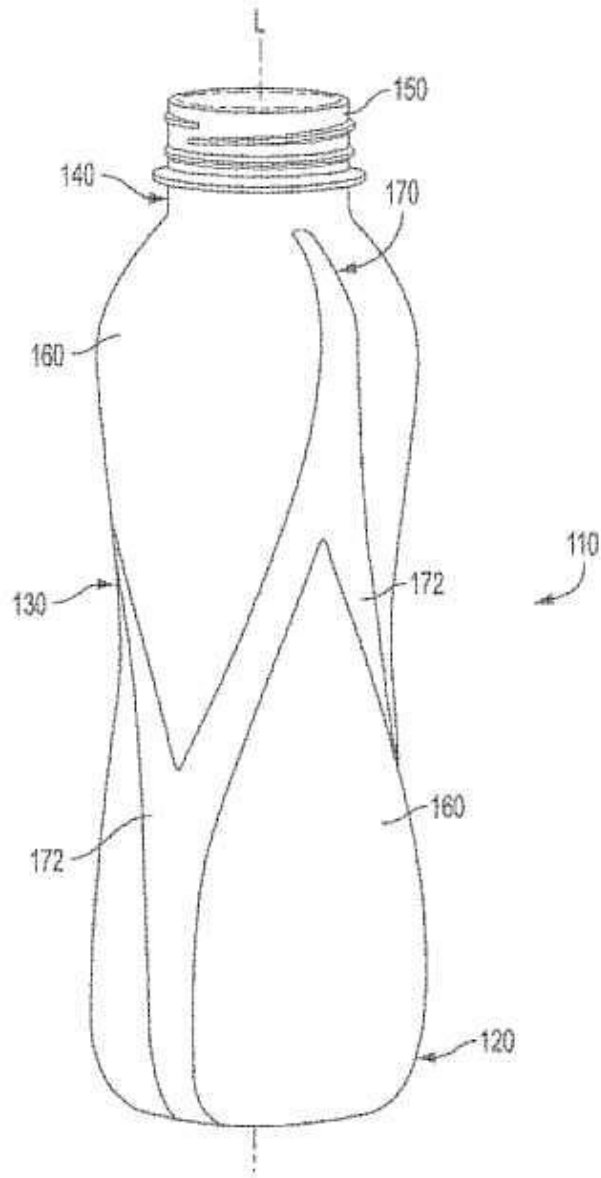


generally rectangular sidewalls that are adapted for **hot-fill** applications. The **hot-fill container** has two adjacent sides one with a vacuum panel and the other with a series of ribs in the label mounting area on the sidewalls. The opposing sidewalls are symmetric relative to the vacuum panel and rib shape and placement. The ribs and vacuum panel cooperate to resist **container** upon **filling** and cooling and also improves bumper denting resistance, ease of manufacture and light weight capability.

- (A3)

The present invention provides an improved blow molded plastic non-round **container** (1) having generally rectangular sidewalls that are adapted for **hot-fill** applications. The **hot-fill container** has two adjacent sides one with a vacuum panel (11) and the other with a series of ribs (10) in the label mounting area on the sidewalls. The opposing sidewalls are symmetric relative to the vacuum panel and rib shape and placement. The ribs and vacuum panel cooperate to resist **container** upon **filling** and cooling and also improves bumper denting resistance, ease of manufacture and light weight capability.

PN - [WO03008278](#) A1 20030130
 PR - US20010305620P 20010717
 AP - WO2002US22687 20020717
 DT - **
 CT - |US| ISR (A1)
 [US5762221](#) A 19980609
 [X] (TOBIAS JOHN W [US], et al);
 [US5178290](#) A 19930112
 [Y] (OTA AKIHO [JP], et al);
 [US5279433](#) A 19940118
 [Y] (KRISHNAKUMAR SUPPAYAN M [US], et al);
 [US6044996](#) A 20000404
 [Y] (CAREW DAVID LEE [AU], et al);
 [US5141121](#) A 19920825
 [X] (BROWN RANDALL S [US], et al);
 [US5704503](#) A 19980106
 [X] (KRISHNAKUMAR SUPPAYAN M [US], et al);
 [US5690244](#) A 19971125
 [A] (DARR RICHARD C [US]);
 [USD227861S](#) 00000000 [A];
 [US5704504](#) A 19980106
 [A] (BUENO CARLOS EDUARDO DE SIQUEI [BR]);
 [FR90987E](#) E 19680322
 [A] (UNIPOL S A SOC)
 CCI - [B65D1/0223](#) ; [B65D79/005](#)
 CCA - [B65D2501/0018](#) ;
 [B65D2501/0027](#) ;
 [B65D2501/0036](#) ;
 [B65D2501/0081](#)
 PA - GRAHAM PACKAGING CO [US]
 TI - PLASTIC **CONTAINER** HAVING AN INVERTED ACTIVE CAGE
 AB - A **container** (110) having an inverted active cage generally includes an enclosed base portion (120), a body portion (130) extending upwardly from the base portion, and a top portion (140) with a finish (150) extending upwardly from the body portion. The body portion further includes a central longitudinal axis (L), a periphery, a plurality of active surfaces (160), and a network of pillars (170). Unlike the



prior art, each of the plurality of active surfaces is outwardly displaced with respect to the longitudinal axis, while each of the network of pillars is inwardly displaced with respect to the longitudinal axis. The plurality of active surfaces, together with the network of pillars, are spaced about the periphery of the **container** in order to accommodate vacuum-induced volumetric shrinkage of the **container** resulting from a **hot-filling**, capping and cooling thereof.

PN	- MXPA05006048 A 20060127
PR	- US20020430944P 20021205; WO2003US38457 20031204
AP	- MX2005PA06048 20031204
DT	- I
CCI	- B65D1/0223
CCA	- B65D2501/0081
PA	- GRAHAM PACKAGING CO [US]
TI	- ARECTANGULAR CONTAINER WITH COOPERATING VACUUM PANELS AND RIBS ON ADJACENT SIDES.
AB	- The present invention provides an improved blow molded plastic non- round container (1) having generally rectangular sidewalls that are adapted for hot-fill applications. The hot-fill container has two adjacent sides one with a vacuum panel (11) and the other with a series of ribs (10) in the label mounting area on the sidewalls. The opposing sidewalls are symmetric relative to the vacuum panel and rib shape and placement. The ribs and vacuum panel cooperate to resist container upon filling and cooling and also improves bumper denting resistance, ease of manufacture and light weight capability.

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PN	- MXPA03010057 A 20041206
PR	- US20010305620P 20010717; WO2002US22687 20020717
AP	- MX2003PA10057 20020717
DT	- I
CCI	- B65D1/0223 ; B65D79/005
CCA	- B65D2501/0018 ; B65D2501/0027 ; B65D2501/0036 ; B65D2501/0081
PA	- GRAHAM PACKAGING CO [US]
TI	- PLASTIC CONTAINER HAVING AN INVERTED ACTIVE CAGE.
AB	- A container (110) having an inverted active cage generally includes an enclosed base portion (120), a body portion (130) extending upwardly from the base portion, and a

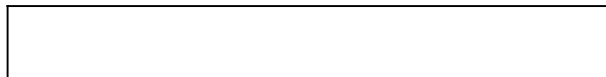
top portion (140) with a finish (150) extending upwardly from the body portion. The body portion further includes a central longitudinal axis (L), a periphery, a plurality of active surfaces (160), and a network of pillars (170). Unlike the prior art, each of the plurality of active surfaces is outwardly displaced with respect to the longitudinal axis, while each of the network of pillars is inwardly displaced with respect to the longitudinal axis. The plurality of active surfaces, together with the network of pillars, are spaced about the periphery of the **container** in order to accommodate vacuum-induced volumetric shrinkage of the **container** resulting from a **hot-filling**, capping and cooling thereof.

22/28 © EPODOC / EPO

- PN - [JP2005008158](#) A 20050113
- PR - JP20030171272 20030616
- AP - JP20030171272 20030616
- DT - I
- FI - B65D1/02&B; B65D1/02&221; B65D1/02&250; B65D23/00&H
- FT - 3E033/AA02; 3E033/BA18; 3E033/CA05; 3E033/DA03; 3E033/DA08; 3E033/DB01; 3E033/DC10; 3E033/DD01; 3E033/EA01; 3E033/EA05; 3E033/EA06; 3E033/FA03; 3E062/AA09; 3E062/AB02; 3E062/AC02; 3E062/DA01; 3E062/DA02; 3E062/DA07; 3E062/JA02; 3E062/JA08
- PA - DAINIPPON PRINTING CO LTD
- TI - PACKAGING **CONTAINER** SUITABLE FOR SELLING BY WARMING
- AB - PROBLEM TO BE SOLVED: To provide a packaging **container**, which is a bottle for **filling** at ordinary temperature and selling by warming, prevents panel surfaces from bulging caused by the weight of a content after **filling** the bottle, and has a function to allow the panels to change in shape upon selling by warming to the extent that the appearance of the packaging **container** is not damaged, in particular to the extent that the appearance of the packaging **container** is not heavily damaged by a projecting part of a label attached to the barrel of the bottle, so as to ease an increase in pressure in the **container**.
- SOLUTION: The packaging **container** has a plurality of the panels on the barrel, and the surface of each panel is recessed inward and is provided with a rib extending vertically at the center of the panel. The rib functions as a beam to prevent the panel from bulging caused by the weight of the content filled at ordinary temperature, and limit the bulging of the panel surface caused by a pressure increase in the **container** during warming by a **hot** warmer to the extent that the bulging does not project a part of the label attached to the barrel to heavily damage the appearance of the packaging **container**.
- COPYRIGHT: (C)2005,JPO&NCIPI

23/28 © EPODOC / EPO

- PN - [JPH05310239](#) A 19931122
- PR - JP19920137901 19920430
- AP - JP19920137901 19920430
- DT - I
- CCI - [B65D1/0223](#)
- FI - B29C49/08; B29C55/12; B29L22/00; B65D1/02&B; B65D1/02&221;



	B65D1/02&250; B65D23/00&Z
FT	- 3E033/AA01; 3E033/AA03; 3E033/BA18; 3E033/CA05; 3E033/CA07; 3E033/DA03; 3E033/DA08; 3E033/DB01; 3E033/DE20; 3E033/EA01; 3E033/EA04; 3E033/EA05; 3E033/FA03; 3E062/AA09; 3E062/AB01; 3E062/AB02; 3E062/AC02; 3E062/DA01; 3E062/DA05; 3E062/KA04; 4F208/AA24; 4F208/AE10; 4F208/AG07; 4F208/AG22; 4F208/AG28; 4F208/AH55; 4F208/AP12; 4F208/LA04; 4F208/LB01; 4F210/AA24; 4F210/AG22; 4F210/AH55; 4F210/QA05; 4F210/QC07
PA	- DAINIPPON PRINTING CO LTD
AB	- PURPOSE:To provide a biaxially drawn blow-molded container, an uneven part provided on the body of which is not greatly deformed to a degree to cause the reduction of strength, even when a hot filling is performed.CONSTITUTION:A plurality of recessed parts 12 which extend in the longitudinal direction are formed while being arranged in the peripheral direction, at least from the central part to the lower part of a body part 8 of a container 1. The bottom surface part of each recessed part 12 has three panel parts such as an upper panel part 12a, central panel part 12b and lower panel part 12c. For the present biaxially drawn block-molded container, the central panel part 12b is more recessed than the other panel parts. Preferably, the center of the central panel part 12b has a shape which is slightly curved outward, and the panel structure absorbs the pressure reduction at the time of pressure reduction of the inside of the container 1

by recessing the curved center
of the central panel part 12b.

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PN - [CN1586996](#) A 20050302

PR - CN2004175013 20040827

AP - CN2004175013 20040827

DT - I

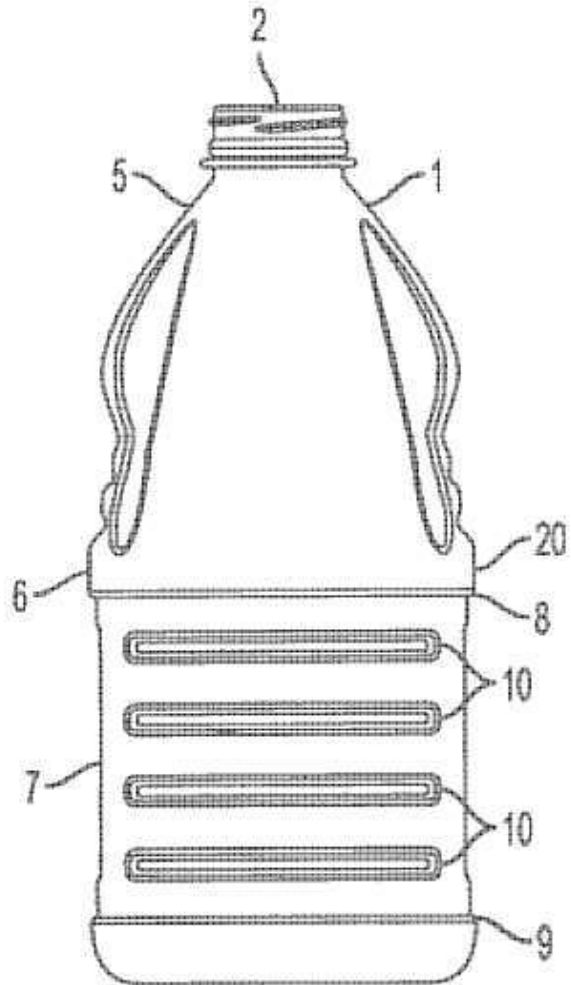
PA - HANGZHOU WAHAHA GROUP CO LTD [CN]

TI - Blow moulded plastic bottle for **hot filling**

AB - The present invention discloses one kind of **container**, and is especially one kind of blow molded bottle for **hot filling** beverage. The blow molded bottle for **hot filling** includes bottle mouth, bottle shoulder, bottle body and bottle bottom. Structurally, the bottle features that the bottle body including two symmetrical straight plates vertical to horizontal plane, two inclined plates with the same tilt angle to horizontal plane but opposite tilt directions and connecting side plates between the straight plate and the inclined plate; the notches set between bottle shoulder and the bottle body and between the bottle body and the bottle bottom; and relief pattern in the bottle shoulder, the bottle body and the bottle bottom. The present invention has the advantages of simple and reasonable structure, beautiful and novel appearance and excellent hand feeling.

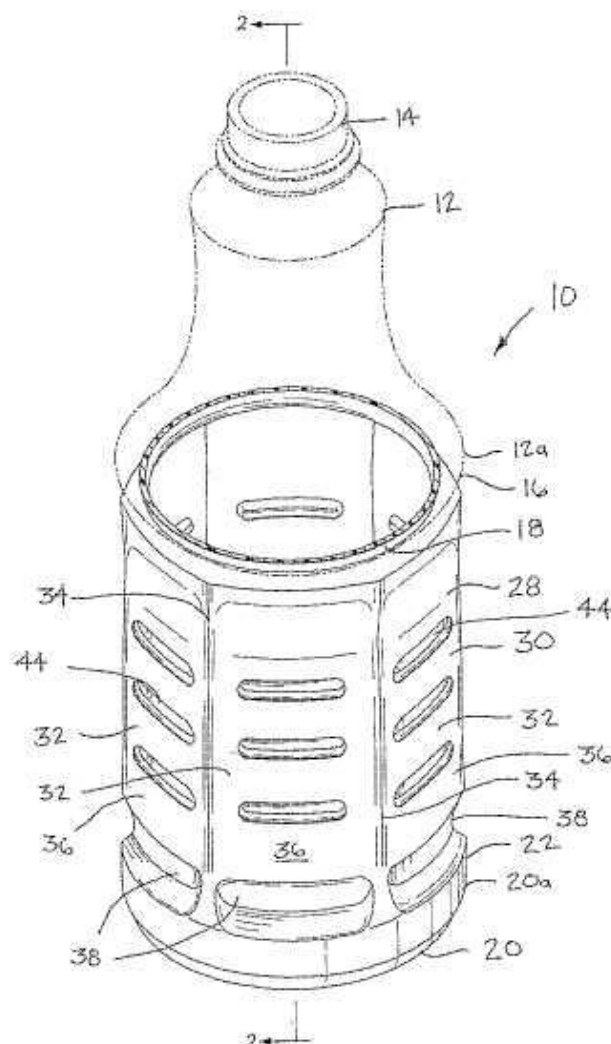
25/28 © EPODOC / EPO

PN - [CA2508753](#) A1 20040624
 PNFP - CA2508753 C 20111004
 PR - US20020430944P
 20021205; WO2003US38457
 20031204
 AP - CA20032508753 20031204
 DT - I
 CCI - [B65D1/0223](#)
 CCA - [B65D2501/0081](#)
 PA - (A1 C)
 GRAHAM PACKAGING CO [US]
 TI - (A1 C)
 ARECTANGULAR **CONTAINER**
 WITH COOPERATING VACUUM
 PANELS AND RIBS ON
 ADJACENT SIDES
 AB - (A1)
 The present invention
 provides an improved blow
 molded plastic non-
 round **container** (1) having
 generally rectangular
 sidewalls that are adapted
 for hot-fill applications.
 The **hot-fill container** has two
 adjacent sides one with a
 vacuum panel (11) and the
 other with a series of ribs
 (10) in the label mounting
 area on the sidewalls. The
 opposing sidewalls are
 symmetric relative to the
 vacuum panel and rib shape
 and placement. The ribs and
 vacuum panel cooperate to
 resist **container** upon **filling**
 and cooling and also
 improves bumper denting
 resistance, ease of
 manufacture and light weight
 capability.< /SDOAB>
 - (C)
 The present invention
 provides an improved blow
 molded plastic non-
 round **container** (1) having
 generally rectangular
 sidewalls that are adapted
 for **hot-fill** applications.
 The **hot-fill container** has two
 adjacent sides one with a



vacuum panel (11) and the other with a series of ribs (10) in the label mounting area on the sidewalls. The opposing sidewalls are symmetric relative to the vacuum panel and rib shape and placement. The ribs and vacuum panel cooperate to resist **container** upon **filling** and cooling and also improves bumper denting resistance, ease of manufacture and light weight capability.

- 26/28** © EPODOC / EPO
- PN - [CA2451200](#) A1 20030109
- PNFP - CA2451200 C 20070904
- PR - US20020135315
20020429; WO2002US19436
20020619; US20010301200P
20010627
- AP - CA20022451200 20020619
- DT - I
- CCI - [B65D1/0223](#) ; [B65D1/44](#) ;
[B65D79/005](#)
- CCA - [B65D2501/0036](#) ;
[B65D2501/0081](#)
- PA - (A1)
GRAHAM PACKAGING CO [US]
- (C)
GRAHAM PACKAGING
COMPANY [US]
- TI - (A1 C)
**HOT-FILLABLE MULTI-SIDED
BLOW-MOLDED CONTAINER**
- AB - (A1 C)
A plastic blow molded bottle
(10) or wide mouth jar useful
in containing **hot** - filled
beverages or food products.
The **container** has a multi-
sided sidewall (28) which is
capable of accommodating
vacuum associated with **hot
filling**, capping and cooling of
the **container**, which is
reinforced to resist unwanted
deformation, and which
enables a label to be



aesthetically displayed on the **container** sidewall. To this end, the sidewall comprises a plurality of panels (32) which include outwardly bowed arcuate sections (36), as-formed, which flatten to accommodate induced vacuum. Thus, a label can be supported on the sidewall with very few voids, or like sunken areas, behind the label to ensure that the label is prominently displayed on the aesthetically appealing novel **container** configuration.

- (C)
A **container** (110) having an inverted active cage generally includes an enclosed base portion (120), a body portion (130) extending upwardly from the base portion, and a top portion (140) with a finish (150) extending upwardly from the body portion. The body portion further includes a central longitudinal axis (L), a periphery, a plurality of active surfaces (160), and a network of pillars (170). Unlike the prior art, each of the plurality of active surfaces is outwardly displaced with respect to the longitudinal axis, while each of the network of pillars is inwardly displaced with respect to the longitudinal axis. The plurality of active surfaces, together with the network of pillars, are spaced about the periphery of the **container** in order to accommodate vacuum-induced volumetric shrinkage of the **container** resulting from a **hot-filling**, capping and cooling thereof.

28/28 © EPODOC / EPO

PN - [CA1217736](#) A 19870207

PR - US19830456170 19830106

AP - CA19840444730 19840105

DT - I

CCI - [B65D11/02](#) ; [B65D11/20](#)

PA - COSDENTECHNOLOGY

TI - THERMOPLASTIC FOOD **CONTAINER** AND METHOD OF MANUFACTURE

AB - A **container** and its method of manufacture are disclosed in which a multi-layered thermoplastic material is utilized to form a **container**, which **container** is particularly advantageous for packaging foods which are susceptible to spoilation by the permeation of oxygen through the wall of the **container**. The invention also discloses a **container** having means for **hot-filling** with food products.