

**TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE
REGISTERED PRACTITIONERS**

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	To Be Assigned
Filing Date	Filed Herewith
First Named Inventor	Merrilee Kick
Title	CONTAINER
Art Unit	To Be Assigned
Examiner Name	To Be Assigned
Attorney Docket Number	58822.5US05

SIGNATURE of Applicant or Patent Practitioner

Signature	/Alan N. Herda/	Date (Optional)	November 10, 2023
Name	Alan N. Herda	Registration Number	50,426
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of ONE forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number

Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)



I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

27683

OR



I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:



The address associated with the above-mentioned Customer Number

OR



The address associated with Customer Number:

OR



Firm or
Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):



Inventor or Joint Inventor (title not required below)



Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)



Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)



Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature

Date (Optional)

Name

Merrilee Kick

Title

CFO

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.



Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1480, Alexandria, VA 22313-1480. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1480, Alexandria, VA 22313-1480.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
18/506,811

RECEIPT DATE / TIME
11/10/2023 05:21:04 PM Z ET

ATTORNEY DOCKET #
58822.5US05

Title of Invention

CONTAINER

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 2957

FILED BY Paula Sandu

PATENT CENTER # 63222027

FILING DATE -

CUSTOMER # 27683

FIRST NAMED
INVENTOR Merrilee Kick

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Alan Herda

Documents

TOTAL DOCUMENTS: 8

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
57959.5US05 ADS EXE.pdf	8	Application Data Sheet	2174 KB
58822.5US05 APPLICATION.pdf	16	-	67 KB
58822.5US05 APPLICATION-SPEC.pdf	(1-5) 5	Specification	34 KB
58822.5US05 APPLICATION-CLM.pdf	(6-15) 10	Claims	40 KB
58822.5US05 APPLICATION-ABST.pdf	(16-16) 1	Abstract	14 KB

58822.5US05 TRACK ONE REQUEST EXE.pdf	1	Track One Request	168 KB
58822.5US05 DRAWINGS.pdf	9	Drawings-only black and white line drawings	1126 KB
58822.5US05 DECLARATION.pdf	1	Oath or Declaration filed	745 KB
58822.5US05 POA EXE.pdf	2	Power of Attorney	593 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
57959.5US05 ADS EXE.pdf	DF40C2E96C88913E3DAE535D614F5C4E590060E93CD062D03 20AC5DE5E651355669D9B0ECE9ECE90BCEE4B3DAAD46AA9 A1339EC16A42CA8CDAAF924487D97567
58822.5US05 APPLICATION.pdf	C1B43DE7948624890E4FBFFDB15B3B91A6828441094D2D4545 CCDD63C7049BD598CC7E01EC2CF7689A0FB14DB4973A77B3 0916BD7508EC0F969DE34EEFBEE3F3
58822.5US05 APPLICATION- SPEC.pdf	04B21420152471C095EE6605CE23021C0057DB916339B8356A 3B2585DB178C4C5E32740AB4D18ADA3CED4D676D73D6808E 1C7160C782236F67A5FFBD1B39F8B6
58822.5US05 APPLICATION- CLM.pdf	C412A727B9356EE555DB8EB80E04C33D3B6608174CBC25F79 955B14BD2357D22119AD2A736FB6D1FD1430F6B7686BDD06B 6DF1593F6A0C3332C3B391CBD6BA99
58822.5US05 APPLICATION- ABST.pdf	564144A1DD2689958D09116E2B575770BCF2B949A24528D7F3 C7FC7AD9491D069E9E068C7D660B562555CE13CA40A961184 A7A5FC9A7ABB5737F5BD886D817B7
58822.5US05 TRACK ONE REQUEST EXE.pdf	3DA6E20BA0F52C749B167BCDA167AB17BEE389C93389B3F51 7DF5A083B5F9B5C017E28A3DC30D05AD33227466D23F41E5F 6F97A22A6C7CECAC14219073A82543

58822.5US05 DRAWINGS.pdf	B957BD262DE406310E40CC5878648949B16344E4811FBB45FF 9545FDE6EB837B9D2028E808EAD7E84D85171ABAF A68338B8 69C67F0DEFD9B4132014F2764F472
58822.5US05 DECLARATION.pdf	E5AB9AAC6C9DBE054039EB02BFF1F9279511A1294939846379 5875473E0C63121B43AE8876F6A3BC1BBE496C7EF35C19D61 AC4D5CD65B34CC1534838A06E07AD
58822.5US05 POA EXE.pdf	D75227240288E44187AB22633F11F896636F269647F96CFF8D3 B8055D93CB45135BF57AE517BC0882A7AE5E81378CFAAABA2 FB63EAF9B5B44868267AD8ADCA9D

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION
UNDER 37 CFR 1.102(e) (Page 1 of 1)**

First Named Inventor:	Merrilee Kick	Nonprovisional Application Number (if known):	
Title of Invention:	CONTAINER		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently \$0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.
2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.
3. The applicable box is checked below:

I. ☒ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

- i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via Patent Center or EFS-Web.
---OR---
(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.
- ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, or the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

- i. A request for continued examination has been filed with, or prior to, this form.
- ii. If the application is a utility application, this certification and request is being filed via Patent Center or EFS-Web.
- iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
- iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
- v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature <u>/Alan N. Herda/</u>	Date <u>November 10, 2023</u>
Name (Print/Typed) <u>Alan N. Herda</u>	Practitioner Registration Number <u>50,426</u>
Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.*	
☒ *Total of <u>1</u> forms are submitted.	

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	58822.5US05
		Application Number	
Title of Invention	CONTAINER		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
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Inventor Information:

Inventor 1					Remove		
Legal Name							
Prefix	Given Name		Middle Name		Family Name		Suffix
	Merrilee				Kick		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service							
City	Plano		State/Province	TX	Country of Residence	US	
Mailing Address of Inventor:							
Address 1		2114 McDaniel Drive					
Address 2							
City	Carrollton			State/Province	TX		
Postal Code	75006			Country	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.							
Add							

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).		
☐ An Address is being provided for the correspondence information of this application.		
Customer Number	27683	
Email Address	ipdocketing@haynesboone.com	Add Email Remove Email

Application Information:

Title of the Invention	CONTAINER		
Attorney Docket Number	58822.5US05	Small Entity Status Claimed ☐	
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	9	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	58822.5US05
		Application Number	
Title of Invention	CONTAINER		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☒ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	27683		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	29/824813	2022-01-27

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		58822.5US05	
		Application Number			
Title of Invention	CONTAINER				
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
29/824813	Continuation of	16/800195	2020-02-25	11338955	2022-05-24
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16/800195	Continuation of	12/762934	2010-04-19	10604296	2020-03-31
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

		Remove	
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	58822.5US05
		Application Number	
Title of Invention	CONTAINER		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐

B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

☐

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	58822.5US05
		Application Number	
Title of Invention	CONTAINER		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.				
Applicant 1				<input type="button" value="Remove"/>
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.				
<input type="button" value="Clear"/>				
☐ Assignee	☐ Legal Representative under 35 U.S.C. 117		☐ Joint Inventor	
☐ Person to whom the inventor is obligated to assign.		☐ Person who shows sufficient proprietary interest		
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:				
Name of the Deceased or Legally Incapacitated Inventor: <input type="text"/>				
If the Applicant is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Applicant:				
Address 1				
Address 2				
City		State/Province		
Country		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Applicant Data may be generated within this form by selecting the Add button. <input type="button" value="Add"/>				

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	58822.5US05
		Application Number	
Title of Invention	CONTAINER		

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
<input type="button" value="Remove"/>				
If the Assignee or Non-Applicant Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City			State/Province	
Country ⁱ			Postal Code	
Phone Number			Fax Number	
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. <input type="button" value="Add"/>				

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Alan N. Herda/		Date (YYYY-MM-DD)	2023-11-10	
First Name	Alan N.	Last Name	Herda	Registration Number	50,426
Additional Signature may be generated within this form by selecting the Add button. <input type="button" value="Add"/>					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	58822.5US05
		Application Number	
Title of Invention	CONTAINER		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Container Shape

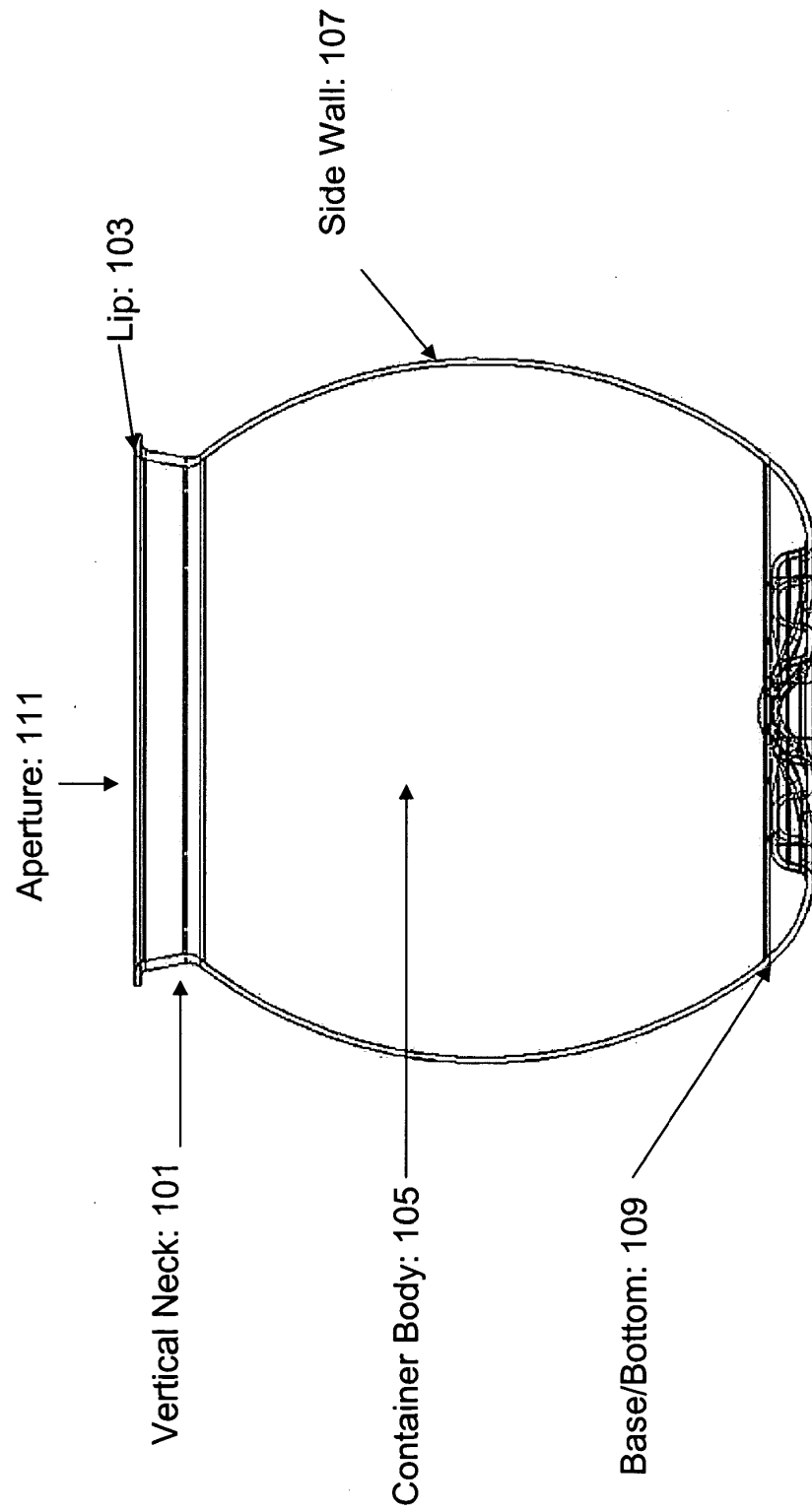


Figure 1

Container Shape

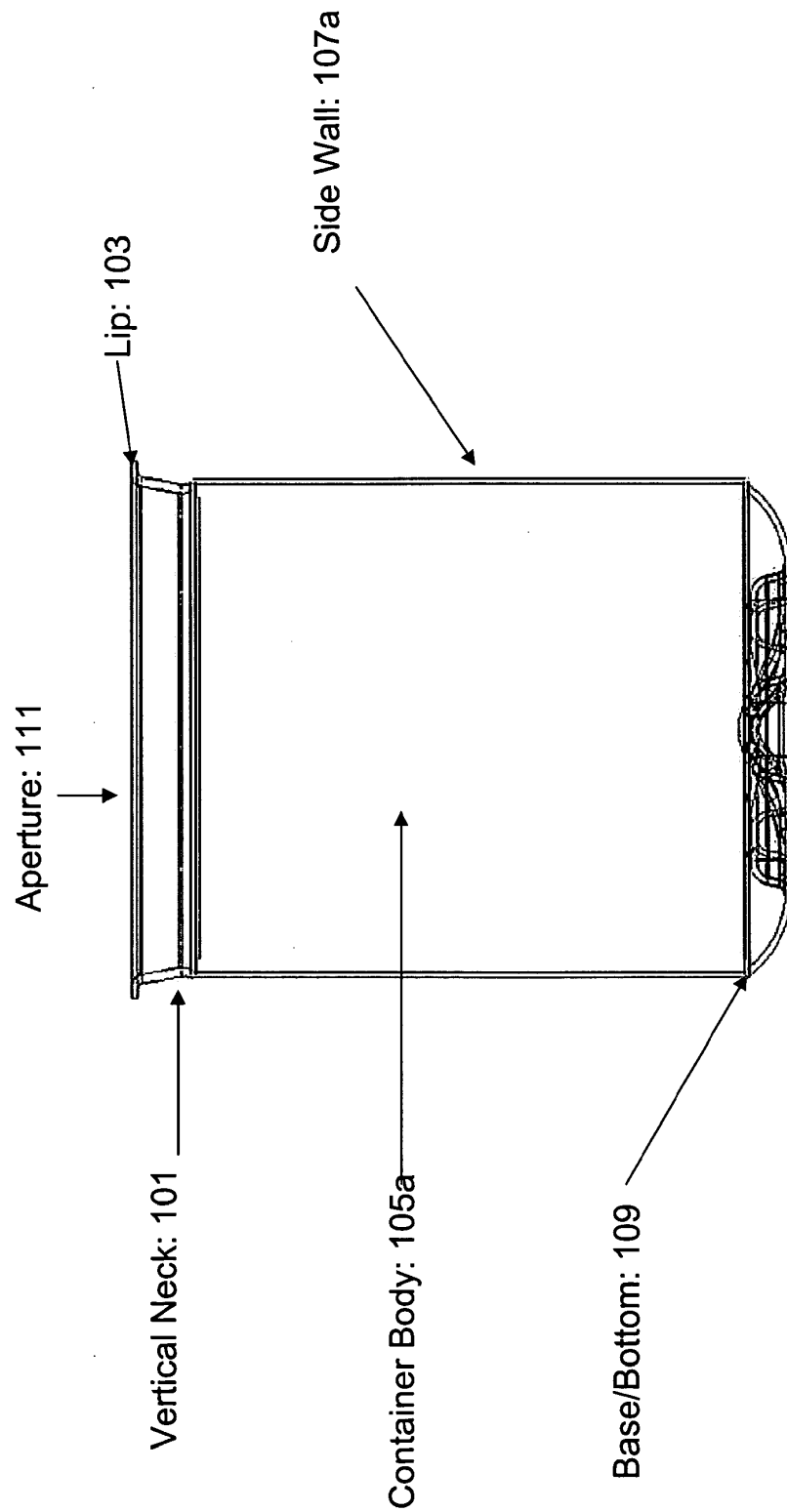


Figure 2

Bottom of Container

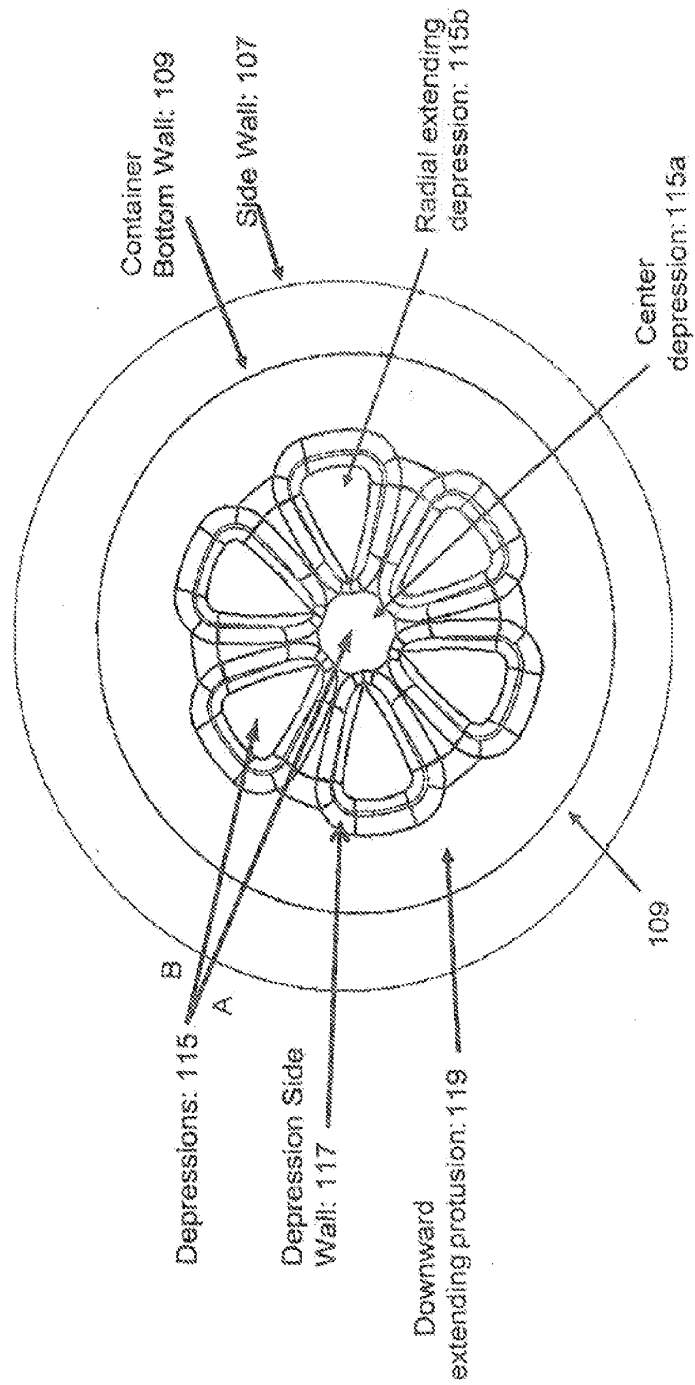


Figure 3

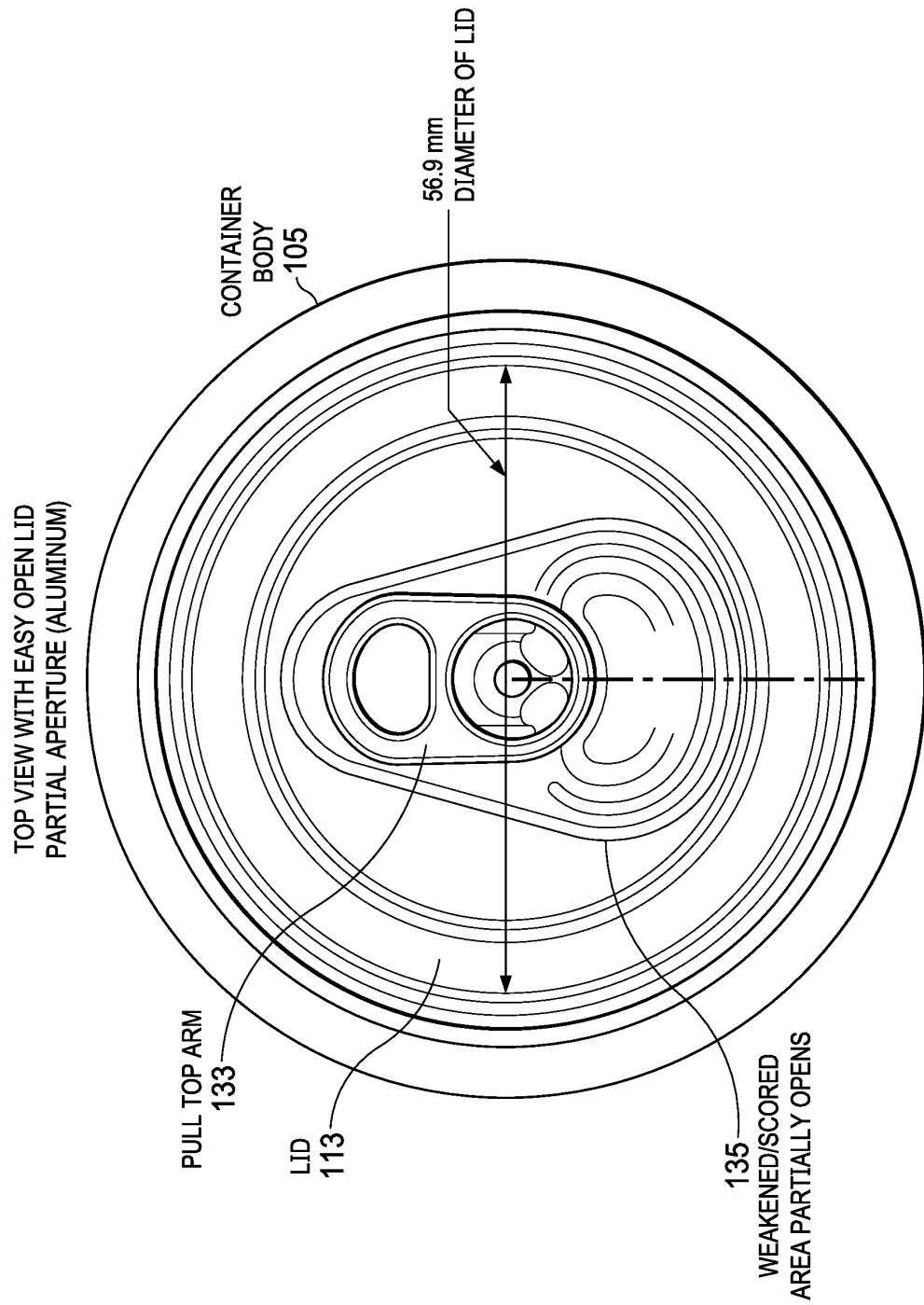


Figure 4

Side View - Lid & Lip of Container

(Note: The lip and lid are enlarged to show hook)

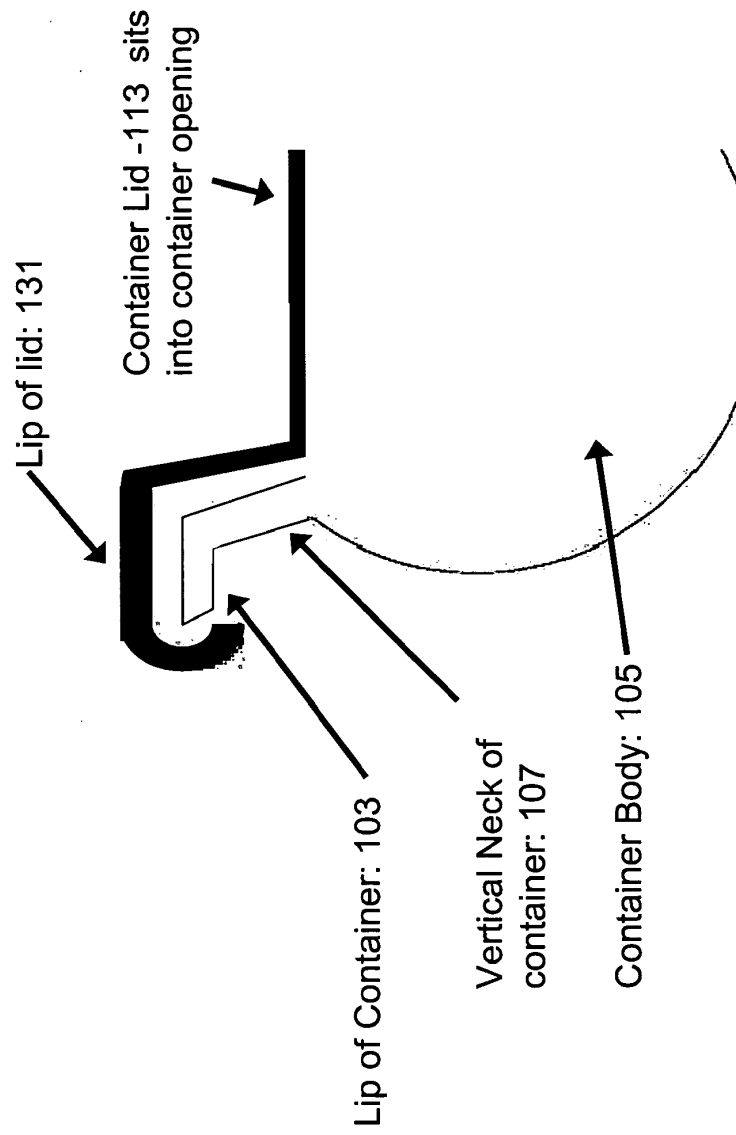


Figure 5

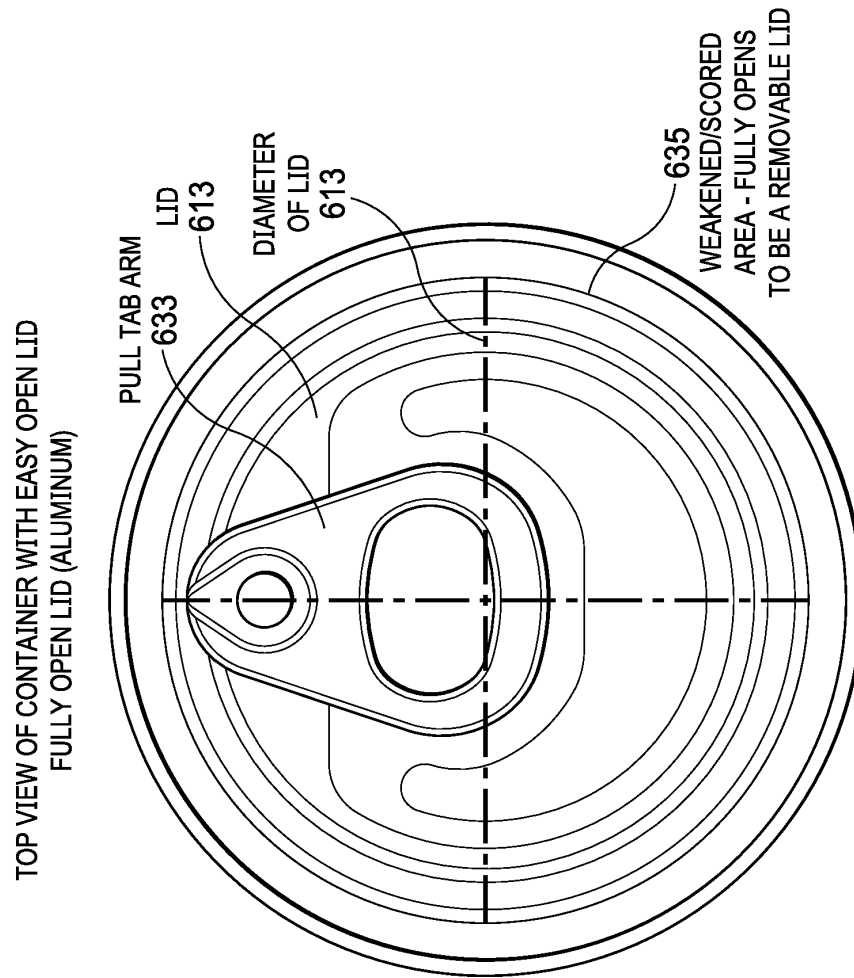


Figure 6

Thickness of Sidewalls & Volume

58822.5US05

7/9

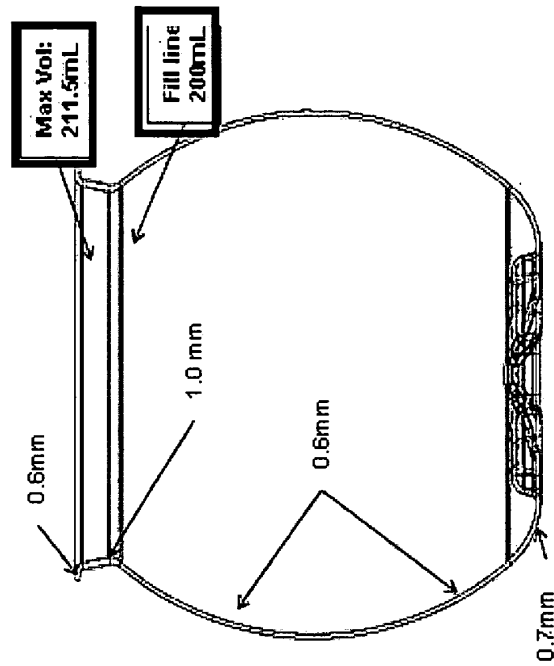


Figure 7

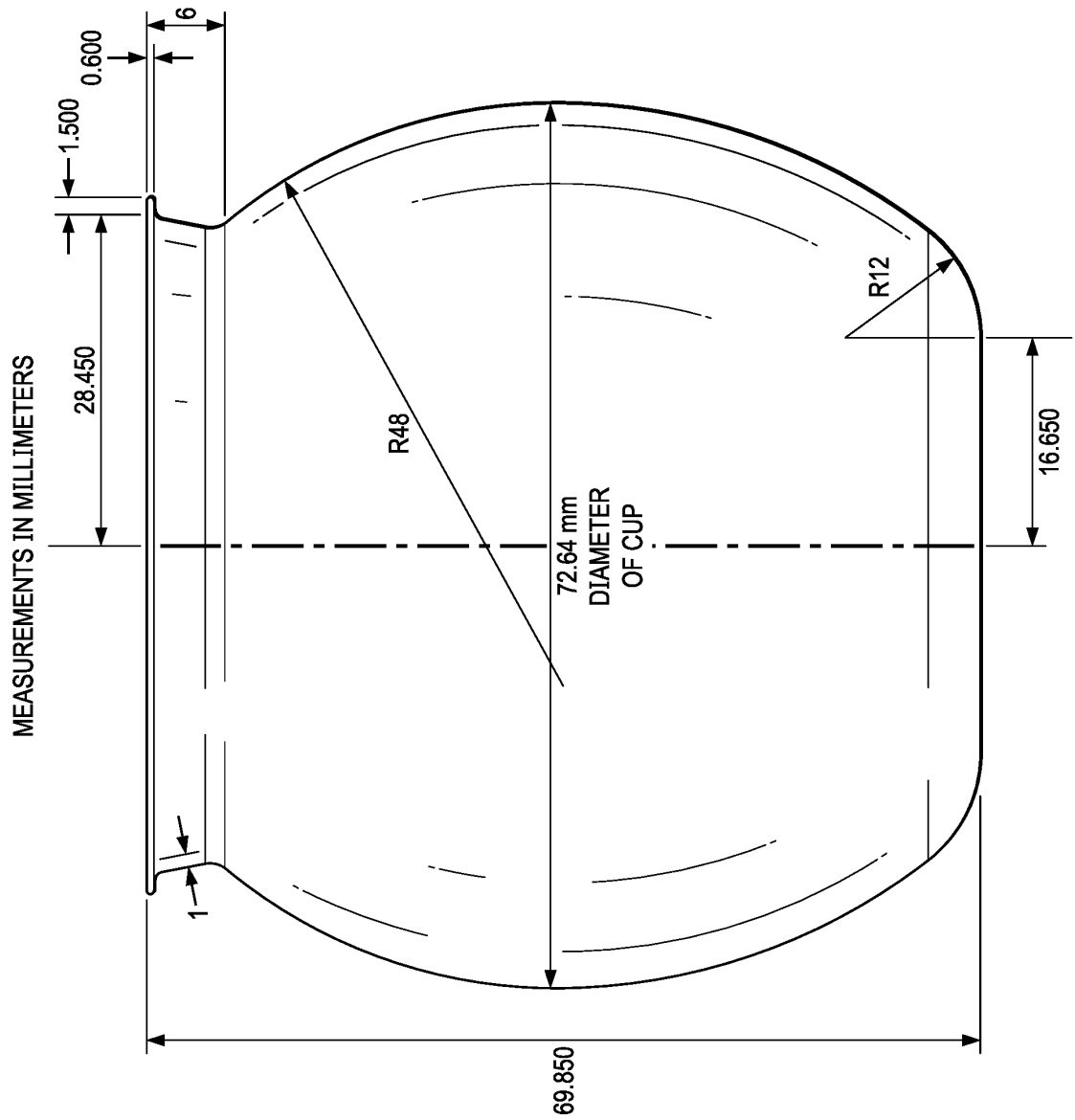


Figure 8

View:
Bottom of Container

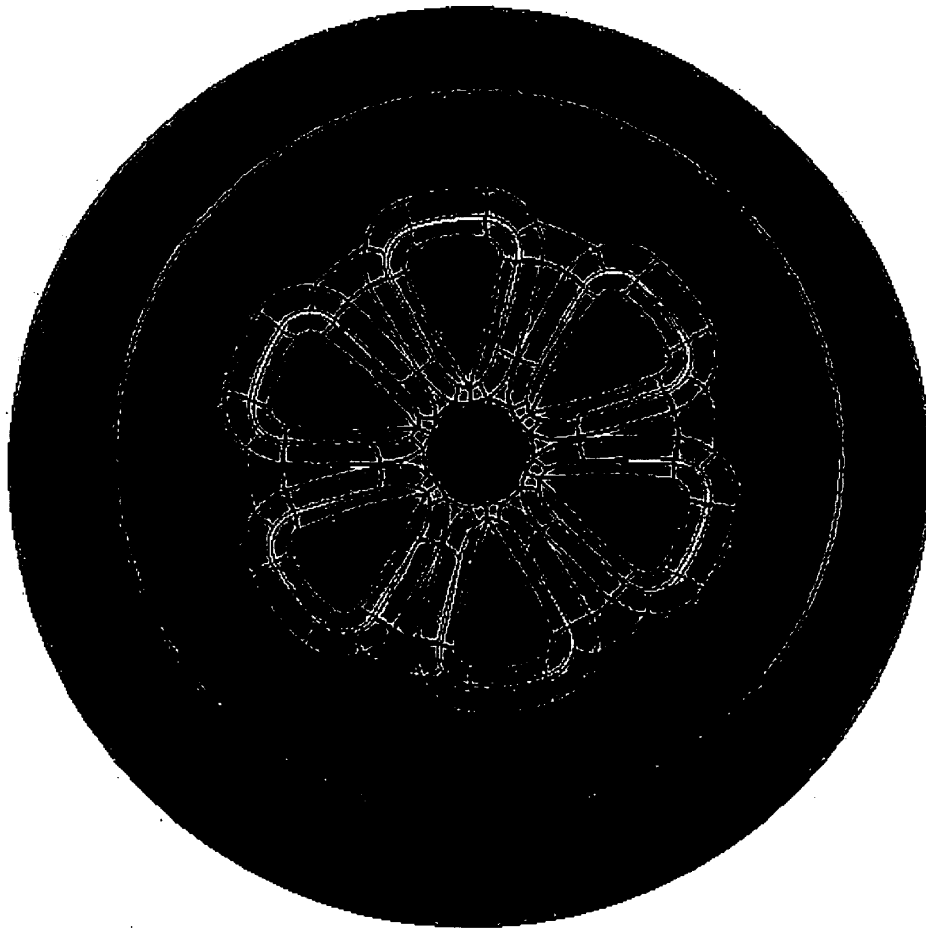


Figure 9

CONTAINER

Cross-Reference to Related Applications

[0001] This application is a continuation of U.S. Application No. 29/824,813, filed on January 27, 2022, which is a continuation of U.S. Application No. 16/800,195, filed on February 25, 2020, now U.S. Patent No. 11,338,955, which is a continuation of U.S. Application No. 12/762,934, filed on April 19, 2010, now U.S. Patent No. 10,604,296, the entire disclosures of which are hereby incorporated herein by reference.

Field of the Invention

[0002] The present invention relates to containers and more particularly to a container having a body which may be formed from plastic and a lid which may be formed from metal.

Background

[0003] Containers having an easy-open-end have been used with a metal lid and container in order to provide a source of merchandising beer and soda for a number of years. These metal containers are formed from cutting metal and folding the metal to an appropriate shape. Metal however does not lend itself well to being molded, and making a new shape by designing a mold out of the sheet of metal is time-consuming and expensive. Thus, it is difficult to achieve any type of design in order to increase the desirability of the package/container with a metal container. However, the pop top lid is very popular with consumers and fairly inexpensive to purchase. Plastic containers have been molded into various shapes and may include various designs in order to increase the attractiveness of the container.

Summary

[0004] A container for storing a liquid or a solid may include a container body having a container side wall and a container bottom, and may include a container lid having an

easy-open “pop-top arm” which cooperates with a weakened (scored metal) area which provides access to the interior of the container body. The container may also operate with no lid.

[0005] The container body may be formed from plastic and the container lid is formed from metal, and the container body may include a vertical or slightly angled neck. The container body may include a lip, and the bottom wall may include a center protrusion or concave shape. The bottom wall may include a depression, and the bottom wall may include a radial extending depression.

Brief Description of the Drawings

[0006] The invention may be understood by reference to the following description taken in conjunction with the accompanying drawings, in which, like reference numerals identify like elements, and in which:

[0007] Figure 1 illustrates a side view of the container body of the present invention;

[0008] Figure 2 illustrates a side view of another container body of the present invention;

[0009] Figure 3 illustrates a bottom view of the container body of the present invention;

[0010] Figure 4 illustrates a top view of the lids and container body of the present invention;

[0011] Figure 5 illustrates a section of the lid and lip of the container body of the present invention;

[0012] Figure 6 illustrates another lid for the container body of the present invention;

[0013] Figure 7 illustrates the thicknesses of the plastic sidewalls, neck, and flange of the rounded container, and the volume of the rounded container.

[0014] Figure 8 illustrates the general dimensions of the rounded container in millimeters.

[0015] Figure 9 illustrates a bottom view of the rounded container.

Detailed Description

[0016] The present invention combines the flexibility and desirability of a container body 105 which may be formed from molding plastic or other appropriate material and a metal lid to cooperate with the container body which may include a pop top (or easy-open) lid 131 to provide access to the user of the contents of the container body.

[0017] Figure 1 illustrates a side view of the container body 105 which may include a side wall 107 which may extend radially around a periphery of the container body 105 and may include a convex side wall 107 or a concave side wall (not shown). The container body 105 may be shaped as a truncated spherical body. The container body 105 may be hollow in order to provide for a solid or liquid which may be dispensed to the user.

[0018] The distal end of the container side wall 107 may be connected to a base/bottom wall 109 in order to seal the first end of the container 105 and the proximate end of the container side wall 107 may be connected to a substantially vertical neck 101 around the periphery of the container side wall 107. An aperture 111 may extend through the vertical neck 101 in order to provide access to the liquid/solid within the container body 105. A lip 103 may extend around the periphery of the substantially vertical neck 101 in order to cooperate with the lid 113 (Not shown on Figure 1, but it is seen on Figures 4, 5, and 6) in order to provide a seal so that the liquid or solid within the container body 105 does not leak out.

[0019] The container body 105 according to the present invention may be made of an appropriate plastic/synthetic resin, typically polyethylene terephthalate (PET) resin. Alternatively, however, the container 105 may be made from polyamide resin, polycarbonate resin, polyacetal resin, polybutylene terephthalate resin or other synthetic resin having a sufficient resistance to chemicals. The container may be formed by known molding processes, such as biaxial orientation blow molding process or direct blow molding process or injection blow molding.

[0020] Figure 2 illustrates a side view of another container body 105a which may include a cylinder side wall 107a which may extend radially around a periphery of the container body 105a and may include a substantially vertical side wall 107a. The

container body 105a may be hollow in order to provide for a solid or liquid which may be dispensed to the user. The distal end of the container side wall 107a may be connected to a base/bottom wall 109 in order to seal the first end of the container 105a and the proximate end of the container side wall 107a may be connected to a substantially vertical neck 101 around the periphery of the container side wall 107. An aperture 111 may extend through the vertical neck 101 in order to provide access to the liquid/solid within the container body 105. A lip 103 may extend around the periphery of the substantially vertical neck 101 in order to cooperate with the lid 113 (not shown in Figure 2) in order to provide a seal so that the liquid or solid within the container body 105a does not leak out.

[0021] The container body of 105a may be formed from molded plastic and may be integral without seams or portions of the container body may be formed from molded plastic in sections which may be glued, welded or otherwise attached together.

[0022] The container body 105a according to the present invention may be made of an appropriate plastic/synthetic resin, typically polyethylene terephthalate (PET) resin. Alternatively, however, the container 105a may be made from polyamide resin, polycarbonate resin, polyacetal resin, polybutylene terephthalate resin or other synthetic resin having a sufficient resistance to chemicals. The container may be formed by known molding processes, such as biaxial orientation blow molding process or direct blow molding process or injection blow molding.

[0023] Figure 3 illustrates a bottom view of the container body and illustrates the container side wall 107 extending radially outwards and illustrates the bottom wall 109 which may be connected to the container side wall 107. The bottom wall 109 may include a multitude of radially extending depressions 115 which may increase in width as the radial distance from the center increases. The depression 115 may be defined by a depression side wall 117 which extends around the periphery of the depression 115. The bottom wall 109 may include a downward extending protrusion 119 which may be centered with respect to the depressions 115 and the bottom wall 109.

[0024] Figure 4 illustrates a top view of the container which may include the container body 105 and the container lid 113 which may be deformable in order to

provide access to the contents of the container body 105. The container lid 113 may be formed from metal such as steel, aluminum or other types of metals and may include a weakened (or scored) area 135 which deforms and provides an opening when the 'pull top' arm 133 which may include an aperture for a finger of the user and may be pivoted by the user. The weakened/scored area 135 may partially open to provide access to the contents of the container.

[0025] Figure 5 illustrates a side view of the container lid 103 which may extend over the vertical neck 107 and may extend around the lip 131 in order to provide a substantially watertight seal/airtight seal for the contents of the container body 105.

[0026] Figure 6 illustrates another container lid of the present invention. The container lid 613 may be formed from metal such as steel, aluminum or other types of metals and may include a weakened (or scored) area 635 which deforms and provides an opening when the 'pull tab' arm 633 which may include an aperture for a finger of the user and may be pivoted by the user. The weakened area 635 may extend substantially across the entire lid 613 to provide a full aperture lid to allow the user to add other contents to the container.

[0027] Figure 7 illustrates the thicknesses of the plastic sidewalls, neck and flange. This also illustrates the maximum volume of fluid, and the location for the "fill line" during the container filling process.

[0028] Figure 8 illustrates the general dimensions of the rounded container in millimeters (cylindrical container measurements not shown from FIG. 2).

[0029] Figure 9 illustrates the bottom view of the container.

[0030] While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof have been shown by way of example in the drawings and are herein described in detail. It should be understood, however, that the description herein of specific embodiments is not intended to limit the invention to the particular forms disclosed.

Claims

What is claimed is:

1. A container, comprising:
a container body, the container body defining a first opening to an interior of the container body; and
a lid connected to the container body and covering the first opening to the interior of the container body;
wherein the container body is made out of a resin;
wherein the lid is made out of a metal;
wherein the container body comprises a container side wall and a base portion connected to the container side wall;
wherein the base portion comprises a bottom and a first depression formed therein, the first depression extending upwardly from the bottom;
wherein the first depression at least partially defines a first outline;
wherein the base portion further comprises a center element centered with respect to the first outline at least partially defined by the first depression;
wherein each of the center element, and the first outline at least partially defined by the first depression, is centered with respect to the container side wall;
wherein each of the center element, and the first outline at least partially defined by the first depression, is centered with respect to the base portion;
wherein a cross-sectional diameter of the first opening to the interior of the container body is less than a cross-sectional diameter of a middle portion of the container side wall;
wherein the base portion defines a diameter that is less than the cross-sectional diameter of the middle portion of the container side wall;
wherein a lower portion of the container side wall extends downwardly from the middle portion of the container side wall to the base portion of the container body, the lower portion along its entirety being greater in

diameter than the base portion, including the bottom, thereby rendering the container body stemless;

wherein the container body further comprises a circular neck extending from the container side wall so that the container side wall extends between the circular neck and the base portion;

wherein an upper edge of the container side wall is adjacent to the circular neck of the container body;

wherein the container body further comprises a lip at an end of the circular neck opposite the upper edge of the container side wall;

wherein the circular neck is adjacent to the lip;

wherein a first portion of the lid is above the lip of the container body;

wherein the first portion of the lid defines a first circular shape;

wherein the first portion of the lid further defines a second circular shape around which the first circular shape circumferentially extends;

wherein the second circular shape defined by the first portion of the lid is concentric with the first circular shape defined by the first portion of the lid;

wherein the first circular shape defined by the first portion of the lid is radially positioned between the container side wall and the second circular shape defined by the first portion of the lid;

wherein a second portion of the lid extends horizontally and is positioned so that the second circular shape is radially positioned between the second portion of the lid and the first circular shape;

wherein the second portion of the lid defines a total area across which the second portion of the lid extends horizontally;

wherein the second portion of the lid comprises a weakened or scored area;

wherein the weakened or scored area is less than the total area across which the second portion of the lid extends horizontally;

wherein the lid further comprises an arm connected to the second portion of the lid and radially positioned within the second circular shape;

wherein the arm comprises opposing first and second end portions;

wherein the arm is pivotable from a first position, in which the arm extends horizontally and the weakened or scored area is not deformed, to a second position, in which the arm does not extend horizontally and the weakened or scored area is deformed to provide a second opening to the interior of the container body;

wherein an upper portion of the container side wall extends upwardly from the middle portion of the container side wall to the upper edge of the container side wall, the upper portion along its entirety being greater in diameter than the first opening to the interior of the container body;

wherein the container body contains a liquid therewithin;

wherein the lid cooperates with the lip to provide a seal so that the liquid contained within the container body is sealed against leaking out from between the container body and the lid;

wherein, when the arm of the lid is in the first position and the weakened or scored area is not deformed:

the first end portion of the arm is not positioned above the weakened or scored area of the second portion of the lid; and

at least a portion of the second end portion of the arm is positioned above the weakened or scored area of the second portion of the lid;

wherein the container side wall extends between the circular neck and the base portion so that:

the upper portion of the container side wall defines a first angle:

between the upper portion of the container side wall and the bottom of the base portion, and

with respect to the bottom of the base portion;

the middle portion of the container side wall defines a second angle:

between the middle portion of the container side wall and the bottom of the base portion, and

with respect to the bottom of the base portion;

the lower portion of the container side wall defines a third angle:

between the lower portion of the container side wall and the bottom
of the base portion, and
with respect to the bottom of the base portion;
the first angle is an acute angle;
the third angle is an obtuse angle;
the second angle is greater than the first angle; and
the third angle is greater than the second angle;
and
wherein the interior of the container body extends continuously across the cross-
sectional diameter of the middle portion at a height midway between the
circular neck and the base portion so as to be interrupted, if at all, only by
the liquid contained within the container body.

2. The container of claim 1,
wherein the resin is a polyethylene terephthalate (PET) resin.
3. The container of claim 1,
wherein the container body is formed using a blow molding process.
4. The container of claim 1,
wherein the metal is aluminum.
5. The container of claim 1,
wherein the metal is aluminum; and
wherein the resin is a polyethylene terephthalate (PET) resin.
6. The container of claim 1,
wherein the container body is formed using a blow molding process; and
wherein the resin is a polyethylene terephthalate (PET) resin.

7. The container of claim 1,
wherein the metal is aluminum; and
wherein the container body is formed using a blow molding process.
8. The container of claim 1,
wherein the metal is aluminum;
wherein the resin is a polyethylene terephthalate (PET) resin; and
wherein the container body is formed using a blow molding process.
9. The container of claim 1,
wherein the first depression is visible through at least a portion of the container
body;
wherein the base portion further comprises a second depression adjacent the
first depression; and
wherein the second depression is visible through the at least a portion of the
container body.
10. The container of claim 1,
wherein at least a portion of the container body is transparent;
wherein the first depression is visible through the at least a portion of the
container body;
wherein the base portion further comprises a second depression adjacent the
first depression; and
wherein the second depression is visible through the at least a portion of the
container body.
11. The container of claim 1, wherein the center element of the base portion is a
downward extending protrusion.

12. The container of claim 1, wherein the base portion further comprises a second depression adjacent the first depression; and wherein the second depression at least partially defines the first outline.
13. The container of claim 1, wherein the center element of the base portion is a downward extending protrusion; and wherein the base portion further comprises a second depression adjacent the first depression.
14. The container of claim 13, wherein the second depression at least partially defines the first outline.
15. A container, comprising:
a container body, the container body defining a first opening to an interior of the container body; and
a lid connected to the container body and covering the first opening to the interior of the container body;
wherein the container body is made out of a resin;
wherein the lid is made out of a metal;
wherein the container body comprises a container side wall and a base portion connected to the container side wall;
wherein the base portion comprises a bottom and a first depression formed therein, the first depression extending upwardly from the bottom;
wherein the first depression at least partially defines a first outline;
wherein the base portion further comprises a center element centered with respect to the first outline at least partially defined by the first depression;
wherein each of the center element, and the first outline at least partially defined by the first depression, is centered with respect to the container side wall;
wherein each of the center element, and the first outline at least partially defined by the first depression, is centered with respect to the base portion;

wherein a cross-sectional diameter of the first opening to the interior of the container body is less than a cross-sectional diameter of a middle portion of the container side wall;

wherein the base portion defines a diameter that is less than the cross-sectional diameter of the middle portion of the container side wall;

wherein a lower portion of the container side wall extends downwardly from the middle portion of the container side wall to the base portion of the container body, the lower portion along its entirety being greater in diameter than the base portion, including the bottom, thereby rendering the container body stemless;

wherein the container body further comprises a circular neck extending from the container side wall so that the container side wall extends between the circular neck and the base portion;

wherein an upper edge of the container side wall is adjacent to the circular neck of the container body;

wherein the container body further comprises a lip at an end of the circular neck opposite the upper edge of the container side wall;

wherein the circular neck is adjacent to the lip;

wherein a first portion of the lid is above the lip of the container body;

wherein the first portion of the lid defines a first circular shape;

wherein the first portion of the lid further defines a second circular shape around which the first circular shape circumferentially extends;

wherein the second circular shape defined by the first portion of the lid is concentric with the first circular shape defined by the first portion of the lid;

wherein the first circular shape defined by the first portion of the lid is radially positioned between the container side wall and the second circular shape defined by the first portion of the lid;

wherein a second portion of the lid extends horizontally and is positioned so that the second circular shape is radially positioned between the second portion of the lid and the first circular shape;

wherein the second portion of the lid defines a total area across which the
second portion of the lid extends horizontally;
wherein the second portion of the lid comprises a weakened or scored area;
wherein the weakened or scored area is less than the total area across which the
second portion of the lid extends horizontally;
wherein the lid further comprises an arm connected to the second portion of the
lid and radially positioned within the second circular shape;
wherein the arm comprises opposing first and second end portions;
wherein the arm is pivotable from a first position, in which the arm extends
horizontally and the weakened or scored area is not deformed, to a
second position, in which the arm does not extend horizontally and the
weakened or scored area is deformed to provide a second opening to the
interior of the container body;
wherein an upper portion of the container side wall extends upwardly from the
middle portion of the container side wall to the upper edge of the container
side wall, the upper portion along its entirety being greater in diameter
than the first opening to the interior of the container body;
wherein the container body contains a liquid therewithin;
wherein the lid cooperates with the lip to provide a seal so that the liquid
contained within the container body is sealed against leaking out from
between the container body and the lid;
wherein, when the arm of the lid is in the first position and the weakened or
scored area is not deformed:
the first end portion of the arm is not positioned above the weakened or
scored area of the second portion of the lid; and
at least a portion of the second end portion of the arm is positioned above
the weakened or scored area of the second portion of the lid;
wherein the container side wall extends between the circular neck and the base
portion so that:
the upper portion of the container side wall defines a first angle:

between the upper portion of the container side wall and the bottom of the base portion, and
with respect to the bottom of the base portion;
the middle portion of the container side wall defines a second angle:
between the middle portion of the container side wall and the bottom of the base portion, and
with respect to the bottom of the base portion;
the lower portion of the container side wall defines a third angle:
between the lower portion of the container side wall and the bottom of the base portion, and
with respect to the bottom of the base portion;
the first angle is an acute angle;
the third angle is an obtuse angle;
the second angle is greater than the first angle; and
the third angle is greater than the second angle;
wherein the interior of the container body extends continuously across the cross-sectional diameter of the middle portion at a height midway between the circular neck and the base portion so as to be interrupted, if at all, only by the liquid contained within the container body;
wherein the metal is aluminum;
wherein the resin is a polyethylene terephthalate (PET) resin;
wherein the first depression is visible through at least a portion of the container body;
wherein the center element of the base portion is a downward extending protrusion;
wherein the base portion further comprises a second depression adjacent the first depression; and
wherein the second depression is visible through the at least a portion of the container body.

16. The container of claim 15,
wherein the at least a portion of the container body is transparent.
17. The container of claim 15, wherein the second depression at least partially
defines the first outline.
18. The container of claim 17, wherein the base portion further comprises third,
fourth, fifth, and sixth depressions; and
wherein the third, fourth, fifth, and sixth depressions at least partially define the
first outline.
19. The container of claim 18, wherein the downward extending protrusion is
centered with respect to the first, second, third, fourth, fifth, and sixth
depressions.
20. The container of claim 17, wherein each of the first and second depressions
increases in width as the radial distance from a center of the bottom of the base
portion increases.

Abstract

A container for storing a liquid or a solid may include a container body having a container side wall and a container bottom and a container lid having a pop top arm to pivot and cooperate with a weakened area to provide access to the interior of the container body. The container body may be formed from plastic and the container lid is formed from metal, and the container body may include a vertical neck. The container body may include a lip, and the bottom wall may include a center protrusion. The bottom wall may include a depression, and the bottom wall may include a radial extending depression.

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	Container
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As the below named inventor, I hereby declare that:

This declaration
is directed to:☐

The attached application, or

☒United States application or PCT international application number 16/800,195
filed on February 25, 2020

The above-identified application was made or authorized to be made by me

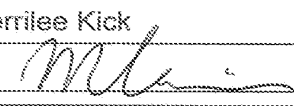
I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
by fine or imprisonment of not more than five (5) years, or both.**WARNING:**

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LEGAL NAME OF INVENTORInventor: Merrilee Kick

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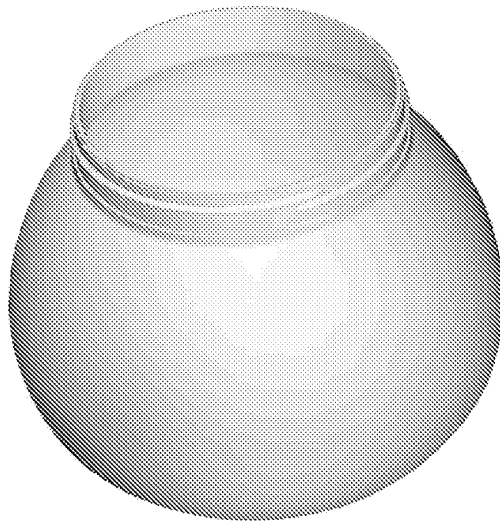
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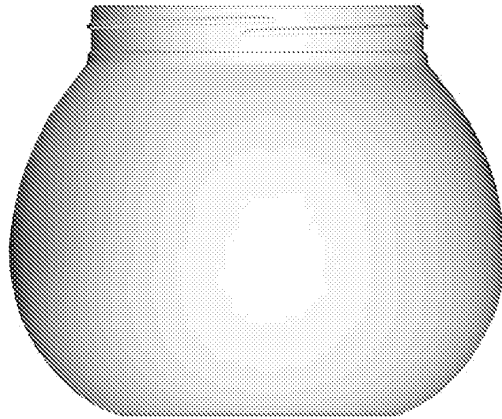
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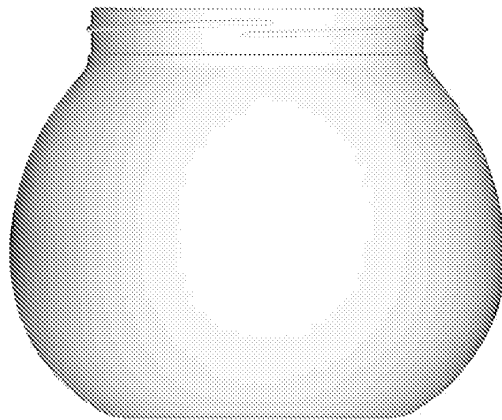
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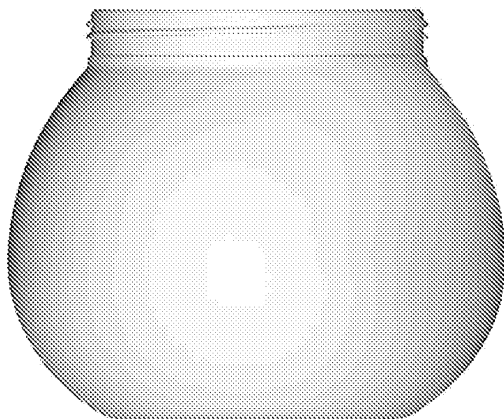
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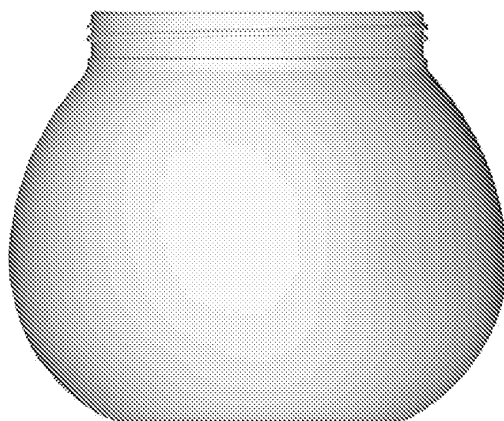
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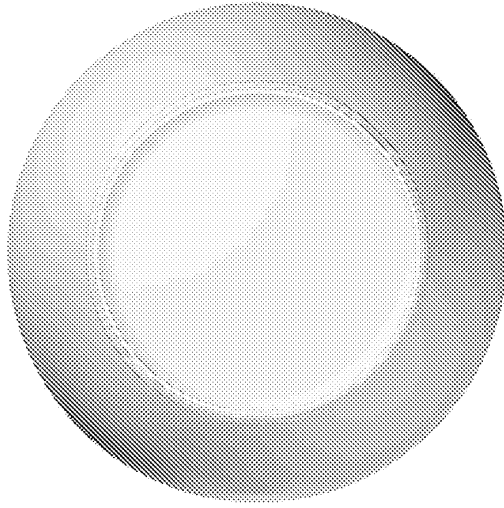
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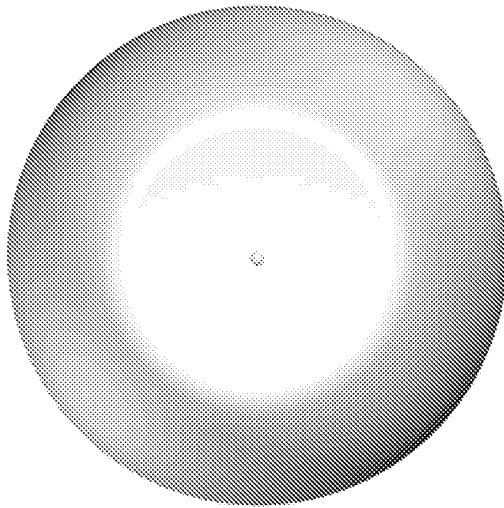
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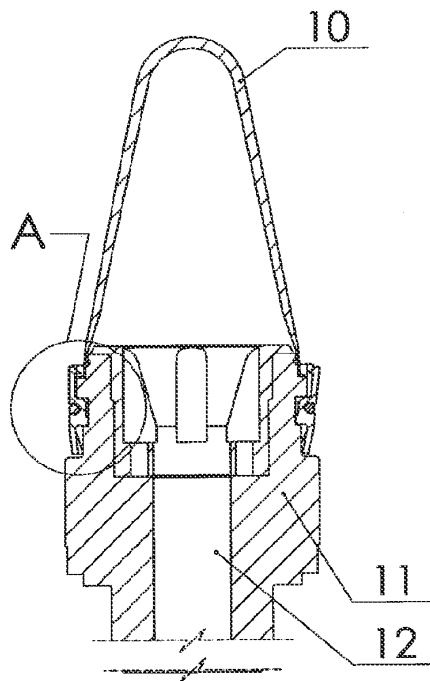


Fig. 5

(57) Abstract: The invention concerns a preform for a plastic container in the form of a can intended particularly for pressurised beverages, and the preform holder in the container manufacturing process. The preform (10) consists of a body (1) with a neck (3) ended with a thin outer flange (4). A supporting flange (6) is formed on the inner wall of the neck (3a), while the outer surface of the neck (3b) is even. The preform holder comprises a body (11) provided with pockets (13). The pockets seat mobile-anchored clasps (14) which are clamped on the body (11) with an elastic clamping ring (15). The clasps (14) each ends with a tooth (16) which extends over the seat (17) where the thin outer flange (4) of the preform (10) rests. The inner side wall of the seat (17) has a groove (19) carved in it to accommodate the supporting flange (6) of the preform (10).

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- 1 -

A preform for a plastic container, and the preform holder

The invention concerns a preform for a plastic container in the form of a can intended particularly for pressurised beverages, and the preform holder in the container manufacturing process.

In the container manufacturing process preforms are carried in the blow moulding machine on special pick-up plugs, locked in place and sealed tight in the blow mould.

WO2005049434 disclosed a preform for a plastic container, comprising the body with a convex hemispherical bottom, wherein the body conical in shape opens upwards to form a cylindrical neck ending in an outwardly-extending flange terminated with a profile rim. The flange is less than 0.3 mm thick, which is required for the good seaming of the metal lid on the finished container.

EP 0 482 652 disclosed a cylindrical perform ending with an outwardly extending flange thicker than 0.3 mm, and the method of manufacturing a container out of this perform. Under this method the perform is, in the process of container forming, locked in position and sealed tight in the blow mould by locking the outer flange in the blow mould seat. The method can only apply to preforms with flanges of a substantial thickness, which will not be deformed under the external forces affecting them during the preform blowing process.

The disclosed methods of locking and sealing the perform tight in the blow-mould by locking the outer flange are inappropriate for a preform with a thin, less than 0.3 mm thick, outer flange. The thin flange

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will not resist the forces which affect the preform during the blowing process adequately; hence it will get deformed or damaged. Containers with damaged or deformed flanges are rejected.

WO0238353 disclosed a preform pick-up plug fitted with a clamping member which presses against the inner surface of the preform in effect of a spring member acting on the clamping member. In this way the preform is supported in the desired position when in transport in the blow- moulding machine.

The pick-up plug is only fit for transporting preforms in the blow- moulding machine because of non-existence of any elements that would seal and hold the preform in the blow-mould during the container-forming process.

The present invention solves the issue of protecting the thin outer flange of the preform from damage in the process of blowing it into a can- shape container which upon filling is sealed in the process of seaming the flange and the metal lid on traditional machines designated for lidding metal cans.

The problem has been solved by developing the inner wall of the preform neck and designing the preform holder so as to ensure that the preform shall retain the proper position whilst in transport in the blow- moulding machine, will be locked in place and sealed tight during the process of forming it into a container.

According to the invention, the preform consisting of a conically- shaped body with a convex bottom and - at the other end - merging directly into a cylindrical neck which ends with a thin outer flange extended outward away from the body, is characterised by the fact that a supporting flange is formed on the inner wall of the neck below the top rim, while the outer wall of the neck remains even.

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Preferably, the supporting flange is formed at least 1.5 mm below the top rim.

In addition, below the first supporting flange another supporting flange or several other supporting flanges are formed bottom-wise on the inner wall of the preform neck.

According to variant one of the invention, the preform holder fitted with elastic and clamping members is characterised by having a body with an axially running air duct through which air is blown into the preform, and the outer side walls of the body provided with pockets which seat mobile-anchored clasps held tight in position over the body with an elastic clamping ring. The clasps each ends with a tooth which reaches over the seat formed in the front wall of the holder where the thin outer flange of the preform rests. In between the tooth bottom and the seat a crevice is formed into which the rim of the flange slips. A groove is carved in the inner side wall of the seat to hold the fitting supporting flange of the preform. In case of preforms fitted with two or more supporting flanges the side wall of the seat will have several grooves carved as appropriate to hold the supporting flanges of the preform. The elastic clamping ring is preferably made of rubber.

Preferably, the elastic clamping ring is mounted at about half the height of the clasp.

The elastic clamping ring is preferably mounted in a recess formed in the clasp and/or the side wall of the body.

In order to reduce the maximum angle at which the tooth deflects from the closed position the lower section of the clasp below the clamping ring curves towards the body, or a distance element is additionally formed below the elastic clamping ring on the inner side wall of the clasp and/or the side wall of the body.

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According to variant two of the invention, the preform holder is characterised in that the body with an axially running air duct through which air is blown into the preform, a slidable clamp bushing is embedded, fitted with an elastic ring which locks the preform mating with the body and the inner wall of the preform neck equipped with a supporting flange or flanges. The clamp bushing is submitted to the action of a spring which mates with a piston mounted in the body. The piston is submitted to a force which causes the sliding of the clamp bushing, in effect of which the preform is released from the lock in the holder.

The piston is subject to the force of compressed air driven in through an opening made in the holder body; alternatively the piston is moved using a pin which exerts axially-oriented force on the piston.

The preform locking ring is preferably made of rubber.

The fact that the supporting flange is located below the preform neck rim does not obstruct seaming the thin outer flange of the finished container with the metal lid on a typical packing line designated for metal cans. With an additional supporting flange or several supporting flanges in place the preform is locked better and sealed tighter in the blow-mould, subject to increased pressure present whilst it is formed into a container.

According to the invention, the preform holder prevents dislocation of the preform and ensures it is held in the proper position when in transport in the blow-mould machine; in the preform blowing process the arm ensures the preform is properly locked in place and sealed tight in the blow-mould owing to the fact that the supporting flange or flanges of the preform are locked in the groove or grooves formed in the holder body.

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The invention enables manufacturing of a plastic, can-shaped container with smooth walls on the outside and a thin outer flange which seals tight when seamed with a metal lid.

The invention will now be described by way of example with reference to the accompanying drawings where:

Fig. 1 shows the axial section of the preform already transformed into a can

Fig.2 shows the axial section of the preform neck and a supporting flange

Fig.3 shows the axial section of the preform neck with two supporting flanges

Fig. 4 shows a cross-section of the container neck with the seamed lid

Fig. 5 shows the axial section of the preform holder holding the preform

Fig. 6 shows a clasp mounted in the preform holder, with a fragment of the axially depicted preform in the closed position

Fig. 7 shows the clasp mounted in the preform holder with a fragment of the preform depicted axially in the open position

Fig. 8 shows a clasp in the axonometric view, in the versions depicted on Fig. 6 and 7

Fig.9 shows a fragment of the clasp mounted in the preform holder for the version depicted on Fig. 6-8

Fig. 10 shows the preform holder with a preform thereon seen from above; the clasps are in the closed position

Fig. 11 shows a fragment of a clasp mounted in the preform holder, in the version where the distance element is formed on the clasp surface

Fig. 12 shows a fragment of a clasp mounted in the preform holder, in the version where the distance element is formed on the surface of the holder body

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Fig. 13 shows the axial section of the preform holder holding the preform, in the variant with the air duct for driving compressed air under the piston

Fig. 14 shows the axial section of the preform holder holding the preform, in the variant with the pin operating the piston

Fig.15 shows the preform holder with a preform thereon seen from above

Fig. 16 shows a fragment of the preform holder holding the preform, in the axial section

Fig.17 shows a fragment of the preform holder holding a preform with an additional supporting flange, in the axial section

Fig.18 shows a fragment of the preform holder holding a preform without the outer flange, in the axial section.

According to the invention, as shown on Fig.1, the preform 10 consists of a conical body 1 with a convex bottom 2. Opposite the bottom 2 the body 1 merges directly into a cylindrical neck 3, whose inner wall 3a, about 3 mm below the top rim 5 has a supporting flange 6, while the outer neck wall 3b is even. The cylindrical neck 3 ends with a thin, less than 0.3 mm thick, outer flange 4 extending outwardly virtually perpendicular to the side wall as shown on Fig. 2 .

In another version, as shown on Fig. 3, the preform has an additional supporting flange on the inner wall of the neck 3a, formed bottom-wise below the supporting flange 6.

The preform shape of a cone merging directly into a cylindrical neck 3 is optimal for obtaining a thin outer flange 4 with advantageous strength parameters which, in a finished can 8, is seamed with a metal lid 9 as shown on Fig.4.

According to variant one of the invention the preform holder is composed of a body 11 with an axially running air duct through which air is blown 12 into the preform 10. The outer side walls of the body 11 are

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provided with pockets 13 seating mobile-anchored clasps 14 which are clamped on the body 11 with an elastic clamping ring 15. The clamping ring 15 is mounted in a recess 20 formed at approximately mid-height of the clasp 14 and the side wall of the body 11.

The seat 17 where the thin outer flange 4 of the preform 10 rests is formed in the front wall of the body 11. The clasps 14 each ends with a tooth 16 which reaches over the seat 17 forming a crevice 18 between the tooth bottom 16 and the seat 17 where the thin outer flange 4 of the preform 10 is inserted to prevent its dislocation whilst in transport to the blow-moulding machine. The inner side wall of the seat 17 has a groove 19 carved in it to fit the supporting flange 6 of the preform 10. In the blowing process the mould presses the preform 10 wall 3b around the supporting flange 6 to the holder's body 11 thus preventing any undesirable dislocation of the preform 10. After the container 8 has been formed and transported to the designated place the clasp 14 is released as the result of the pressure on its side wall below the elastic clamping ring 15 towards the side wall of the body 11. This causes that the tooth is deflected 16 from the surface of the body 11 and in effect the thin outer flange 4 of the container 8 formed from preform 10 becomes unlocked, and the container 8 can be taken off the holder.

In order to reduce the maximum angle at which the tooth 16 deflects from the closed position the lower section of the clasp 14 curves towards the side wall of the body 11 as shown on Fig. 6 to 9. In another execution, as shown on Fig. 11, a distance element 21 is formed below the elastic clamping ring 15 on the inner side wall of the clasp 14. Yet another version envisages the distance element 21 as formed on the outer side wall of the body 11, as shown on Fig.12.

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In case of a preform equipped with an additional supporting flange 7 the inner side wall of the seat 17 has an additional groove carved to accommodate the extra supporting flange 7 of the preform 10.

In case of a preform fitted with several additional supporting flanges the inner side wall of the seat 17 will have several grooves carved as appropriate to hold the additional supporting flanges of the preform.

According to variant two of the invention, as shown on Fig. 13, the preform holder has a body 30 with an embedded, slidable clamp bushing 31 fitted with an elastic locking ring 32 which mates with the body and the inner walls of the preform neck 3a equipped with a supporting flange 6. The clamp bushing 31 is submitted to the action of a spring 33 which mates with the piston 34 mounted in the body. The piston 34 is subject to the force of compressed air driven in through an opening 35 made in the body 30, which causes the sliding of the clamp bushing 31 and the release of the preform from the lock in the holder. The holder has an axially running air duct 36 through which air needed to blow the preform is supplied.

In another execution, as shown on Fig.14, the piston 34 movement is achieved via a pin 37 which exerts axially-oriented force on the piston 34. The preform 10 is held in the holder whilst in the blow-moulding machine thanks to the strained elastic locking ring 32, which presses on the inner side wall of the preform 3a fitted with a supporting flange 6. The strain of the elastic locking ring 32 is the effect of the pressure from the clamp bushing 31, and this is built by the piston 34 subject to the action of the spring 33. The supporting flange 6 on the inner wall of the preform neck 3a prohibits any axial movement of the elastic locking ring 32, thus preventing the blowing of the preform out of the blow-mould in the can formation process. The thin outer flange 4 of the preform 10 does not

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transmit any forces in the formation process, and is therefore effectively protected against damage.

In the preform variant equipped with an additional supporting flange 7, the elastic locking ring 32 fits in between the supporting flange 6 of the preform and the additional supporting flange 7, which strengthens the lock and tightens the preform sealing in the blowing process and facilitates positioning of the preform when slipping it onto the holder as shown on Fig. 17.

While the preform 10 is being slipped on the holder, or the can is being slipped off after the blowing, air is delivered to the opening 35 at a specific pressure. The air pressure pushes the piston 34 up, thus lifting the pressure of the clamp bushing 31 on the elastic locking ring 32. With no pressure on the elastic locking ring 32 no force acts on the inner walls of the preform neck 3a. This makes it easy to slip the preform on the holder and slip the formed container off the holder. In another execution of the invention, the release of the pressure from the clamp bushing 31 on the elastic locking ring 32 is achieved by making use of a pin 37 which moves the piston 32; the spring 33 presses on the clamp bushing 31 causing its shift towards the preform bottom.

While the preform 10 is undergoing the process of transformation into the ready product in the blow-mould, the elastic locking ring 32 gets additional downward pressure from the air driven into the preform to blow it; the air exerts pressure on the top surface of the clamp bushing 31.

The preform holders according to the invention can also be used to hold and seal tight preforms with no outer flanges in the blowing process, which is shown on Fig. 18.

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Claims

1. A preform for a plastic container consisting of a conically-shaped body (1) with a convex bottom and - at the other end - merging directly into a cylindrical neck (3) which ends with a thin outer flange (4) extended outward away from the body (1), characterised in that a supporting flange (6) is formed on the inner wall of the neck (3a) below the top rim (5), while the outer wall of the neck (3b) is even.
2. The preform as claimed in Claim 1, characterised in that the supporting flange (6) is formed at least 1.5 mm below the top rim (5).
3. The preform as claimed in Claims 1 or 2, characterised in that an additional supporting flange (7) is formed below the first supporting flange (6) on the inner wall of the neck (3a).
4. The preform as claimed in Claims 1 to 3, characterised in that several supporting flanges are formed bottom-wise on the inner wall of the neck (3a).
5. The preform holder equipped with elastic and clamping members, characterised in that it has a body (11) with an axially running air duct (12) through which air is blown into the preform (10), and the outer side walls of the body (11) provided with pockets (13) seating mobile-anchored clasps (14) clamped on the body (11) with an elastic clamping ring (15), with each clasp (14) ending with a tooth (16) which reaches over the seat (17) in the front wall of the holder holding the thin outer flange (4) of the preform (10) and forming a crevice (18) in between the tooth bottom (16) and the seat (17) into which the rim of the flange (4) slips, whereas the inner side wall of the seat (17) has a groove (19) carved to hold the fitting supporting flange (6) formed on the inner wall of the preform (10) neck (3a).

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6. The preform holder as claimed in Claim 5, characterised in that the elastic clamping ring (15) is made of rubber.
7. The preform holder as claimed in Claims 5 or 6, characterised in that the elastic clamping ring (15) is mounted at approximately mid-height of the clasp (14).
8. The preform holder as claimed in Claims 5 to 7, characterised in that the elastic clamping ring (15) is mounted in a recess (20) formed in the clasp (14) and/or the side wall of the body (11).
9. The preform holder as claimed in Claims 5 to 8, characterised in that the clasp (14) below the clamping ring (15) is fitted with a distance element (21).
10. The preform holder as claimed in Claims 5 to 9, characterised in that a distance element (21) is found on the outer wall of the body (11) below the clamping ring (15).
11. The preform holder as claimed in Claims 5 to 8, characterised in that the lower part of the clasp (14) below the clamping ring (15) curves towards the body (11).
12. The preform holder as claimed in Claims 5 to 11, characterised in that an additional groove is carved in the inner side wall of the seat (17) to take in an additional supporting flange (7) formed on the inner wall of the preform (10) neck (3a).
13. The preform holder as claimed in Claims 5 to 11, characterised in that additional grooves are carved in the inner side wall of the seat (17) to hold additional supporting flanges formed in the inner wall of the preform (10) neck (3a).

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14. The preform holder equipped with elastic and clamping members, characterised in that it has a body (30) with an axially running air duct (36) through which air is blown into the preform (10), and an embedded slidable clamp bushing (31) fitted with an elastic locking ring (32) which mates with the body (30) and the inner walls of the preform neck (3a) fitted with a supporting flange (6), and is submitted to the action of a spring (33) mating with a piston (34) which is mounted in the body (30) and is subject to a force causing the sliding of the clamp bushing (31) and thus releasing the preform from its lock in the holder.

15. The preform holder as claimed in Claim 14, characterised in that the elastic locking ring (32) is made of rubber.

16. The preform holder as claimed in Claims 14 or 15, characterised in that the body (30) has an opening in it (35), through which compressed air is driven to the piston (34).

17. The preform holder as claimed in Claims 14 or 15, characterised in that the body (30) is fitted with an axially mounted and slidable pin (37) which acts on the piston (34).

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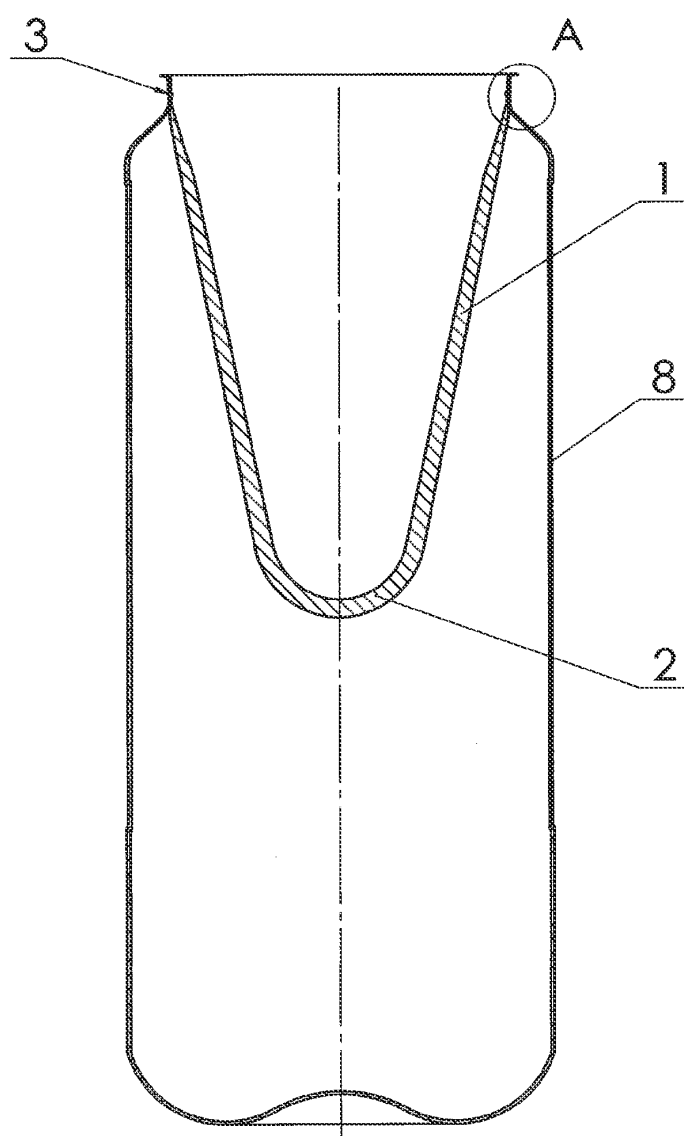


Fig. 1

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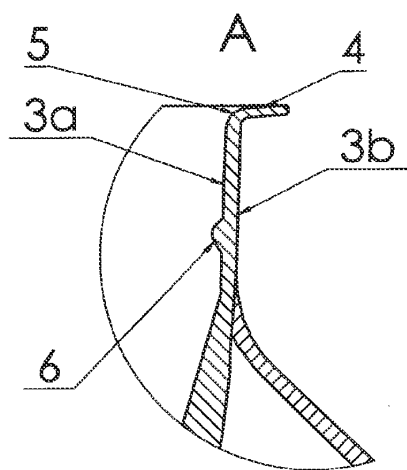


Fig. 2

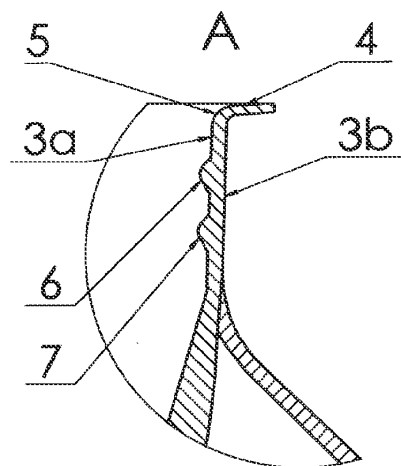


Fig. 3

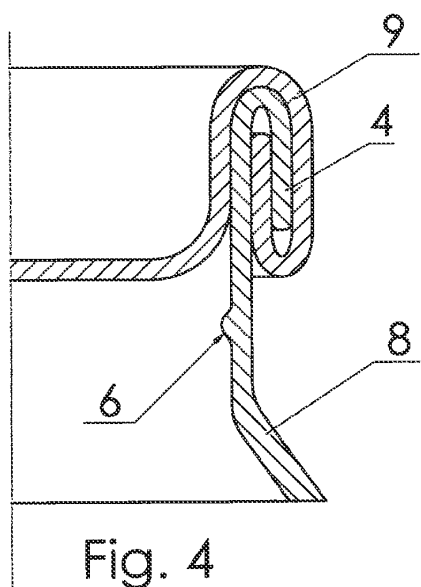


Fig. 4

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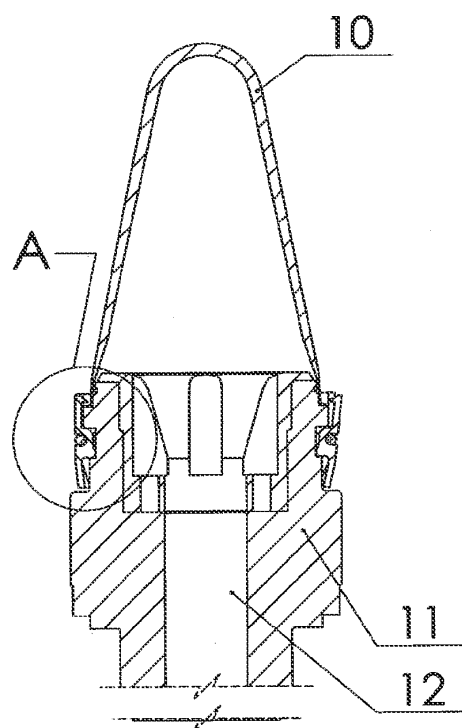


Fig. 5

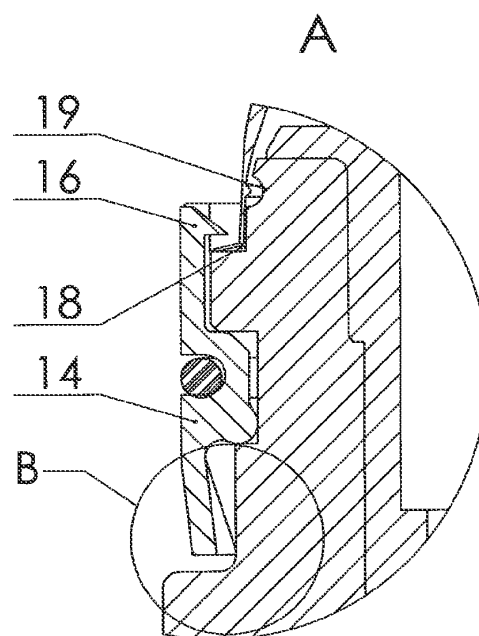


Fig. 6

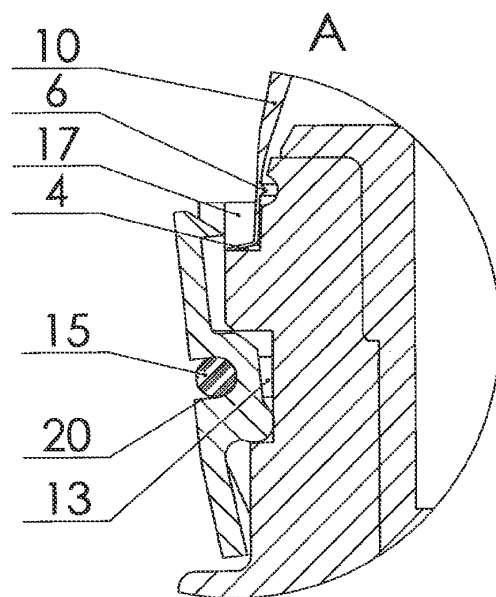


Fig. 7

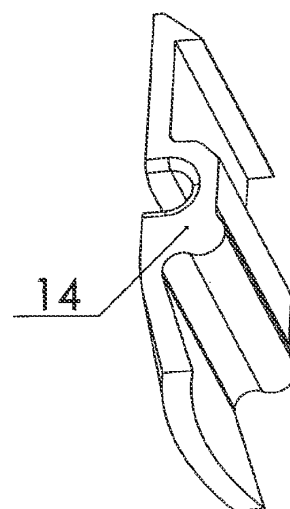


Fig. 8

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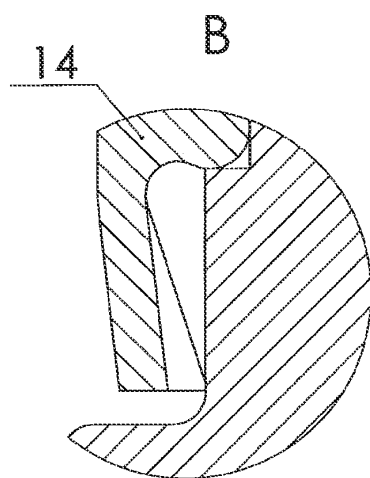


Fig. 9

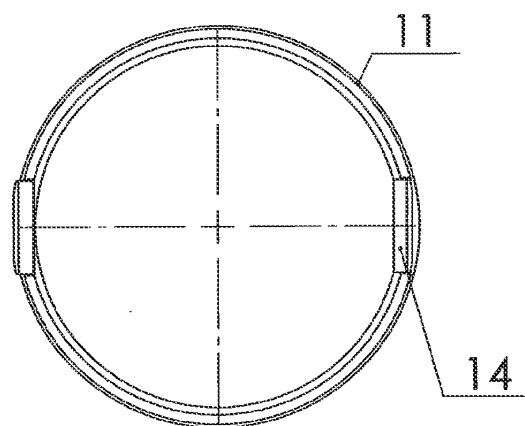


Fig. 10

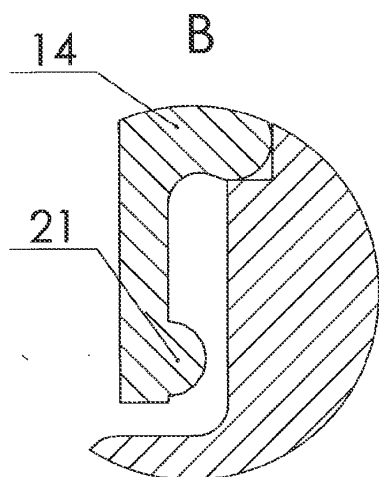


Fig. 11

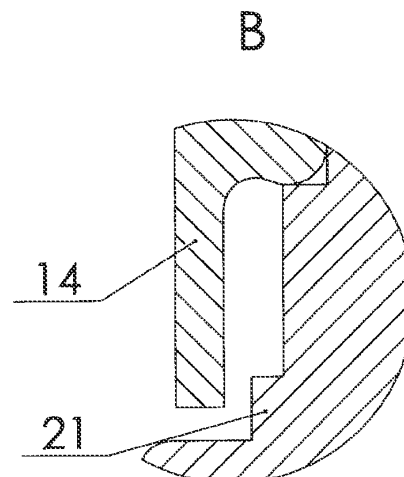


Fig. 12

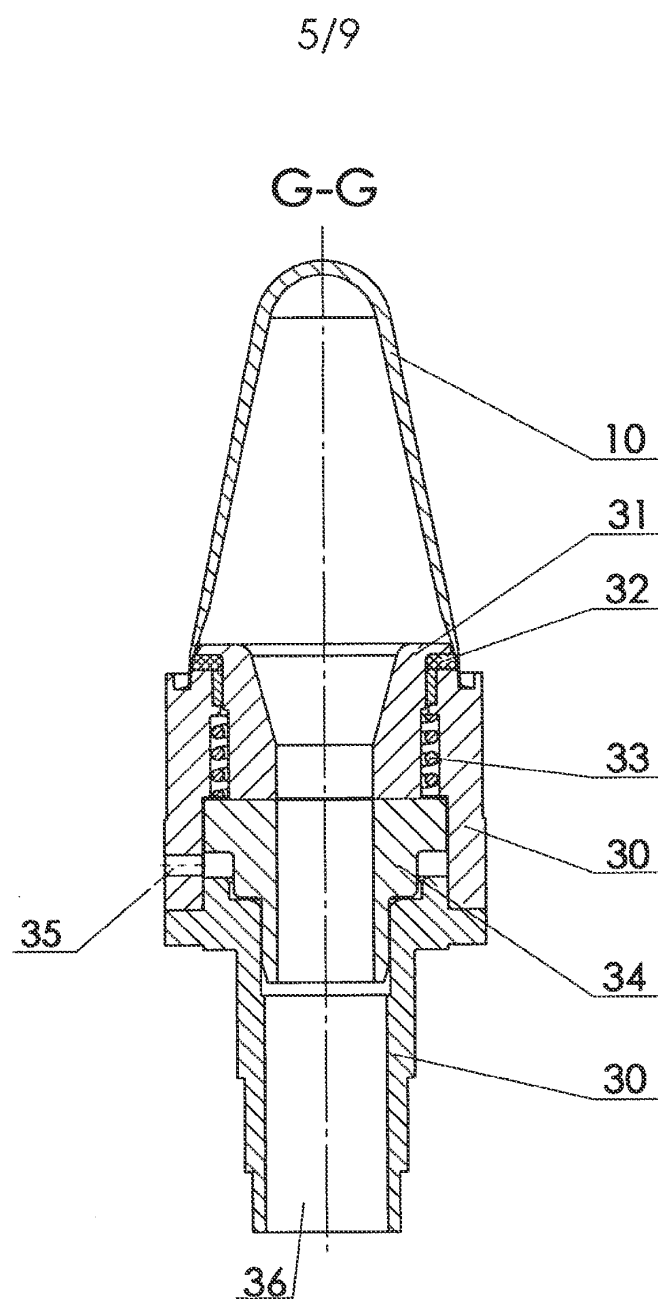
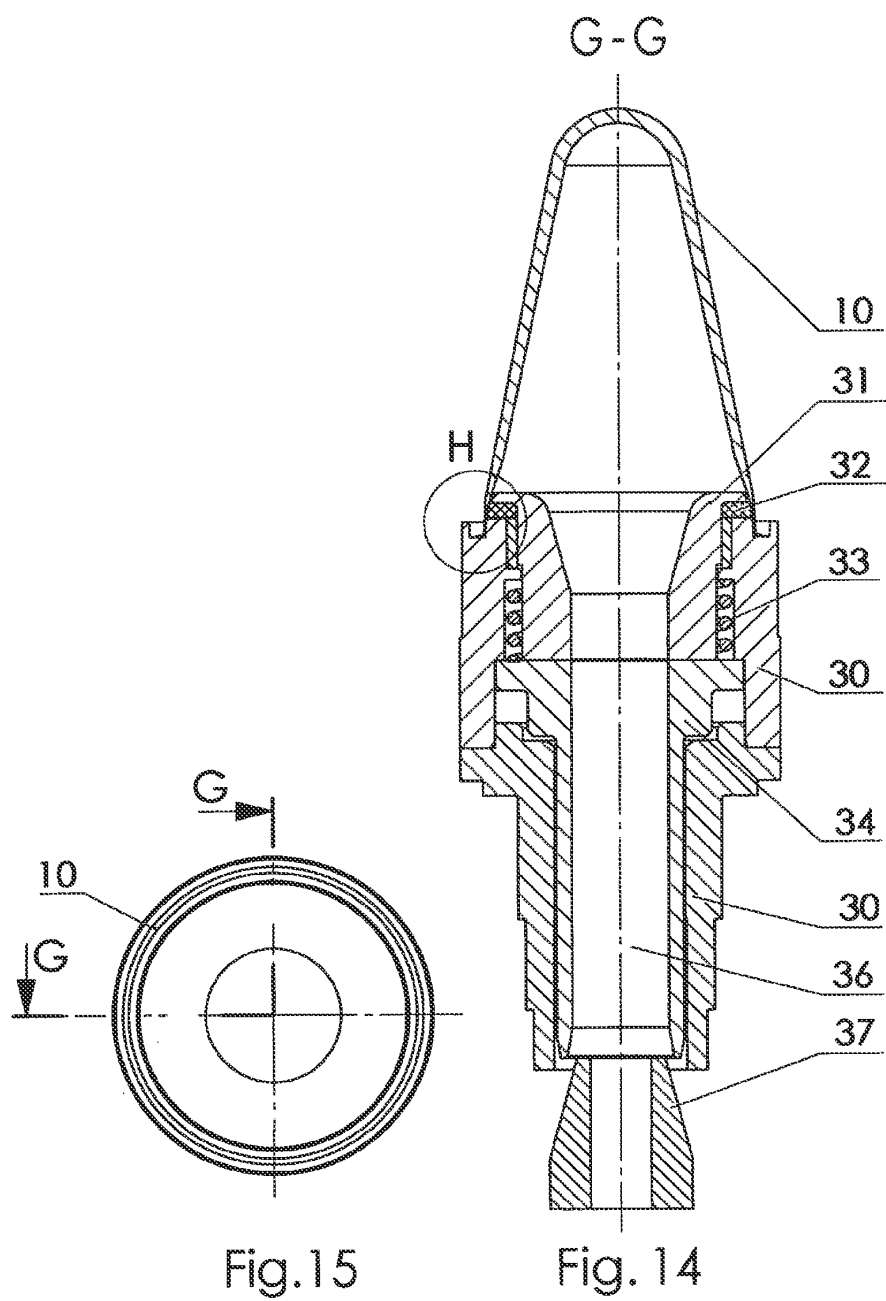


Fig.13

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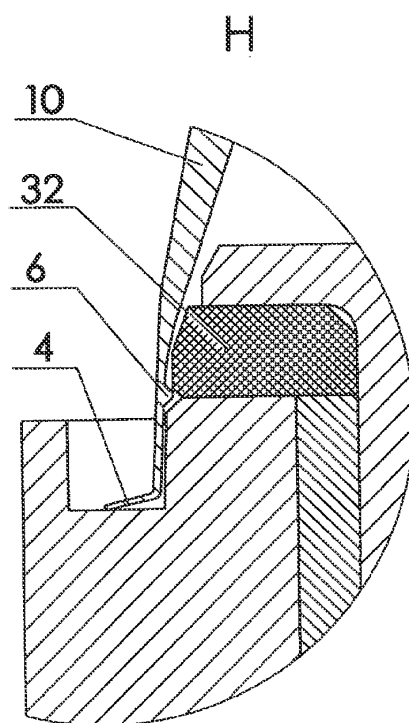


Fig.16

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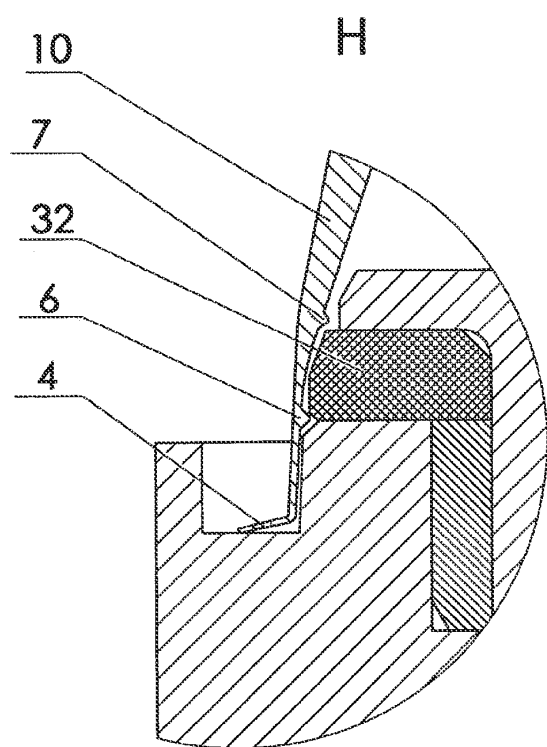


Fig. 17

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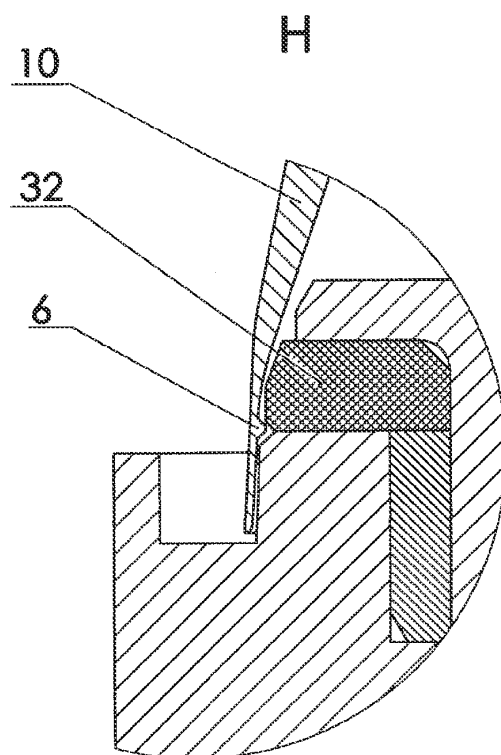


Fig.18

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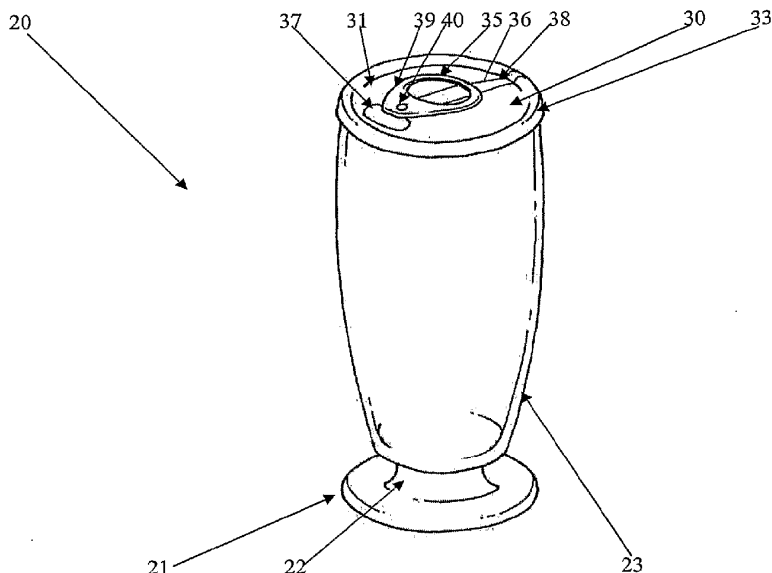
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[Continued on next page]

(54) Title: BEVERAGE CONTAINER WITH REMOVABLE TOP



(57) Abstract: A beverage container (20) containing a removable lid (30), the container comprising a rim (24), a side wall (23) depending from the rim, a shoulder portion extending inwardly from the side wall, the removable lid comprising an edge (33) extending over the rim, and along the side wall, and against the shoulder portion thereby attaching the lid to the container.

WO 2006/029441 A1



RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
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BEVERAGE CONTAINER WITH REMOVABLE TOP

Field of the Invention

The present invention is directed to a beverage container, such as a drinking glass, which contains a seal/lid that can be removed prior to consumption of the beverage. The seal/lid and/or the beverage container can be of a special design to provide greater sealing efficiency and optionally to enable the container to contain carbonated or pressurised beverages. The invention will be described with reference to a beverage glass (which can comprise plastic as well as glass) containing an alcoholic beverage, although it should be appreciated that no particular limitation is meant to be placed on the invention merely by this reference.

Background Art

Beverages are usually sold to consumers in containers such as glass or plastic bottles; aluminium or steel cans; cardboard or plastic cartons; or casks which include a bladder housed in a cardboard box.

Consumers currently have the choice of either drinking directly from the containers mentioned above, or transferring the liquid contained therein to a drinking glass for consumption therefrom. Many consumers prefer to drink certain types of beverages from a drinking glass with a wide mouth to enhance the aroma and therefore the flavour of the beverage.

Apart from drinking glasses, most drink containers have no worth once their contents are consumed other than perhaps as part of a recycling program. Consequently, most drink containers are simply discarded and are never recycled. Therefore, there is often a lot of domestic and industrial waste associated with the use of drink containers other than drinking glasses.

A problem with the use of drinking glasses however, particularly in the hospitality industry, is that viral and bacterial illnesses (such as hepatitis B and C, and influenza, amongst others) can be spread by the continual and frequent reuse of glasses despite the fact that the glasses are required by health codes to be washed at sterilising temperatures (typically over 80 degrees centigrade) prior to being reused.

Moreover, the provision of drinking glasses in the hospitality industry is a significant expense to many businesses in the industry for a number of reasons. Firstly, particularly in climates where beer and other drinks need to be served ice cold and where drinking glasses are therefore chilled before use, there can be significant refrigeration costs

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associated with chilling drinking glasses. This is because a significant amount of refrigerator space often needs to be dedicated to not only the containers in which the beverages are stored, but also to the empty drinking glasses. Also, in cases where above-bench glass chillers which chill drinking glasses by passing chilled water through the glass are used, significant costs are incurred in the purchase, installation, running costs, and maintenance of such glass chillers, to which beverage is to be poured prior to consumption.

Secondly, there are significant costs associated with purchasing drinking glasses at the outset and purchasing replacement glasses due to breakages and other mishaps.

Thirdly, the costs associated with cleaning used drinking glasses are a significant component of many businesses in the hospitality industry. These cleaning costs include the labour, chemical, hot water, and electrical costs which are associated with collecting, racking, washing and drying glasses.

Lastly, beverage companies who supply the hospitality industry with their beverages in bottles or other containers apart from drinking glasses, often also supply pubs, nightclubs and other venues with free branded drinking glasses for dispensing their product in. The cost to beverage companies of providing the drinking glasses is usually factored into their promotional glassware budgets and can be significant.

Another problem with the use of drinking glasses is that the beverage contained therein can be easily spiked with alcohol or another drug without the knowledge of the consumer. It would therefore be desirable to have a drinking glass which at least reduces the possibility of the beverage contained therein being spiked.

Furthermore, the surfaces of drinking glasses which are usually contacted by the mouths and lips of consumers are exposed and are therefore susceptible to being contaminated by unclean hands, for example. It would therefore be beneficial to have a drinking glass which reduces the possibility of the aforementioned drinking glass surfaces being contaminated.

Various attempts have been made to provide a beverage container (such as a drinking glass) which may overcome at least some of the above-mentioned disadvantages.

For instance, it is known to provide a drinking glass that contains a removable lid for sealing purposes and where the lid can be removed prior to consumption. However, there are difficulties with proper attachment of the lid to the glass and which have not been overcome by the known methods.

One difficulty is that some seals or removable lids merely extend over the top of

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the rim of the drinking glass. When the lid is removed (this being particularly the case for lids that are glued or similarly attached to the glass) an adhesive residue can remain behind which is unsuitable if the adhesive residue is on the rim of the glass. WO96/05123 describes such an arrangement.

5 Also, the surface area of the rim of the glass is relatively small and therefore there are difficulties in providing a proper seal especially if it is desirable to store a carbonated beverage in the glass in which case the seal needs to be pressure resistant.

For this reason, it is known to provide a lid that simply screws over the top of a drinking glass. This provides a good seal and makes the glass pressure tight. However, the
10 arrangement does require a thread to be provided on the upper surface of the drinking glass and this increases the manufacturing cost of the glass, can be an encumbrance to drinkers (with the thread being very close to the rim of the glass), and the thread can be quite easily broken or damaged to present a sharp edge. This arrangement is described in German patent specification 202 05239.

15 Another attempt to overcome the attachment difficulties of the removable seal with the glass rim is to provide the rim with an outwardly extending peripheral flange. While this increases the surface area and therefore provides a better attachment of the seal with the rim, the outwardly extending flange makes drinking more difficult. Also, the flange is usually relatively thin and therefore brittle and is prone to being broken or cracked
20 to produce sharp edges that can cause serious injury. This type of arrangement is described in international patent application WO96/05123.

Another disadvantage with attachment of lids to drinking vessels containing a beverage (such as wine), is that if the vessel is shaken or knocked during the lid fitting process, the wine can spill onto the rim of the vessel which can greatly reduce sealing
25 efficiency of the lid to the rim. For this reason, it is also known to provide a specially designed wine glass which contains an opening in the bottom of the stem and which is filled from the bottom. In this way, the lid can be attached to the empty wine glass and the wine can then be filled through the stem. A stopper is required to ensure that the wine does not leak through the stem. This arrangement is quite complicated and would have high
30 manufacturing costs. EP 309314 describes this arrangement.

Another attempt to provide a simple solution to the above disadvantages is to provide a lid or seal that overlies the rim of the glass and which extends partially down the side wall of the glass. An advantage of this type of seal is that there is no need to provide

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glue or other adhesive on the rim. Instead, the adhesive can be applied to the outer side wall of the glass and below the top rim. Also, by extending over the rim and down the side wall of the glass, the rim is protected against contamination prior to consumption of the wine (or other beverage) in the glass.

5 However, a disadvantage with this type of seal is that in practice, it is found that the seal can still inadvertently be removed from the glass and if the glass contains a pressurised beverage, the pressure tightness of the seal is not as good as it could be which means that the beverage in the glass can go flat prior to consumption. While a solution might be to simply make the seal extend further down the wall of the glass, it is found that
10 there is a consumer advantage in being able to view the contents of the glass without the view being occluded by the seal. Also, the manufacturing cost increases. As well, when the seal is removed, any adhesive on the side wall of the glass can remain tacky which is undesirable to people holding the glass. Attempting to attach a seal without adhesive is problematic with this design of glass as there is no proper "purchase" or attachment
15 position of the seal to the glass due to the relatively smooth nature of the glass. Thus, this type of seal can be quite unsuitable for use with pressurised or carbonated beverages.

Another disadvantage or problem with many of the known types of seals or lids is that it is often quite difficult to remove the lid or seal from the glass without spilling or upsetting the contents of the glass, this being mainly caused by the rather aggressive nature
20 of the adhesive. Thus, there would be an advantage if it were possible to provide a seal or lid with some form of construction or design that would make removal of the lid simpler.

A difficulty in attempting to provide a removable seal or lid over a drinking vessel is that the mouth of the drinking vessel (e.g. wine glass) is quite large compared to the main body of the vessel. For pressurised systems, the force acting on the lid or seal can be
25 calculated by the equation $\text{Force} = \text{Pressure} \times \text{Area}$. Thus, for relatively narrow necked containers such as beer bottles, the force on the beer bottle cap is relatively low. However, for larger open mouthed glasses and similar vessels (for instance, to accommodate a carbonated beverage), the amount of force on the seal will be much larger.

There would be an advantage if it were possible to provide a removable seal or lid
30 for a drinking vessel such as a glass and which could protect the rim of the glass against contamination, which could enable a pressurised beverage to be contained within the glass for longer, and which would have a reduced possibility of delaminating from the glass.

Object of the Invention

It is an object of the present invention to overcome, or at least substantially ameliorate, one or more of the aforementioned deficiencies of the prior art, or to provide the consumer with a useful or commercial choice.

5 Other objects and advantages of the present invention will become apparent from the following description, taken in connection with the accompanying drawings, wherein, by way of illustration and example, an embodiment of the present invention is disclosed.

According to a broad aspect of the present invention there is provided a drinking glass and a lid covering an opening of the glass such that a drink contained in the glass is
10 sealed therein by the lid, wherein the lid is adapted to be at least partially removed from the opening so as to thereby enable the drink to be consumed from the glass through the opening.

The lid preferably forms a hermetic seal with the glass to prevent the escape of gas from carbonated drinks stored in the glass while the opening of the glass is covered by the
15 lid.

In a more particular form, the invention resides in a beverage container, the container comprising a side wall, a rim, and a shoulder portion which is positioned below the rim, and a removable lid, the lid, when in the closed position, sealing the beverage container, the lid having a peripheral edge that extends over the rim and against the
20 shoulder portion.

In this form of the invention, the shoulder portion can provide a "purchase" or mechanical attachment of the lid to the beverage container. Thus, there may be no requirement to provide adhesive which has been a disadvantage with previous lids. Also, the lid can now be more suitable for use with carbonated or pressurised beverages.

25 Suitably, the shoulder portion extends between the rim and the side wall.

Suitably, the shoulder portion extends about the beverage container.

The shoulder portion may comprise an outwardly extending land portion that extends outwardly relative to the side wall which is immediately below the shoulder portion to provide a mechanical type attachment of the peripheral edge of the lid against
30 the shoulder portion.

The land portion may have a width of between 0.5-5 millimetres depending on the size of the beverage container.

The side wall, rim and shoulder portion may be formed integrally.

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A plurality of shoulder portions may be provided. These may extend below each other to provide annular bands of shoulder portions about the beverage container. If desired, between 1-10 shoulder portions may be provided and typically between 1-5. The spacing between the shoulder portions may be between 1-10 millimetres depending on the size of the beverage container, the pressure within the container, the type of lid and the like.

The shoulder portion may be angled other than substantially at right angles relative to the side wall. For instance, the shoulder portion may form an acute angle of between 30-90° relative to the side wall immediately below the shoulder portion. This can provide an "undercut" that may improve the mechanical attachment of the lid to the container.

The shoulder portion may comprise other profiles to improve the attachment of the lid to the container. These profiles may comprise recesses, projections, and the like to improve the mechanical attachment or the "keying" of the lid to the container.

For instance, the shoulder portion may comprise a substantially U-shaped channel extending about the rim area of the beverage container and into which an edge of the lid can pass. An embodiment of this is illustrated in figure is 35-38.

If desired, the lid and/or the container may be provided with means to facilitate removal, or at least partial removal of the lid from the container. The means may comprise a tab, a projection, a recess, a finger hole, or any other type of configuration or attachments that can facilitate removal, or at least partial removal of the lid typically by providing a better grip to a person wishing to remove the lid.

In one broad form, the means may comprise a pull tab. The pull tab may comprise a ring pull. The pull tab may comprise a finger grippable portion (a ring pull or any other type of finger grippable portion), attached to an elongate member (typically a strip member). The elongate member may comprise part of the lid such that pulling of the pull tab causes the elongate member to be ripped from the remainder of the lid, or lifted from the remainder of the lid to provide a weakening of the lid thereby facilitating removal of the lid.

The means may comprise a zone or portion or more than one zone or portion in the lid that can be lifted, removed, or otherwise manipulated to facilitate removal of the lid. The facilitation may comprise weakening of the lid upon manipulation (for instance weakening of the lid by removing a portion of the lid thereby enabling easier removal of

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the lid). These zones or portions may comprise frangible areas, or otherwise weakened areas.

Alternatively, the lid may be provided with a zone or portion that can be pushed at least partially into the container to provide an opening or area that can facilitate removal of
5 the remainder of the lid.

The lid and/or container may be provided with tamper evident means. It is considered that any suitable type of tamper evident means will fall within the present invention. The tamper evident means may comprise projections or tabs that will be removed or damaged upon tampering of the lid.

10 The means to facilitate removal of the lid may comprise a part of the lid that can be removed from the remainder of the lid, this part being about the shoulder portion such that removal of this part removes or at least reduces the mechanical attachment of the lid to the vessel enabling the lid to be removed more easily.

15 The means to facilitate removal of the lid may comprise part of the lid that extends at least about part of the rim such that removal of this part of the lid reduces the attachment of the lid to the rim thereby facilitating removal of the lid from the vessel.

The means to facilitate removal of the lid may comprise a lever. The lever may be formed separately and attachable to the lid. Alternatively, the lever is formed integrally
20 with the lid. Movement of the lever can lever the lid at least partially off the rim to make removal of the lid easier.

An advantage therefore of providing this means is that the lid can be attached in a more aggressive manner that can still be removed in a relatively easy manner making it suitable for covering alcoholic beverages, and particularly pressurised beverages where the
25 more aggressive attachment of the lid to the vessel can improve the pressure holding characteristics of lid.

The drinking glass according to the present invention is able to serve as both a container for storing beverages, and as a traditional drinking glass from which the contents thereof can be consumed directly therefrom in the usual manner.

30 Preferably, the drinking glass is adapted to be reused.

The drinking glass may be constructed from glass, ceramic, plastic, metal, composite materials and the like. Typically, the glass will be made of a plastic and the glass will typically be manufactured using a blow or injection moulding process. PET is

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considered to be a suitable plastic, although it should be appreciated that no particular limitation should be placed on the invention merely by the material from which the drinking glass can be made and the method by which the drinking glass is made.

Therefore, it should be appreciated that the term "glass" when used in the present specification is not meant to be construed in a limiting manner and is merely a word used broadly to describe a drinking vessel that can be made of any suitable material.

The drinking glass may be any size or shape. For example, the drinking glass may be a beer glass or a wine glass of traditional size and shape. More particularly, the drinking glass may include a generally flat circular base, a stem extending upwardly from the base, and a container portion or bowl, which may or may not be tapered, extended upwardly from the stem.

Even more particularly, if the container is a beer glass, the beer glass may be a pilsner glass and if the container is a wine glass, the wine glass may be a flute glass. Of course, it should be appreciated that no particular limitation is to be placed on the invention merely by describing the container as a beer glass or a wine glass.

The drinking glass may contain any type of drink or beverage which may comprise a carbonated beverage, a "still" beverage, soft drinks, cordial, wine, beer, a dairy based beverage, a mixture which may comprise an alcoholic mixture or a non-alcoholic mixture, tea, coffee, juice, a suspension (typically comprising food particles in a liquid), a beverage dispersion, an emulsion, thickened beverages, and the like and it should be appreciated that no particular limitation should be placed on the invention merely by the type of drink or product that is within the container.

Indeed, it is considered that the invention may include food products that are quite viscous and that may need to be spooned, or sucked (for instance via a straw) from the container. These products may include yoghurts, creams, gels and the like.

The lid may comprise any suitable material to make the lid suitable for covering the otherwise open mouth of a beverage container. Thus, the lid may comprise a plastic material, a metal material, composite materials and the like.

The lid will typically comprise a film or sheet, and it is envisaged that the lid may comprise a laminate of different materials to provide desired characteristics. The laminate may enable the lid to have the required properties of strength, gas impermeability, and the like. The lid may comprise a first zone or area comprising one material and a second zone or area comprising a second material. The lid may comprise one zone or area comprising a

rigid material, and a second zone or area comprising a flexible material.

The lid may comprise a unitary piece of preformed aluminium, although other metals or materials such as preformed/moulded plastic or resin may be used instead.

5 Suitably, the lid comprises two or more parts that may comprise an inner part to seal the beverage in the container, and an outer part to ensure that the lid is removably fixed to the container.

The piece of preformed aluminium or other material preferably has a substantially planar circular disc portion whose underside may be surrounded by a circular recessed portion and a sleeve portion.

10 The lid may be provided with a seal. The seal may be formed integrally with the lid, or may be formed separately and fitted to the lid, or may be formed separately and fitted to the container and the like.

A seal is preferably provided inside the lid for forming a seal between the lid and the drinking glass.

15 The seal may be made of any suitable material to provide a satisfactory sealing action. The seal may comprise a plastics material, a resilient material, a rubber, a neoprene, a settable material, and the like. In a particular embodiment, the seal comprises a thermoplastic elastomer which is co-moulded to the inside of the lid.

As mentioned above, the lid may include a removable portion which is preferably defined by a frangible line extending thereon. The removable portion may include two sub-portions. The sub-portions are preferably a circular sub portion, and an elongate sub-portion extending from the circular sub-portion. A pull-key can be fixed to the removable portion such that at least one of the sub-portions can be detached from the rest of the lid by pulling the pull-key to thereby open the drinking glass.

25 The pull-key is preferably constructed from a thermoplastic although it may also be constructed from other materials such as aluminium. The sleeve portion of the lid preferably covers a lip of the drinking glass when the lid covers the opening of the drinking glass. The lid preferably covers a lip of the drinking glass to thereby prevent the lip from being contaminated.

30 The lid and/or an upper portion of the vessel may contain a protective covering. The protective covering may comprise a plastic shrink sleeve or fuji seal.

The sleeve or seal preferably has a removable strip defined by frangible lines extending along the sleeve or seal such that the removable strip is able to be torn from the

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rest of the sleeve or strip to thereby enable the sleeve or seal to then be readily removed from the glass. The sleeve on slip can cover a lip of the drinking glass to thereby prevent the lip from being contaminated.

5 The lid may be adapted so that prior to opening, a number of glasses can be stacked. For example, during packaging, transport and when in a refrigerator or on a shelf, the unopened drinking glass can be stacked on top of another unopened drinking glass. The glasses can be packaged in multiple sets (e.g. a six pack, a carton etc) and can be packaged in such a way that they can be stacked pallet on pallet.

10 In another form, the invention comprises a removable lid/seal/cap that is attachable to a drinking vessel, the lid/seal/cap comprising a main body portion adapted to extend over the top of the drinking vessel, and edge portion adapted to engage with the side wall of the drinking vessel (the side wall including the rim), and opening means to enable the lid/seal/cap to be at least partially opened and therefore weakened to enable the lid/seal/cap to be removed more easily.

15 **Brief Description of the Drawings**

In order that the invention may be more fully understood and put into practice, embodiments thereof will now be described with reference to the accompanying drawings, in which:

20 Figure 1 is a perspective of a beer glass according to an embodiment of the present invention;

Figure 2 is a cross-section of an upper portion of the beer glass illustrated in figure 1 taken along the line 2-2;

Figure 3 illustrates an initial stage in the opening of the beer glass illustrated in figure 1;

25 Figure 4 illustrates a further stage in the opening of the beer glass illustrated in figure 1;

Figure 5 depicts the upper portion of the beer glass illustrated in figure 1 with the lid removed;

30 Figure 6 is a perspective of a beer glass according to another embodiment of the present invention;

Figure 7 is a perspective of a beer glass according to yet another embodiment of the present invention;

Figure 8 is a perspective of a wine glass according to still yet another embodiment

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of the present invention

Figure 9 is a cross-section of an upper portion of an alternative embodiment of a drinking beer glass according to the present invention which is similar to the cross-section illustrated in figure 2.

5 Figures 10-14 illustrate a further embodiment of the invention CONCEPT 21.

Figures 15-18 illustrate another embodiment of the invention illustrating a lever to open the lid and to enable removal of the lid from the drinking vessel. CONCEPT 2.

Figures 19-22 illustrate a further embodiment of the invention comprising a press top. CONCEPT 18.

10 Figures 23-26 illustrate a further embodiment of the invention CONCEPT 22.

Figures 27-29 illustrate another embodiment of the invention which uses a tear away tab to remove the lid from the drinking vessel. CONCEPT 5.

Figures 30-33 illustrate a further embodiment of the invention which comprises a "rip off" lid. CONCEPT 12.

15 Figures 34-37 illustrate a further embodiment of the invention which comprises a "peel off" lid. CONCEPT 15.

Figures 38-40 illustrate an embodiment of the invention which comprises a ring pull to remove the lid from the drinking vessel. CONCEPT 1.

20 Figures 41-43 illustrate another embodiment of the invention which uses a tear away tab that is pulled upwardly to remove the lid from the drinking vessel. CONCEPT 6.

Figures 44-48 illustrate a further embodiment of the invention comprising an over centre locking mechanism. CONCEPT 17.

Figures 49-52 illustrate a further embodiment of the invention CONCEPT 23.

25 Figures 53-56A illustrate a further embodiment of the invention containing a lever and circlip. CONCEPT 16.

Figures 57-60 illustrate a further embodiment of the invention comprising a lid that can be twisted off the drinking vessel. CONCEPT 11.

Figures 61-63 illustrate another embodiment of the invention which utilises a mechanical lever to pry the lid from the drinking vessel. CONCEPT 4.

30 Figures 64-67 illustrate a further embodiment of the invention CONCEPT 24.

Figures 68-71 illustrate a further embodiment of the invention CONCEPT 25.

Figures 72-75 illustrate a further embodiment of the invention CONCEPT 26

Figures 76-78 illustrate another embodiment using an opening lever. CONCEPT

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9.

Figures 79-82 illustrate a further embodiment of the invention which comprises a "pop off" lid. CONCEPT 14.

Figures 83-88 illustrate a further embodiment of the invention comprising a pull
5 tab. CONCEPT 19.

Figures 89-94 illustrate a further embodiment of the invention comprising a spring
retainer. CONCEPT 20.

Figures 95-98 illustrate some variations of the rim design of the vessel and
therefore variations on the shoulder portion.

10 Figures 99, 99A, 100 and 100A, illustrate different views of a particular type of
attachment of the lid to a drinking vessel.

Figures 101-104 illustrates a further embodiment of the invention containing a
substantially U-shaped channel formed in the outer wall of the beverage container to enable
a lid to be snapped fitted to the container.

15 Figures 105-106 illustrate further variations of the possible attachment of a lid to a
beverage container.

Figures 107-108 illustrate further bead variations.

Figures 109-110A illustrate a further embodiment of the invention which contains
a lid having a displacement bulb.

20 Figure 111 illustrates a drinking vessel containing a lid that is clamped against the
drinking vessel and which is in the clamping position. CONCEPT 3.

Figure 112 illustrates the drinking vessel of figure 113, with the clamping means in
the open position. CONCEPT 3.

25 Figure 113 illustrates a section view of the drinking vessel and lid of figure 113.
CONCEPT 3.

Figure 114 illustrates a drinking vessel with a screw cap (lid) and in the attached
position. CONCEPT 7.

Figure 115 illustrates the drinking vessel of figure 116 with the lid in the open
position. CONCEPT 7.

30 Figure 116 illustrates a section view of the drinking vessel and the lid in the closed
position and also illustrating the annular seal between the lid and the drinking vessel.
CONCEPT 7.

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Figure 117 illustrates a drinking vessel containing an internal wall and a pressure release means and in the closed position. CONCEPT 8.

Figure 118 illustrates the drinking vessel of figure 119 in section view and illustrating the internal wall in the closed position. CONCEPT 8.

5 Figure 119 illustrates the drinking vessel about to be opened. CONCEPT 8.

Figure 120 illustrates the drinking vessel with the lid almost entirely removed from the vessel. CONCEPT 8.

Figure 121 illustrates a drinking vessel containing an internal thread and a lid containing an external thread and in the closed position. CONCEPT 10.

10 Figure 122 illustrates the drinking vessel of figure 123 in the open position. CONCEPT 10.

Figure 123 illustrates a section view showing the internal threads on the drinking vessel and the external threads on the lid. CONCEPT 10.

Detailed Description

15 The various embodiment of the invention will now be described in detail. Initially, reference is made to figures 1 and 2 which illustrate a sealed, pre-filled beer glass 20 according to an embodiment of the present invention.

20 The glass 20 includes a generally flat circular base 21, a stem 22 extending upwardly from the base 21, and an elongate, gently tapered cylindrical container portion 23 which extends upwardly from the stem 22.

The bottom of the container portion 23 is closed so that the beer which is stored in the container portion 23 cannot leak through the bottom.

25 The top of the container portion 23 has an opening (not visible) surrounded by a continuous lip 24 which protrudes from the tapered side walls of the container portion 23 by about 1 millimetre. The opening of the container portion 20 is covered by a lid 30 such that the beverage contained in the container portion 20 is sealed therein by the lid 30.

The lid 30 is adapted to be substantially removed from the opening so as to thereby enable the beer stored in the container portion 23 to be consumed from the glass 20 through the opening thereof.

30 The lid 30 includes a unitary piece of preformed aluminium having a substantially planar circular disc portion 31 whose underside is surrounded by a circular recessed portion 32 and a sleeve portion 33. A seal 34 provided by a thermoplastic elastomer is co-moulded to the underside of portions 31, 32, and 33 of the lid 30. The disc portion 31 includes a

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removable portion 35 which is defined by a frangible line 36 which extends along the disc portion 31. The removable portion 35 includes two sub-portions: a circular sub-portion 37; and an elongate sub-portion 38 extending from the circular sub-portion 37. An ergonomically-shaped pull-key 39 which is constructed from an engineering thermoplastic is fixed to the removable portion 35 at the junction of the circular and elongate sub-portions 37, 38 by aluminium rivet 40 such that the rivet 40 forms an airtight seal with the disc portion 31.

After the container portion 23 of the beer glass 20 has been filled with beer, lid 30 is fitted over the opening of the container portion 23 such that the rim of the container portion 23 is received by the recessed portion 32 of the lid 30 and such that the sleeve portion 33 of the lid 30 covers the lip 24. The seal 34 forms an airtight seal between the container portion 23 and the lid 30 so that the beer is hermetically sealed inside the container portion 23. The lid 30 is secured to the container portion 23 by a mechanical bond between the sleeve portion 33 and the lip 24.

The width of the sleeve portion 33 is preferably such that the sleeve portion 33 covers, or at least partially covers those parts of the container portion 23 which will normally be contacted by the mouth and lips of a person when consuming the beer directly from the glass 20. For example, the width of the sleeve portion 33 may be such that it covers a cylindrical portion of the container portion 23 which commences at the rim thereof, finishes at least 15 millimetres below the rim, and includes the lip 24. This reduces the possibility of the aforesaid parts of the container portion 23 being contaminated prior to the lid 30 being removed.

The lid 30 and the upper portions of the side walls of the container portion may be covered with a plastic shrink sleeve or fuji seal 41. The sleeve or seal 41 may include a removable strip (not shown) which is defined by frangible lines extending along the sleeve or seal 41 such that the removable strip can be torn from the rest of the sleeve or seal 41 to thereby enable the sleeve or seal 41 to then be readily removed from the glass 20. The sleeve or seal 41 would protect the rim of the glass 20 from contaminants and would also provide an area where branding could be applied or where some simple instructions for opening the glass 20 could be printed.

To open the beer glass 20, a person lifts the pull-key 39 upwardly in the direction of the arrow A shown in figure 3 using their fingers until the portion of the pull-key 39 which is closest to the circular sub-portion 37 contacts the circular sub-portion 37 and

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presses against that sub-portion to thereby detach the sub-portion 37 from the rest of the lid 30 except the elongate sub-portion 38. This initial stage of opening the glass 20 is similar to opening conventional aluminium cans and also results in a circular aperture being produced in the lid 30 through which the beer inside the glass 20 can be poured or consumed. A person may drink from the glass 20 at this stage or may proceed to completely remove the lid 30 before consuming the contents of the glass 20. To completely remove the lid 30, the person must at least substantially detach the sub-portion 38 of the removable portion 35 from the rest of the lid 30 by pulling the pull-key 39 in the direction indicated by the arrow B in figure 4 to thereby cause the sub-portion 38 to be lifted from the rest of the lid 30 in the direction indicated by the arrow C in figure 4. This causes the seal between the glass 20 and the lid 30 to be broken so that the lid 30 can then be removed from the glass 20. The circular aperture 42 and elongate aperture 43 formed in the disc portion 31 of the lid 30 are visible in figure 4.

Figure 5 illustrates the top portion of the beer glass 20 after the lid 30 has been removed therefrom. The opening 44 and lip 24 of the container portion 23 are clearly visible in the figure.

Various other glass embodiments according to the present invention are illustrated in figures 6-7. The glasses 50 and 60 which are illustrated in figures 6 and 7, respectively, each include a lid 30 which is similar to the lid 30 of the beer glass 20. The glasses 50 and 60 can be designed for pre-mixed drinks and wines respectively.

Each of the beer glasses 20, 50, and 60 is a pilsner drinking glass which is the type of drinking glass from which beer is often consumed.

A sparkling wine glass 70 according to the present invention is illustrated in figure 8. The wine glass 70 is a flute-type drinking glass from which is the type of drinking glass from which sparkling or still white wine is often consumed. Similarly to the beer glasses 20, 50, and 60, the wine glass 70 includes a generally flat circular base 21, a stem 22 extending upwardly from the base 21, and an elongate, gently tapered cylindrical container portion 23 which extends upwardly from the stem 22. A lid 30 which is similar to the lids 30 of the beer glasses 20, 50, and 60 covers the glass 70 in the same manner as previously described in connection with the beer glasses.

Figure 9 illustrates the lid 30 without the plastic shrink sleeve or fuji seal 41.

Referring now to figures 10-14, there is illustrated CONCEPT 21 of the invention. In this version, the drinking vessel 450 contains the particular rim profile 451 (that is with

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the small horizontal land portion). The lid 452 is attached over the top of the drinking vessel 450 but can be removed by a pull tab 453. The pull tab 453 is initially parallel to the wall of the drinking glass (see figure 10) but can be lifted as illustrated in figure 11. The pull tab is attached to a circumferential band 453 which functions to attach the remainder of lid 452 to the drinking vessel. Once the pull tab is lifted, this causes band 453A to split in the area indicated by reference 454 and the pull tab can then be lifted away as illustrated in figure 13 which will loosen the lid and the lid can then be entirely removed as illustrated in figure 14.

Figures 15-18 illustrate CONCEPT 2 of the invention. The removal means comprises a lever 90 having an outer free end 91 that has pressed fitted over the rim 81. The free end of 91 can be lifted upwardly to cause part 86 of the lid to be pushed into the drinking glass. However, once lifted sufficiently to push part 86 inwardly, the other end 92 of the lever is then lifted to rip a removable strip 93 away from the remainder of the lid thereby enabling the lid to be more easily removed.

Referring now to figures 19-22 (CONCEPT 18) there is illustrated a further embodiment of the invention. In this embodiment, the drinking vessel 320 contains a lip 321. A lid 322 is provided and which has a generally convex shape (see figure 21). The lid 322 contains a side wall 323 and when the convex shape is depressed to become concave (see figure 22), this causes the side wall 323 to expand, disengaging it from the lip and side wall of the drinking vessel to enable the lid 322 to be removed.

Referring now to figures 23-26, there is illustrated CONCEPT 22 of the invention. In this version, drinking vessel 455 contains the lid 456 and lid 456 is provided with a pull tab 457. The pull tab 457 initially overlies the lid as illustrated in figure 23, but can be lifted up as illustrated in figure 24. The pull tab is lifted into this position such that leverage can be applied through the lever arm of the pull tab to split the lid along the tear lines provided 457A. This action disengages the lid 456 from the rim profile 451 (see figure 25) and allows the lid to be removed as illustrated in figure 26.

Figures 27-29 (CONCEPT 5) illustrate another embodiment to facilitate removal of the lid from the glass. Lid 110 is attached over the rim 81 of the glass. The lid 110 contains a pull tab 111 that is attached to a circumferential strip 112, strip 112 being attached to the remainder of the lid in a frangible or "breakaway" manner, typically by being separated from the remainder of the lid by a line of weakness or a multiplicity of small openings. To remove lid 110, pull tab 111 is grasped and pulled away from the lid in

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the manner illustrated in figure 28. Once the tab and the attached strip 112 have been entirely pulled away, this has the effect of removing the "mechanical attachment" of the lid to the rim thereby making the lid easy to remove.

Figures 30-33 illustrate a further concept (CONCEPT 12) of the invention. This concept can be seen as a "rip off" function. In this particular concept, the drinking vessel 260 is protected by a lid 261. The lid contains an outer ring 262 that extends over the rim of the drinking vessel 260. A centre portion 263 forms the remainder of lid 261, and the centre portion 263 contains a lifting tab 264. In practice, the lifting tab is lifted which will cause part of the centre portion 263 to be pushed downwardly and to rip away from the immediate adjacent portion of the outer ring 262 of the lid. This is best illustrated in figure 31. At this stage, the remainder of the centre portion 263 can be ripped away from the remainder of outer ring 262 this being best illustrated in figure 32. Thus, the outer ring 262 remains on the rim of the drinking vessel 260. The outer ring 262 can be made of relatively soft plastic or similar material to provide a pleasant drinking experience. The outer ring 262 can also prevent or reduce chips in the rim of the drinking vessel that can be caused by rough handling.

Figures 34-37 illustrate a further concept (CONCEPT 15) of the invention which can be seen as a "peel off" two part type lid. A drinking vessel 280 contains a lid 281 which consists of an outer ring 282 and a central section 283. In this concept, a lift tab 284 is provided, and the lift tab is attached to the outer ring 282. In practice, the lift tab is lifted which will cause the outer ring 282 to split (see figure 35). The outer ring can then be partially peeled off the rim of the drinking vessel 280 best illustrated in figure 35. Once a sufficient amount of the outer ring 282 has been removed, the central section 283 can be removed from the drinking vessel 282 to entirely remove the lid from the drinking vessel, this being best illustrated in figure 36.

Referring to figures 38-40, there is illustrated an embodiment of the invention (CONCEPT 1) which comprises a beverage vessel or glass containing a side wall 80. The side wall contains a top rim 81 (see figure 40). The rim extends upwardly from the side wall 80 and therefore defines a substantially outwardly extending and horizontal shoulder portion 82 that has a width of between 0.5-5 millimetres. Attached over the top of rim 81 is a lid 83. Lid 83 contains a peripheral edge 84 that extends over the top of rim 81 and terminates against the underneath of shoulder portion 82. Thus, the lid 83 is mechanically attached to the glass. This enables a better and stronger sealing and particularly enables the

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glass to contain a carbonated beverage if desired.

An annular seal 81A is positioned over the rim 81 and below lid 83. As the lid 83 can now be mechanically attached quite aggressively to the glass, this enables the seal 81A to be strongly compressed against the glass to enable the entire system to be quite pressure tight.

Removal of lid 83 is made easier than just trying to prise the peripheral edge away from rim 81, by providing a pull tab. The pull tab in this particular embodiment comprises a ring pull 84 which is attached to a strip member 85, the strip member 85 forming part of lid 83 and being defined by a zone of weakness to enable the strip to be pulled out of the remainder of the lid. The ring pull 84 is initially pulled forwardly (see figure 38), that pushes inwardly another part 86 of lid 83, which facilitates removal of the ring pull and the strip member 85. Once this has occurred, further pulling of the tab will lever the lid off the glass and against the mechanical attachments of the lid to the rim (and particularly to the shoulder portion 82).

Figures 41-43 (CONCEPT 6) illustrate another embodiment of the invention and particularly the means by which the lid can be removed from the glass more easily. In this embodiment, lid 120 contains a pull tab 121 that is attached to a frangible strip portion 122. The pull tab can be lifted upwardly and pulled to rip the strip portion 122 from the remainder of lid 120. This weakens the lid sufficiently to enable the lid to be removed quite easily by the pull tab 121.

Referring now to figures 44-48 there is illustrated a further embodiment of the invention (CONCEPT 17). In this embodiment, there is provided a lip 310 and a clamping lid arrangement 311 that fits around lip 310 and again contains a lever 312 that can be pulled to spread a spring clip 313 to allow the clamping arrangement to be removed thereby allowing the lid 311 to be removed. The external spring clip may take a number of forms including the circular and flat cross-sections shown

Referring now to figures 49-52, there is illustrated CONCEPT 23 of the invention. In this version, the drinking vessel contains a lid 460 and the lid can be removed using a pull tab 461. The pull tab 461 is peeled up through a cutout section 462 (see figure 50) which leads into the tear line 463. As the pull tab is lifted further (see figure 52) the tear line 463 becomes exposed and pull tab 461 can peel off the outside portion 464 of lid 460 which is the portion attached to the drinking vessel (see figure 51).

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Referring now to figures 53-56A, there is illustrated a further embodiment of the invention (CONCEPT 16). In this embodiment, the drinking vessel 300 is provided with a cap assembly which basically comprises a lip 302, a lid 301 which is fastened about lip 302 and a circlip 303 which is positioned inside lid 301 and is positively retained relative to the lid by providing the circlip 303 with a number of projections 304 that pass through corresponding slots 305 in lid 301 to stop the circlip and lid from separating. A lever 306 is positioned on the outside of the drinking vessel 300. The lever can be pulled (see figure 55) and in doing so, the lever will expand or spread circlip 303 to allow the lid 301 to release and be removed from the drinking vessel.

Figures 57-60 illustrate a further concept of the invention (CONCEPT 11). In this concept, the protective lid has a "twist off" type function. Specifically, a drinking vessel 254 is provided with discontinuous thread segments 255 (best illustrated in figure 59). A lid 256 can be attached to the segments. The lid 256 contains portions 257 that engage with the segments 255, however part twisting of the lid can cause the lid to be released. Although the lid needs to be twisted off the drinking vessel 254, initially, the lid can be pushed locked to the drinking vessel which causes portions 257 to ride over and engage underneath and around segments 255.

Figure 61-63 illustrate another embodiment of the invention (CONCEPT 4) and particularly another embodiment of the lid design and the means by which the lid can be opened with little effort. Lid 100 contains a fold line 101 and is attached over the rim 81 of the glass in a manner similar to that described previously. However, the peripheral edge of the lid is provided with a small extending tab portion 102 (see figure 61) to provide a "purchase" for a separate lever 103 which contains an open mouth 104 designed to engage with the tab portion 102. Upon attachment of lever 103 to the tab portion 102, the lever is lifted upwardly (see figure 62) to bend lid 100 about fold line 101 to "half open" the lid. If desired, the lever 103 can then be removed and the beverage can be drunk with half the lid still in place. Alternatively, the lid can be pulled entirely off the glass if desired.

Referring now to figures 64-67, there is illustrated CONCEPT 24 of the invention.

In this version, the drinking vessel 470 has a lid 471. The lid is attached to the side wall of the drinking vessel by a retainer 472. The retainer 472 contains a small pull tab 473 that can be levered away to remove retainer 472 from the side wall 473A of lid 471. Once retainer 472 has been removed (see figure 65), the inner cap can disengage from the rim of

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the vessel and the lid can be quite easily pulled off the top of the drinking vessel. The pull tab 473 is attached to the retainer by a rivet.

Referring now to figures 68-71, there is illustrated CONCEPT 25 of the invention.

In this version, the lid 475 again contains a retaining ring 476. A pull tab 477 is attached to the retaining ring. The pull tab can be lifted (see figure 67) to remove the retaining ring from the side wall 478 of lid 475. Once this happens, the inner cap can disengage from the rim of the vessel and the lid can be quite easily removed.

Referring now to figures 72-75, there is illustrated CONCEPT 26 of the invention.

In this version, lid 480 is attached by a retaining ring 481. A pull tab 482 is attached to the retaining ring. Lifting the pull tab allows the retaining ring to expand allowing the side wall 483 of the lid to expand thereby enabling the lid to be removed.

Concepts 24-26 have the common feature of a removable strap, which compresses the inner rubber seal, and when the strap is broken/removed the seal can expand to disengage the sidewall of the lid/cap from the glass.

Figures 76-78 illustrate another embodiment of the invention (CONCEPT 9) to remove the lid 130 from a glass. In this embodiment, an opening lever 131 is provided that can grip the lid to pull the lid off the glass.

Figures 79-82 illustrate a further concept of the invention (CONCEPT 14) which can be seen as a "pop off" type lid. In this particular embodiment, the drinking vessel 270 contains a lid 271 which is made of two parts being an inner sealing member 272 which is best illustrated in figure 82 and which extends over the rim of the drinking vessel 270, and an outer part 273 which also extends over the rim of the drinking vessel and over the inner sealing member 272, and which is fixed to the drinking vessel 270. The outer part 273 has a perforated design which is best illustrated in figure 79 and the outer part 273 initially has a slightly convex shape which is best illustrated in figure 82. The design of the outer part is such that it is designed to be pushed downwardly against the inner sealing member 2, this being best illustrated in figure 80. When this happens, the outer part 273 becomes free from attachment to the drinking vessel 270. When this happens, the entire lid 271 can be removed, this being best illustrated in figure 81.

Referring out to figures 83-88, there is illustrated a further embodiment of the invention (CONCEPT 19). In this arrangement, there is provided an outer lid 330 and an inner lid 331. The outer lid 330 contains a pull tab 332 and hinge system to allow pressure release as the tab is pulled upwardly. The inner lid 331 contains biased or pre-sprung

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segments 333 that are naturally biased outwardly to a "unlocking" position, but are held in place by the outer lid 330. Thus, when the outer lid 330 is removed (see figure 85), this will cause the segments 333 to "pop open" and be released from the lip 334. The top can then be removed from the drinking vessel.

5 Referring to figures 89-94 there is illustrated a further embodiment of the invention (CONCEPT 20). In this arrangement, the drinking vessel 340 contains a lip 341 which is covered by a lid 342. A spring 343 is positioned around the lid 342 and has a number of curved sections, which pass through corresponding slots in the cap. These curved sections of spring 343 secure it to the lid 342 and continue through, securing the lid
10 assembly to the lip 341. A lever 344 (see figure 92) is attached to spring 343 and pulling of the lever 344 causes to spring to expand and flatten to disengage the lid 342 from the lip 341 or drinking vessel 340.

Figures 95-98 illustrate various non-limiting embodiments of the design of the vessel and particularly of the shoulder portion to illustrate that no particular limitation
15 should be placed on the invention merely by a particular type of shoulder portion.

Figure 95 illustrates a shoulder portion 140 which comprises a horizontally extending and outwardly extending annular land portion that extends outwardly relative to the side wall 141 immediately below shoulder portion 140. Shoulder portion 140, in this particular embodiment is defined by a lower part of the outwardly extending rim 142 of the
20 glass. The shoulder portion 140 provides a mechanical attachment of the peripheral edge 143 of the lid.

Figure 96 illustrates an alternative embodiment where the side wall 144 of the drinking glass contains an annular recess 145 with the upper wall of the annular recess being substantially horizontal to define the shoulder portion 146. In this embodiment, rim
25 147 does not extend outwardly relative to side wall 144.

Figure 97 illustrates an alternative embodiment that might be suitable should an extremely aggressive mechanical attachment be required between the lid 148 and the drinking vessel. In this embodiment, a plurality (three) of angular recesses 149 is provided extending below the upper edge of rim 150. Each recess 149 defines an upper shoulder
30 portion 151. The peripheral edge of lid 148 can be mechanically attached relative to each shoulder portion such that in this particular embodiment, the peripheral edge of lid 148 is mechanically attached in three places to the drinking vessel.

Figure 98 illustrates a rim 152 containing a lower outwardly extending horizontal

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shoulder portion 153 containing an "undercut" 154. The peripheral edge 155 of lid 156 can be attached quite aggressively to the drinking vessel by enabling the peripheral edge to be positioned in the undercut 154 as well as about the shoulder portion 153.

Figures 99, 99A, 100 and 100A illustrate a plan view and a section view of a vessel and a lid which has been previously illustrated in figures 15-18.

Figures 101-104 illustrates a further embodiment of the invention. In this embodiment, the beverage container 200 contains an annular U-shaped channel portion 201 in the outer wall of the beverage container and in the rim portion. A sealing bead 202 is provided which extends over the upper most part of the rim. A lid 203 contains an edge profile that enables the lid to be snapped over the rim of the container 200. Specifically, the edge profile contains a return lip 204 (see particularly figure 102) that fits into the U-shaped channel portion 201. The lid is "sprung" such that when the lid is pushed onto the rim of the beverage container, the return lip 204 is biased into the channel 201. This arrangement has the benefits of added strength and its non-return feature benefits the manufacturing process by simply snapping over the bead on the drinking vessel instead of having to be fixed via a mechanical post process.

A lift tab 205 can be provided in this embodiment, the lift tab being not dissimilar to that described previously.

Figures 105-106 illustrate a different type of attachment. In this variation, the lid 210 is attached to an annular retaining section 211. The annular retaining section 211 is bonded to the drinking vessel 212 and provides the "purchase" to enable the lid 210 to be fitted to the drinking vessel. The variation in figure 106 relies on the mechanical strength of the taper to form the bond between the vessel and the cap retainer. This differs from the variation in figure 105, which relies on an adhesive bond.

Referring to figures 107-108 these show further bead variations. Figure 107 illustrates a manufactured ring 250 which is bonded to a vessel 251 having a standard type rim. Figure 108 illustrates a manufactured ring 252 which is bonded to a vessel 253 having a recessed rim.

Figures 109-110A illustrate a further concept of the invention. This particular concept would find suitability for wines and other air sensitive beverages. The drinking vessel 290 contains a lid 291. The lid is again made of two main parts being an inner sealing part 292 that sits on the rim of the glass and contains the displacement bulb 293. this is secured in place by an outer locking part 292A that holds 292 in place by extending

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over it and keying into the recess in the glass wall. The inner sealing part 292 contains a large displacement bulb 293 which is best illustrated in figure 109 and which extends into the interior of the drinking vessel 290. The function of this bulb 293 is to displace the wine in the glass towards the top (rim) of the glass. The advantage of this is that the amount of
5 air in the glass is minimal and therefore the wine will not deteriorate by contact with large amounts of air.

When the lid is removed, and the displacement bulb is removed from the inside of the drinking vessel, the wine level will be returned to some distance below the rim of the glass to present a glass of wine where the glass is not filled to the brim which is
10 unacceptable. Thus, the bulb, in use, causes a temporary raising of the level of wine in the glass to minimise the trapped volume of air, and when removed, the wine level goes back to an "acceptable" level for the purposes of consumption.

The lid contains a tear tab 295 and a rivet 296 such that lifting of the tab 295 enables the lid to be removed.

15 In another form, the invention resides in a drinking vessel containing a removable lid, the drinking vessel being provided with a thread, the removable lid being provided with a complimentary thread such that the lid can be releasably attached to the drinking vessel via the thread. This can include the CONCEPT 7 form of the invention. In this form of the invention, there is an advantage in providing a thread of particular design so as to reduce
20 the possibility of the thread becoming damaged and presenting a sharp edge. Therefore, in a more particular form of the above invention, the vessel may be provided with an external thread, the thread comprising a plurality of separate thread portions. In this more particular form of the invention, the thread portions can be made thicker and more robust. Suitably, the thread portions extend about the drinking vessel. The number of thread portions may
25 be between 2-20, with a preferred number being between 5-15 although this number can vary depending on the size of the vessel. Each thread portion may have a length of between 5-30 millimetres although this can again vary depending on the size and diameter of the vessel. The lid will typically contain an internal thread to engage with the external thread on the drinking vessel. The lid will typically comprise a main body, and a
30 depending side wall or flange and the internal thread will typically be positioned on the depending side wall or flange.

In another more particular form of the above invention, the vessel may be provided with an internal thread and the lid may be provided with an external thread. This

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can include the CONCEPT 10 form of the invention. Suitably, the lid sits substantially within the top of the vessel when attached. An advantage of this more particular form of the invention is that the drinking vessel (e.g. cup or glass) does not contain an external thread that may disrupt the drinking process. The thread may again comprise a plurality of thread portions that may be similar to that described above. Alternatively, the internal thread may comprise a continuous thread as the risk of damage to the internal thread is lessened.

The lid in this form of the invention may comprise a main body portion and a peripheral side wall or flange that may be provided with an external thread which may comprise a continuous thread or thread portions as described above.

In another form, the invention comprises a lid for a drinking vessel, the lid comprising a main body portion adapted to extend over the open top of the drinking vessel, and a peripheral depending side wall, the side wall containing a clamping means that is movable from a clamping position where the side wall is clamped to the drinking vessel, to an unclamping position where the lid can be removed from the drinking vessel. This can include the CONCEPT 3 form of the invention. An advantage of this form of the invention is that a lid can be attached quite tightly to a drinking vessel such as a glass which can be of ordinary design and which therefore does not require any special manufacture or design. However, it should be appreciated that the lid can be used on other types of drinking vessels that may be of special design; however a feature of this form of the invention is that the drinking vessel may be of conventional design. The clamping means may comprise a band member that extends at least partially and preferably entirely about the side wall of the lid. The band member can be constricted or expanded by the clamping means. In one form, the clamping means comprises a hinge type arrangement utilising an "over centre" type mechanism to create the clamping effect. Thus, the clamping means may comprise a first leg member attached to one part, or comprising one part of the band member, and a second leg member attached to another part or comprising another part of the band member, each leg member being hingedly attached relative to the band member, and some form of tab or like member that can be pulled by a person to open the clamping means thereby enabling the lid to be removed. In this form of the invention, the size and manufacture of the drinking vessel may be as described previously and the size and type of lid may also be as described previously. It is envisaged, in the second form of the invention, that a plurality of clamping means may be provided.

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In another form of the invention, there is provided a drinking vessel containing a removable lid, the drinking vessel comprising a side wall containing an internal shoulder, an internal wall which seals the drinking vessel and which is at least partially connected to the drinking vessel by the internal shoulder, and pressure releasing means that is operable
5 on the internal wall to move the internal wall from a first position where the internal wall and the vessel define a reduced internal volume, to a second position where the pressure releasing means enables the internal wall to move to a position where the internal wall and vessel define a larger internal volume, thereby reducing the pressure within the vessel, thereby facilitating removal of the internal wall. This can include the CONCEPT 8 version
10 of the invention. In this form of the invention, the interior of the drinking vessel is kept under a higher pressure when the internal wall is in the first position which defines a smaller internal volume in the vessel (and therefore a higher pressure in the vessel). The pressure releasing means can then be activated or operated to enable the internal wall to move to the second position which defines a larger internal volume in the vessel (and
15 therefore a lower pressure in the vessel). This enables the internal wall to be removed. The pressure releasing means may comprise a member or component that can push or maintain the internal wall into the first position. Thus, the pressure releasing means may comprise an elongate member that may extend over the top of the internal wall and be connected to the drinking vessel and which is movable between a locking position where the internal
20 wall is in the first position, and an unlocking position where the internal wall can move to the second position. The elongate member can pivot, hinge, twist, flip or otherwise move between the locking and unlocking position.

The drinking glass according to the present invention is able to serve as both a container for storing beverages, and as a traditional drinking glass from which the contents
25 thereof can be consumed directly therefrom in the usual manner. Preferably, the drinking glass is adapted to be reused.

The lid may comprise a rigid lid, a flexible lid, or a semi flexible lid. The lid may comprise a laminate of different materials to provide desired characteristics. The laminate may enable the lid to have the required properties of strength, gas impermeability, and the
30 like. The lid may comprise a first zone or area comprising one material and a second zone or area comprising a second material. The lid may comprise one zone or area comprising a rigid material, and a second zone or area comprising a flexible material. The lid may be provided with a seal. The seal may be formed integrally with the lid, or may be formed

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separately and fitted to the lid, or may be formed separately and fitted to the container and the like. A seal is preferably provided inside the lid for forming a seal between the lid and the drinking glass. The seal may be made of any suitable material to provide a satisfactory sealing action. The seal may comprise a plastics material, a resilient material, a rubber, a neoprene, a settable material, and the like. In a particular embodiment, the seal comprises a thermoplastic elastomer which is co-moulded to the inside of the lid.

Referring to figures 111-113, and initially to figure 111, (CONCEPT 3) there is illustrated the upper part of a drinking vessel 410. The drinking vessel contains a peripheral rim 411 which is best illustrated in figure 113, and the peripheral rim can be of conventional design.

The drinking vessel is closed by a lid 412. Lid 412 contains a main body portion 413, and a depending side wall 414. The depending side wall 414 is designed to extend over rim 411 and somewhat down the side wall of the drinking vessel 410. Side wall 414 contains a band member 415 that extends about the drinking vessel 410. The band member 415 can be constricted (clamped) to hold lid 412 tightly to the drinking vessel 410, and released (unclamped) to enable lid 412 to be removed.

A sealing member 411A is fitted over the top of rim 411 and is clamped between rim 411 and lid 412 to provide a good pressure tight seal.

The clamping and unclamping is provided by a clamping means 416. Clamping means 416 uses an "over centre" type mechanism to release or to constrict the band member 415. The clamping means 416 contains a first leg member 417 and a second leg member 418 (see figure 112) which are attached to the band member 415 at spaced apart positions. A small tab 419 can be grasped by a person's finger and pulled away from the drinking vessel 410 into the position illustrated in figure 114, and this process will activate the clamping means into the released position to enable the lid 412 to be removed.

Referring to figures 117-120 (CONCEPT 8), these figures illustrate a another form of the present invention. In this form of the invention, a drinking vessel 420 contains a peripheral rim 421 that is formed with an internal shoulder 422. An internal wall 423 is positioned inside the drinking vessel and is configured such that it is retained by engagement of the peripheral edge of internal wall 423 with the internal shoulder 422. The internal wall (best illustrated in figure 118) is slightly concave (when viewed in plan) or curved inwardly into the interior of the drinking vessel 420. In this "first position" of the internal wall 423, the concave configuration reduces the internal volume of the drinking

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vessel. Thus, if the drinking vessel is slightly pressurised, the pressure will force the internal wall 423 into sealing engagement against the internal shoulder 422.

The internal wall 423 is prevented from moving to a "second position" where the internal wall has adopted a convex configuration (when viewed in section), or curved outwardly from the drinking vessel. A pressure releasing means 424 holds the internal wall into the first position illustrated in figure 118. The pressure releasing means comprises an elongate member 425 having one end 426 attached to the rim 421 of the drinking vessel (see particularly figures 118-120) and having another end formed with a tab 427 that can be lifted by a person.

The elongate member 425 can be clipped into the "locking" position illustrated in figure 119. However, lifting of tab 427 can cause the elongate member 425 to be lifted upwardly, this being illustrated in figures 119-120. Upon lifting of the elongate member 425, the internal wall 423 can move from a concave position illustrated in figure 118, to the convex position illustrated in figure 119. In doing so, the pressure is reduced, and the internal wall 423 becomes freed from engagement against shoulder portion 422.

Further lifting of the elongate member (see figure 120) can cause the internal wall 423 to be entirely removed from the drinking vessel.

To stop the internal wall from falling into the drinking vessel, the wall is attached to a connecting piece 428

Referring now to figures 114-116 (CONCEPT 7), and figures 121-123 (CONCEPT 10), these illustrate a first form of the invention where the lid is attached to the drinking vessel using a thread type arrangement. Basically, figures 114-116 illustrate an external thread on the drinking vessel and an internal thread on the lid, while figures 121-123 illustrate an internal thread on the drinking vessel and an external thread on the lid.

Referring initially to figures 114-116, the drinking vessel 430 comprises a series of spaced apart thread portions 431 which are best illustrated in figure 115. These thread portions enable a lid 432 to be "twist locked" onto the drinking vessel in a pressure tight manner. An annular seal 433 (see figure 116) extends over the rim of the drinking vessel and is compressed between the lid 432 and the drinking vessel 430, and because of the design of the thread, the lid can be screwed quite tightly against the drinking vessel 430 thereby properly compressing the seal 433 to provide a good pressure tight fit.

The thread portions 431 are designed to enable the lid 432 to be unscrewed quite quickly without needing a full rotation of the lid to remove the lid from the drinking vessel.

Figure 116 illustrates in section view the external thread portions 431 on the drinking vessel that mate with internal thread portions 434 on the lid, and particularly illustrates the seal 433 which is compressed between lid 432 and drinking vessel 430.

Figures 121-123 illustrate a different embodiment where the drinking vessel 440
5 comprises internal thread portions 441 (see figure 122) and the lid 442 contains external thread portions 443 (see figure 122). Lid 442 is designed to sit within the drinking vessel 440 and therefore contains a bridge 443 that can be manipulated by a person's fingers to enable the lid to be twisted into the open position.

The drinking vessel according to the present invention overcomes the difficulty of
10 properly sealing a pressurised vessel (e.g. a glass containing sparkling wine) and where the glass has a relatively wide mouth (which makes the force on the seal rather large), by providing an aggressive but low profile extrusion around the perimeter of the glass. A cap/seal/lid can then be "keyed" into the profile to create a substantial bond between the two components. The cap can be made of an appropriate yet rigid material such as
15 aluminium. The cap may have deformations in the profile to increase the strength and to allow conformity to the rim of the glass. A seal can be set between the rim and the cap, and the mechanical fixing of the cap will be such that a higher-level seal is formed to contain the contents of the glass.

Notwithstanding the aggressive attachment of the cap to the glass, the cap can still
20 be removed quite easily by providing some form on the initial part that can be removed from the cap. The initial part may comprise a frangible portion in the cap, a pull tab, a tear off tab and the like. Once this is achieved, the user can easily overcome the remaining frictional forces between the glass/seal/cap and the cap can be removed quite easily.

The drinking glass according to the present invention is advantageous in
25 comparison to other drinking glasses and containers in that it enables a beverage to be pre-packaged and branded in its own drinking glass so that consumers who prefer to drink their beverages from a drinking glass no longer have to transfer their beverage to a drinking glass but may instead consume the pre-packaged beverage directly from the drinking glass according to the present invention.

30 Also, in comparison to many prior art drink containers, the drinking glass according to the present invention, once emptied, has immediate intrinsic value as a reusable drinking glass which may be taken home. This has the consequence of reducing the amount of glass wasted. It also provides consumers with the choice of either keeping

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the glass or discarding it as part of a recycling program. The reusability of the drinking glass according to the present invention also has significant consequences in relation to the commercial marketability and perceived value of the item. These consequences will be discussed further on.

5 Another advantage of the drinking glass according to the present invention is that it virtually eliminates the problem in the hospitality industry of viral and bacterial illnesses being spread by the continual and frequent reuse of unsterile or improperly cleaned drinking glasses. The design of the lid completely protects the rim of the glass from contamination and accordingly, upon opening the glass, customers are guaranteed that the
10 drinking surface of the glass is contaminant free. This hygiene aspect will likely have universal appeal and application across many product ranges including alcoholic, dairy, juice and soft drinks.

The drinking glass according to the present invention can be utilised in many markets. For example, the drinking glass may be utilised in the on-premises liquor market
15 which includes consumption of liquor at bars, pubs, restaurants and clubs. The drinking glass may also find application in the off-premises liquor market which includes liquor purchased from bottle-shops and liquor barns for consumption at home. Moreover, the glass may find application in the fruit juice and soft drink market which includes all fruit juices, soft drinks, energy drinks, sport drinks and other non-alcoholic beverages. Also, the
20 glass may find application in the dairy market which includes all liquid dairy products from plain milk to flavoured milk, iced coffee and other drinks.

For all of the markets mentioned in the preceding paragraph it is believed that the use of the drinking glass according to the present invention should strongly influence consumer's spending choices and present a significant point of difference from a marketing
25 perspective to any other existing packaged product. This is not only a result of the packaging being novel, unique, hygienic, and environmentally friendly, but because the consumer is able to retain the packaging, which is effectively an aesthetically pleasing drinking glass, for continued re-use in the household. Thus, consumers will be faced with choosing between traditionally packaged products whose packages must be disposed of
30 upon consumption of the product, or a drinking glass according to the present invention which has been specifically designed to be retained for future use at home as a drinking glass. It is believed that this will prove to be a considerable motivational purchasing factor for consumers.

30

The drinking glass according to the present invention also offers a significant branding opportunity for suppliers. Manufacturers could print their brand or trade mark directly on the glass (as opposed to applying a paper label). This would enable branding to be displayed on the glass even after it is washed many times in the hands of the consumer.

5 The ongoing exposure of the brand on the glass in the hands of consumers would be of greater value to suppliers in comparison to other forms of packaging that are disposed of immediately after consumption of their contents.

A further advantage of the drinking glass is that it obviates need for those in the hospitality to chill drinking glasses in addition to the containers in which beverages are
10 stored as the drinking glass according to the present invention serves as both a storage container and a drinking vessel.

Furthermore, by purchasing beverages that are stored in drinking glasses according to the present invention, vendors (including but not restricted to all beverage manufacturers) are able to reduce the amount of money which they outlay on purchasing
15 drinking glasses.

Additionally, by purchasing beverages in the drinking glass, vendors in the hospitality industry are able to significantly reduce their expenses associated with cleaning used drinking glasses.

Furthermore, beverage companies can reduce the amount of money that they
20 spend in their promotional budgets because the drinking glass serves as both a container and, with brands or trade marks printed thereon, a drinking glass which has promotional value.

It will be appreciated by those skilled in the art that variations and modifications to the invention described herein will be apparent without departing from the spirit and
25 scope thereof. The variations and modifications as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of the invention as herein set forth.

CLAIMS

1. A beverage container containing a removable lid, the container comprising a rim, a side wall depending from the rim, a shoulder portion extending inwardly from the side wall, the removable lid comprising an edge extending over the rim, and along the side wall, and against the shoulder portion thereby attaching the lid to the container.
2. The container as claimed in claim 1, wherein a plurality of shoulder portions is provided on the side wall of the container.
3. The container as claimed in claim 1, wherein the shoulder portion is defined by an circumferential groove in the outside wall of the beverage container.
4. The container as claimed in claim 1, wherein the container has a main outer body, and the side wall comprises a thickened portion of the main outer body, and the shoulder portion comprises an annular land portion that extends between the thickened portion and the main outer body.
5. The container as claimed in claim 1, wherein the edge of the removable lid comprises a seal which extends over the rim of the container when the lid is attached to the container.
6. The container as claimed in claim 1, wherein the edge of the lid that extends over the side wall of the container contains a pull tab or lift tab that can be manipulated to break at least part of the edge of the lid thereby enabling the lid to be removed.
7. The container as claimed in claim 1, wherein the lid contains a main portion extending within the rim of the container, and an edge that extends over the rim and side wall of the container, and a lift tab or a pull tab on the main portion that can be manipulated to break at least part of the main portion thereby enabling the lid to be removed.
8. The container as claimed in claim 1, wherein the lid contains a main portion

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extending within the rim of the container, and an edge portion that extends over the rim and side wall of the container, the lid, including the main portion being movable between a convex position where the main portion adopts a convex shape and causes the edge to engage against the side wall of the container, and a concave position where the main
5 portion adopts a concave shape that causes the edge to become disengaged from the side wall thereby enabling the lid to be removed.

9. The container as claimed in claim 1, wherein the lid contains a main portion extending within the rim of the container, an edge portion that extends over the rim and
10 side wall of the container, a pull tab or lift tab that contains a head portion adapted to be gripped by a person's fingers, and an arm portion which is attached to the head portion and the edge portion of the lid, a weakened area in the main portion and adjacent the pull tab or lift tab, whereby the pull tab or lift tab is initially manipulated to break the weakened area in the main portion, and can then be further manipulated to raise the arm portion which
15 breaks the edge of the lid thereby enabling the lid to be removed from the container.

10. The container as claimed in claim 1, wherein the lid contains a main portion extending within the rim of the container, an edge portion that extends over the rim and side wall of the container, a pull tab or lift tab that contains a head portion adapted to be
20 gripped by a person's fingers, an arm portion that is attached to the head portion and which comprises part of the main portion, the pull tab or lift tab also being connected to the edge such that manipulation of the pull tab or lift tab initially breaks the edge and further lifting of the pull tab or lift tab causes the arm portion to be ripped at least partially away from the main body portion thereby enabling the lid to be removed from the container.

25 11. The container as claimed in claim 1, further including a clamping band adapted to extend at least partially about the edge of the lid to assist in clamping the lid to the container, the clamping band being operable between a closed position where the lid is attached to the container, and a release position where the lid can be removed from the
30 container.

12. The container as claimed in claim 1, including a clamping band adapted to extend at least partially about the edge of the lid to clamp the lid to the container, the clamping

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band containing a lift tab or a pull tab and the clamping band adapted to be pulled off the lid after which the lid can be removed from the container.

13. The container as claimed in claim 1, wherein the edge contains a tool accepting profile, and a tool containing a handle, and a front portion, the front portion adapted to engage with the tool accepting profile in the edge, whereby the tool can remove at least part of the edge from the container thereby enabling the lid to be removed from the container.

14. The container as claimed in claim 1, wherein the edge contains a circumferential strip member that forms part of the edge but which can be at least partially ripped away from the edge to loosen the edge thereby enabling the lid to be removed from the container, and a tab member attached to the strip, the tab member able to be gripped by a person's finger and manipulated to rip at least part of the strip away from the edge.

15. A beverage container containing a removable lid, the container comprising a rim, a side wall depending from the rim, a separate member that is attachable to the side wall and which contains an engagement profile, the removable lid comprising an edge extending over the rim, and along the side wall, and against the engagement profile thereby attaching the lid to the container.

16. A container and removable lid assembly, comprising a container with an open mouth defined by a rim, and an outer wall, a plurality of separated thread members on the outer wall, a plurality of thread receiving recesses on the lid, whereby the lid can be twist locked and twist unlocked to the container.

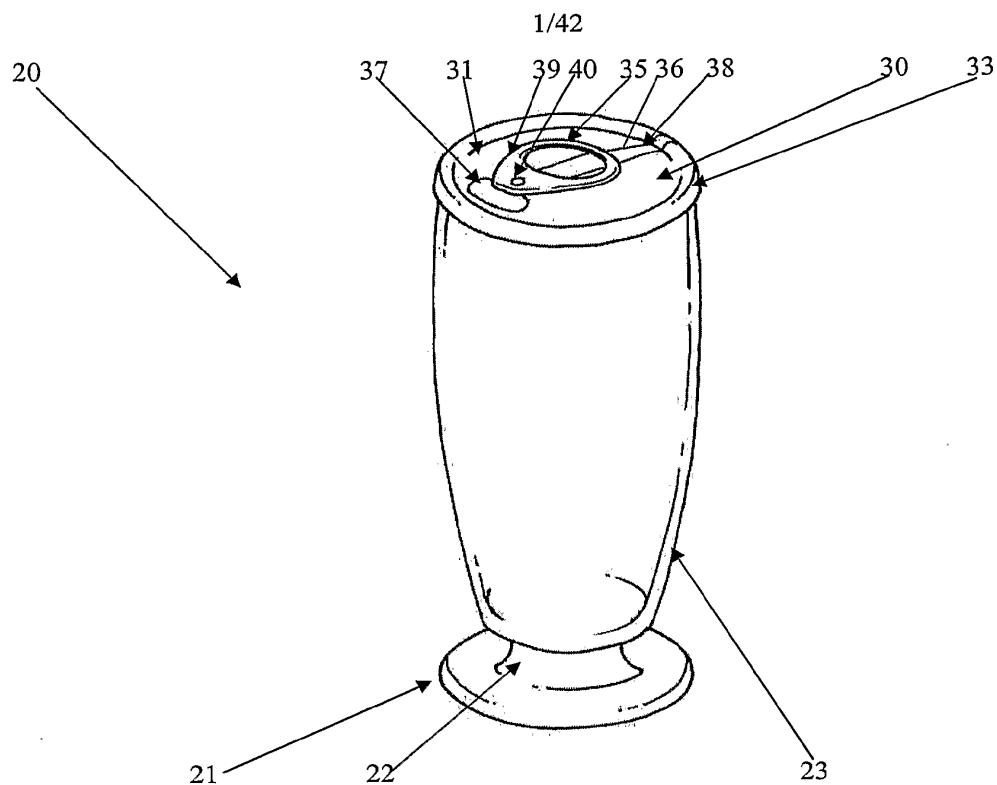


FIG 1

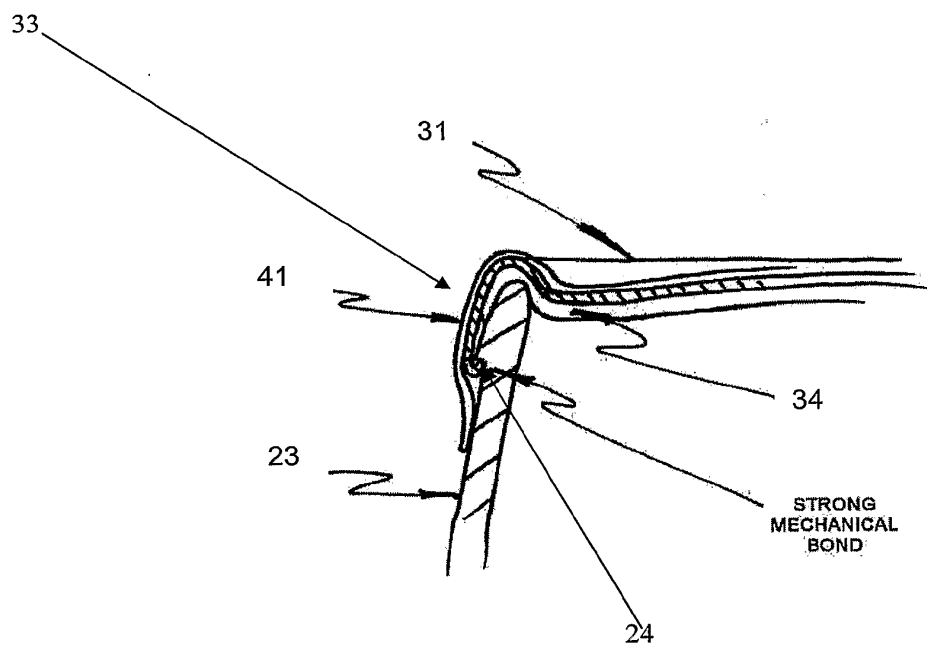


FIG 2

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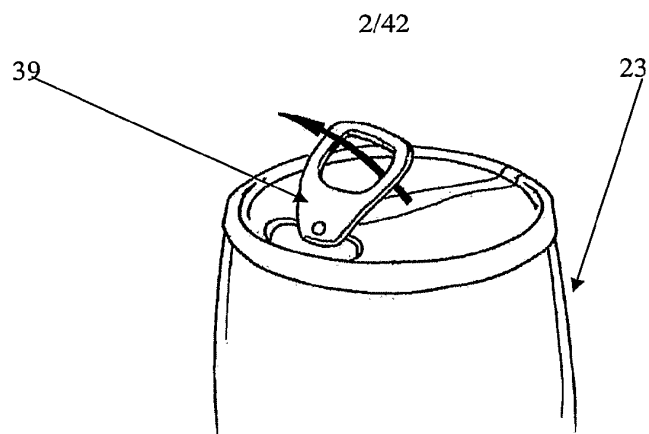


FIG 3

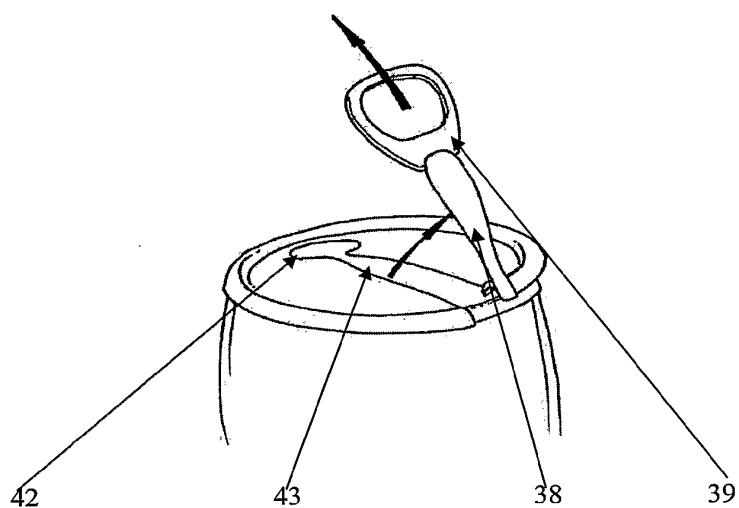


FIG 4

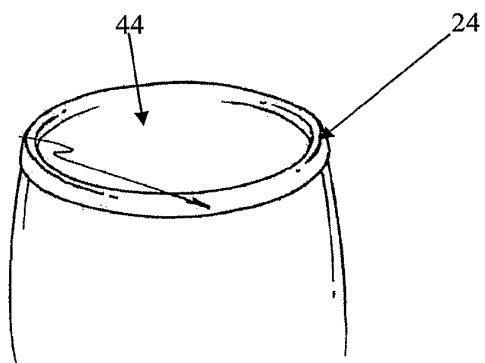


FIG 5

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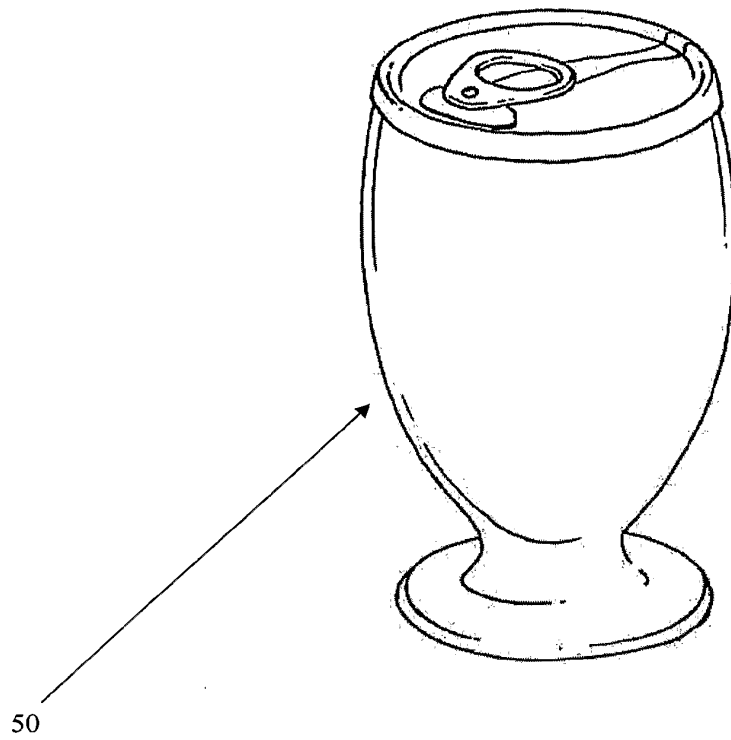


FIG 6

SUBSTITUTE SHEET (RULE 26) RO/AU

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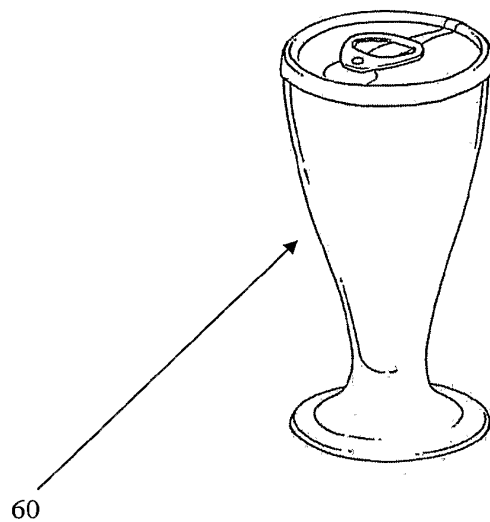


FIG 7

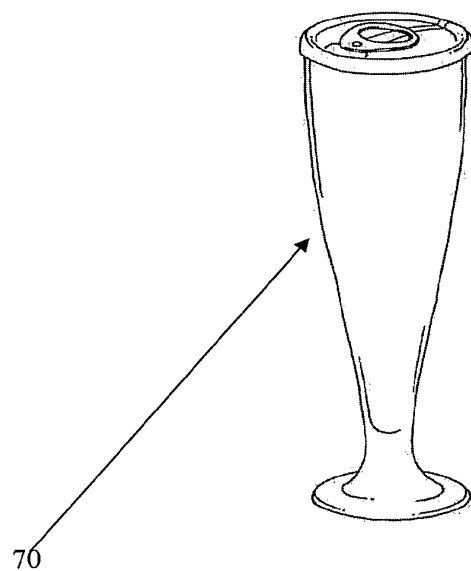


FIG 8

SUBSTITUTE SHEET (RULE 26) RO/AU

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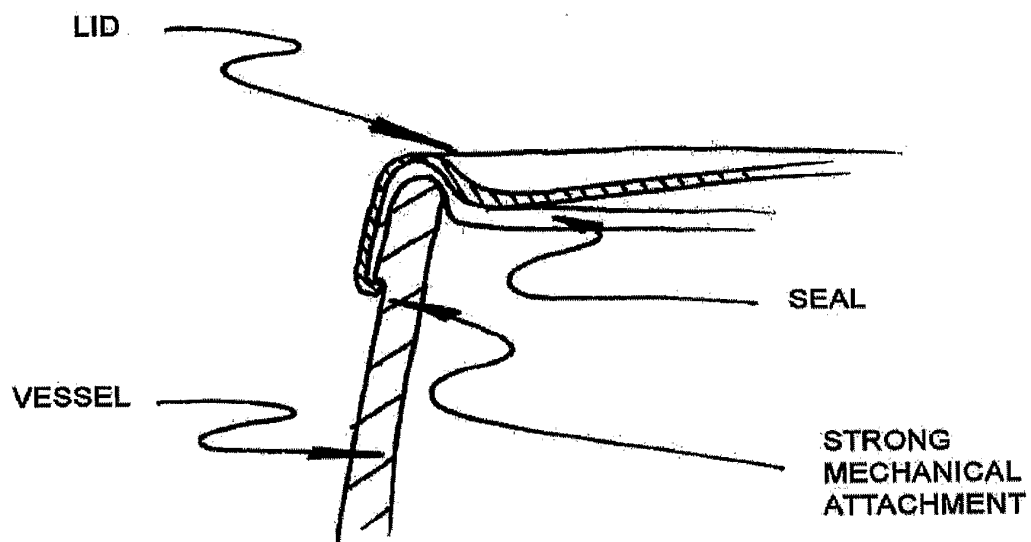
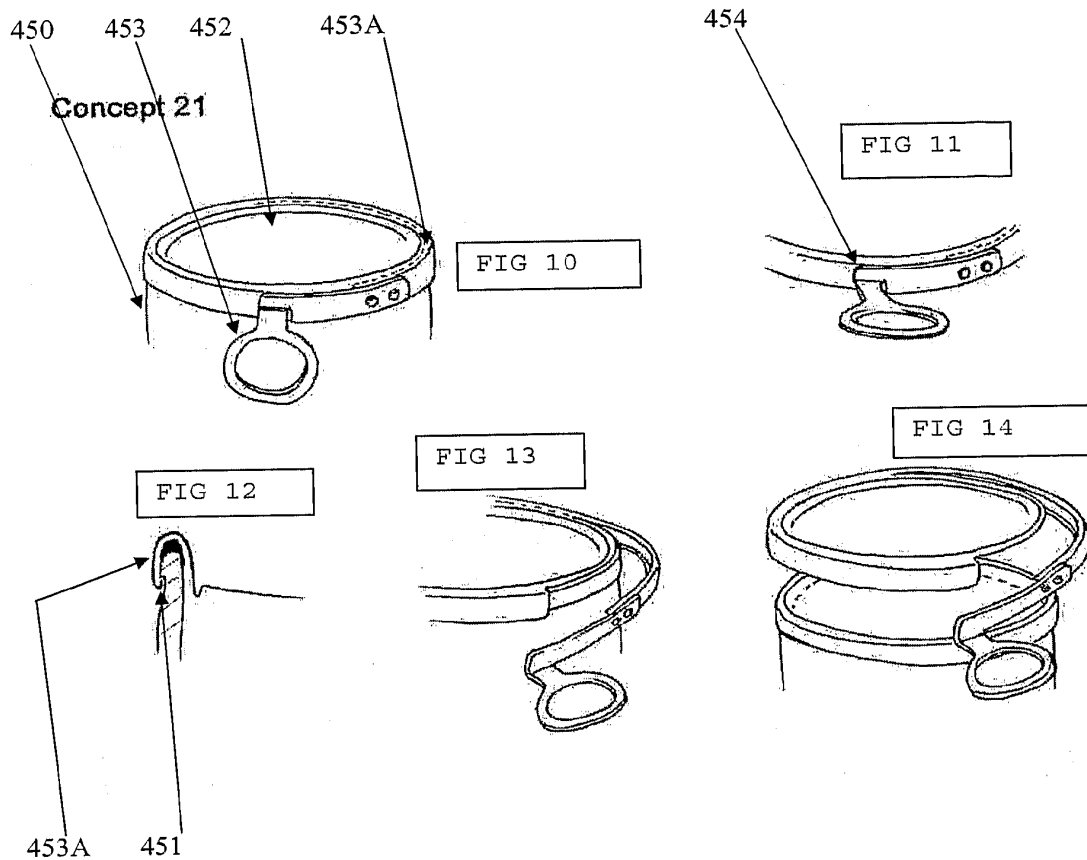


FIG 9

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FIGURES 10-14

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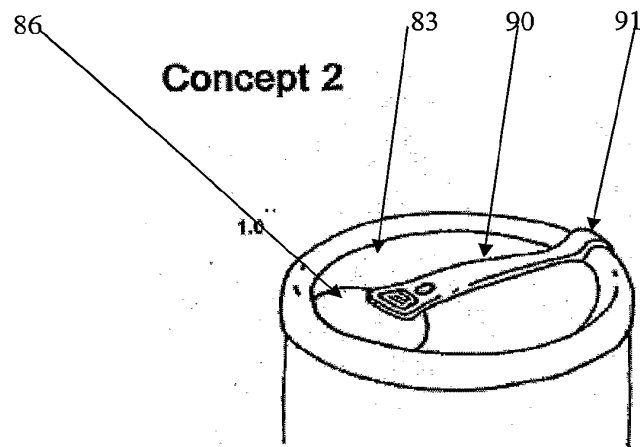


FIG 15

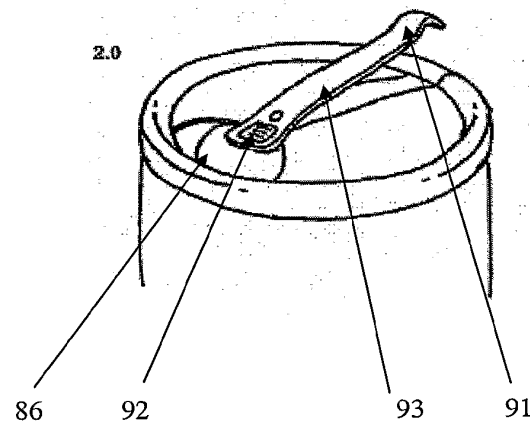


FIG 16

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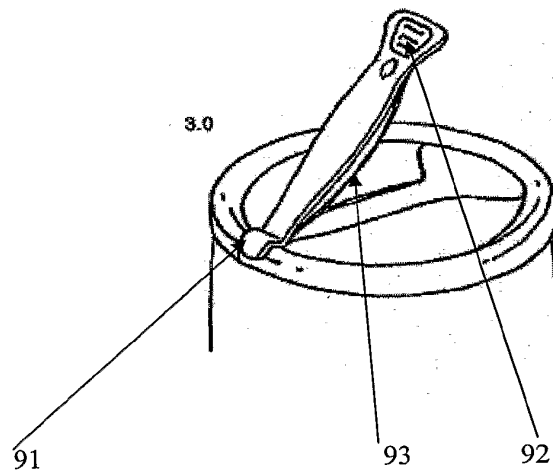


FIG 17

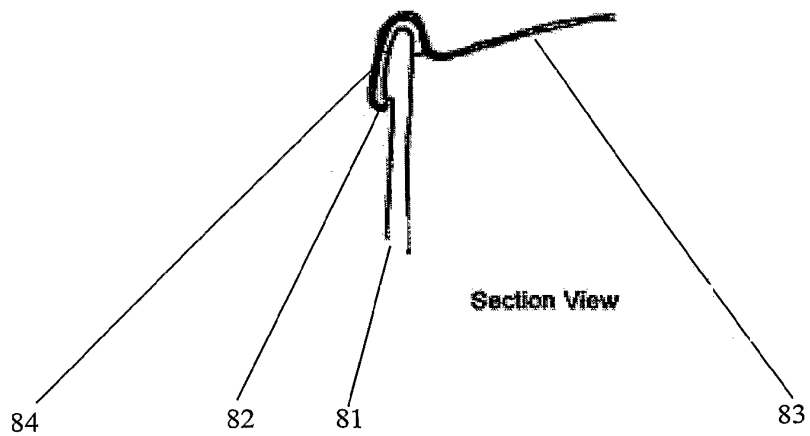
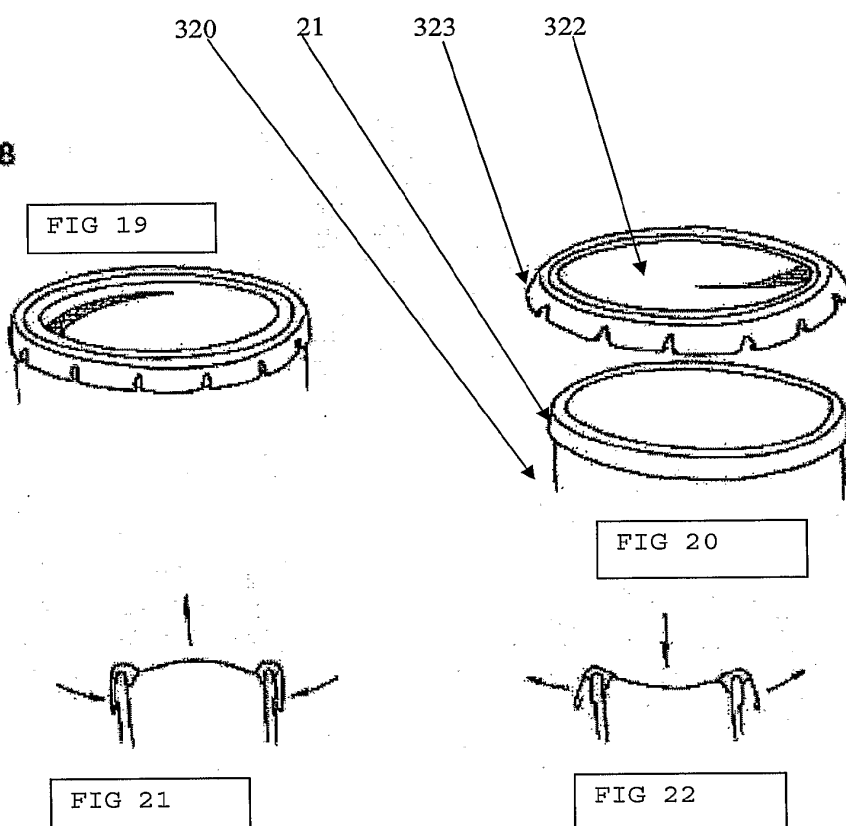


FIG 18

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Concept 18



FIGS 19-22

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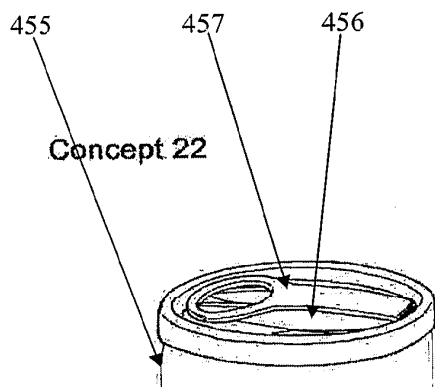


Fig 23

Fig 25

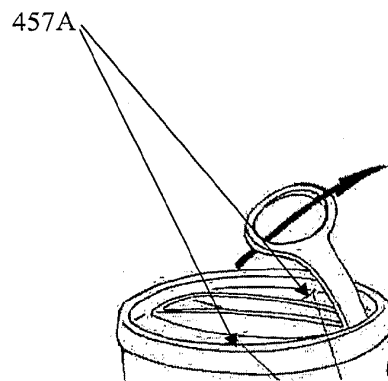
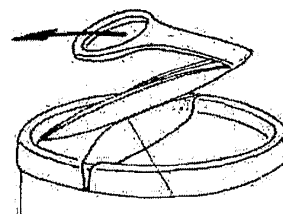


Fig 24

Fig 26



FIGS 23-26

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Concept 5

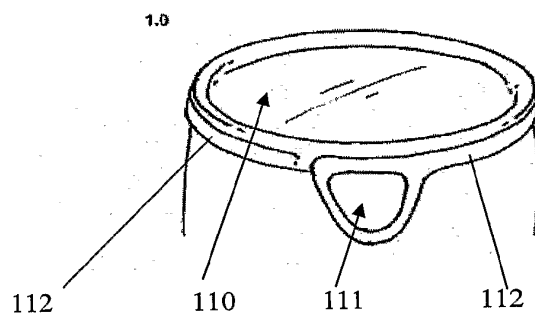


FIG 27

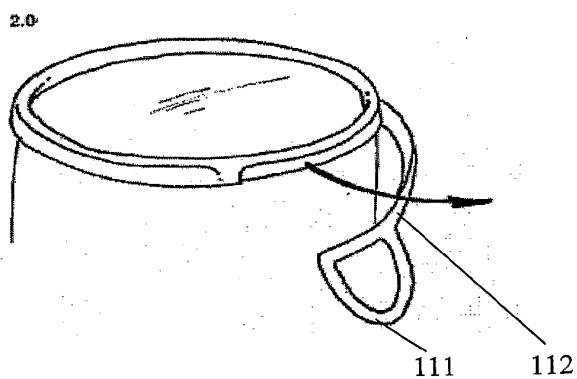


FIG 28

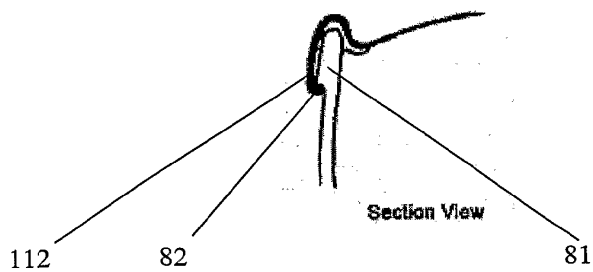
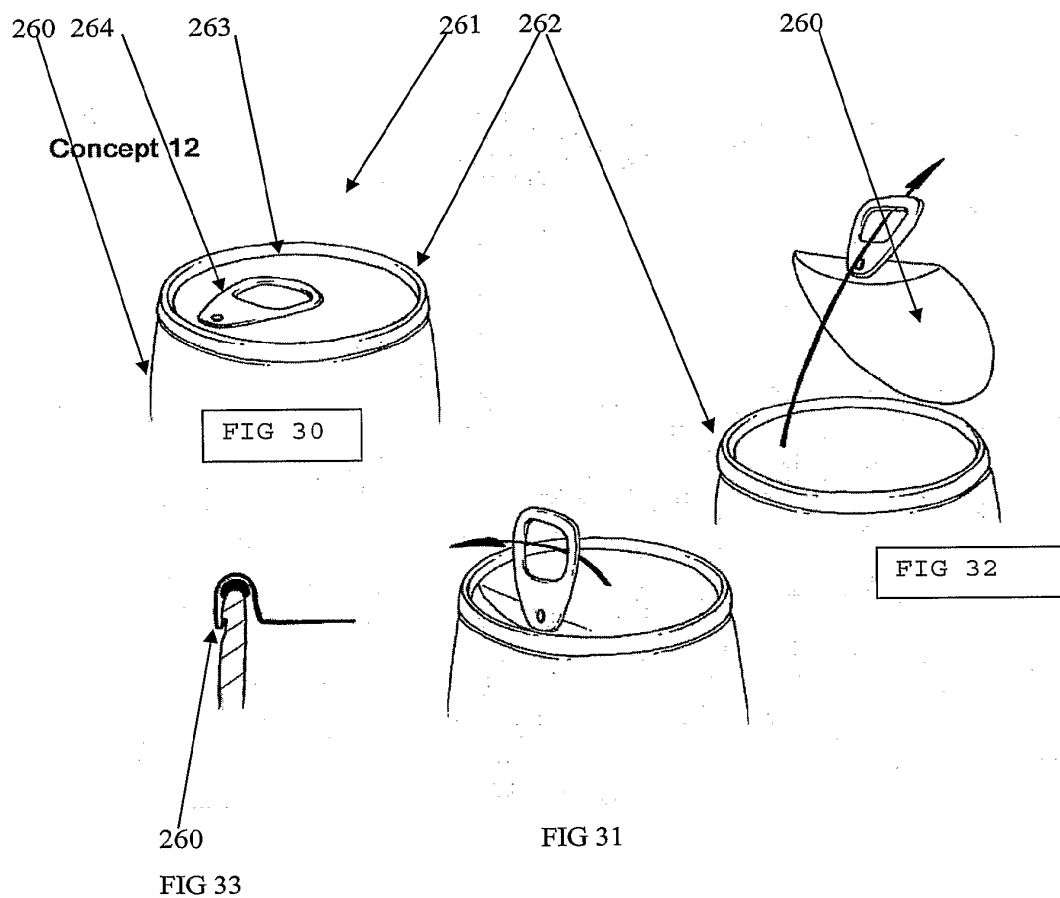


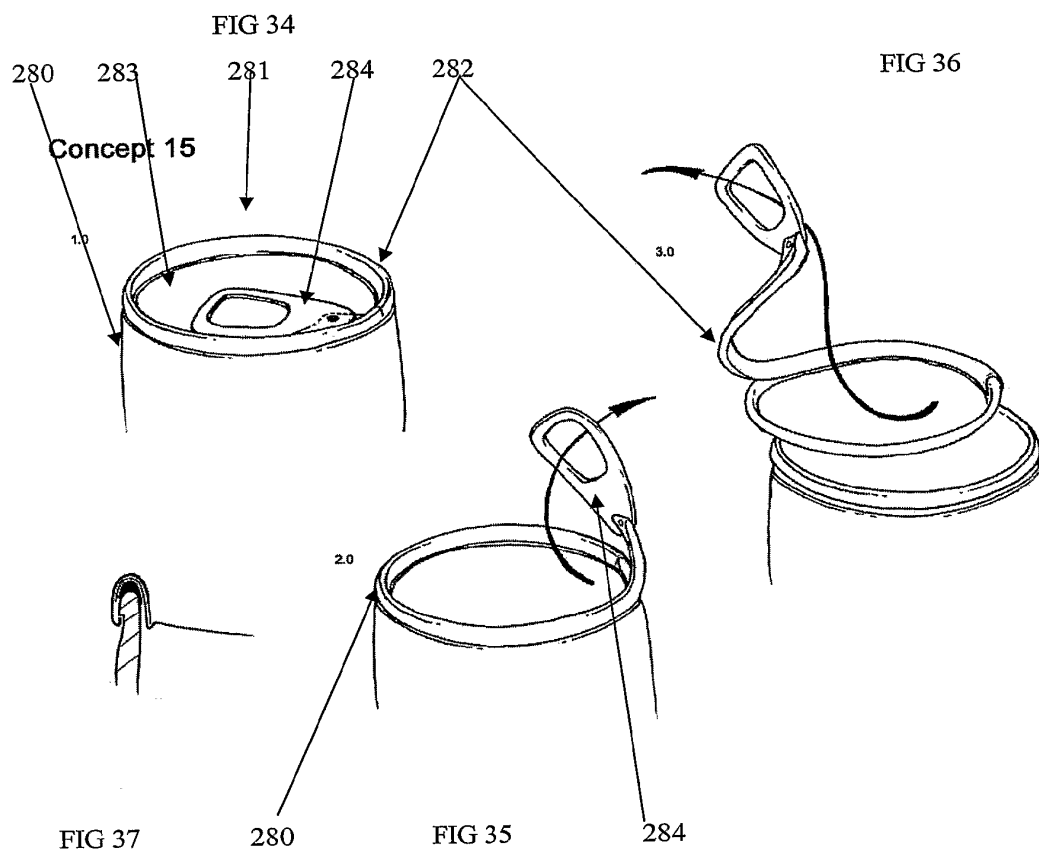
FIG 29

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FIGS 30-33

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FIGS 34-37

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Concept 1

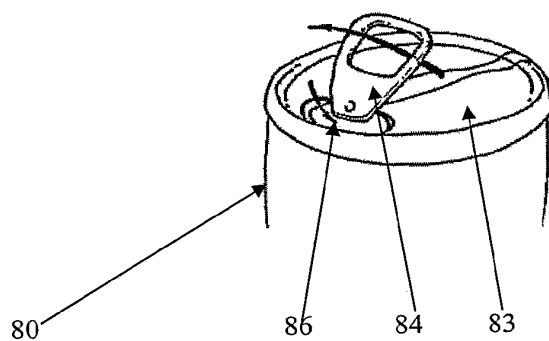


FIG 38

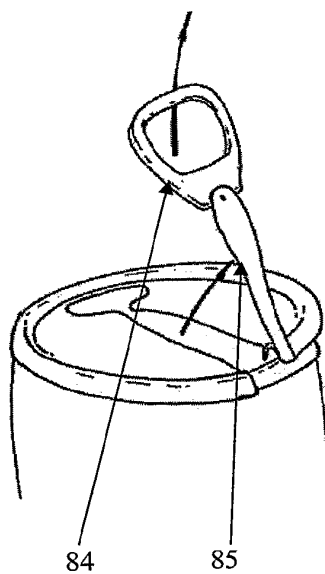


FIG 39

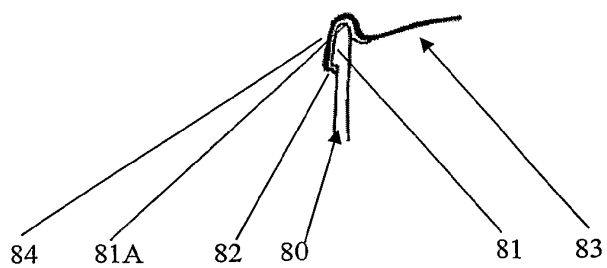


FIG 40

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Concept 6

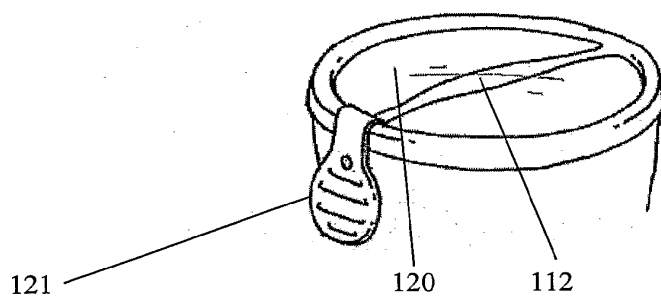


FIG 41

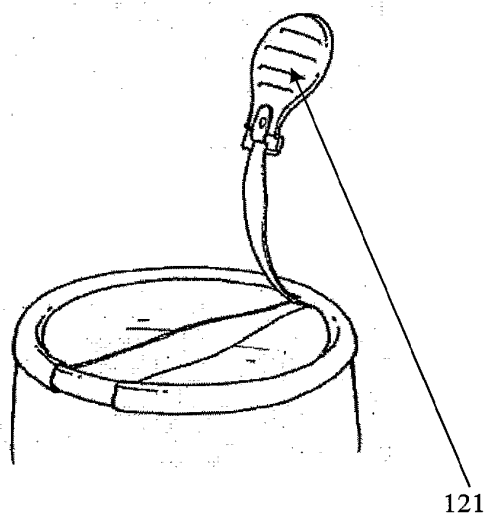


FIG 42

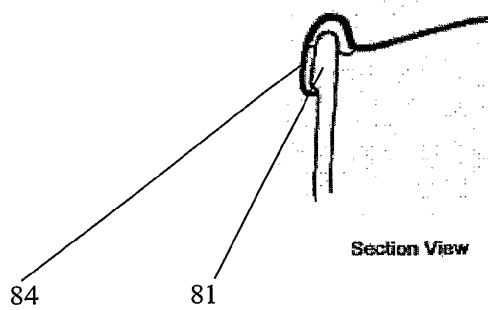


FIG 43

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Concept 17

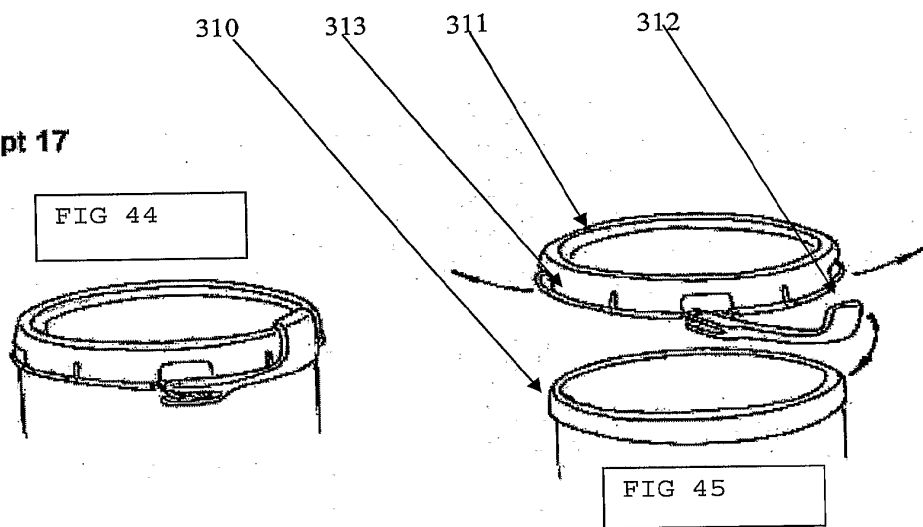


FIG 46



FIG 47

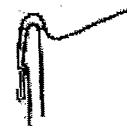
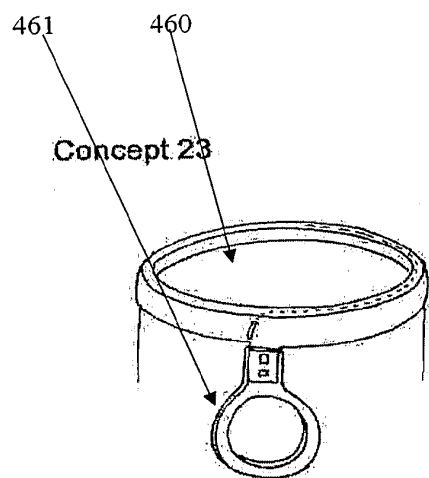
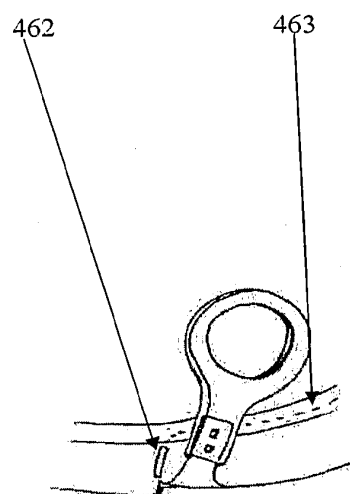
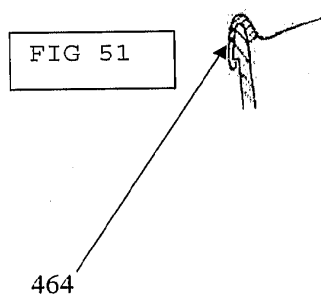
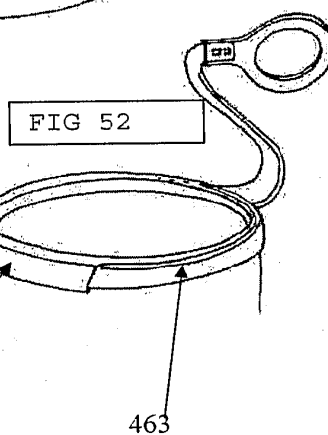


FIG 48

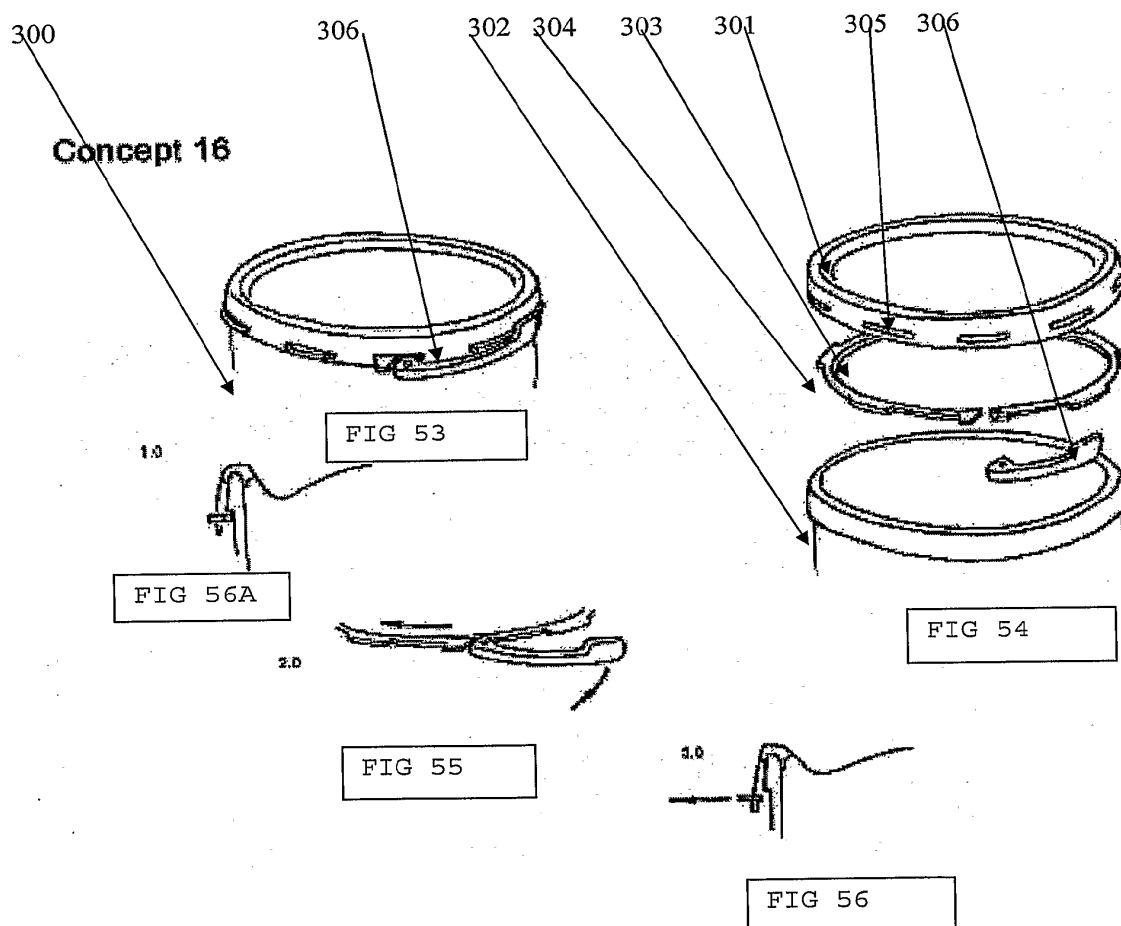
FIGS 44-48

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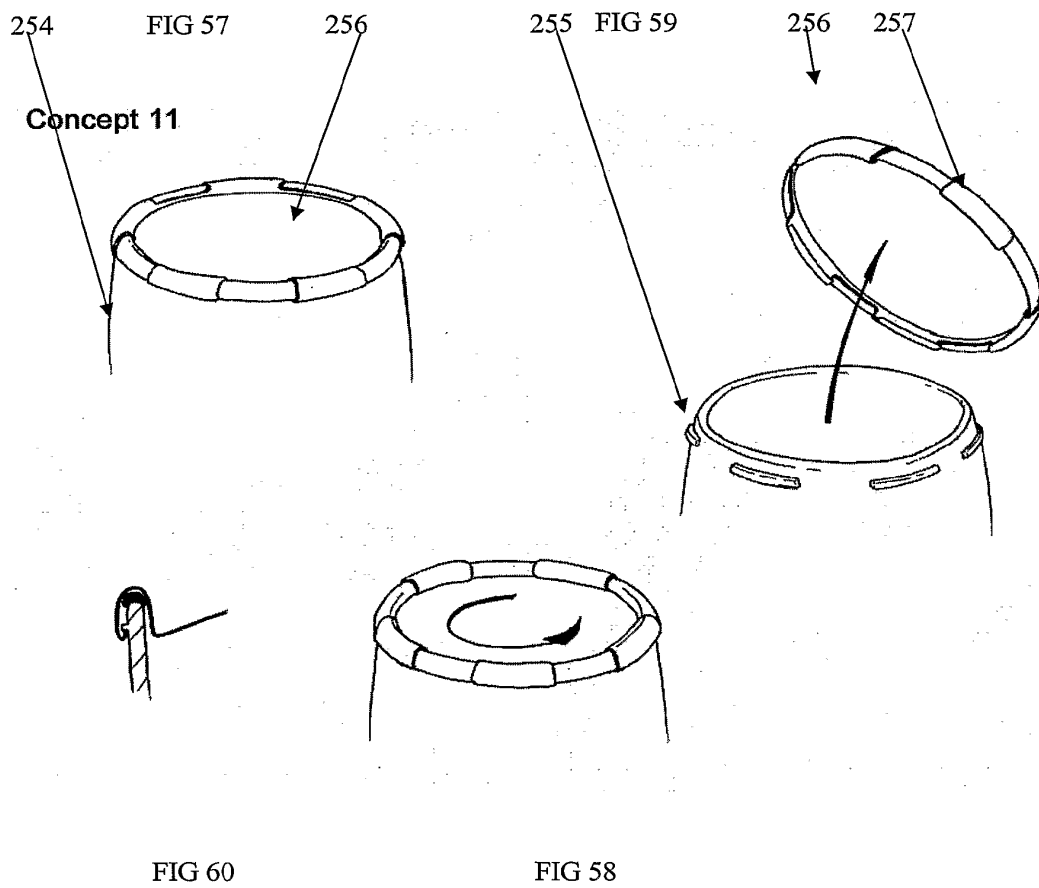
FIGS 49-52

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FIGS 53-56

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FIGS 57-60

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Concept 4

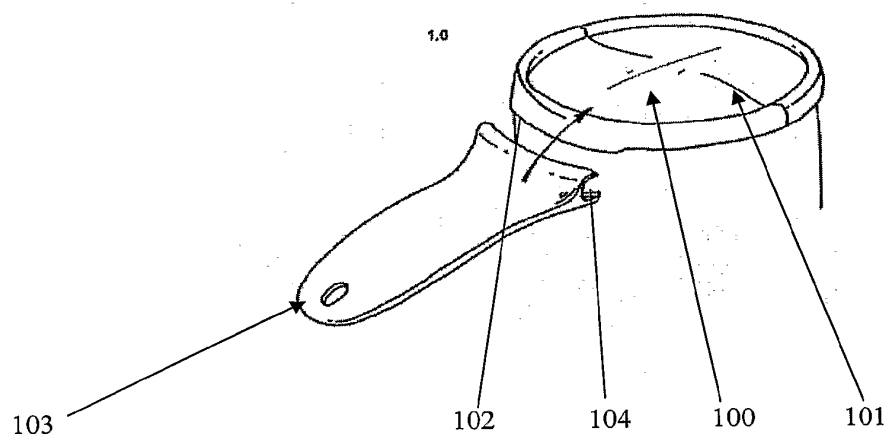


FIG 61

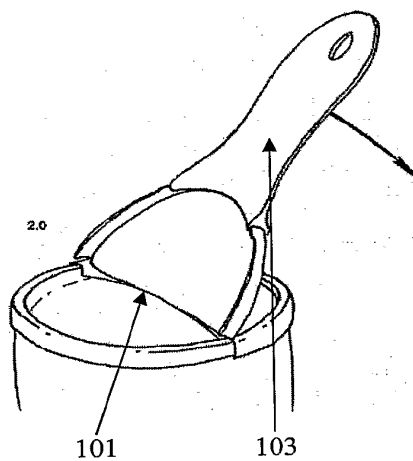


FIG 62

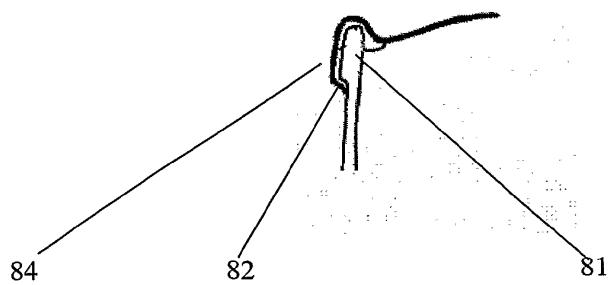


FIG 63

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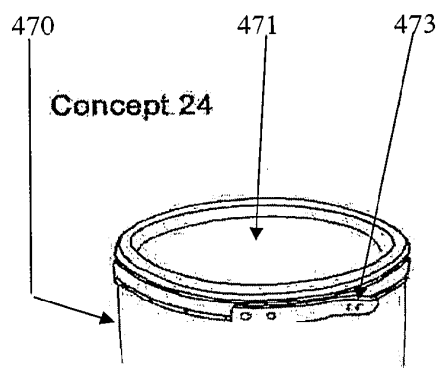


FIG 64

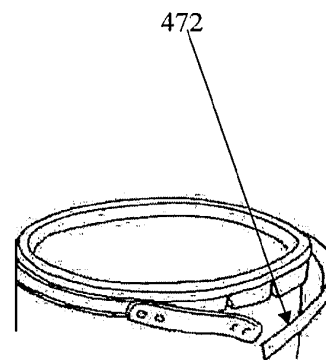


FIG 65

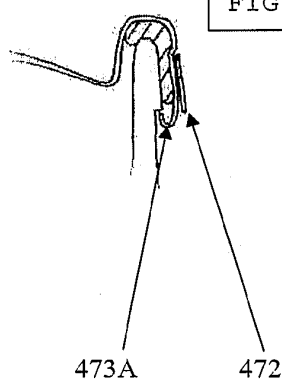


FIG 66

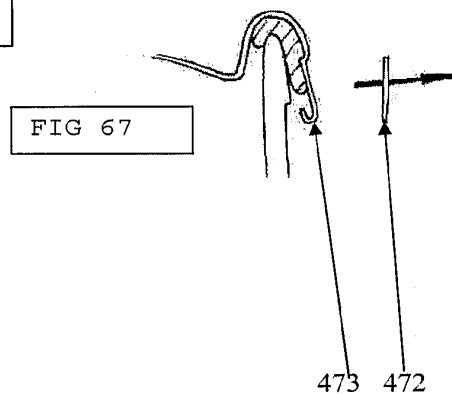
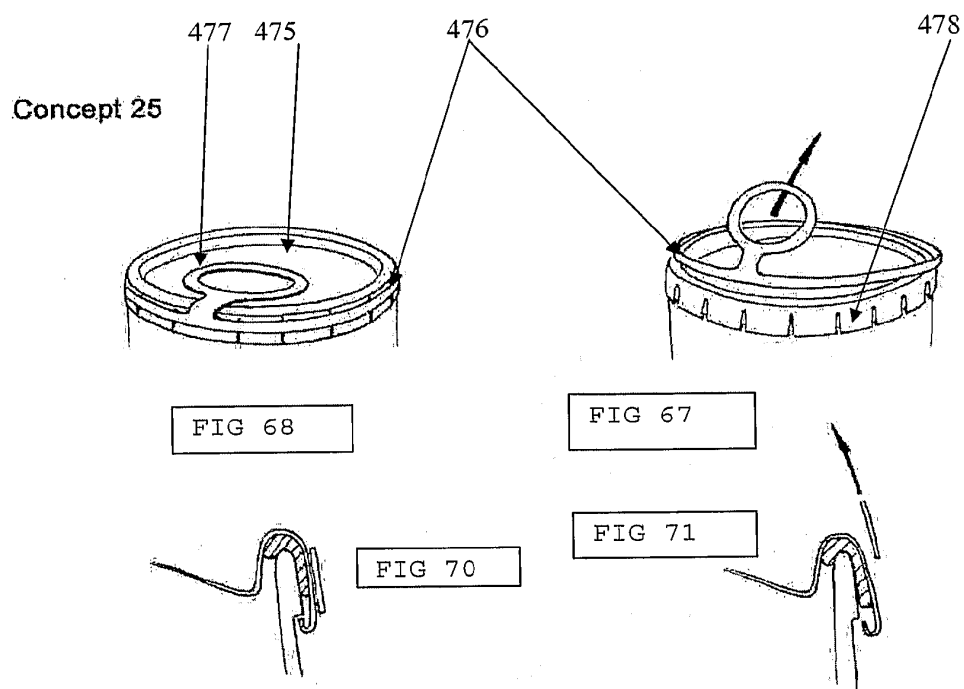


FIG 67

FIGS 64-67

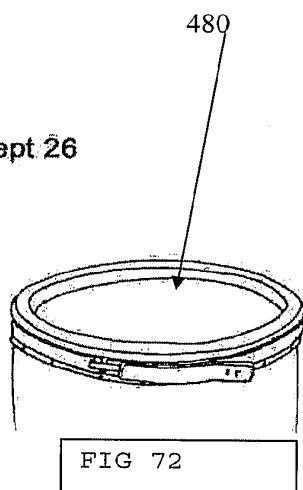
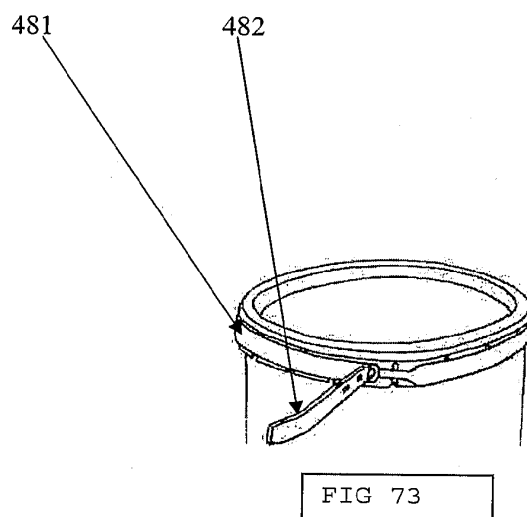
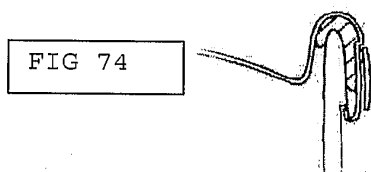
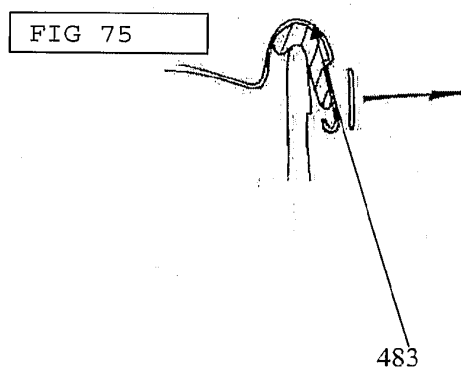
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FIGS 68-71

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Concept 26



FIGS 72-75

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Concept 9

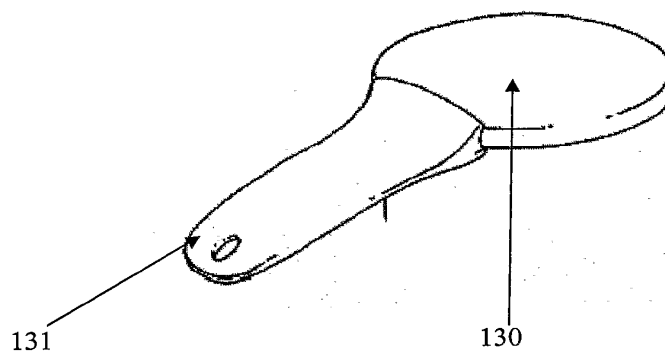


FIG 76

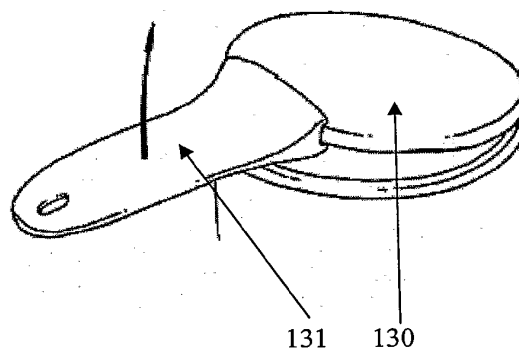


FIG 77

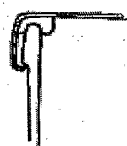
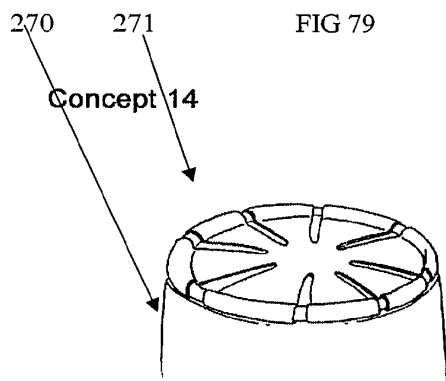
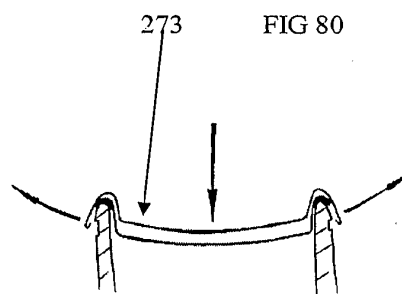
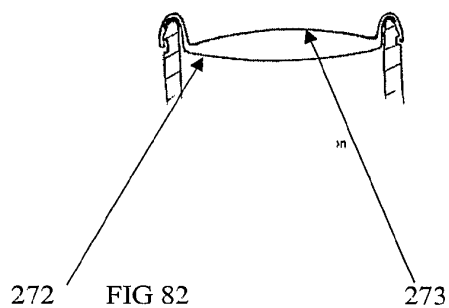
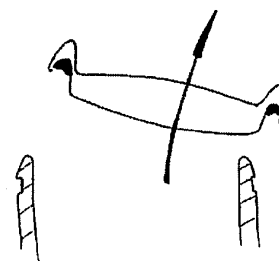


FIG 78

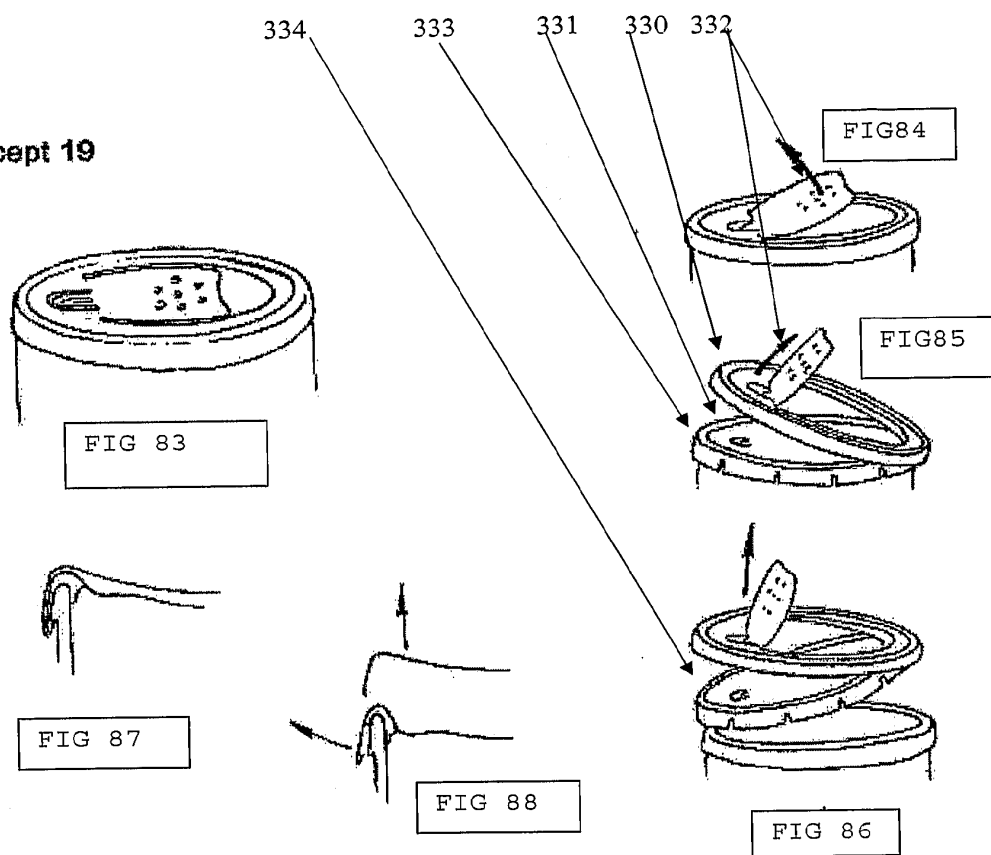
25/42



FIGS 79-82

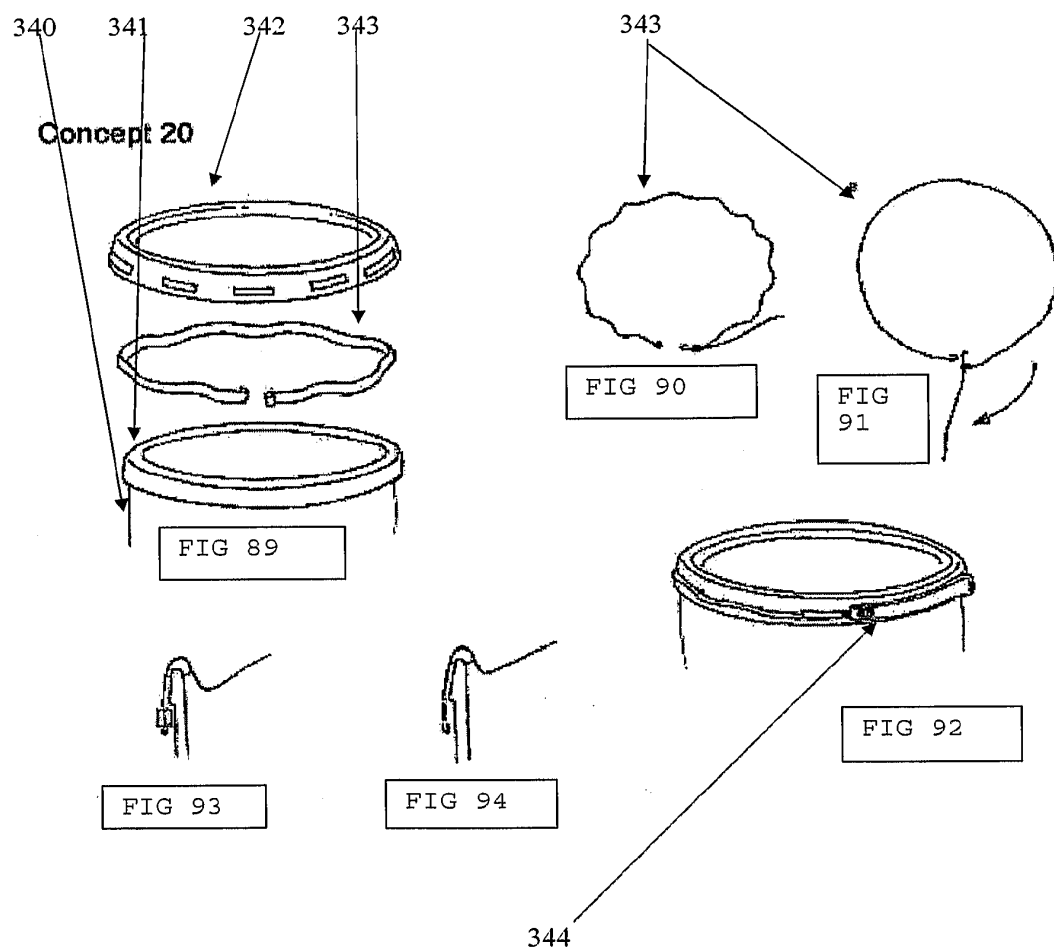
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Concept 19



FIGS 83-88

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FIGS 89-94

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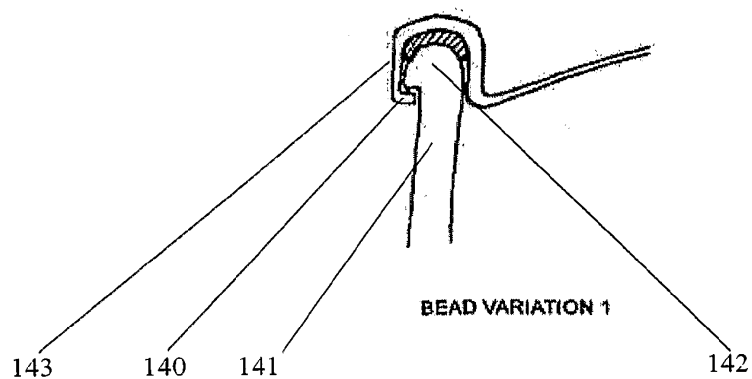


FIG 95

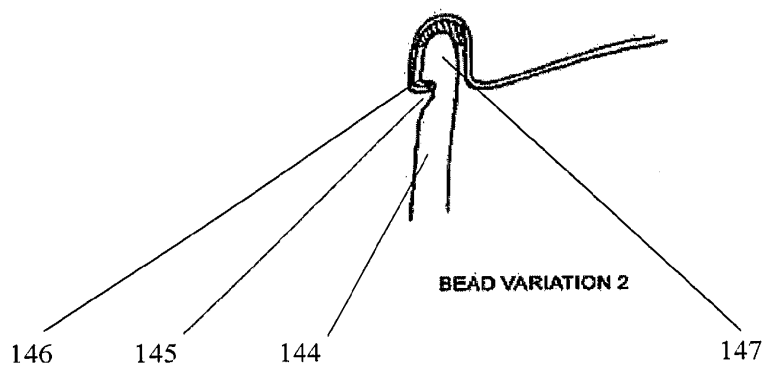


FIG 96

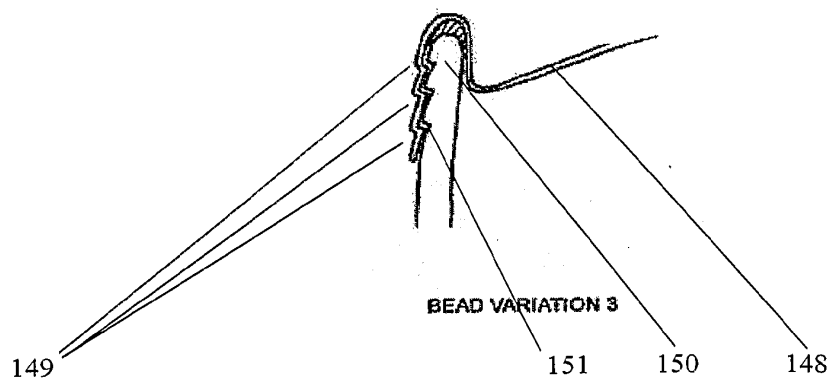


FIG 97

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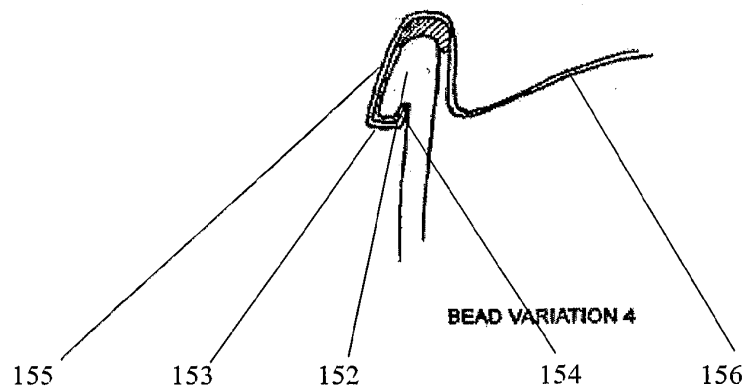


FIG 98

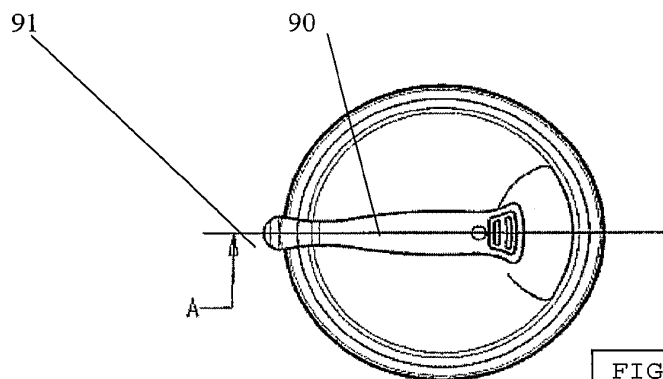


FIG 99A

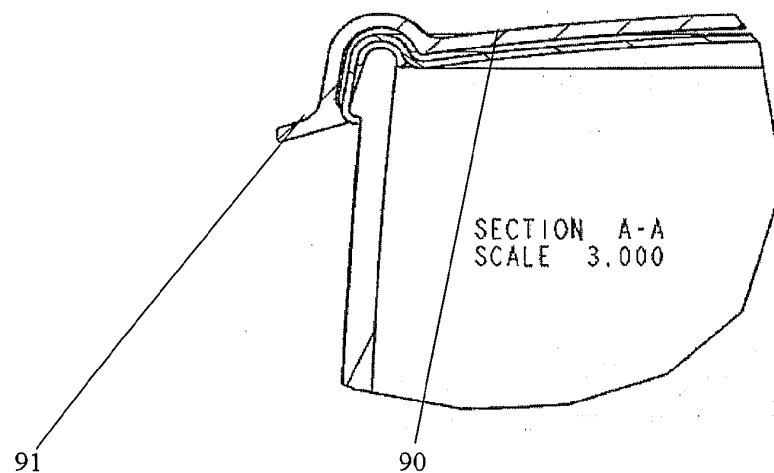


FIG 99

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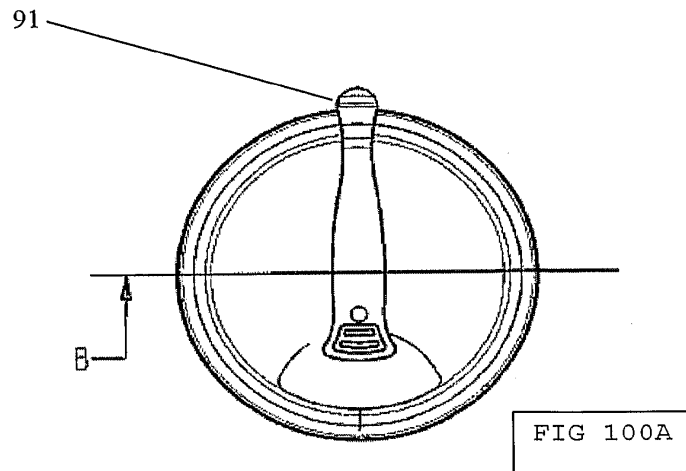
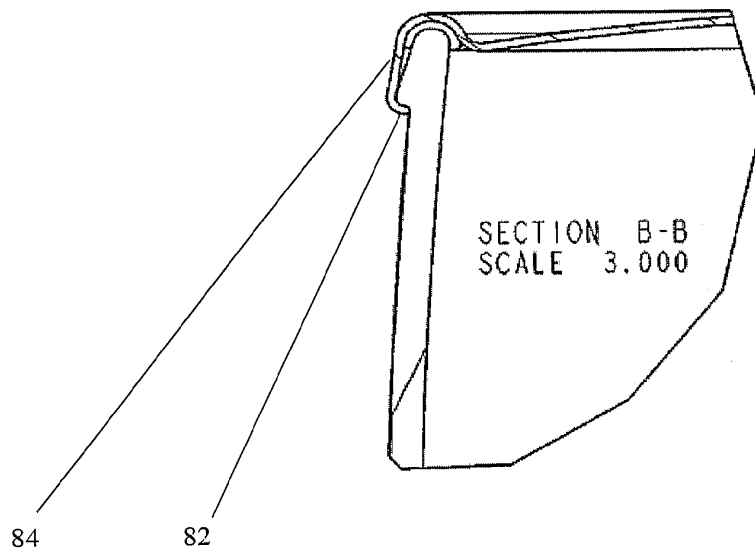
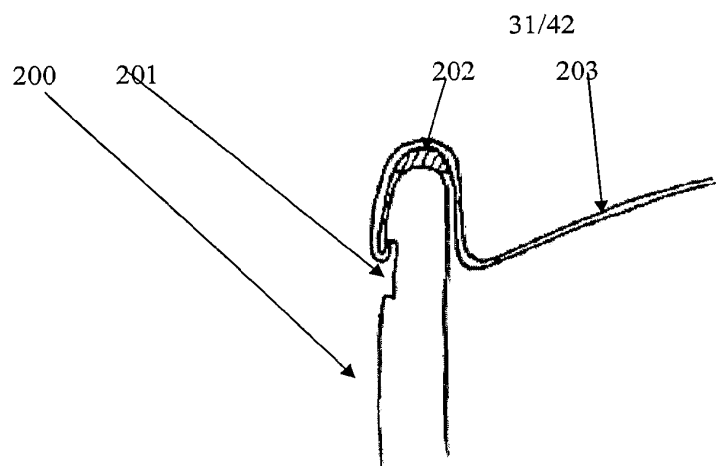


FIG 100



BEAD VARIATION 5

FIG 101

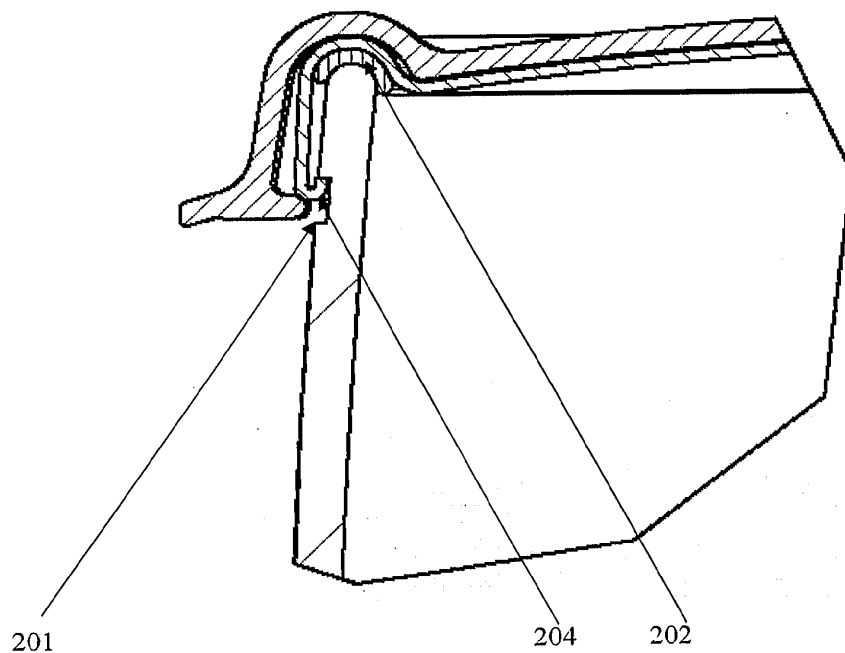


FIG 102

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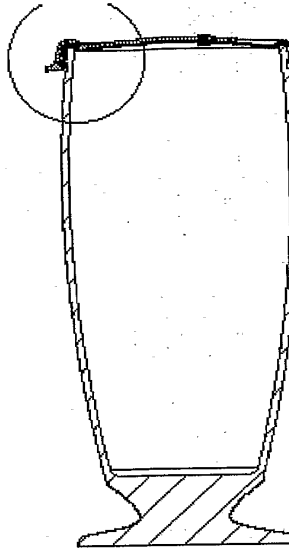


FIG 103

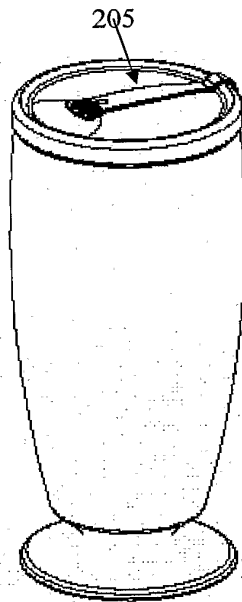


FIG 104

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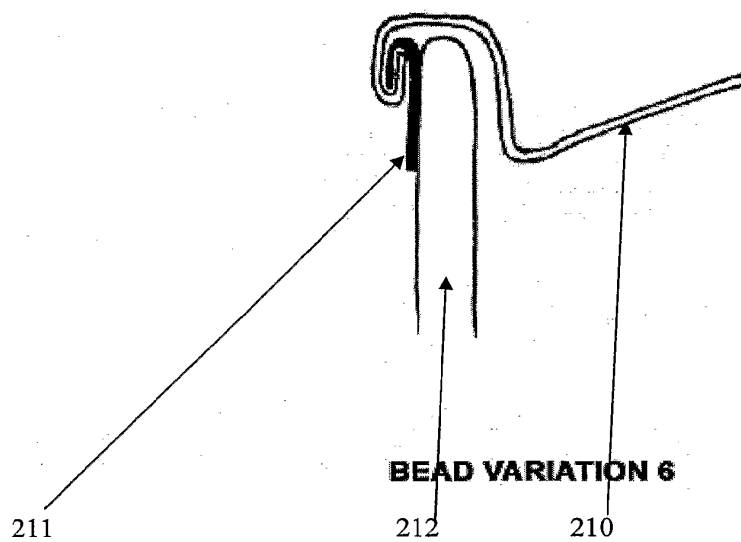


FIG 105

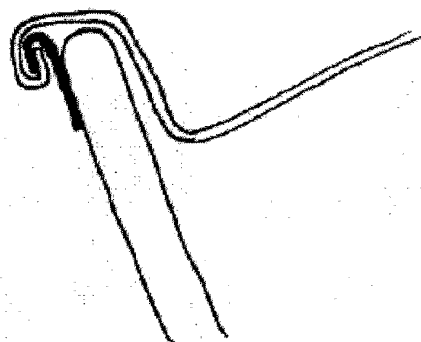
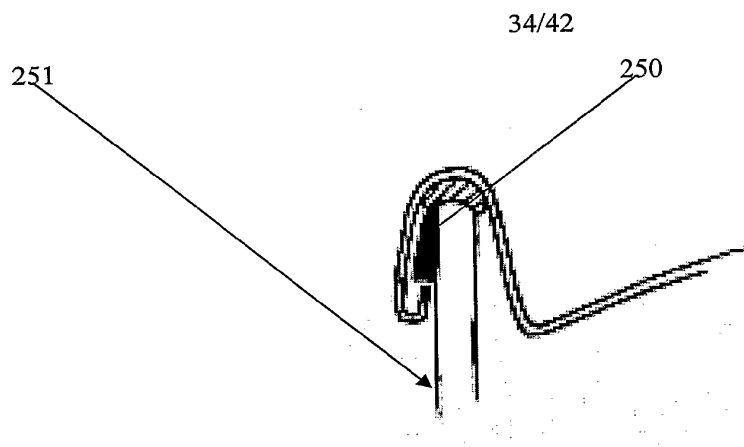
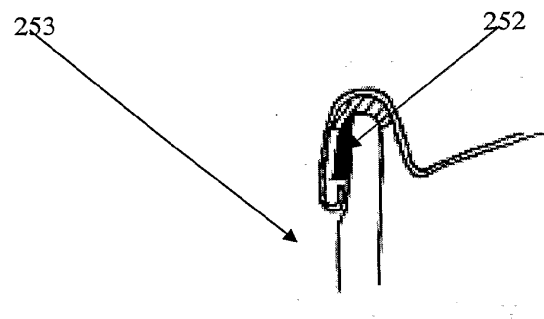
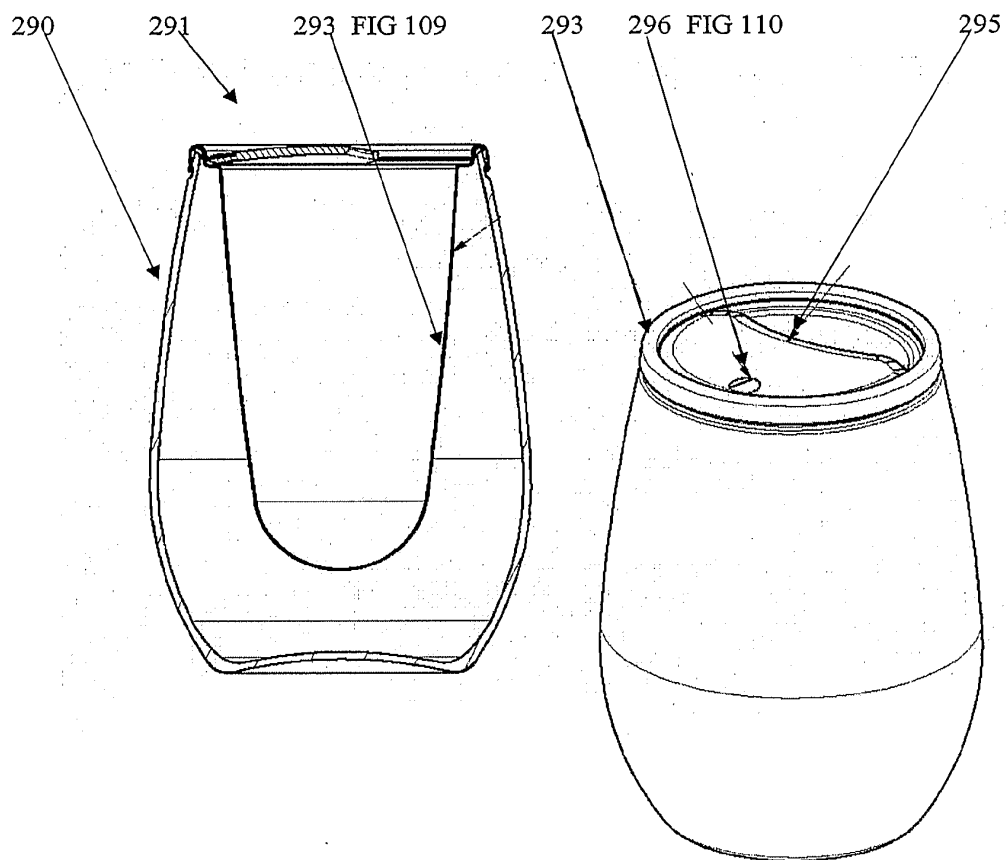
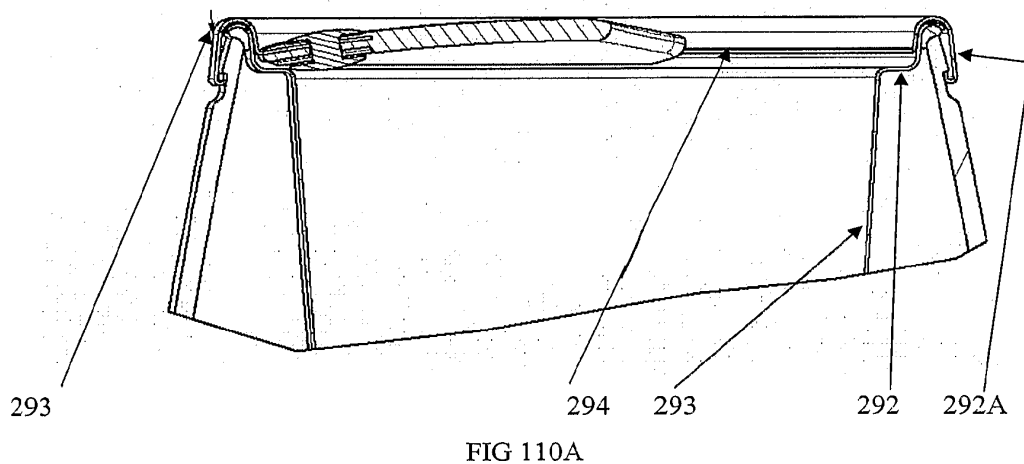


FIG 106



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Concept 3

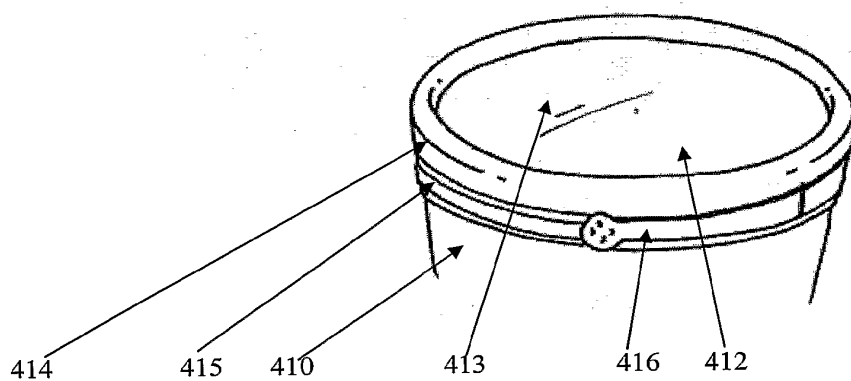


FIG 111

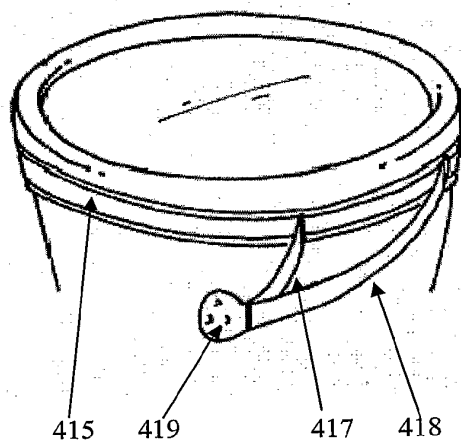
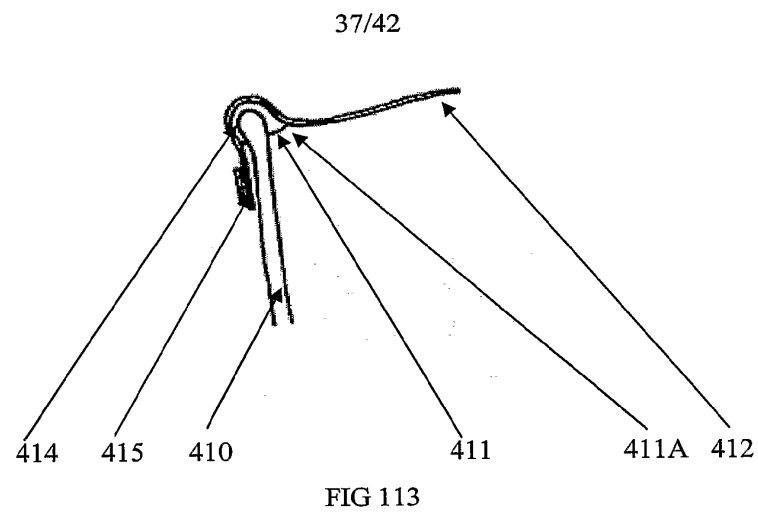
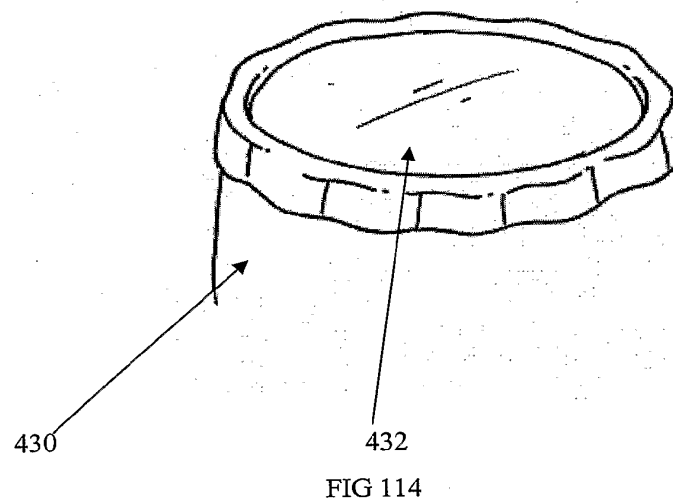


FIG 112



Concept 7



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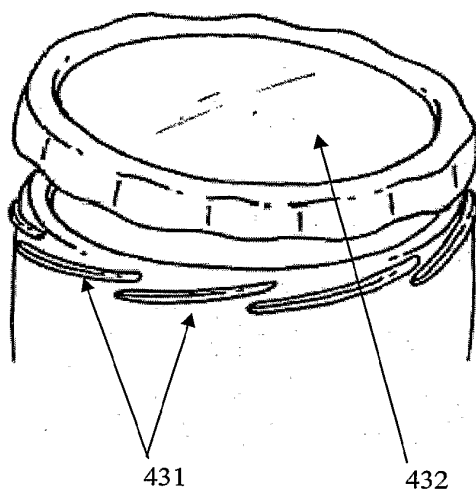


FIG 115

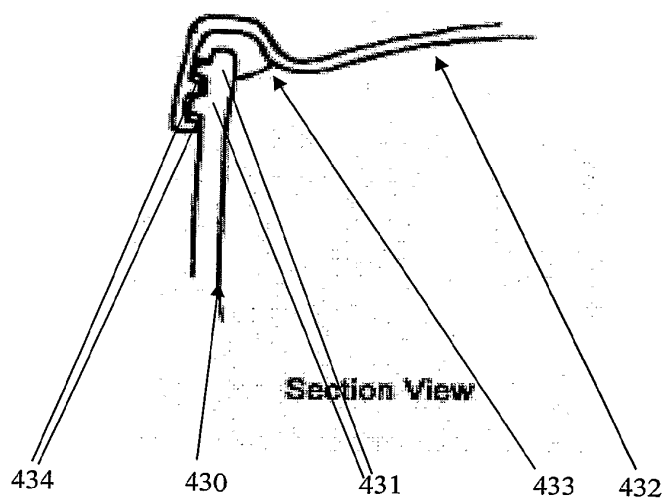


FIG 116

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Concept 8

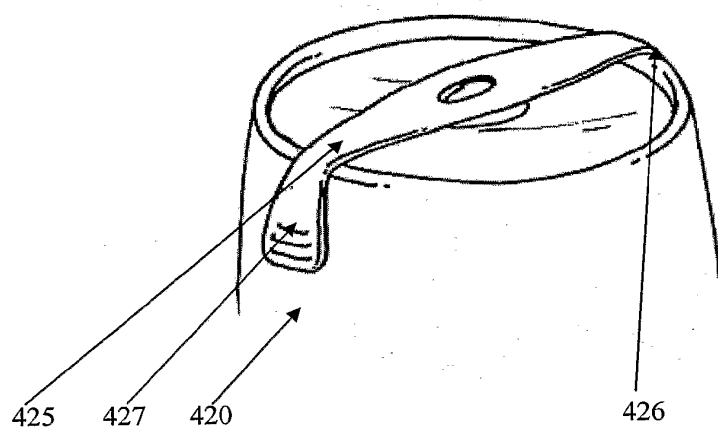


FIG 117

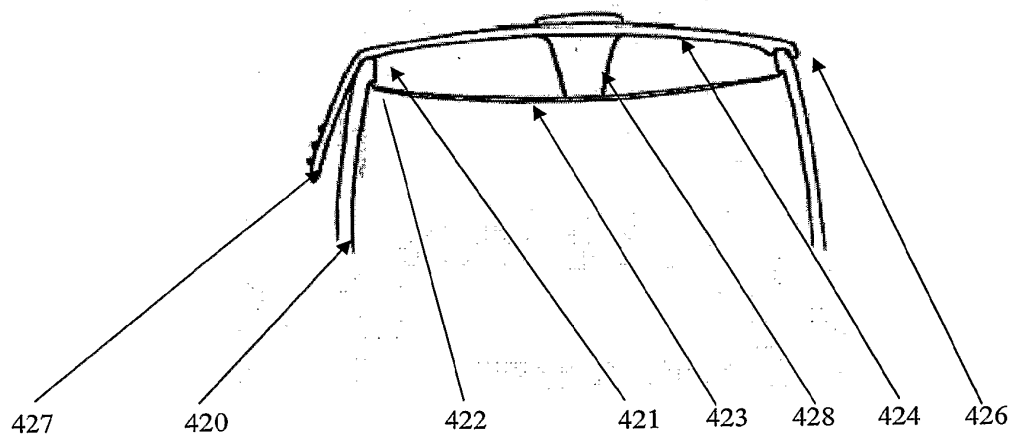


FIG 118

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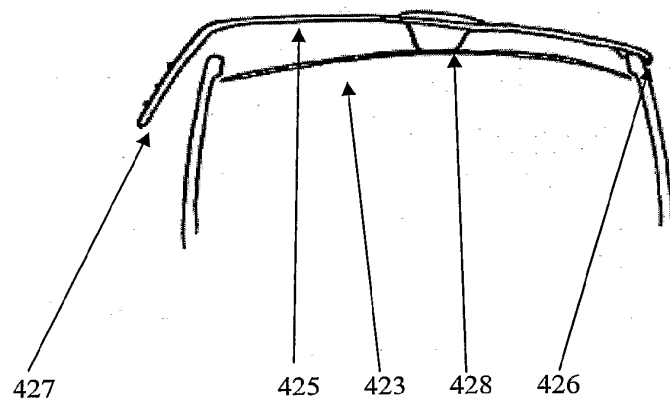


FIG 119

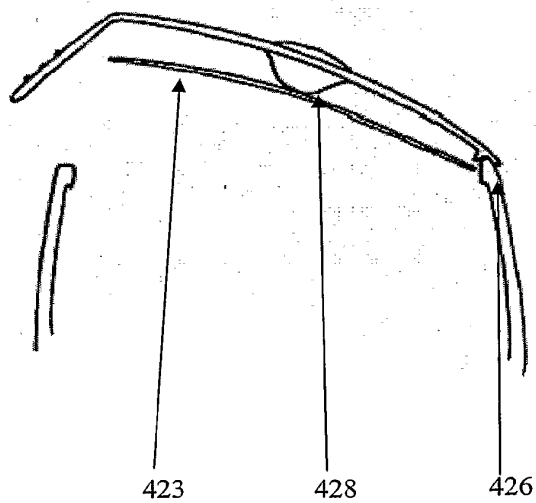


FIG 120

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Concept 10

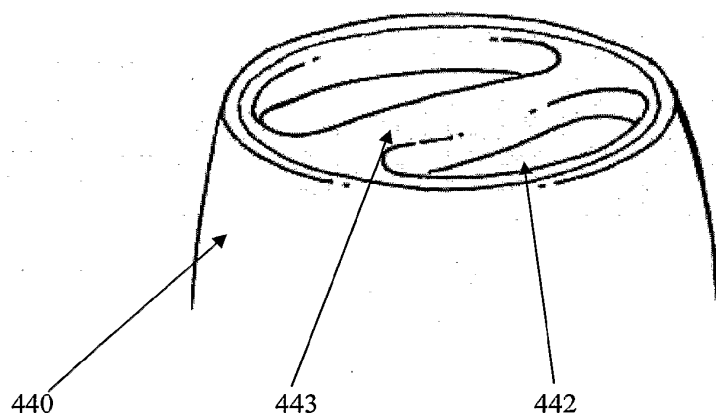


FIG 121

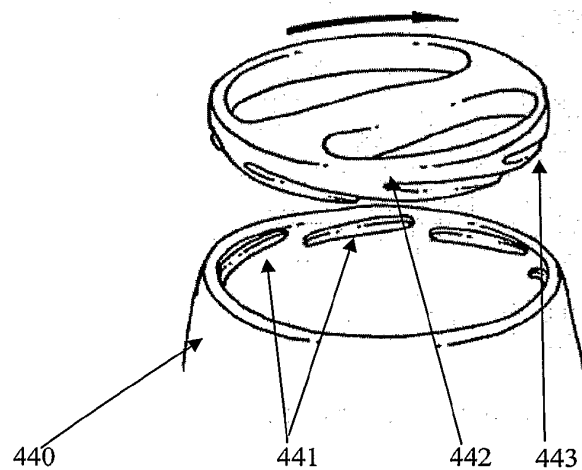


FIG 122

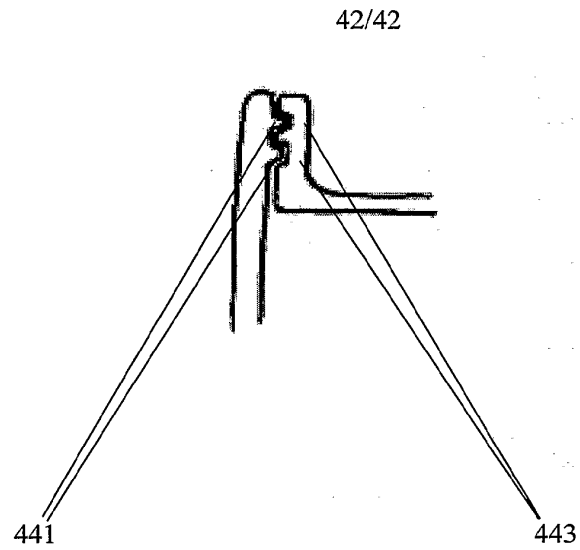


FIG 123

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2005/001350

A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl. ⁷ : A47G 19/22		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT, A47G 19/22, 23/02, key words COVER+, SEAL+, LID+, CAP+		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A X	DE 20205239 U (PAULI-BACH & POOL GMBH) 13 June 2002 Whole document	1-15 16
A	GB 2289252 A (H & A BOTTLERS LTD) 15 November 1995 Whole document	1-16
A	FR 2548004 A (FELICITE J F) 4 January 1985 Whole document	1-16
A	FR 2767795 A (LUCAS P) 5 March 1999 Whole document	1-16
☐ Further documents are listed in the continuation of Box C ☒ See patent family-annex		
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"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
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Date of the actual completion of the international search 11 October 2005		Date of mailing of the international search report 17 OCT 2005
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustrialia.gov.au Facsimile No. (02) 6285 3929		Authorized officer SARAVANAMUTHU PONNAMPALAM Telephone No : (02) 6283

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2005/001350

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member	
DE	20205239	NONE		
GB	2289252	NONE		
FR	2548004	NONE		
FR	2767795	AU	91656/98	WO 9911539
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.				
END OF ANNEX				



ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
18/506,811

RECEIPT DATE / TIME
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ATTORNEY DOCKET #
58822.5US05

Title of Invention

CONTAINER

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 2957

FILED BY Q Dismuke

PATENT CENTER # 63285761

FILING DATE -

CUSTOMER # 27683

FIRST NAMED
INVENTOR Merrilee Kick

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Alan Herda

Documents

TOTAL DOCUMENTS: 10

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
58822.5US05 - IDS 1449.pdf	2	Information Disclosure Statement (IDS) Form (SB08)	35 KB
Warning: This is not a USPTO supplied IDS fillable form. Data in the form cannot be automatically loaded to other USPTO systems.			
58822.5US05 IDS C5.pdf	5	Foreign Reference	447 KB
58822.5US05 IDS C6.pdf	6	Foreign Reference	510 KB
58822.5US05 IDS C1.pdf	23	Foreign Reference	1262 KB
58822.5US05 Information Disclosure Statement -	1	Transmittal Letter	19 KB

Transmittal.pdf

58822.5US05 IDS D1.pdf	3	Non Patent Literature	212 KB
58822.5US05 IDS C3.pdf	12	Foreign Reference	1594 KB
58822.5US05 IDS C2.pdf	23	Foreign Reference	2373 KB
58822.5US05 IDS C7.pdf	7	Foreign Reference	1954 KB
58822.5US05 IDS C4.pdf	79	Foreign Reference	2901 KB

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58822.5US05 IDS C3.pdf	C12399BE01D4E65398450C5624BC2F64DEAD43615A484F33B 63EEB31E1768DBB6D7E4A2EBC3B7C8B4A259046A664FE9524 F4D8AC071BA513573A884DC9A2204C
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



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PCT

(10) International Publication Number
WO 2005/049434 A1

(51) International Patent Classification⁷: **B65D 1/02**,
B29C 49/00

Ul. Korotynskiego 24/85, PL-02-123 Warszawa (PL).
TOBOROWICZA, Andrzej [PL/PL]; Ul. Hoza 42/49 m.
17, PL-00-681 Warszawa (PL).

(21) International Application Number:

PCI/PL2004/000092

(74) Common Representative: **LEWANDOWSKI, Dariusz**;
Ul. Korotynskiego 24/85, PL-02-123 Warszawa (PL).

(22) International Filing Date:

19 November 2004 (19.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

P.363595 20 November 2003 (20.11.2003) PL

(71) Applicant (for all designated States except US): **IN-
VENTO SPOLKA Z O.O.** [PL/PL]; Ul. Wilcza 50/52
lok. 706, PL-00679 Warszawa (PL).

(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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
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ZW.

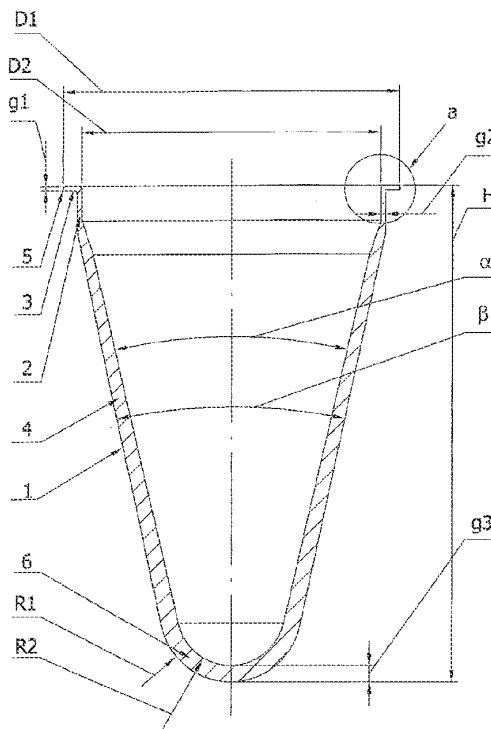
(72) Inventors; and

(75) Inventors/Applicants (for US only): **MILKOWSKI,**
Bogumil [PL/PL]; Ul. Wojskiego 28, PL-80-119
Gdansk (PL). **LEWANDOWSKI, Dariusz** [PL/PL];

(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),

[Continued on next page]

(54) Title: A PREFORM OF A PLASTIC CONTAINER PARTICULARLY FOR PACKAGING FOODSTUFFS



(57) Abstract: This invention relates to the preform to pro-
duce a plastic container for packaging foodstuffs, and espe-
cially to blow mould thin-walled containers which can be her-
metically closed with a metal lid by double seaming. The pre-
form (1) includes a body (4) and a convex hemispherical bot-
tom (6). The body (4) has a conical shape that flares towards a
cylindrical neck (2) surrounded by a flange (3) that terminates
in a thickened rim (5). Preferably, the angle (α) at which the
internal body surface (4) flares towards the cylindrical neck is
greater than the angle (β) at which the external body surface
(4) opens upwards, and the thickness (g2) of the cylindrical
neck (2) is less than the thickness (g3) of the bottom (6).



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, 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).

SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations 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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA,

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations
— of inventorship (Rule 4.17(iv)) for US only

Published:

— with international search report

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.

A preform of a plastic container particularly designed for packaging foodstuffs**The field of the invention**

This invention relates to the preform of a plastic container particularly designed for packaging foodstuffs. This preform is formed using the conventional injection moulding machinery and utilised to form plastic containers, such as cans, for packaging foodstuffs, and especially to blow mould thin-walled containers which can be hermetically closed with a metal lid secured to the container by seaming the lid flange on filling machines, without deforming the flange or the cylindrical neck under it.

The state of art

The Polish patent application no. P 336 680 A1 relates to a plastic preform designed for forming thin-walled containers. The preform has a threaded neck and a cylindrical body terminated with a convex hemispherical bottom. The body diameter of this preform is 0.5 to 0.85, and the body wall thickness is 0.08 to 0.18, of the neck diameter.

It has been known for some time how to form thin-walled containers terminated with a flange by blow moulding the conventional preform and then severing the top portion of the container including a threaded neck. In this way immense amounts of scrap are produced, which the result that the whole process is highly uneconomical. Furthermore, this method leaves much uncertainty about the reliability of the closure, including its tightness and resistance to pressures inside the container. The edge of the container flange may become nicked by cutting operations and its thickness may vary along the circumference, which is normal as the flange is blow moulded as a part of the side wall of a larger container.

In order for the closure of the plastic container to be tight under pressure, it would be best if the container was formed from the injection moulded preform by a stretch blow moulding process.

Patent EP 0482652B1 describes a cylindrical preform with a flat bottom, wherein the bottom is much thinner than the preform walls that gradually slightly part. Due to the fact that the flow of material is hindered, it is impossible to achieve the flange thickness that is below 0.3 mm. The preform flange is smooth and does not have a thickened rim.

Patent WO-A 83/01766 presents a preform, which is generally cylindrical in shape and slightly tapers in the downward direction; its walls and bottom have the same thickness. The flange is smooth and does not have a thickened rim. It has been noted in the document that it is impossible for one to achieve a good degree of orientation of the material in the flange of such a preform; hence, its strength is insufficient for good quality connection between the metal lid and the container.

The optimum solution for the cylindrical neck and the flange is to come as closely as possible to the dimensions of a metal container, while maintaining the best possible strength parameters. In this way,

the container formed from the preform by a stretch blow moulding process could be efficiently closed by seaming a metal lid, thereby providing a reliable closure for carbonated beverages under pressure. This invention brings us closer to solving this problem.

The summary of the invention

The subject preform for forming plastic containers has a conical shape with a convex hemispherical bottom. The body of the preform flares towards a cylindrical neck surrounded by a radially outwardly extended flange terminated in a thickened rim. The opening angle of the internal conical surface of the body is greater than the opening angle of the external conical surface of the body; hence, the bottom is the thickest part of the container body and the cylindrical neck is significantly thinner than the bottom. The inflow of the material to the neck space and then to the flange is easy. This is due to the fact that the bottom at the injection point is relatively thick, the walls are appropriately inclined and their thickness tapers in a favourable manner. The material flow velocity in the mould is relatively high during the forming process with the result that the time taken by the material to reach the preform peripheries, including the flange, is short and a decline in temperature of the flowing material is much lower, which allows for appropriate filling and orientation and ensures a far better flange strength. In this way, it is possible for the flange thickness to be less than 0.3 mm, which is required for good quality seaming of the metal lid. The best seaming quality is achieved when there is a gradual change in thickness between the cylindrical neck and the flange and the transition between these two elements is arched.

Preferably, the ratio of the flange thickness to the cylindrical neck thickness should be approximately 0.8.

Furthermore, in order to ensure that the container metal lid fits precisely into the flange rim, it is desirable that the angle between the flange and the cylindrical neck is $180^\circ - \gamma$, where γ lies within a range of 60° to 90° , and most preferably equals 78° .

In order for the seaming operation to ensure a good quality connection between the pressure container and the metal lid, the flange should terminate in a thickened annular rim showing on one or both sides of the flange ending. The height of the annular thickened rim should vary from 1.1 to 2.0 of the flange thickness.

The flange in the axial sectional view may also have a rectangular rim whose height is generally equal to the flange thickness. Such flanges can be used in containers where there is no internal pressure involved. In such a case, the angle γ is preferably 90° .

The brief description of the drawings

The present invention has been described in greater detail in the figures below. We believe that these figures illustrate the most efficient version of the preform. Fig. 1 shows an axial sectional view of the preform. Fig. 2 shows an enlarged picture of the preform flange with a double-sided annular thickened rim. Fig. 3 shows an enlarged picture of the preform flange with a one-sided annular

thickened rim on top of the flange. Fig. 4 shows an enlarged picture of the preform flange with a one-sided annular thickened flange rim underneath the flange. Fig. 5 shows an enlarged picture of the preform flange with rectangular flange rim.

The most efficient version

As shown in Fig. 1, the preform 1 of a plastic container particularly designed for packaging foodstuffs, includes a body 4 with a convex hemispherical bottom 6. The body 4 has a conical shape that opens upwards and ends with a cylindrical neck 2 surrounded by a radially outwardly extended flange 3 terminated in a thickened rim 5. The angle α at which the internal body surface 4 opens upwards is greater than the angle β at which the external body surface 4 opens upwards. In the axial sectional view, the internal radius R2 of the bottom 6 of the body 4 is less than the corresponding external radius R1. The thickness of the body 4 decreases gradually starting from the bottom 6; therefore, the thickness g2 of the cylindrical neck 2 is significantly less than the thickness g3 of the bottom 6. The flange thickness g1 is less than 0.3 mm.

Fig. 2 shows an enlarged rim 5 of the flange 3 of the preform 1 which is deviated from the cylindrical neck at an angle of $180^\circ - \gamma$, where γ lies within a range of 60° to 90° . The flange 3 terminates in an annular thickened rim 5a on both its sides. The height h of the thickened rim 5a varies from 1.1 to 2.0 of the flange thickness g1.

Fig. 3 shows an enlarged rim 5 of the flange 3 of the preform 1 which is deviated from the cylindrical neck at an angle of $180^\circ - \gamma$, where γ lies within a range of 60° to 90° . The flange 3 terminates in a one-sided annular thickened rim 5b on the top of it. The height h of the thickened rim 5b varies from 1.1 to 2.0 of the flange thickness g1.

Fig. 4 shows an enlarged rim 5 of the flange 3 of the preform 1 which is deviated from the cylindrical neck at an angle of $180^\circ - \gamma$, where γ lies within a range of 60° to 90° . The flange 3 terminates in a one-sided annular thickened rim 5c underneath it. The height h of the thickened rim 5c varies from 1.1 to 2.0 of the flange thickness g1.

Fig. 5 shows an enlarged rim 5 of the flange 3 of the preform 1 which is deviated from the cylindrical neck at an angle of $180^\circ - \gamma$, where γ lies within a range of 60° to 90° . The flange 3 terminates in a rectangular rim 5d whose height h is generally equal to the flange thickness g1.

The preform 1 as shown in Fig.1 with external diameter D1 and height H is made of polyethylene terephthalate (PET), a thermoplastic material specifically designed for packaging foodstuffs. When using the subject preform to blow mould a thin-walled container, the diameters D1 and D2 of the cylindrical neck 2 and the flange 3 do not change. A relatively small flange thickness allows for a better fit of the metal lid at the first stage of the double seaming process. The thickening of the flange rim facilitates the holding of the preform during the blow moulding operation and allows for further tightening of the metal lid against the pressure container body at the second stage of the double seaming process.

Claims

1. A preform of a plastic container particularly designed for packaging foodstuffs comprising a container body with a convex hemispherical bottom, wherein the body (4) has a conical shape that opens upwards and ends with a cylindrical neck (2) surrounded by a flange (3) terminated in a rim (5).
2. The preform according to claim (1) is characterised by that the angle (α) at which the internal body surface (4) opens upwards is greater than the angle (β) at which the external body surface (4) opens upwards, and the thickness (g2) of the cylindrical neck is less than the thickness (g3) of the bottom (6).
3. The preform according to claim (2) is characterised by that the thickness (g1) of the flange (3) surrounding the cylindrical neck (2) is less than 0.3 mm and that the wall thickness (g1) is less than or equal to the wall thickness (g2).
4. The preform according to claim (1) is characterised by that the transition between the cylindrical neck (2) and the surrounding flange (3) is arched.
5. The preform according to claim (1) is characterised by that the flange (3) is deviated from the cylindrical neck (2) at an angle of $(180^\circ - \gamma)$, where (γ) lies within a range of 60° to 90° .
6. The preform according to claim (1) is characterised by that the rim (5) of the flange (3) has a annular thickening (5a) on top and underneath it, whose height (h) varies from 1.1 to 2.0 of the flange thickness (g1).
7. The preform according to claim (1) is characterised by that the rim (5) of the flange (3) has a ring-like one-sided thickening (5b) on top of it, whose height (h) varies from 1.1 to 2.0 of the flange thickness (g1).
8. The preform according to claim (1) is characterised by that the rim (5) of the flange (3) has a ring-like one-sided thickening (5c) underneath it, whose height (h) varies from 1.1 to 2.0 of the flange thickness (g1).
9. The preform according to claim (1) is characterised by that the rim (5) of the flange (3) has a rectangular ending (5d) whose height (h) is generally equal to the flange thickness (g1).

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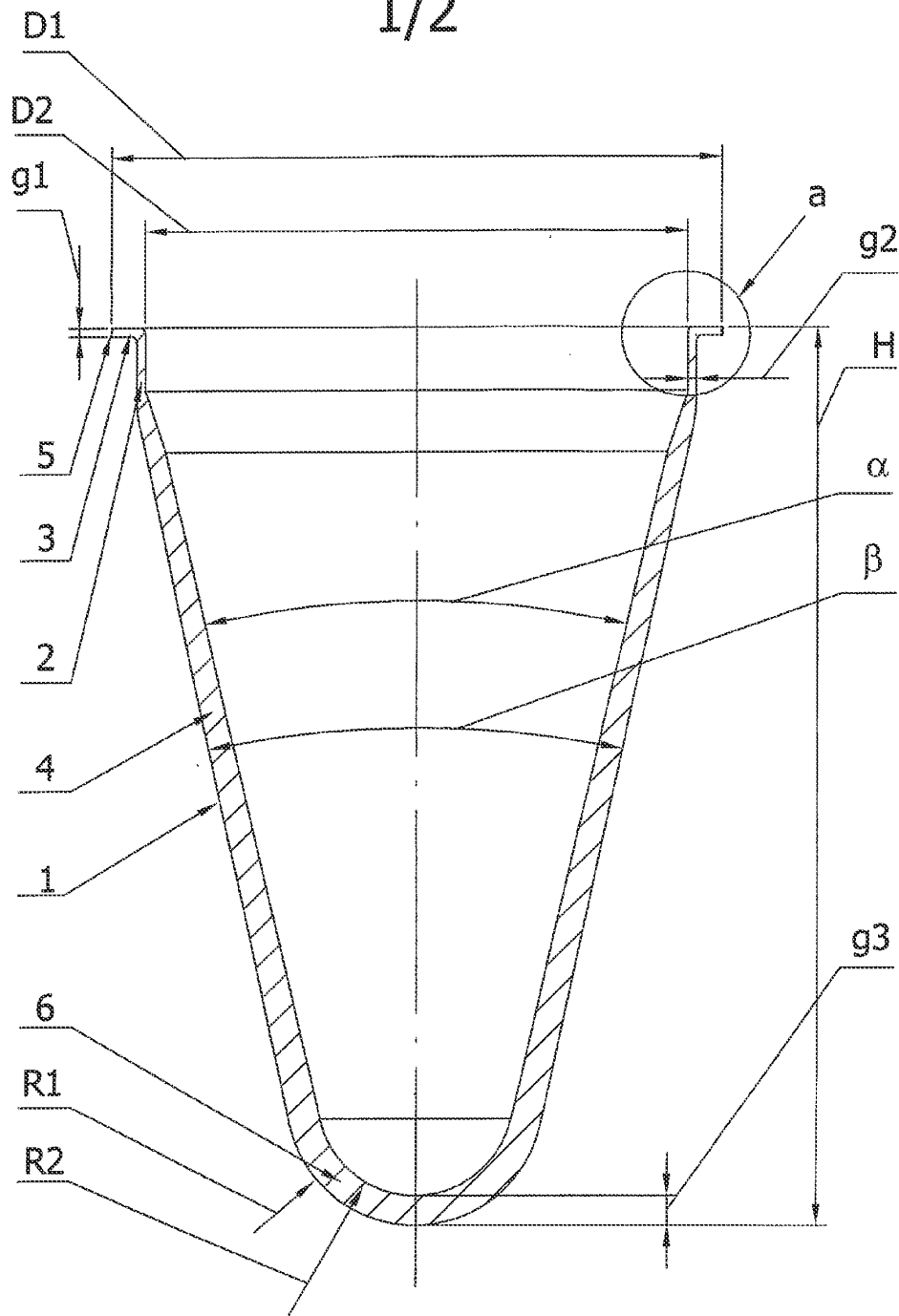


FIG. 1

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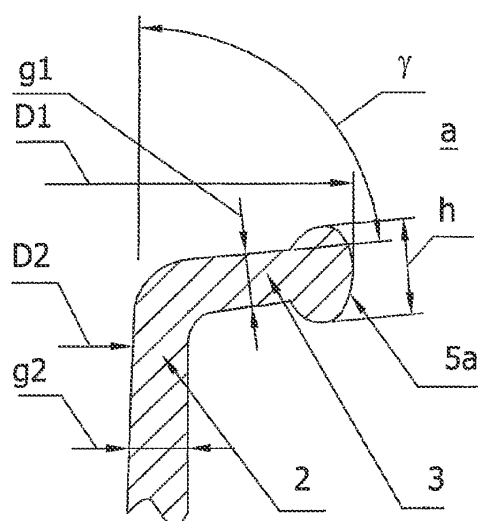


FIG. 2

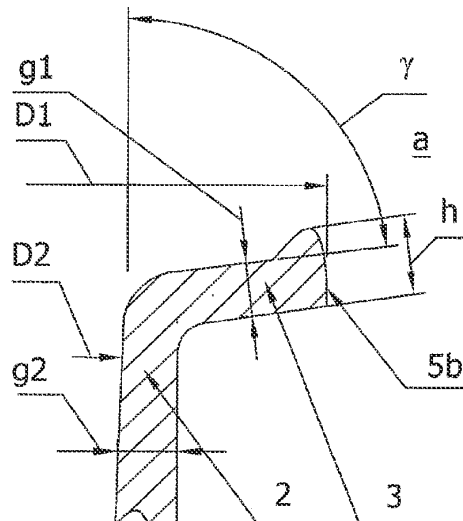


FIG. 3

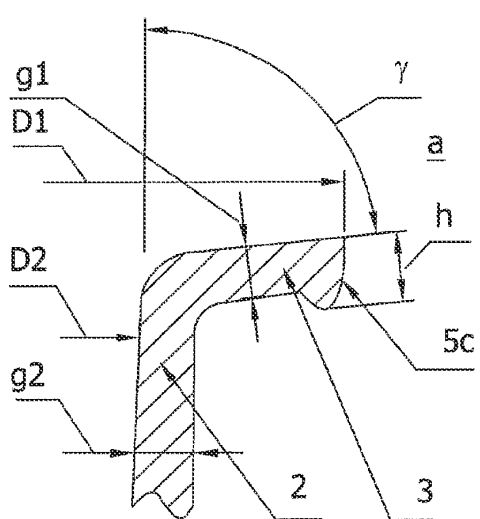


FIG. 4

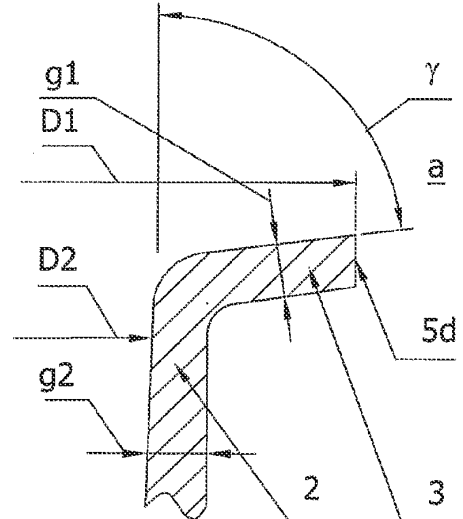


FIG. 5

INTERNATIONAL SEARCH REPORT

In national Application No
PCT/PL2004/000092

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 B65D1/02 B29C49/00		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 B65D B29C		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 751 035 A (MCHENRY ET AL) 14 June 1988 (1988-06-14)	1,2,4,5,9
Y	column 28, line 34 - line 45 column 29, line 12 - line 23	3,6-8
X	WO 83/01766 A (THE CONTINENTAL GROUP, INC) 26 May 1983 (1983-05-26) cited in the application page 4, line 19 - page 5, line 3; figure 2	1,5,9
Y	EP 0 482 652 A (NISSEI ASB MACHINE CO., LTD) 29 April 1992 (1992-04-29) cited in the application claims 1-4	3
-/-		
☒ Further documents are listed in the continuation of box C. ☒ Patent family members are listed in annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "S" document member of the same patent family		
Date of the actual completion of the international search 9 March 2005		Date of mailing of the international search report 18/03/2005
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Ingelgard, T.

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INTERNATIONAL SEARCH REPORT

i Application No
PCT/PL2004/000092

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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A	US 5 833 085 A (VALYI ET AL) 10 November 1998 (1998-11-10) column 1, line 37 - line 43 column 3, line 19 - line 29; figure 2 -----	6-8

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Inventor's Application No
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(71)申請人：范寧 (中華民國) (TW)

臺中市南屯區五權西路 2 段 660 號 10 樓之 3

(72)設計人：范寧 (TW)

(56)參考文獻：

TW D141109

TW D164058

審查人員：吳珀昭

圖式數：4 共 5 頁

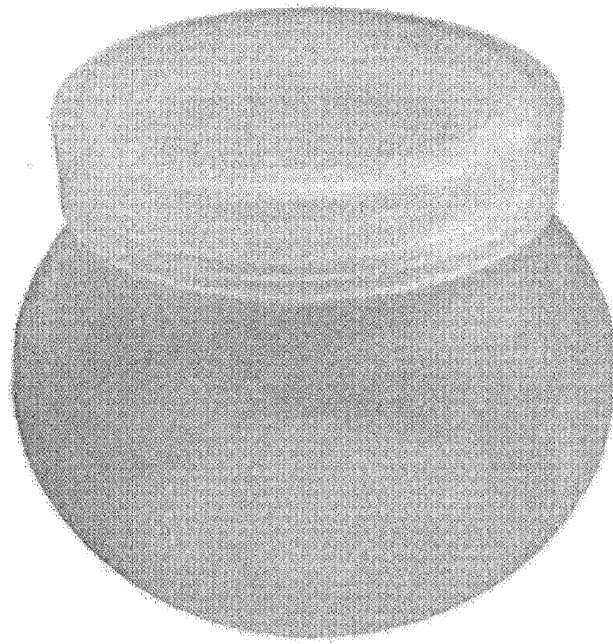
(54)名稱

容器瓶

代表圖：

D180616

TW D180616 S



立體圖(代表圖)

設計專利說明書

(本說明書格式、順序，請勿任意更動，※記號部分請勿填寫)

※ 申請案號： 105 303478

※LOC分類：0901 B0421

※ 申請日： 105. 6. 17

【設計名稱】(中文/英文)

容器瓶

【物品用途】

【0001】 本設計係一種用於包裝食品之「容器瓶」。

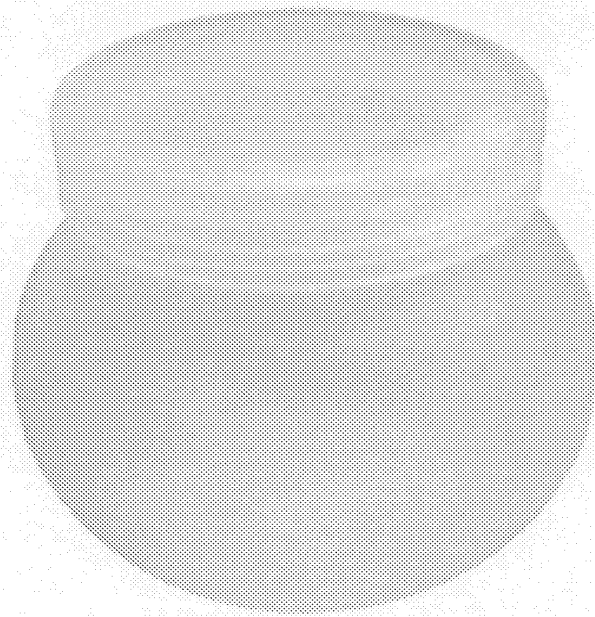
【設計說明】

【0001】 本設計包括一個球型的瓶體，瓶體底部切平並向內側中心凸起，讓瓶子可以穩定站立；瓶體上方以自然弧度向上延伸為瓶頸，瓶頸外側增加螺牙設計；及一個扁短的圓柱型蓋子，覆設在與瓶體共軛的瓶頸外側，能兼具瓶子之使用功能，如上述「容器瓶」化解上表面大面積的單調感，整體外觀保有渾圓的球形外觀和線條美感，呈現出一種圓融樸實的視覺感受，完全不同於以往之造形設計，擺脫現有者之設計限制，除能顯現創作人獨具之創意與構思外，亦能予人以自然順暢、簡潔大方之特別感受。

【0002】 後視圖、左側視圖、右側視圖與前視圖相同省略後視圖、左側視圖及右側視圖。

圖式

(指定之代表圖，請單獨置於圖式第1頁)



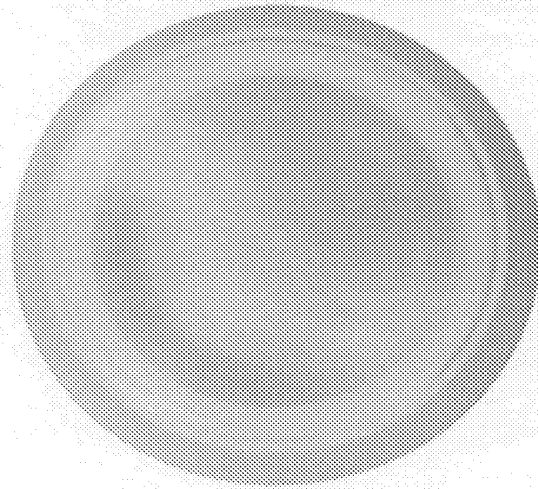
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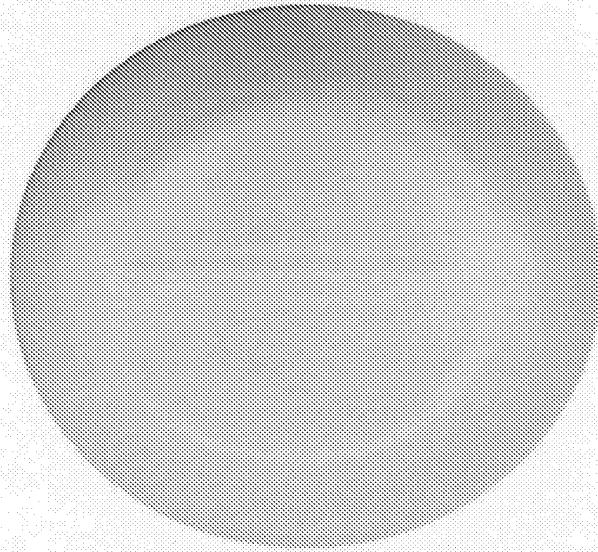


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PATENT ABSTRACTS OF JAPAN

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B65D 1/16

B65D 81/20

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(71)Applicant : DAINIPPON PRINTING CO LTD

(22)Date of filing : 19.07.1991

(72)Inventor : YAMADA KANEO

MACHINAGA YOUJI

NANJO KATSUYA

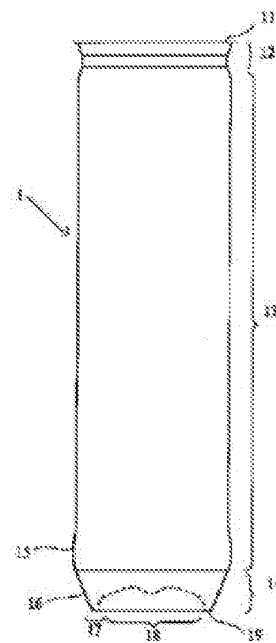
NOSE HIROAKI

(54) PLASTIC BLOW-MOLDED CONTAINER

(57)Abstract:

PURPOSE: To provide a plastic blow-molded container the bottom part of which is not deformed, and which can maintain a favorable self-standing property even when the internal pressure of the container rises or even under a high temperature exceeding a normal temperature.

CONSTITUTION: The subject container substantially has a cylindrical body 13, bottom part 14, and flange 11 which constitutes an



opening, and the bottom part 14 consists of a central recessed part 18 and an annular heel part 17 which surrounds the central recessed part 18. On a container wall surface at the central recessed part 18, a plurality of polygonal pyramid shaped recessed parts, of which the vertexes face inward, are formed in such a manner that they are continuously arranged annularly such as surrounding the central part of the central recessed part while sharing a part of the ridges, and an outer wall surface 16 of the heel part is a conical curved surface of which the diameter becomes smaller as it becomes lower.

Disclaimer:

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Notes:

1. Untranslatable words are replaced with asterisks (***).
2. Texts in the figures are not translated and shown as it is.

Translated: 06:50:52 JST 02/01/2013

Dictionary: Last updated 01/18/2013 / Priority:

FULL CONTENTS

[Claim(s)]

[Claim 1] A substantially cylindrical drum section.

A bottom part.

A flange which constitutes an opening.

In a plastic blow molding container provided with the above,

The aforementioned bottom part consists of a center recessed part and an annular heel section which encloses the aforementioned center recessed part, and, [a container wall surface in the aforementioned center recessed part] A plastic blow molding container which arranges annularly continuously, is formed so that a concave part of two or more shape of a polygonal pyramid which turned a vertex to an inner direction may share a part of the ridge line and may surround the central part of the aforementioned center recessed part, and is characterized by an external wall surface of the aforementioned heel section being a conical shape curved surface whose diameter is reduced caudad.

[Claim 2] A plastic blow molding container, wherein a polygonal-pyramid concave part of the above consisted of a concave part of two kinds of pyramid form and a concave part of the two aforementioned kinds of pyramid form has arranged annularly alternately in the plastic blow molding container according to claim 1.

[Claim 3] A plastic blow molding container, wherein an internal surface of the aforementioned heel section which follows the aforementioned center recessed part is a concave curve from a lower end part of the aforementioned heel section used as a grounding part in the plastic blow molding container according to claim 1 or 2.

[Claim 4] A plastic blow molding container, wherein a diameter reduction part is formed in the lower part of the aforementioned flange in the plastic blow molding container according to any one of claims 1 to 3.

[Claim 5] A plastic blow molding container, wherein the aforementioned container consists of polyethylene terephthalate in the plastic blow molding container according to any one of claims 1 to 4.

[Claim 6] A plastic blow molding container characterized by the aforementioned container being what cuts off the regio-oralis side of a primary blow molding object which carries out biaxial stretching blow molding of the parison in the plastic blow molding container according to any one of claims 1 to 5.

[Detailed Description of the Invention]

[0001]

[Industrial Application] In the present invention, a lid which consists of aluminum etc. especially is

rolled and fastened to a flange provided to an opening about a plastic blow molding container which has a flange shape opening of the substantially same path as a drum section. Therefore, it can be preferably used as a resisting pressure container, even if it carries out container-internal-pressure power largely, the bottom configurations do not change, but it is related with a plastic blow molding container which maintains good independence nature.

[0002]

[Description of the Prior Art]In recent years, the can made from a plastic (container) attracts attention as a substitute of a metal can. As shown in Fig.7, the can made from a plastic generally The cylindrical drum section 71, It consists of the blow molding container 7 made from a plastic which has the bottom part 72, the flange 73 which constitutes an opening, and the lower region 74 of a flange, and the metal lids 76, and the lid 76 is wound around the aforementioned flange 73 by the double seam 75, and is fastened, and a can is sealed.

[0003]By the way, since high internal pressure is applied to a container when using as containers, such as a carbonated drink and a tennis ball, it is necessary to give strength to a container. Since the orientation effect by biaxial stretching blow molding cannot expect the bottom part in particular of a container so much, deformation does not arise with high internal pressure, but it needs to be taken as the shape which can secure independence nature.

[0004]As a bottom part of such a blow molding container made from a plastic, as previously shown also in Fig.7, let the central part of the bottom part be the so-called bottom part of the champagne container mold shape which makes the circumference of this center recessed part an annular heel section as a concave in the upper part in many cases. [however only by considering it as such shape simply according to research of the inventors] When exposed for a long time under the elevated temperature which is 60-70 degrees C, for example beyond as for ordinary temperature when container internal pressure is large, it turned out that the concave part of a bottom part may be reversed, and it is not reversed, a bottom part also deforms **, and independence nature may be impaired.

[0005]Therefore, even if the object of this invention carries out internal pressure of a container largely, it is providing the plastic blow molding container which a bottom part's cannot deform but can maintain good independence nature also under the elevated temperature beyond ordinary temperature.

[0006]

[Means for solving problem]In view of an aforementioned problem, as a result of research, intensively, [the inventors] While making shape of the bottom part of a container into the structure which consists of a center recessed part and an annular heel section which encloses the center recessed part fundamentally and making the external wall surface part of the heel section into the curved surface of conical shape, It found out that it could be considered as the container excellent in independence nature, without deformation arising in a container bottom even if it carries out container internal pressure largely if two or more concave parts of a specific structure are formed in the container wall surface which forms a center recessed part, and thought out to the present invention.

[0007][namely the plastic blow molding container of the present invention which has substantially a cylindrical drum section, a bottom part, and a flange that constitutes an opening] The aforementioned bottom part consists of a center recessed part and an annular heel section which encloses the aforementioned center recessed part, and, [the container wall surface in the aforementioned center recessed part] It arranges annularly continuously and is formed so that the concave part of two or more shape of a polygonal pyramid which turned the vertex to the inner direction may share a part of the ridge line and may surround the central part of the aforementioned center recessed part, and the external wall surface of the aforementioned heel section is a conical shape curved surface whose diameter is reduced caudad.

[0008]

[Working example]The present invention is described in detail with reference to an accompanying drawing below.

[0009]Fig.1 is a side view showing the blow molding container by one working example of the present invention. The blow molding container 1 serves as substantially the flange 11 formed in the open end, and the diameter reduction part 12 formed in the lower region of the flange 11 from the cylindrical drum section 13 and the bottom part 14.

[0010]The flange 11 formed in the open end serves as a part to which a cover material is attached so that it may mention later, and it is substantially extended vertically to the axial direction of a container. Since it is preferable to attach a cover material by double winding up when carrying out container internal pressure largely, this flange 11 is formed so that it may have the suitable thickness for double winding up, strength, and rigidity. Specifically, it is good to make the draw ratio in the flange 11 into four to 6 times. In less than 4 times, strength of the flange 11 cannot be deteriorated and a draw ratio cannot perform good double winding up. Since it will be closing in and rigidity will become too much largely on the other hand if the flange 11 is made into the draw ratio which exceeds 6 times, it is difficult to perform too good winding up.

[0011]Since the lower region of the flange 11 produces neither a crack nor deformation when a flange is rolled and fastened, it needs to improve rigid nature. For this reason, in this example, the diameter reduction part 12 is formed in the lower part of the flange 11, and the rigid nature near an opening is improved. The draw ratio in the diameter reduction part 12 is good to take 3 or more times for less than 6 times. Rigid nature with a sufficient draw ratio which can prevent the deformation at the time of thickness becoming thin too much, and rolling and fastening a flange when thickness became too much largely, elasticity was deteriorated in less than 3 times, and it was easy to produce a crack and the draw ratio was made into 6 or more times, etc. is not obtained. It is good to mold this diameter reduction part 12 into thickness from the drum section 13. The rigid nature of this portion improves more by this, and a crease and deformation of the opening at the time of sealing as a can can be prevented. By the opening state before winding up, an opening, especially the flange cannot receive deformation from outside easily, and transportation thru/or the handling in line feed become easy.

[0012]The drum section 13 has become cylindrical substantially and has the expanding part 15 into the portion immediately on the bottom part 14. The draw ratio of the drum section 13 is good to consider it as 6 or more times. It does not become a container which has sufficient resistance to pressure as a draw ratio is less than 6 times. Improvement in the mechanical strength by an orientation effect is not obtained so much, either, and is not preferable. A weight saving is not made, either. Although the expanding part 15 provided into the portion immediately on the bottom part 14 is formed for reinforcement, the path of this expanding part 15 is good to suppose that it is substantially the same as the outer diameter of the flange 11 provided to the opening. If it does in this way, it will enable the expanding part 15 to arrange and display two or more containers, without becoming obstructive.

[0013]The bottom part 14 consists of the center recessed part 18 and the annular heel section 17 which encloses this center recessed part 18. The external wall surface 16 of the heel section 17 is a conical shape curved surface whose diameter is reduced caudad.

A lower end part of the heel section 17 turns into the annular grounding part 19.

On the other hand, although the center recessed part 18 is mentioned later in detail, it is formed inside the annular grounding part 19.

It is a concave fundamentally in an inner direction.

Thus, the external wall surface 16 of the heel section 17 is not made into the shape where it expanded on the radial-direction outside, but if it is a conical shape curved surface whose diameter is reduced caudad slimly, when displaying two or more containers, it can arrange efficiently.

[0014]Fig.2 is the plan view which looked at the bottom part 14 of the container shown in Fig.1 from

the lower part along the axial direction, and Fig.3 is an A-O-B cross sectional view in Fig.2.

[0015]Although the lower end part of the heel section 17 turns into the annular grounding part 19 as above-mentioned, the internal surface 20 of this heel section 17 serves as a concave, and is in the center recessed part 18 continuously smoothly. Thus, if the internal surface 20 of the heel section 17 is made into the concave, even if it carries out container internal pressure largely, a center recessed part will not be reversed.

[0016]The concave part of the shape of two or more polygonal pyramid is continuously formed in the container wall in the center recessed part 18. In this example, as shown in Fig.2, the concave part of two kinds of pyramid form is formed continuously. That is, a first concave part is concave part abcd-e (and joint concave part with this), and this is a concave part which consists of a side surface of the pyramid (the vertex e is placed at the method of the inside of a container) which uses the quadrangle abcd as a bottom surface and sets a vertex to e. In this first concave part, the surface abe, the surface ade, the surface bce, and the surface dce are a plane (namely, triangle) substantially, respectively, and the ridgeline bc and the ridgeline dc are the portions which have come out of the container caudad. The portion of the ridgeline bad is placed at the lateral part of the center recessed part 18 so that a round shape may be drawn substantially.

[0017]A second concave part is concave part fghi-j (and joint concave part with this), and this is a concave part which consists of a side surface of the pyramid (the vertex j is placed at the method of the inside of a container) which uses the quadrangle fghi as a bottom surface and sets a vertex to j. In this second concave part, the surface fgj, the surface fij, the surface ghj, and the surface ihj are a plane (namely, triangle) substantially, respectively, and the ridgeline fg and the ridgeline fi are portions which overlap the ridgeline bc of a previous first concave part, and the ridgeline dc.

[0018]In the container of this example, the above-mentioned first concave part and the second concave part arranged continuously alternately, and have surrounded the center portion 21 of the bottom part so that Fig.2 may show. In [so that Fig.2 and Fig.3 may show] these bottom configurations, Since the container is arranged alternately circumferentially and the portion (portion which hits the line aec) which serves as a convex most in a first concave part in an inner direction, and the portion (portion which hits the line fjh) which serves as a convex most in a second protruding part in an inner direction are extending the line radiately, a container bottom will be reinforced isotropic. Since all the concave parts provided by the wall surface of the center recessed part 18 are the concave parts of the pyramid form which turned the peak to the inner direction as mentioned above, it is not outside reversed even if internal pressure is large.

[0019]Therefore, if it is the bottom structure which was mentioned above, even if it carries out internal pressure of a container largely, under the elevated temperature beyond ordinary temperature, the center recessed part 18 being reversed and the grounding part 19 will be distorted, and independence nature will not be impaired.

[0020]The portion (portion which is equivalent to the vertex j of a pyramid) which is placed at an inner direction most in a second protruding part is placed up along the axial direction of a container rather than the center section 21 of the center recessed part 18 so that Fig.3 may show. Therefore, when this container is used as the container for tennis balls, as shown in Fig.3, it will be easy to be settled and the tennis ball 22 will be ****(ed) in two or more ridgeline parts (line h-j and the same portion as it) of the concave part of second pyramid form.

[0021]Although it has structure which arranged alternately every eight of the first pyramid form concave part mentioned above and a second pyramid form concave part, respectively in this example, the present invention may change suitably the size and number not only of this but pyramid form concave parts. It is good also as a concave part which does not have to consider it as pyramid form as the concave part furthermore provided to the container wall of the center recessed part of a bottom part was mentioned above, and consists of side surfaces, such as six-sided a pentagonal pyramid, a pyramid, etc. It is good also as composition which combined six-sided a pyramid, a pentagonal pyramid, a pyramid, etc. suitably.

[0022]Next, it describes about the manufacturing method of the plastic blow molding container 1 mentioned above.

[0023]Fig.4 is a cross sectional view showing an example of the parison which can manufacture the plastic blow molding container of the present invention. The parison 4 has the regio oralis 41 which has a support-ring part (a in a figure), the drum section 42, and the bottom part 43.

[0024]In the drum section 42 of a parison, the diameter is expanded so that the subsequent drum section top portion 44 may have the same path as the regio oralis 41 in the regio oralis 41, and the lower part is the letter drum section 45 of diameter reduction so that Fig.4 may show. The thickness of a parison is thinned a little with the regio oralis 41 and the letter drum section 44 of diameter expansion (comparing with the letter drum section 45 of diameter reduction). It has become. This letter drum section 44 of diameter expansion is a part used as the expanding part formed under the regio oralis in the primary blow molding object (middle molded body) mentioned later.

[0025]The parison 4 is formed so that the thickness of the bottom part 43 may become thin slightly from the thickness of the drum section 42. The bottom part 43 can be cooled to a temperature lower than the drum section 42 by doing in this way. Therefore, a drum section can be extended by the vertical extension with the rod at the time of extension, without breaking through the bottom part 43.

[0026]In manufacture of a container, the parison 4 of the shape shown in Fig.4 with injection molding is formed first. Injection molding can be performed with a conventional method using the injection molding mold which has a cavity of the shape corresponding to the parison 4. After ejecting resin in a cavity at this time, it is good by quickly cooling an injection molding mold for more than that glass-transition temperature to cool the resin which constitutes a parison to the temperature below solidification temperature. Slushing a refrigerant into the passage provided in the mold or other means can perform quick cooling of an injection molding mold.

[0027]The parison 4 is taken out from an injection molding mold, and before the temperature of each part of the parison 4 becomes lower than glass-transition temperature, biaxial stretching blow molding is performed in the place where the temperature of each part of the parison 4 became [more than glass-transition temperature of the used resin] below in solidification temperature.

[0028]Fig.5 is a side view showing an example of the primary blow molding object acquired by carrying out biaxial stretching blow molding of the parison of Fig.4.

[0029]The primary blow molding object 5 becomes order from the regio oralis 51, the expanding part 52, the diameter reduction part 53, the drum section 54, and the bottom part 55 from a top.

[0030]In 4 or more-time extension in less than 6 times, and the diameter reduction part 53, in such a primary blow molding object, 3 or more-time extension in less than 6 times and the cylindrical drum section 54 are [the regio oralis 51 (grasping part) / un-extending and the expanding part 52 / the Takanobu growth of 6 times or more and the bottom part 55 of the draw ratio of each part] low extensions of 6 or less times.

[0031]What is necessary is to install using the parison of shape as shown in Fig.4, in the stretch-blow-molding type which has the cavity which carried out shape of the primary blow molding object, where the regio oralis of this parison is grasped to a regio-oralis type, and just to perform stretch blow molding with a conventional method, in order to consider it as such a draw ratio.

[0032]The letter drum section 44 of diameter expansion of the parison shown in Fig.4 is extended by this stretch blow molding, and the expanding part 52 of a primary blow molding object is formed by it.

[0033]It comes to extend the upper part [in / in the diameter reduction part 53 of a primary blow molding object / the letter drum section 45 of diameter reduction of the parison of Fig.4] 45a. Since this portion 45a has become thicker than the letter drum section 44 of diameter expansion of a parison and the path of the portion corresponding to the diameter reduction part 52 of a blow molding die is small, the diameter reduction part 53 of a primary blow molding object becomes thick.

[0034]The drum section 54 is extended largely, is thin walled and, moreover, has big strength

according to an orientation effect. Since the bottom part of the parison is adjusted by temperature lower than a drum section, the direction of a drum section is easy to be extended, a drum section is extended sufficiently by this, and, on the other hand, a bottom part is not extended highly. The heel section 56 and the center recessed part 57 of the container bottom are formed in the bottom part 55 of the shape of the mold. The concave part of two or more pyramid form of the shape shown in Fig.2 is annularly formed in the container wall surface in the center recessed part 57 continuously. Formation of the concave part of this pyramid form can be attained by forming in the rugged form which carries out complementary [of the bottom part type surface of a blow molding die] to the shape shown in Fig.2.

[0035]ridgeline b-a-d of the bottom configurations shown in Fig.2 in the bottom part type of a blow molding die — if the vent is provided to the part corresponding to ..., the uneven shape provided to the center recessed part of a bottom part will be acquired clearly.

[0036]If stretch blow molding is performed using the mold which has a cavity of the shape of a primary blow molding object as shown in Fig.5 using the parison of shape as shown in Fig.4 as described above, A diameter reduction part is thicker than a drum section (portion used as the body part of a container), and a drum section is extended sufficiently, and a bottom part can manufacture a thick primary blow molding object.

[0037]If a primary blow molding object (middle molded body) as shown in Fig.5 is acquired, the bottom wall part (for example, position of C in Fig.5) of the expanding part of this primary blow molding object will be cut, and the blow molding container of the present invention as shown in Fig.1 will be obtained.

[0038]Thus, the blow molding container 1 obtained can be carried out to Fig.7 having been shown previously with the can made from a plastic which was excellent in sealing nature by giving a double seam with metal lids in the form where the flange 11 is incorporated, similarly.

[0039]Although the above description described the manufacturing method using the parison of shape as shown in Fig.4, not only this but the thing to manufacture using the bottomed cylindrical parison 6 which has the drum section 62 which consists of a single path substantially as shown, for example in Fig.6 is possible for the plastic blow molding container of the present invention. If the portion (b portion in Fig.6) applied to the upper end part of the drum section 62 from the regio oralis 61 of the parison 6 is made to be pressing inside hard at this time, the middle molded body which has an expanding part can be easily formed in the upper part as shown in Fig.5.

[0040]In the present invention, if it is thermoplastics in which stretch blow molding is possible as a plastic used as the raw material of a container, there will be no restriction in particular, but the thing of a polyester system is preferable.

[0041]As polyester resin, the thermoplastics consisting of saturation dicarboxylic acid and saturated dihydric alcohol can be used. Especially preferable polyester is polyethylene terephthalate which consists of terephthalic acid and ethylene glycol.

[0042]The thing which mixed heat resistant resin, barrier nature resin, etc., or the multilayered thing can also be used for the above-mentioned polyester resin.

[0043]In addition to this, a proper quantity of additive agents, such as stabilizer, paints, an antioxidant, a heat deterioration inhibitor, an ultraviolet-ray-degradation inhibitor, a spray for preventing static electricity, and an antimicrobial agent, and other resin can be added to the polyester resin used by the present invention.

[0044]The present invention is described still in detail according to the following specific working examples.

The parison shown in Fig.4 was created with injection molding using working-example 1 polyethylene terephthalate resin (the Mitsui Petrochemical Industries, Ltd. make, Mitsui pet J125). The shape and weight of the parison were as follows.

[0045]overall-height: — 127-mm regio-oralis: — the outer diameter of 36.5 mm, the letter drum section:outer diameter of inner diameter 32.5mm support-ring part:outer diameter 39mm diameter

expansion of 36.3 mm, and letter drum section: outer diameter of inner diameter 31.9 mm diameter reduction 25.8–26.8 mm inner diameter 18.2–19.6 mm bottom part: thickness 2.0 mm weight: 46.9 g

[0046] Primary blow molding object (overall height 240.2 mm, 88 mm of the maximum shell diameters) of shape as shown in Fig. 5 after molding the parison of the above-mentioned shape It created. As a bottom part type of the stretch-blow-molding mold used at this time, what has the unevenness which carries out complementary to the uneven shape shown in Fig. 2 was used for that surface.

[0047] Thus, about 5 times and a drum section were about 14.5 times, and when the acquired primary blow molding object was cut to the longitudinal direction and the draw ratio of each part was measured, a 5.5 times as much abbreviation and a diameter reduction part was [the regio oralis / the bottom part of un-extending and an expanding part] one to 6 times. The thickness of the drum section was 0.25 mm and the thickness of the lower region of a flange was 0.5 mm. The wall surface of the molded body in the center recessed part of a bottom part had become the shape shown in Fig. 2 and Fig. 3.

[0048] Next, the position of C shown in the Fig. 5 of this primary blow molding object was circularly pierced with the punching blade, it separated and the blow molding container as shown in Fig. 1 was obtained.

[0049] Thus, after putting a tennis ball into the obtained container, as the flange was involved in under application of pressure, it sealed by the double seam with metal lids.

[0050] Thus, the obtained can is internal pressure 1.2 Kg/cm² (gage pressure) Even if carried out largely, a bottom part did not deform, and it had good independence nature. It had independence nature, even if it saved 60–70 degrees C of things to which internal pressure was applied at 0.9 kg / cm², and a room temperature and which carried out the filling seal of the tennis ball of four balls for 1 to 2 hours. While having sufficient sealing performance, even if it gives a double seam, a crack, deformation, etc. are not produced and it has the shock resistance which can be equal to practical use, and internal pressure-proof nature.

[0051]

[Effect of the Invention] As explained in full detail above, a blow molding container of the present invention makes the bottom configurations shape which can bear big internal pressure.

Independence nature is not impaired as a can made from a plastic which carried out container internal pressure largely.

Even if it gives a double seam by the flange in an opening, neither a crack nor damage arises, and it can be considered as the good can made from a plastic.

[0052] The container of such the present invention can be preferably used as resisting pressure containers of business, such as a carbonated drink and a tennis ball, by having metal cover materials.

[Brief Description of the Drawings]

[Drawing 1] It is a side view showing the plastic blow molding container by one working example of the present invention.

[Drawing 2] It is a plan view showing the bottom configurations of the plastic blow molding container of Fig. 1.

[Drawing 3] It is an A–O–B cross sectional view of Fig. 1.

[Drawing 4] It is a cross sectional view showing an example of the parison which can manufacture the plastic blow molding container of the present invention.

[Drawing 5] It is a side view showing an example of the middle molded body (primary blow molding object) acquired at the process of manufacturing the plastic blow molding container of the present invention.

[Drawing 6] It is a cross sectional view showing another example of the parison which can manufacture the plastic blow molding container of the present invention.

[Drawing 7] It is a cross sectional view showing an example of the plastic can using the conventional plastic blow molding container.

[Explanations of letters or numerals]

1 Plastic blow molding container

4 and 6 Parison

5 Primary blow molding object

7 Plastic canning

11 Flange

12 Diameter reduction part

13 Drum section

14 Bottom part

15 Expanding part

16 Heel section external wall surface

17 Heel section

18 Center recessed part

19 Grounding part

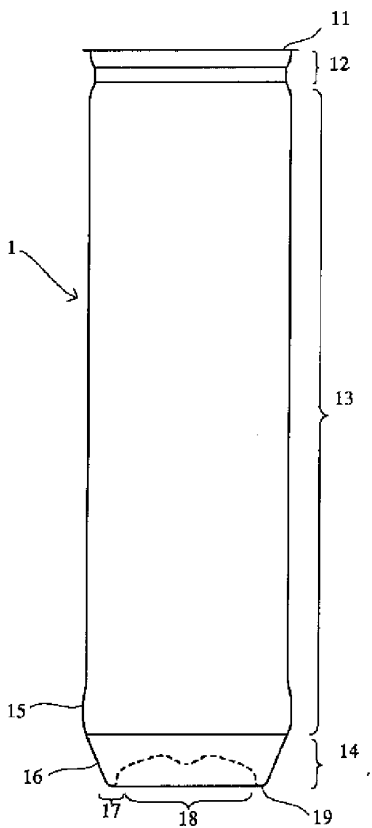
20 Heel section internal surface

21 Bottom part center portion

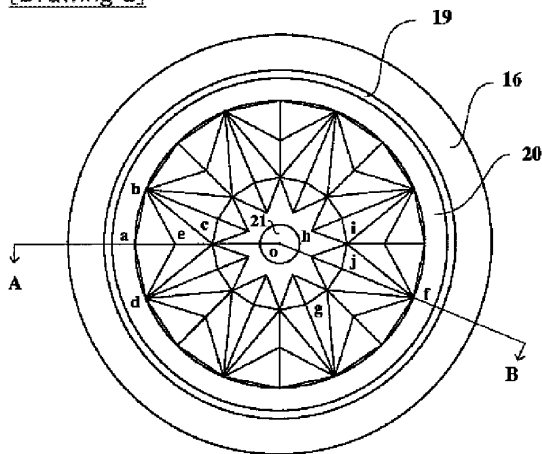
75 Double seam

76 Metal lid

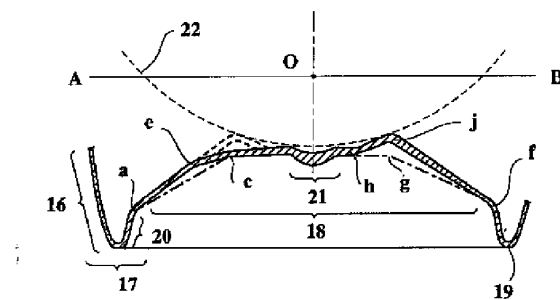
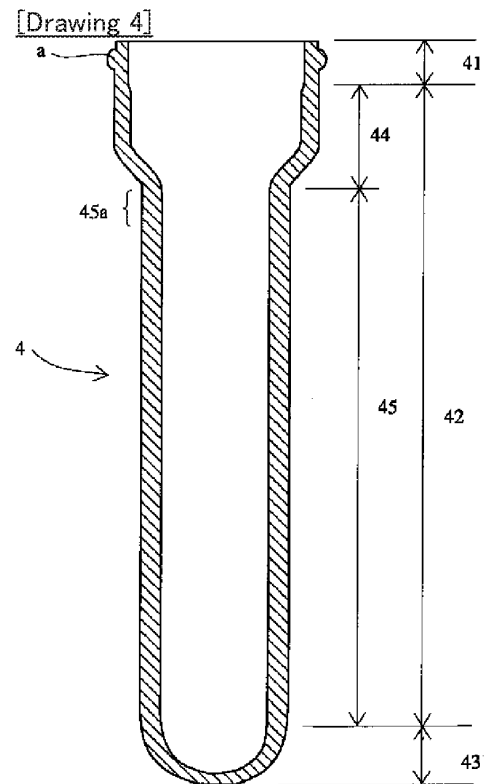
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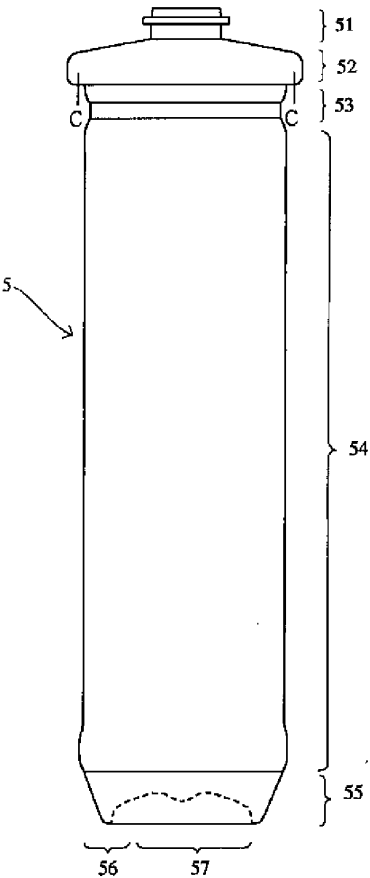
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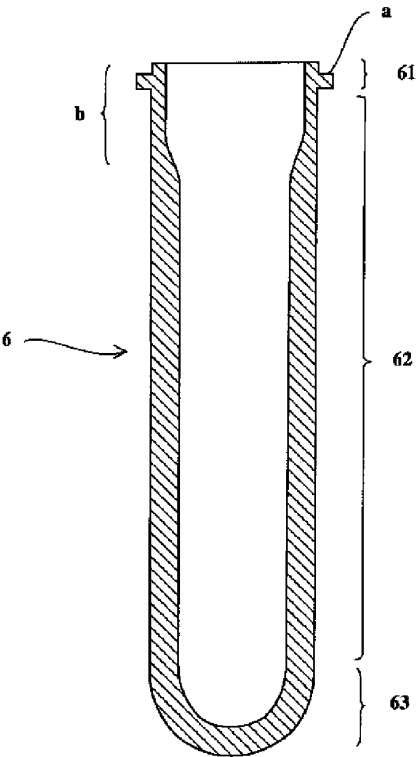
[Drawing 3]



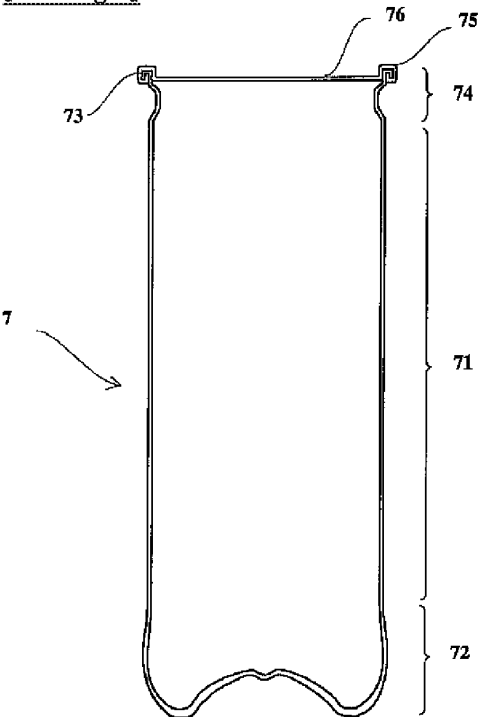
[Drawing 5]



[Drawing 6]



[Drawing 7]



[Translation done.]

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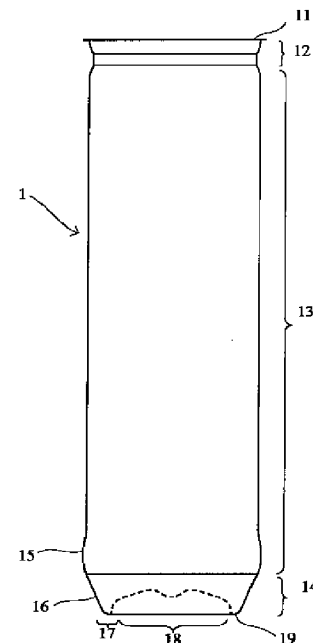
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(54)【発明の名称】 プラスチックブロー成形容器

(57)【要約】

【目的】 容器の内圧を大きくしても、また常温を超えた高温下でも、底部が変形せず、良好な自立性を維持することができるプラスチックブロー成形容器を提供する。

【構成】 実質的に円筒状の胴部13と、底部14と、開口部を構成するフランジ部11とを有し、底部14は中央凹部18と中央凹部18を取り囲む環状のヒール部17とからなり、中央凹部18における容器壁面には、頂点を内方に向けた複数の多角錐状の凹部が、その稜辺の一部を共有して中央凹部の中心部を囲むように連続して環状に配列して形成されており、ヒール部の外壁面16は下方に縮径する円錐状曲面となっている。



【特許請求の範囲】

【請求項1】 実質的に円筒状の胴部と、底部と、開口部を構成するフランジ部とを有するプラスチックブロー成形容器において、前記底部は中央凹部と前記中央凹部を取り囲む環状のヒール部とからなり、前記中央凹部における容器壁面には、頂点を内方に向けた複数の多角錐状の凹部が、その稜辺の一部を共有して前記中央凹部の中心部を囲むように連続して環状に配列して形成されており、前記ヒール部の外壁面は下方に縮径する円錐状曲面となっていることを特徴とするプラスチックブロー成形容器。

【請求項2】 請求項1に記載のプラスチックブロー成形容器において、前記多角錐状の凹部が二種類の四角錐状の凹部からなり、前記二種類の四角錐状の凹部が交互に環状に配列していることを特徴とするプラスチックブロー成形容器。

【請求項3】 請求項1又は2に記載のプラスチックブロー成形容器において、接地部となる前記ヒール部の下端部から前記中央凹部に連続する前記ヒール部の内壁面が、凹曲面となっていることを特徴とするプラスチックブロー成形容器。

【請求項4】 請求項1乃至3のいずれかに記載のプラスチックブロー成形容器において、前記フランジ部の下部に縮径部が形成されていることを特徴とするプラスチックブロー成形容器。

【請求項5】 請求項1乃至4のいずれかに記載のプラスチックブロー成形容器において、前記容器がポリエチレンテレフタレートからなることを特徴とするプラスチックブロー成形容器。

【請求項6】 請求項1乃至5のいずれかに記載のプラスチックブロー成形容器において、前記容器は、バリソンを二軸延伸ブロー成形してなる一次ブロー成形体の口部側を切り取ってなるものであることを特徴とするプラスチックブロー成形容器。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、胴部とほぼ同じ径のフランジ状開口部を有するプラスチックブロー成形容器に関し、特に、アルミニウム等からなる蓋を開口部に設けたフランジに巻き締めることにより耐圧容器として好適に使用でき、容器内圧力を大きくしてもその底部形状が変化せず、良好な自立性を維持するプラスチックブロー成形容器に関する。

【0002】

【従来の技術及び発明が解決しようとする課題】近年、金属缶の代替品としてプラスチック製の缶（容器）が注目されている。プラスチック製の缶は、一般的には図7に示すように、円筒状の胴部71と、底部72と、開口部を構成するフランジ部73と、フランジの下部領域74とを有するプラスチック製ブロー成形容器7と、金属製の蓋76

とからなり、蓋76はダブルシーム75により前記フランジ部73に巻き締められ、缶は密封される。

【0003】ところで、炭酸飲料やテニスボール等の容器として用いる場合、容器には高い内部圧力がかかるので、容器に強度を付与する必要がある。特に、容器の底部は二軸延伸ブロー成形による延伸効果がそれほど期待できないので、高い内部圧力により変形が生じず、自立性を確保できる形状とする必要がある。

【0004】このようなプラスチック製ブロー成形容器の底部としては、先に図7にも示したように、底部の中央部を上方に凹状として、この中央凹部の周囲を環状のヒール部とするいわゆるシャンペン容器型形状の底部とすることが多い。ところが、本発明者らの研究によれば、単純にこのような形状とただけでは、容器内圧が大きい場合、常温以上、例えば60～70℃の高温下に長時間さらされた場合、底部の凹部が反転することがあったり、また反転せずとも底部が変形して自立性が損なわれたりすることがあることがわかった。

【0005】したがって、本発明の目的は、容器の内圧を大きくしても、また常温を超えた高温下でも、底部が変形せず、良好な自立性を維持することができるプラスチックブロー成形容器を提供することである。

【0006】

【課題を解決するための手段】上記課題に鑑み鋭意研究の結果、本発明者らは、基本的には容器の底部の形状を中央凹部とその中央凹部を取り囲む環状のヒール部とからなる構造とし、そのヒール部の外壁面を円錐状の曲面とするとともに、中央凹部を形成する容器壁面に特定の構造の複数の凹部を形成すれば、容器内圧を大きくしても容器底部に変形が生じることなく、自立性に優れた容器とすることができることを見出し、本発明に想到した。

【0007】すなわち、実質的に円筒状の胴部と、底部と、開口部を構成するフランジ部とを有する本発明のプラスチックブロー成形容器は、前記底部が中央凹部と前記中央凹部を取り囲む環状のヒール部とからなり、前記中央凹部における容器壁面には、頂点を内方に向けた複数の多角錐状の凹部が、その稜辺の一部を共有して前記中央凹部の中心部を囲むように連続して環状に配列して形成されており、前記ヒール部の外壁面は下方に縮径する円錐状曲面となっていることを特徴とする。

【0008】

【実施例】以下本発明を添付図面を参照して詳細に説明する。

【0009】図1は本発明の一実施例によるブロー成形容器を示す側面図である。ブロー成形容器1は、開口端部に形成されたフランジ部11と、フランジ部11の下部領域に形成された縮径部12と、実質的に円筒状の胴部13と、底部14とからなる。

【0010】開口端部に形成されたフランジ部11は、

後述するように蓋材を取りつける部位となり、容器の軸線方向に対して実質的に垂直に延びている。容器内圧を大きくする場合には、蓋材の取付けを二重巻き締めにより行うのが好ましいので、このフランジ部11は二重巻き締めに適切な厚さ、強度、剛性を有するように形成される。具体的には、フランジ部11における延伸倍率を4〜6倍とするのがよい。延伸倍率が4倍未満ではフランジ部11の強度が低下し、良好な二重巻き締めを行うことができない。一方、フランジ部11を6倍を超す延伸倍率とすると、肉薄でかつ剛性が大きくなりすぎるので、やはり良好な巻き締めを行うことが難しい。

【0011】フランジ部11の下部領域は、フランジ部を巻き締めた際に、亀裂や変形等を生じないために、リジット性を向上させる必要がある。このため本実施例では、フランジ部11の下部に縮径部12を形成し、開口部付近のリジット性を向上させている。縮径部12における延伸倍率は3倍以上6倍未満とするのがよい。延伸倍率が3倍未満では、肉厚が大きくなり過ぎ、弾性が低下して亀裂が生じやすく、また延伸倍率を6倍以上とすると、肉厚が薄くなり過ぎてフランジ部を巻き締めた際の変形等を防止し得るだけの十分なリジット性が得られない。なお、この縮径部12を胴部13より肉厚に成形するのがよい。これによってこの部分のリジット性がより向上し、缶として密封する際の開口部の折れや変形が防止できる。また巻き締め前の開口状態で、開口部、特にフランジ部は、外部より変形を受けにくく、輸送、ないし、ライン送行中の取扱いが容易になる。

【0012】胴部13は実質的に円筒状となっており、底部14のすぐ上の部分に拡張部15を有する。胴部13の延伸倍率は6倍以上とするのがよい。延伸倍率が6倍未満であると、十分な耐圧性を有する容器とならない。また、延伸効果による機械的強度の向上もそれほど得られず好ましくない。更に軽量化もできない。なお、底部14のすぐ上の部分に設けた拡張部15は補強のために形成されているが、この拡張部15の径は開口部に設けたフランジ部11の外径とほぼ同じとするのがよい。このようにすると、拡張部15が邪魔にならずに複数の容器をそろえて陳列することが可能となる。

【0013】底部14は、中央凹部18と、この中央凹部18を取り囲む環状のヒール部17とからなる。ヒール部17の外壁面16は、下方に縮径する円錐状曲面となっており、ヒール部17の下端部が環状の接地部19となる。一方、中央凹部18は、詳しくは後述するが、環状の接地部19の内側に形成されており、基本的に内方に凹状となっている。このように、ヒール部17の外壁面16を径方向外側に膨張した形状とせず、スリムに下方に縮径する円錐状曲面とすると、複数の容器を陳列する際に効率よく並べることができる。

【0014】図2は図1に示す容器の底部14を軸線方向に沿って下方から眺めた平面図であり、図3は図2に

におけるA-O-B断面図である。

【0015】上述の通り、ヒール部17の下端部は環状の接地部19となるが、このヒール部17の内壁面20は凹状となっており、スムーズに中央凹部18に連続している。このようにヒール部17の内壁面20を凹状にしておくと、容器内圧を大きくしても中央凹部が反転するようなことはない。

【0016】中央凹部18における容器壁には、複数の多角錐状の凹部が連続して形成されている。本実施例においては、図2に示すように、二種類の四角錐状の凹部が連続して形成されている。すなわち、第一の凹部は凹部a b c d-e（及びこれと合同の凹部）であり、これは四角形a b c dを底面とし、頂点をeとする四角錐（頂点eが容器内方に位置する）の側面からなる凹部である。この第一の凹部において、面a b e、面a d e、面b c e、及び面d c eはそれぞれ実質的に平面（すなわち三角形）となっており、稜線b c、及び稜線d cが容器の下方に出ている部分である。なお稜線b a dの部分はほぼ円形を描くように中央凹部18の外側部に位置する。

【0017】また、第二の凹部は凹部f g h i-j（及びこれと合同の凹部）であり、これは四角形f g h iを底面とし、頂点をjとする四角錐（頂点jが容器内方に位置する）の側面からなる凹部である。この第二の凹部において、面f g j、面f i j、面g h j、及び面i h jはそれぞれ実質的に平面（すなわち三角形）となっており、稜線f g及び稜線f iは、先の第一の凹部の稜線b c及び稜線d cと重なり合う部分である。

【0018】図2からわかるように、本実施例の容器においては、上記した第一の凹部と第二の凹部とが交互に連続して配列し、底部の中央部分21を囲んでいる。また図2及び図3からわかるように、この底部形状においては、第一の凹部において最も内方に凸となる部分（線a e cに当たる部分）と、第二の凹部において最も内方に凸となる部分（線f j hに当たる部分）とが容器の周方向に交互に配列されており、かつ、その線は放射状に延びているので、容器底部を等方的に補強することになる。また、上述したように、中央凹部18の壁面に設けられる凹部はすべて頂点を内方に向けた四角錐状の凹部となっているので、内圧が大きくても外側に反転するようなことはない。

【0019】したがって、上述したような底部構造とすると、容器の内部圧力を大きくしても、また常温以上の高温下でも、中央凹部18が反転したりすることや接地部19が歪んで自立性が損なわれるようなことはない。

【0020】なお、図3からわかるように、第二の凹部において最も内方に位置する部分（四角錐の頂点jに当たる部分）は中央凹部18の中心部分21よりも容器の軸線方向に沿って上方に位置している。したがってこの容器をたとえばテニスボール用の容器とした場合、図3

に示すように、第二の四角錐状の凹部の複数の稜線部（線h-j及びそれと同一の部分）でテニスボール22を収まりよく承受することになる。

【0021】なお、本実施例では上述した第一の四角錐状凹部と第二の四角錐状凹部とをそれぞれ8個ずつ交互に配列した構造となっているが、本発明はこれに限らず四角錐状凹部の大きさ及び数を適宜変更してよい。さらに底部の中央凹部の容器壁に設ける凹部を上述したように四角錐状とする必要はなく、五角錐、六角錐等の側面からなるような凹部としてもよい。さらに、四角錐、五角錐、六角錐等を適宜組み合わせさせた構成としてもよい。

【0022】次に、上述したプラスチックブロー成形容器1の製造方法について説明する。

【0023】図4は本発明のプラスチックブロー成形容器を製造することができるバリソンの一例を示す断面図である。バリソン4はサポートリング部（図中のa）を有する口部41と、胴部42と、底部43とを有する。

【0024】図4からわかるように、バリソンの胴部42において、口部41に続く胴部上部分44は口部41と同様の径を有するように拡張しており、下部は縮径状胴部45となっている。また、バリソンの肉厚は口部41と拡張状胴部44では幾分薄め（縮径状胴部45に比して）となっている。この拡張状胴部44は、後述する一次ブロー成形体（中間成形体）において口部の下に形成される拡張部となる部位である。

【0025】またバリソン4は、その底部43の肉厚が胴部42の肉厚より、わずかに薄くなるように形成されている。このようにすることで底部43を胴部42より低い温度まで冷却することができる。したがって、延伸時のロッドによる縦延伸で、底部43を突き破ることなく胴部を延伸することができる。

【0026】容器の製造にあたっては、まず、射出成形により図4に示す形状のバリソン4を形成する。射出成形はバリソン4に対応する形状のキャビティを有する射出成形型を用いて常法により行なうことができる。このとき、樹脂をキャビティ内に射出した後、射出成形型を急冷することによりバリソンを構成する樹脂をそのガラス転位温度以上固化温度以下の温度まで冷却するのがよい。なお射出成形型の急冷は、型内に設けられた通路に冷媒を流し込む等の手段により行なうことができる。

【0027】バリソン4の各部の温度が、用いた樹脂のガラス転位温度以上固化温度以下となったところで、バリソン4を射出成形型から取り出し、バリソン4の各部の温度がガラス転位温度より低くなる前に、二軸延伸ブロー成形を行なう。

【0028】図5は、図4のバリソンを二軸延伸ブロー成形することにより得られる一次ブロー成形体の一例を示す側面図である。

【0029】一次ブロー成形体5は、上から順に口部51と、拡張部52と、縮径部53と、胴部54と、底部55とから

なる。

【0030】このような一次ブロー成形体において、各部の延伸倍率は、口部（把持部）51が未延伸、拡張部52が4倍以上6倍未満の中延伸、縮径部53が3倍以上6倍未満の中延伸、円筒状の胴部54が6倍以上の高延伸、底部55が6倍以下の低延伸である。

【0031】このような延伸倍率とするためには、図4に示したような形状のバリソンを用い、一次ブロー成形体の形状をしたキャビティを有する延伸ブロー成形型内に、このバリソンの口部を口部型に把持した状態で設置し、常法により延伸ブロー成形を行えばよい。

【0032】この延伸ブロー成形により、図4に示すバリソンの拡張状胴部44が延伸されて一次ブロー成形体の拡張部52を形成する。

【0033】また一次ブロー成形体の縮径部53は、図4のバリソンの縮径状胴部45における上部分45aが延伸されてなる。この部分45aはバリソンの拡張状胴部44より肉厚となっており、またブロー成形金型の縮径部52に対応する部分の径が小さくなっているため、一次ブロー成形体の縮径部53は肉厚となる。

【0034】胴部54は大きく延伸されて薄肉で、しかも延伸効果により大きな強度を有するものとなる。なお、バリソンの底部は胴部よりも低い温度に調節されているため、胴部の方が延伸されやすく、これにより胴部は十分に延伸され、一方、底部は高度に延伸されない。なお、底部55には金型の形状によってヒール部56及び容器底部の中央凹部57が形成されている。また、中央凹部57における容器壁面には、図2に示す形状の複数の四角錐状の凹部が環状に連続して形成されている。この四角錐状の凹部の形成は、ブロー成形金型の底部型の表面を図2に示す形状に相補する凹凸状に形成しておくことで達成できる。

【0035】なお、ブロー成形金型の底部型において、図2に示す底部形状の稜線b-a-d・・・に対応する部位にエアークラウドを設けておくと、底部の中央凹部に設ける凹凸形状がはっきりと得られる。

【0036】以上に説明したように、図4に示すような形状のバリソンを用い、図5に示すような一次ブロー成形体の形状のキャビティを有する金型を用いて延伸ブロー成形を行えば、縮径部が胴部（容器の本体部となる部分）より肉厚で、胴部が十分に延伸され、また底部が肉厚の一次ブロー成形体を製造することができる。

【0037】図5に示すような一次ブロー成形体（中間成形体）を得たならば、この一次ブロー成形体の拡張部の底壁部（例えば図5中のCの位置）を切断し、図1に示すような本発明のブロー成形容器を得る。

【0038】このようにして得られるブロー成形容器1は、さきに図7において示したと同様にして、フランジ部11を取り込むかたちで金属製の蓋によりダブルシームを施すことにより、密閉性の優れたプラスチック製の缶

とすることができる。

【0039】以上の説明では、図4に示すような形状のバリソンを用いた製造方法を述べたが、本発明のプラスチックブロー成形容器はこれに限らず、たとえば図6に示すような、実質的に単一の径からなる胴部62を有する有底円筒状のバリソン6を用いて製造することも可能である。このとき、バリソン6の口部61から胴部62の上端部にかけての部分(図6におけるb部分)を内側に肉薄となるようにしておけば、図5に示すような上部に拡張部を有する中間成形体を容易に形成することができる。

【0040】本発明において、容器の原料となるプラスチックとしては、延伸ブロー成形が可能な熱可塑性樹脂であれば特に制限はないが、ポリエステル系のものが好ましい。

【0041】ポリエステル樹脂としては、飽和ジカルボン酸と飽和二価アルコールとからなる熱可塑性樹脂が使用できる。特に好ましいポリエステルは、テレフタル酸とエチレングリコールとからなるポリエチレンテレフレートである。

【0042】また上記ポリエステル樹脂に、耐熱性樹脂、バリアー性樹脂等を混合したもの、又は多層化したものも用いることができる。

【0043】なお本発明で使用するポリエステル樹脂には、その他、安定剤、顔料、酸化防止剤、熱劣化防止剤、紫外線劣化防止剤、帯電防止剤、抗菌剤等の添加剤やその他の樹脂を適量加えることができる。

【0044】本発明を以下の具体的実施例によりさらに詳細に説明する。

実施例1

ポリエチレンテレフレート樹脂(三井石油化学工業株式会社製、三井ベツトJ125)を用い、図4に示すバリソンを射出成形により作成した。バリソンの形状及び重さは、以下の通りであった。

【0045】全高:127mm

口部:外径36.5mm、内径32.5mm

サポートリング部:外径39mm

拡張状胴部:外径36.3mm、内径31.9mm

縮径状胴部:外径25.8~26.8mm

内径18.2~19.6mm

底部:肉厚2.0mm

重量:46.9g

【0046】上記形状のバリソンを成形後、図5に示すような形状の一次ブロー成形体(全高240.2mm、最大胴径88mm)を作成した。なお、このとき使用した延伸ブロー成形金型の底部型としては、その表面に図2に示す凹凸形状に相補する凹凸を有するものを用いた。

【0047】このようにして得られた一次ブロー成形体を縦方向に切断して、その各部の延伸倍率を測定したところ、口部が未延伸、拡張部が約5.5倍、縮径部が約5

倍、胴部が約14.5倍、底部が1~6倍であった。また、胴部の厚みは0.25mmで、フランジの下部領域の厚みは0.5mmであった。さらに、底部の中央凹部における成形体の壁面は図2及び図3に示す形状となっていた。

【0048】次に、この一次ブロー成形体の図5に示すCの位置を打抜き刃で円形に打ち抜き、分離して、図1に示すようなブロー成形容器を得た。

【0049】このようにして得られた容器に、テニスボールを入れた後、加圧下において、フランジ部を巻き込むようにして金属製の蓋でダブルシームにより密閉した。

【0050】このようにして得られた缶は、内圧を1.2Kg/cm²(ゲージ圧)と大きくしても底部が変形することがなく、良好な自立性を有していた。また、0.9Kg/cm²、室温で内圧をかけ4球のテニスボールを充填シールしたものを60~70℃、1~2時間保存しても自立性を有していた。また、十分な密封性を有するとともに、ダブルシームを施しても、亀裂、変形等を生じることがなく、実用に耐えうる耐衝撃性、及び耐内圧性を有するものであった。

【0051】

【発明の効果】以上に詳述したように、本発明のブロー成形容器は、その底部形状を大きな内圧に耐えうる形状としており、容器内圧を大きくしたプラスチック製の缶としても自立性が損なわれない。また、開口部におけるフランジ部でダブルシームを施しても亀裂や破損が生じることなく、良好なプラスチック製の缶とすることができる。

【0052】このような本発明の容器は、金属製の蓋材を備えることにより炭酸飲料、テニスボール等用の耐圧容器として好適に使用することができる。

【図面の簡単な説明】

【図1】本発明の一実施例によるプラスチックブロー成形容器を示す側面図である。

【図2】図1のプラスチックブロー成形容器の底部形状を示す平面図である。

【図3】図1のA-O-B断面図である。

【図4】本発明のプラスチックブロー成形容器を製造することができるバリソンの一例を示す断面図である。

【図5】本発明のプラスチックブロー成形容器を製造する工程で得られる中間成形体(一次ブロー成形体)の一例を示す側面図である。

【図6】本発明のプラスチックブロー成形容器を製造することができるバリソンの別な例を示す断面図である。

【図7】従来のプラスチックブロー成形容器を用いたプラスチック缶の一例を示す断面図である。

【符号の説明】

1	プラスチックブロー成形容器
4、6	バリソン
5	一次ブロー成形体

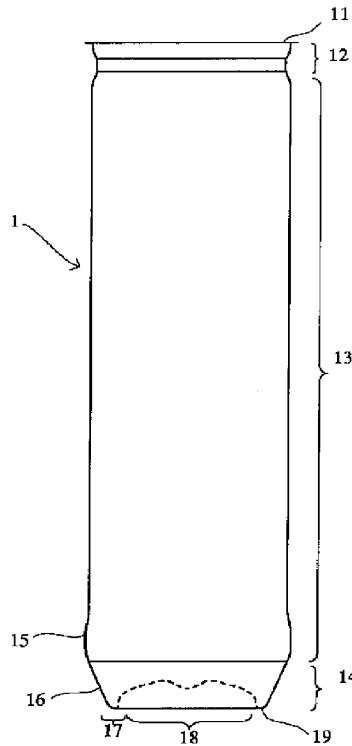
(6)

特開平５－３２２４８

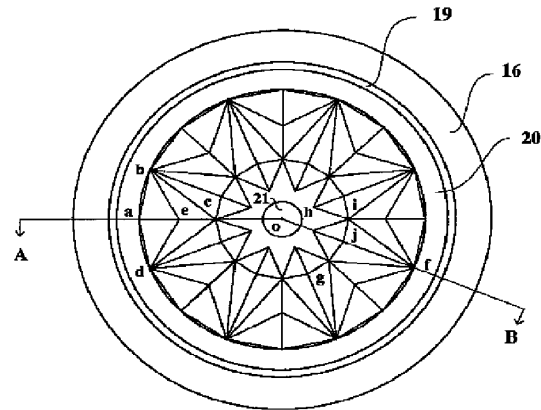
- 7 プラスチック製缶
 11 フランジ部
 12 縮径部
 13 胴部
 14 底部
 15 拡径部
 16 ヒール部外壁面

- 17 ヒール部
 18 中央凹部
 19 接地部
 20 ヒール部内壁面
 21 底部中央部分
 75 ダブルシーム
 76 金属製の蓋

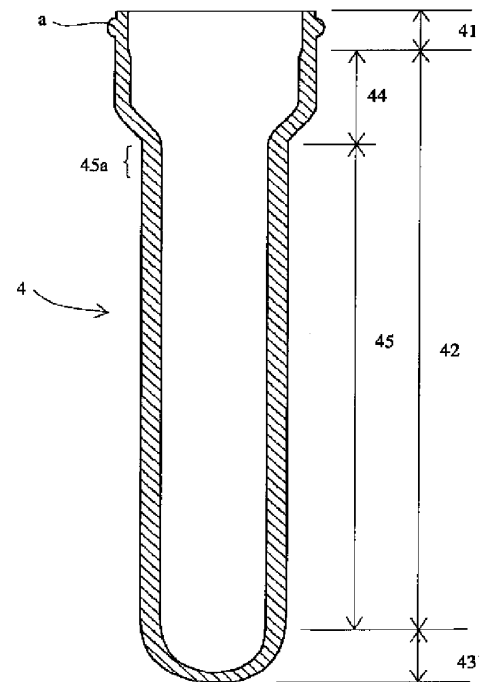
【図１】



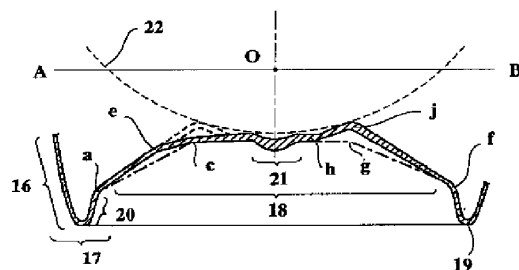
【図２】



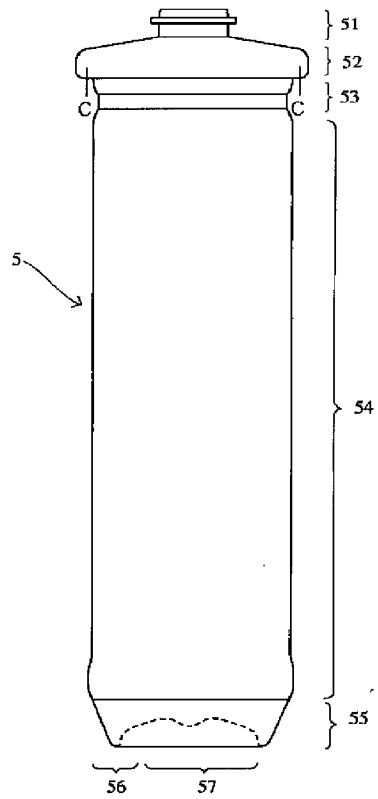
【図４】



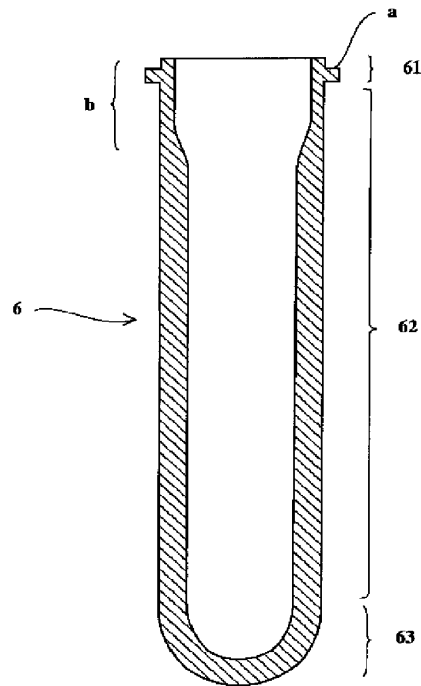
【図３】



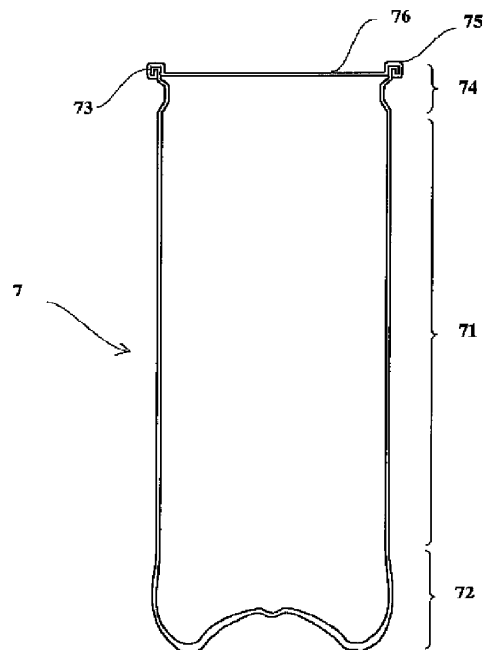
【図5】



【図6】



【図7】



フロントページの続き

(72)発明者 野瀬 宏明
東京都新宿区市谷加賀町一丁目 1 番 1 号
大日本印刷株式会社内

In place of PTO-1449 Form		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Application Number		18/506,811	
		Filing Date		November 10, 2023	
		Applicant(s)		Merrilee Kick	
		Art Unit		TBD	
		Examiner Name		TBD	
SHEET	1	OF	2	Attorney Docket Number 58822.5US05	

U. S. PATENT DOCUMENTS				
Examiner's Initials	Cite No.	Document Number	Publication Date MM-DD- YYYY	Name of Patentee or Applicant of Cited Document
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	A2	7,784,639	08-31-2010	Milkowski et al.
	A3	10,604,296	03-31-2020	Kick
	A4	D703,068	04-22-2014	Kick
	A5	D732,978	06-30-2015	Kick
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	A39	D460,693	07-23-2002	Flowers
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Examiner Signature		Date Considered	
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

In place of PTO-1449 Form		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Application Number		18/506,811	
		Filing Date		November 10, 2023	
		Applicant(s)		Merrilee Kick	
		Art Unit		TBD	
		Examiner Name		TBD	
SHEET	2	OF	2	Attorney Docket Number 58822.5US05	

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	A49	D976704	01-31-2023	Stammen

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Examiner's Initials	Cite No.	Document Number	Publication Date MM-DD- YYYY	Name of Patentee or Applicant of Cited Document
	B1	20200262601	08-20-2020	Kick
	B2	20150344177	12-03-2015	Kick
	B3	20140061328	03-06-2014	Haymond
	B4	20190009952	01-10-2019	Pedmo et al.

FOREIGN PATENT DOCUMENTS

Examiner's Initials	Cite No.	Foreign Patent Document (Country Code – Number – Kind)	Publication Date MM-DD- YYYY	Patentee or Applicant of Cited Document	Translation Y/N
	C1	JP-05032248-A	02-09-1993	DAINIPPON PRINTING CO LTD	With English Translation
	C2	WO-2009072910-A2	06-11-2009	INVENTO SP. Z O.O.	
	C3	WO-2005049434-A1	06-02-2005	INVENTO SPOLKA Z O.O.	
	C4	WO-2006029441-A1	03-23-2006	REGLASS PTY LTD	
	C5	JP-D1608809-S	07-05-2021	TAKEMOTO CONTAINER CO., LTD.	
	C6	KR-3006720360000-S	01-22-2014	AMOREPACIFIC CORPORATION	
	C7	TW-D180616S	01-11-2017	FANNING	

NON-PATENT LITERATURE DOCUMENTS

Examiner's Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article, title of the item, date, page(s), volume- issue number(s), publisher, city/country where published
	D1	Translation of Office Action with Search Report for Taiwanese Design Patent Application No. 111301016, issued August 31, 2022; 3 pages.

Examiner Signature		Date Considered	
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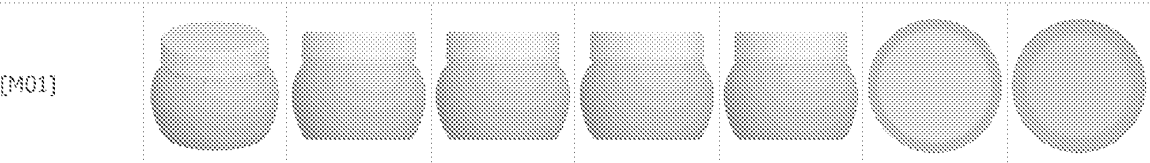
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화장품 포장용기

Details **Publ. Full Text** Registr. Details Administrative Actions

Details Biographical Information Essentials of creation Legal Status Multiple Design Info.

All Images View



(21) Application No(Date)	3020120043233(2012.09.07)	
(71) Applicant	AMOREPACIFIC CORPORATION	
(11) Publication No(Date)	(2014.01.22)	Full-doc Down 
(65) Open Pub. No(Date)		
(11) Registration No(Date)	3006720360000(2012.12.05)	
(30) Priority No.(Date)		
Legal Status	Ended(등록료불납)	
Examination Status(Date)	Decision to grant (General)(2012.12.01)	
Retroacted Section(Date)	(2012.09.07)	
Trial Info		
Original Application No.		
Related Application No.		
Design Type	Basic Single Public	
(52) Design Class.	F45108	
(51) Locarno Class.	09-01	

	(19) 대한민국특허청(KR)	(45) 공고일자	2014년01월22일
	(12) 등록디자인공보(S)	(11) 등록번호	30-0672036
		(24) 등록일자	2012년12월05일
(52) 분류	F4-510B무심사등록		
(51) 국제분류	09-01		
(21) 출원번호	30-2012-0043233		
(22) 출원일자	2012년09월07일		
(73) 디자인권자	(주)아모레퍼시픽		
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	서울특별시 광진구 아차산로 552 (광장동, 극동아파트) 5동 1002호		
(74) 대리인	임희택, 김 순 영, 김영철		
담당심사관	이희중		
(54) 명칭	화장품 포장용기		

디자인도면

디자인의 대상이 되는 물품

화장품 포장용기

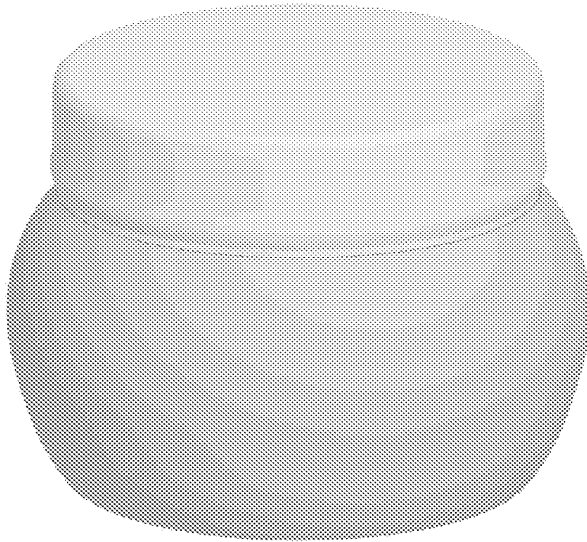
디자인의 설명

1. [도면 1.1]은 디자인의 전체적인 형태를 표현한 것임.
2. [도면 1.2]는 디자인의 정면부분을 표현한 것임.
3. [도면 1.3]은 디자인의 배면부분을 표현한 것임.
4. [도면 1.4]는 디자인의 좌측부분을 표현한 것임.
5. [도면 1.5]는 디자인의 우측부분을 표현한 것임.
6. [도면 1.6]은 디자인의 평면부분을 표현한 것임.
7. [도면 1.7]은 디자인의 저면부분을 표현한 것임.
8. 재질은 합성수지제임.
9. 본 디자인은 화장용 크림형태의 내용물을 담는 포장용기임.

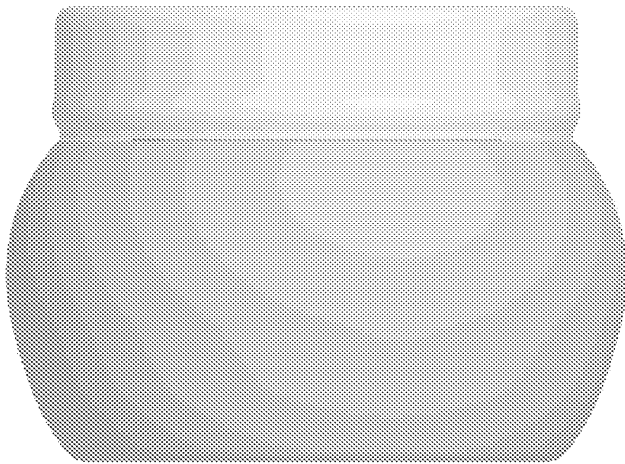
디자인 창작 내용의 요점

"화장품 포장용기"의 형상과 모양의 결합을 디자인의 창작내용의 요점으로 함.

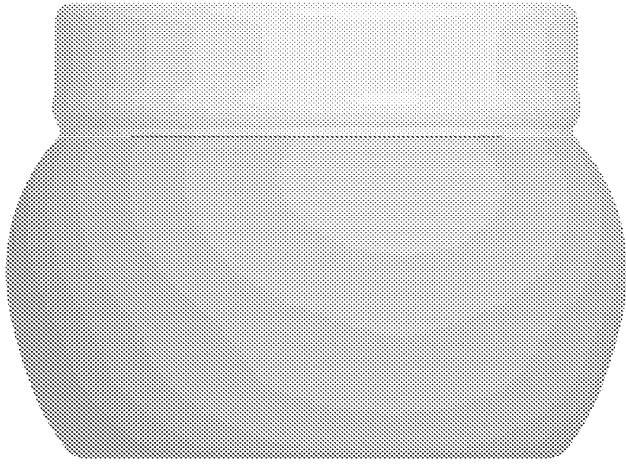
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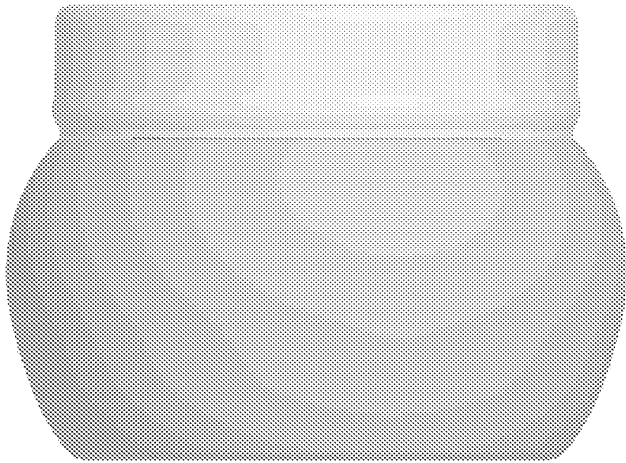
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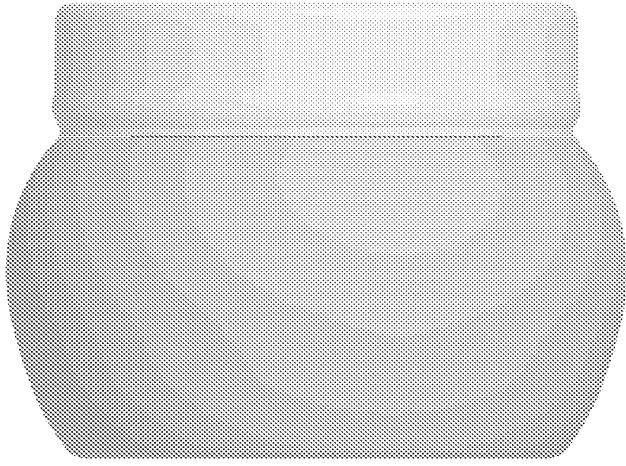
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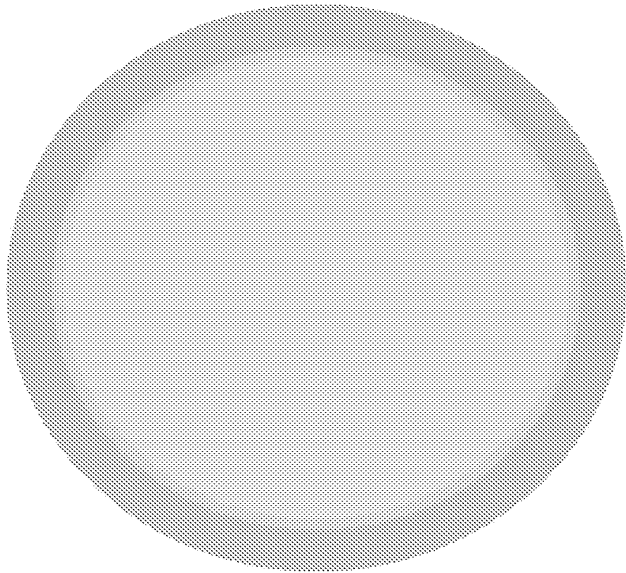
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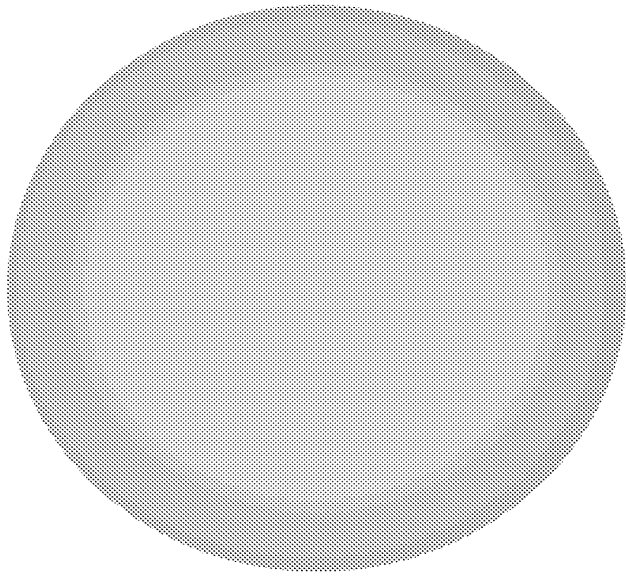
도면 1.5



도면 1.6



도면 1.7



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	§	
Merrilee Kick	§	Confirmation No.: 2957
	§	
Appl. No. 18/506,811	§	Group Art Unit: Not yet assigned
	§	
Filed: November 10, 2023	§	Examiner: Not yet assigned
	§	
For: CONTAINER	§	

INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In compliance with the duty of disclosure under 37 CFR §1.56, and in accordance with the practice under 37 CFR §1.97 and §1.98, the Examiner's attention is directed to the documents listed on the enclosed modified Form PTO-1449. No inference should be made that the cited references are in fact material, are in fact prior art, or that no better art exists. Pursuant to 37 CFR § 1.98(a)(2)(i), copies of the U.S. patent documents listed on the enclosed modified Form PTO-1449 are not attached.

This Information Disclosure Statement is being filed within three months of the United States filing date or before the mailing date of a first Office Action on the merits. No certification or fee is required (37 CFR 1.97(b)).

The Commissioner is hereby authorized to charge any additional fees which may be required or credit any overpayment to Deposit Account No. 08-1394. It is respectfully requested that the above information be considered by the Examiner and that a copy of the enclosed modified Form PTO-1449 be returned indicating that such information has been considered.

Respectfully submitted,

/Alan N. Herda/

Alan N. Herda
Registration No. 50,426

Date: November 16, 2023
HAYNES AND BOONE, LLP
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Dallas, Texas 75201
Telephone: 214-651-5924
IP Facsimile: 214-200-0853



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
18/506,811	11/10/2023		1820	58822.5US05	20	2

CONFIRMATION NO. 2957

FILING RECEIPT



0000000064950746

27683

Haynes and Boone, LLP
IP Section
2801 N. Harwood St.
Suite 2300
Dallas, TX 75201

Date Mailed: 11/28/2023

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Merrilee Kick, Plano, TX;

Applicant(s)

Merrilee Kick, Plano, TX;

Power of Attorney: The patent practitioners associated with Customer Number 27683

Domestic Priority data as claimed by applicant

This application is a CON of 29/824,813 01/27/2022
which is a CON of 16/800,195 02/25/2020 PAT 11,338,955
which is a CON of 12/762,934 04/19/2010 PAT 10,604,296

Foreign Applications for which priority is claimed (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 11/22/2023

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 18/506,811**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
Title

CONTAINER

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 18/506,811			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)		
BASIC FEE <small>(37 CFR 1.16(a), (b), or (c))</small>	N/A	N/A	N/A			N/A	320		
SEARCH FEE <small>(37 CFR 1.16(k), (l), or (m))</small>	N/A	N/A	N/A			N/A	700		
EXAMINATION FEE <small>(37 CFR 1.16(o), (p), or (q))</small>	N/A	N/A	N/A			N/A	800		
TOTAL CLAIMS <small>(37 CFR 1.16(j))</small>	20	minus 20 = *	0			x	= 0		
INDEPENDENT CLAIMS <small>(37 CFR 1.16(h))</small>	2	minus 3 = *				x	= 0		
APPLICATION SIZE FEE <small>(37 CFR 1.16(s))</small>	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0		
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0		
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	1820		
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total <small>(37 CFR 1.16(i))</small>	*	Minus **	=	x	=	x	=	
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus ***	=	x	=	x	=	
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
TOTAL ADD'L FEE							TOTAL ADD'L FEE		
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)	
	Total <small>(37 CFR 1.16(i))</small>	*	Minus **	=	x	=	x	=	
	Independent <small>(37 CFR 1.16(h))</small>	*	Minus ***	=	x	=	x	=	
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
TOTAL ADD'L FEE							TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.									



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Under Secretary of Commerce for Intellectual Property and
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Kathi Vidal

Under Secretary of Commerce for Intellectual Property and
Director of the United States Patent and Trademark Office

Derrick Brent

Deputy Under Secretary of Commerce for Intellectual Property and
Deputy Director of the United States Patent and Trademark Office



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/506,811	11/10/2023	Merrilee Kick	58822.5US05	2957
27683	7590	12/14/2023	EXAMINER	
Haynes and Boone, LLP			CENTRAL, DOCKET	
IP Section			ART UNIT	PAPER NUMBER
2801 N. Harwood St.			OPAP	
Suite 2300			NOTIFICATION DATE	DELIVERY MODE
Dallas, TX 75201			12/14/2023	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipdocketing@haynesboone.com

<i>Decision Granting Request for Prioritized Examination (Track I)</i>	Application No. 18/506,811	Applicant(s) Kick, Merrilee	
	Examiner FIKIRTE A GEREMEW	Art Unit OMBL	AIA (FITF) Status No
<p>1. THE REQUEST FILED <u>10 November 2023</u> IS GRANTED .</p> <p>The above-identified application has met the requirements for prioritized examination</p> <p>A. ☒ for an original nonprovisional application (Track I).</p> <p>B. ☐ for an application undergoing continued examination (RCE).</p> <p>2. The above-identified application will undergo prioritized examination. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:</p> <p>A. filing a <u>petition for extension of time</u> to extend the time period for filing a reply;</p> <p>B. filing an <u>amendment to amend the application to contain more than four independent claims, more than thirty total claims</u>, or a multiple dependent claim;</p> <p>C. filing a <u>request for continued examination</u> ;</p> <p>D. filing a notice of appeal;</p> <p>E. filing a request for suspension of action;</p> <p>F. mailing of a notice of allowance;</p> <p>G. mailing of a final Office action;</p> <p>H. completion of examination as defined in 37 CFR 41.102; or</p> <p>I. abandonment of the application.</p> <p>Telephone inquiries with regard to this decision should be directed to FIKIRTE GEREMEW at (703) 756-1930. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.</p>			
/FIKIRTE A GEREMEW/ PROGRAM SUPPORT ASSISTANT, OMBL			



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Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

27683 7590 02/12/2024
Haynes and Boone, LLP
IP Section
2801 N. Harwood St.
Suite 2300
Dallas, TX 75201

EXAMINER

POOS, MADISON LYNN

ART UNIT

PAPER NUMBER

3733

DATE MAILED: 02/12/2024

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/506,811	11/10/2023	Merrilee Kick	58822.5US05	2957

TITLE OF INVENTION: CONTAINER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	05/13/2024

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via the USPTO patent electronic filing system.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

27683 7590 02/12/2024
Haynes and Boone, LLP
IP Section
2801 N. Harwood St.
Suite 2300
Dallas, TX 75201

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via the USPTO patent electronic filing system or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/506,811	11/10/2023	Merrilee Kick	58822.5US05	2957

TITLE OF INVENTION: CONTAINER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	05/13/2024

EXAMINER	ART UNIT	CLASS-SUBCLASS
POOS, MADISON LYNN	3733	220-269000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required)

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via the USPTO patent electronic filing system ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/506,811	11/10/2023	Merrilee Kick	58822.5US05	2957
27683	7590	02/12/2024	EXAMINER	
Haynes and Boone, LLP			POOS, MADISON LYNN	
IP Section			ART UNIT	
2801 N. Harwood St.			PAPER NUMBER	
Suite 2300			3733	
Dallas, TX 75201			DATE MAILED: 02/12/2024	

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.** Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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<https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf>

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- 6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations;
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- 8) another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c));
- 9) the Office of Personnel Management (OPM) for personnel research purposes; and
- 10) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

Notice of Allowability	Application No. 18/506,811	Applicant(s) Kick, Merrilee	
	Examiner MADISON L POOS	Art Unit 3733	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Track One request filed 12/14/2023.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-20. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 11/16/2023.	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/MADISON L POOS/ Examiner, Art Unit 3733	/JOHN K FRISTOE JR/ Supervisory Patent Examiner, Art Unit 3733
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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. The following is an examiner's statement of reasons for allowance:

As to claim 1, Zimmer teaches a container, comprising: a container body (beverage vessel body 12), the container body defining a first opening (opening covered by lid 14 as seen in Fig. 1) to an interior of the container body; and a lid (lid 14) connected to the container body and covering the first opening to the interior of the container body (Fig. 1 shows the lid 14 at the top of the vessel body 12); wherein the container body comprises a container side wall (side wall 20) and a base portion (base 16) connected to the container side wall (Fig. 2 shows the side wall 20 connected to the base 16); wherein the base portion comprises a bottom (contacting surface 64) and a first depression (bottom surface 62) formed therein, the first depression extending upwardly from the bottom (Fig. 8 shows the bottom surface 62 extending upwardly from the contacting surface 64); wherein the first depression at least partially defines a first outline (the outer circumference of the bottom surface 62); wherein the base portion further comprises a center element (center depression seen in Fig. 8) centered with respect to the first outline at least partially defined by the first depression; wherein each of the center element, and the first outline at least partially defined by the first depression, is centered with respect to the container side wall (Fig. 7 shows the bottom surface 62 and the contacting surface are

centered with respect to the container side wall); wherein each of the center element, and the first outline at least partially defined by the first depression, is centered with respect to the base portion Fig. 7 shows the bottom surface 62 and the contacting surface are centered with respect to the container side wall); wherein a cross-sectional diameter of the first opening to the interior of the container body is less than a cross-sectional diameter of a middle portion of the container side wall (Fig. 2 shows the cross-sectional diameter of the top is less than the cross-sectional diameter of the middle of the side wall); wherein the base portion defines a diameter that is less than the cross-sectional diameter of the middle portion of the container side wall (Fig. 2 shows the cross-sectional diameter of the base is less than the cross-sectional diameter of the middle of the side wall); wherein a lower portion of the container side wall extends downwardly from the middle portion of the container side wall to the base portion of the container body, the lower portion along its entirety being greater in diameter than the base portion, including the bottom, thereby rendering the container body stemless (Fig. 2 shows the lower portion of the side wall is greater in diameter than the base portion); wherein the container body further comprises a circular neck (rim 22) extending from the container side wall so that the container side wall extends between the circular neck and the base portion (Fig. 1 shows the side wall extends between the rim 22 and the base 16); wherein an upper edge of the container side wall is adjacent to the circular neck of the container body; wherein the container body further comprises a lip (lip 34) at an end of the circular neck opposite the upper edge of the container side wall; wherein the

circular neck is adjacent to the lip; wherein the container body contains a liquid therewithin; wherein the lid cooperates with the lip to provide a seal so that the liquid contained within the container body is sealed against leaking out from between the container body and the lid (col. 4, lines 56-58); wherein the container side wall extends between the circular neck and the base portion so that: the upper portion of the container side wall defines a first angle: between the upper portion of the container side wall and the bottom of the base portion, and with respect to the bottom of the base portion; the middle portion of the container side wall defines a second angle: between the middle portion of the container side wall and the bottom of the base portion, and with respect to the bottom of the base portion; the lower portion of the container side wall defines a third angle: between the lower portion of the container side wall and the bottom of the base portion, and with respect to the bottom of the base portion; the first angle is an acute angle; the third angle is an obtuse angle; the second angle is greater than the first angle; and the third angle is greater than the second angle (Fig. 2 shows the container has a rounded body shape).

Zimmer does not teach wherein the container body is made out of a resin; wherein the lid is made out of a metal; wherein a first portion of the lid is above the lip of the container body; wherein the first portion of the lid defines a first circular shape; wherein the first portion of the lid further defines a second circular shape around which the first circular shape circumferentially extends; wherein the second circular shape defined by the first portion of the lid is concentric with the first circular shape defined by the first portion of the lid; wherein the first

circular shape defined by the first portion of the lid is radially positioned between the container side wall and the second circular shape defined by the first portion of the lid; wherein a second portion of the lid extends horizontally and is positioned so that the second circular shape is radially positioned between the second portion of the lid and the first circular shape; wherein the second portion of the lid defines a total area across which the second portion of the lid extends horizontally; wherein the second portion of the lid comprises a weakened or scored area; wherein the weakened or scored area is less than the total area across which the second portion of the lid extends horizontally; wherein the lid further comprises an arm connected to the second portion of the lid and radially positioned within the second circular shape; wherein the arm comprises opposing first and second end portions; wherein the arm is pivotable from a first position, in which the arm extends horizontally and the weakened or scored area is not deformed, to a second position, in which the arm does not extend horizontally and the weakened or scored area is deformed to provide a second opening to the interior of the container body; wherein an upper portion of the container side wall extends upwardly from the middle portion of the container side wall to the upper edge of the container side wall, the upper portion along its entirety being greater in diameter than the first opening to the interior of the container body; wherein, when the arm of the lid is in the first position and the weakened or scored area is not deformed: the first end portion of the arm is not positioned above the weakened or scored area of the second portion of the lid; and at least a portion of the second end portion of the arm is positioned above the weakened

or scored area of the second portion of the lid; and wherein the interior of the container body extends continuously across the cross-sectional diameter of the middle portion at a height midway between the circular neck and the base portion so as to be interrupted, if at all, only by the liquid contained within the container body.

None of the prior art of record is seen to disclose or suggest the limitation of claim 1 that wherein the container body is made out of a resin; wherein the lid is made out of a metal; wherein the interior of the container body extends continuously across the cross-sectional diameter of the middle portion at a height midway between the circular neck and the base portion so as to be interrupted, if at all, only by the liquid contained within the container body. For example, the closest reference found, Zimmer, teaches a beverage container with a vessel body but does not teach wherein the container body is made out of a resin; wherein the lid is made out of a metal; wherein the interior of the container body extends continuously across the cross-sectional diameter of the middle portion at a height midway between the circular neck and the base portion so as to be interrupted, if at all, only by the liquid contained within the container body.

As to claim 15, Zimmer teaches a container, comprising: a container body (beverage vessel body 12), the container body defining a first opening (opening covered by lid 14 as seen in Fig. 1) to an interior of the container body; and a lid (lid 14) connected to the container body and covering the first opening to the interior of the container body (Fig. 1 shows the lid 14 at the top of the vessel body 12); wherein the container body comprises a container side wall (side wall

20) and a base portion (base 16) connected to the container side wall (Fig. 2 shows the side wall 20 connected to the base 16); wherein the base portion comprises a bottom (contacting surface 64) and a first depression (bottom surface 62) formed therein, the first depression extending upwardly from the bottom (Fig. 8 shows the bottom surface 62 extending upwardly from the contacting surface 64); wherein the first depression at least partially defines a first outline (the outer circumference of the bottom surface 62); wherein the base portion further comprises a center element (center depression seen in Fig. 8) centered with respect to the first outline at least partially defined by the first depression; wherein each of the center element, and the first outline at least partially defined by the first depression, is centered with respect to the container side wall (Fig. 7 shows the bottom surface 62 and the contacting surface are centered with respect to the container side wall); wherein each of the center element, and the first outline at least partially defined by the first depression, is centered with respect to the base portion Fig. 7 shows the bottom surface 62 and the contacting surface are centered with respect to the container side wall); wherein a cross-sectional diameter of the first opening to the interior of the container body is less than a cross-sectional diameter of a middle portion of the container side wall (Fig. 2 shows the cross-sectional diameter of the top is less than the cross-sectional diameter of the middle of the side wall); wherein the base portion defines a diameter that is less than the cross-sectional diameter of the middle portion of the container side wall (Fig. 2 shows the cross-sectional diameter of the base is less than the cross-sectional diameter of the middle of the

side wall); wherein a lower portion of the container side wall extends downwardly from the middle portion of the container side wall to the base portion of the container body, the lower portion along its entirety being greater in diameter than the base portion, including the bottom, thereby rendering the container body stemless (Fig. 2 shows the lower portion of the side wall is greater in diameter than the base portion); wherein the container body further comprises a circular neck (rim 22) extending from the container side wall so that the container side wall extends between the circular neck and the base portion (Fig. 1 shows the side wall extends between the rim 22 and the base 16); wherein an upper edge of the container side wall is adjacent to the circular neck of the container body; wherein the container body further comprises a lip (lip 34) at an end of the circular neck opposite the upper edge of the container side wall; wherein the circular neck is adjacent to the lip; wherein the container body contains a liquid therewithin; wherein the lid cooperates with the lip to provide a seal so that the liquid contained within the container body is sealed against leaking out from between the container body and the lid (col. 4, lines 56-58); wherein the container side wall extends between the circular neck and the base portion so that: the upper portion of the container side wall defines a first angle: between the upper portion of the container side wall and the bottom of the base portion, and with respect to the bottom of the base portion; the middle portion of the container side wall defines a second angle: between the middle portion of the container side wall and the bottom of the base portion, and with respect to the bottom of the base portion; the lower portion of the container side wall defines a

third angle: between the lower portion of the container side wall and the bottom of the base portion, and with respect to the bottom of the base portion; the first angle is an acute angle; the third angle is an obtuse angle; the second angle is greater than the first angle; and the third angle is greater than the second angle (Fig. 2 shows the container has a rounded body shape).

Zimmer does not teach wherein the container body is made out of a resin; wherein the lid is made out of a metal; wherein the first portion of the lid defines a first circular shape; wherein the first portion of the lid further defines a second circular shape around which the first circular shape circumferentially extends; wherein the second circular shape defined by the first portion of the lid is concentric with the first circular shape defined by the first portion of the lid; wherein the first circular shape defined by the first portion of the lid is radially positioned between the container side wall and the second circular shape defined by the first portion of the lid; wherein a second portion of the lid extends horizontally and is positioned so that the second circular shape is radially positioned between the second portion of the lid and the first circular shape; wherein the second portion of the lid defines a total area across which the second portion of the lid extends horizontally; wherein the second portion of the lid comprises a weakened or scored area; wherein the weakened or scored area is less than the total area across which the second portion of the lid extends horizontally; wherein the lid further comprises an arm connected to the second portion of the lid and radially positioned within the second circular shape; wherein the arm comprises opposing first and second end portions; wherein the arm is pivotable from a first position, in which the arm extends horizontally and the weakened or scored area is not deformed, to a second position, in

which the arm does not extend horizontally and the weakened or scored area is deformed to provide a second opening to the interior of the container body; wherein, when the arm of the lid is in the first position and the weakened or scored area is not deformed: the first end portion of the arm is not positioned above the weakened or scored area of the second portion of the lid; and at least a portion of the second end portion of the arm is positioned above the weakened or scored area of the second portion of the lid; wherein the interior of the container body extends continuously across the cross-sectional diameter of the middle portion at a height midway between the circular neck and the base portion so as to be interrupted, if at all, only by the liquid contained within the container body; wherein the metal is aluminum; wherein the resin is a polyethylene terephthalate (PET) resin; wherein the first depression is visible through at least a portion of the container body; wherein the center element of the base portion is a downward extending protrusion; wherein the base portion further comprises a second depression adjacent the first depression; and wherein the second depression is visible through the at least a portion of the container body.

None of the prior art of record is seen to disclose or suggest the limitation of claim 15 that wherein the container body is made out of a resin; wherein the lid is made out of a metal; wherein the interior of the container body extends continuously across the cross-sectional diameter of the middle portion at a height midway between the circular neck and the base portion so as to be interrupted, if at all, only by the liquid contained within the container body; wherein the metal is aluminum; wherein the resin is a polyethylene terephthalate (PET) resin; wherein the first depression is visible through at least a portion of the container body; wherein the center element of the base portion

is a downward extending protrusion; wherein the base portion further comprises a second depression adjacent the first depression; and wherein the second depression is visible through the at least a portion of the container body. For example, the closest reference found, Zimmer, teaches a beverage container with a vessel body but does not teach wherein the container body is made out of a resin; wherein the lid is made out of a metal; wherein the interior of the container body extends continuously across the cross-sectional diameter of the middle portion at a height midway between the circular neck and the base portion so as to be interrupted, if at all, only by the liquid contained within the container body; wherein the metal is aluminum; wherein the resin is a polyethylene terephthalate (PET) resin; wherein the first depression is visible through at least a portion of the container body; wherein the center element of the base portion is a downward extending protrusion; wherein the base portion further comprises a second depression adjacent the first depression; and wherein the second depression is visible through the at least a portion of the container body.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MADISON LYNN POOS whose telephone number is (571)270-7427. The examiner can normally be reached Mon-Thus 10-3 EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Fristoe, Jr can be reached on 571-272-4926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: <https://patentcenter.uspto.gov>. Visit <https://www.uspto.gov/patents/apply/patent-center> for more information about Patent Center and <https://www.uspto.gov/patents/docx> for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M.L.P/
Examiner, Art Unit 3733

/JOHN K FRISTOE JR/
Supervisory Patent Examiner, Art Unit 3733

Issue Classification 	Application/Control No. 18/506,811	Applicant(s)/Patent Under Reexamination Kick, Merrilee
	Examiner MADISON L POOS	Art Unit 3733

CPC						
Symbol					Type	Version
B65D	/	1	/	165	F	2013-01-01
B65D	/	17	/	4012	I	2018-01-01
B65D	/	1	/	16	I	2013-01-01

CPC Combination Sets							
Symbol				Type	Set	Ranking	Version
	/		/				

/MADISON L POOS/ Examiner, Art Unit 3733 (Assistant Examiner)	05 February 2024 (Date)	Total Claims Allowed: 20	
/JOHN K FRISTOE JR/ Supervisory Patent Examiner, Art Unit 3733 (Primary Examiner)	06 February 2024 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 5

Issue Classification 	Application/Control No. 18/506,811	Applicant(s)/Patent Under Reexamination Kick, Merrilee
	Examiner MADISON L POOS	Art Unit 3733

INTERNATIONAL CLASSIFICATION			
CLAIMED			
B65D	/	1	/ 16

NON-CLAIMED			
/	/	/	/

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

/MADISON L POOS/ Examiner, Art Unit 3733 (Assistant Examiner)	05 February 2024 (Date)	Total Claims Allowed: 20	
/JOHN K FRISTOE JR/ Supervisory Patent Examiner, Art Unit 3733 (Primary Examiner)	06 February 2024 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 5

Issue Classification 	Application/Control No. 18/506,811	Applicant(s)/Patent Under Reexamination Kick, Merrilee
	Examiner MADISON L POOS	Art Unit 3733

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

/MADISON L POOS/ Examiner, Art Unit 3733 (Assistant Examiner)	05 February 2024 (Date)	Total Claims Allowed: 20	
/JOHN K FRISTOE JR/ Supervisory Patent Examiner, Art Unit 3733 (Primary Examiner)	06 February 2024 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 5

Search Notes 	Application/Control No. 18/506,811	Applicant(s)/Patent Under Reexamination Kick, Merrilee
	Examiner MADISON L POOS	Art Unit 3733

CPC - Searched*		
Symbol	Date	Examiner
B65D 1/10, 1/12, 1/14, 1/16, 1/165, 17/4012, 2501/00, 2501/0009	02/05/2024	MLP

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
220	269, 608, 669	02/05/2024	MLP

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
See SEARCH History	02/05/2024	MLP

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	See SEARCH History	02/05/2024	MLP

/MADISON L POOS/ Examiner, Art Unit 3733	
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In place of PTO-1449 Form		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Application Number		18/506,811	
		Filing Date		November 10, 2023	
		Applicant(s)		Merrilee Kick	
		Art Unit		TBD	
		Examiner Name		TBD	
SHEET	1	OF	2	Attorney Docket Number 58822.5US05	

U. S. PATENT DOCUMENTS				
Examiner's Initials	Cite No.	Document Number	Publication Date MM-DD- YYYY	Name of Patentee or Applicant of Cited Document
	A1	9,522,482	12-20-2016	Milkowski et al.
	A2	7,784,639	08-31-2010	Milkowski et al.
	A3	10,604,296	03-31-2020	Kick
	A4	D703,068	04-22-2014	Kick
	A5	D732,978	06-30-2015	Kick
	A6	D562,685	02-26-2008	Millspaw et al.
	A7	D699,578	02-18-2014	Marina et al.
	A8	D701,767	04-01-2014	Marina et al.
	A9	D49,555	08-22-1916	Vivaudou
	A10	D106,034	09-14-1937	Harrison
	A11	2,745,642	05-15-1956	HERMANN
	A12	3,179,036	04-20-1965	JACKSON
	A13	3,314,569	04-18-1967	SEIFERTH
	A14	D224,516	08-01-1972	Amberg
	A15	D254,716	04-15-1980	Mascia
	A16	4,936,482	06-08-1990	Gallagher et al.
	A17	D352,898	11-29-1994	Vacher
	A18	5,407,086	04-18-1995	Ota
	A19	D383,646	09-16-1997	Jeppesen
	A20	D448,666	10-02-2001	Fields
	A21	6,574,883	06-10-2003	Giblin et al.
	A22	6,793,094	09-21-2004	Turnbough
	A23	D512,917	12-20-2005	Frisch et al.
	A24	7,051,892	05-30-2006	O'Day
	A25	D565,413	04-01-2008	Honkawa et al.
	A26	D596,489	07-21-2009	Weiss
	A27	D606,404	12-22-2009	Diss
	A28	D606,405	12-22-2009	Takata et al.
	A29	D612,732	03-30-2010	Takata et al.
	A30	D614,971	05-04-2010	Millspaw et al.
	A31	7,731,053	06-08-2010	Ivey
	A32	D634,635	03-22-2011	Araujo et al.
	A33	D650,280	12-13-2011	de Peyerimhoff et al.
	A34	D663,619	07-17-2012	Pillet
	A35	D675,528	02-05-2013	Beaver
	A36	D703,068	04-22-2014	Kick
	A37	D704,567	05-13-2014	Sanders
	A38	D711,247	08-19-2014	Sanders
	A39	D460,693	07-23-2002	Flowers
	A40	6,375,031	04-23-2002	Kwan

Examiner Signature	/MADISON L. POOS/	Date Considered	02/05/2024
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.L.P./

In place of PTO-1449 Form		U. S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Application Number		18/506,811	
		Filing Date		November 10, 2023	
		Applicant(s)		Merrilee Kick	
		Art Unit		TBD	
		Examiner Name		TBD	
SHEET	2	OF	2	Attorney Docket Number 58822.5US05	

	A41	D049555	08-22-1916	Vivaudou
	A42	D223898	06-20-1972	Edwards
	A43	D235193	05-27-1975	Edwards
	A44	D739267	09-22-2015	Kick
	A45	D803376	11-21-2017	Gobber et al.
	A46	10336496	07-02-2019	Zimmer
	A47	D889266	07-07-2020	Pun
	A48	11484152	11-01-2022	Kick
	A49	D976704	01-31-2023	Stammen

U. S. PATENT APPLICATION PUBLICATIONS

Examiner's Initials	Cite No.	Document Number	Publication Date MM-DD- YYYY	Name of Patentee or Applicant of Cited Document
	B1	20200262601	08-20-2020	Kick
	B2	20150344177	12-03-2015	Kick
	B3	20140061328	03-06-2014	Haymond
	B4	20190009952	01-10-2019	Pedmo et al.

FOREIGN PATENT DOCUMENTS

Examiner's Initials	Cite No.	Foreign Patent Document (Country Code – Number – Kind)	Publication Date MM-DD- YYYY	Patentee or Applicant of Cited Document	Translation Y/N
	C1	JP-05032248-A	02-09-1993	DAINIPPON PRINTING CO LTD	With English Translation
	C2	WO-2009072910-A2	06-11-2009	INVENTO SP. Z O.O.	
	C3	WO-2005049434-A1	06-02-2005	INVENTO SPOLKA Z O.O.	
	C4	WO-2006029441-A1	03-23-2006	REGLASS PTY LTD	
	C5	JP-D1608809-S	07-05-2021	TAKEMOTO CONTAINER CO., LTD.	
	C6	KR-3006720360000-S	01-22-2014	AMOREPACIFIC CORPORATION	
	C7	TW-D180616S	01-11-2017	FANNING	

NON-PATENT LITERATURE DOCUMENTS

Examiner's Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article, title of the item, date, page(s), volume- issue number(s), publisher, city/country where published
	D1	Translation of Office Action with Search Report for Taiwanese Design Patent Application No. 111301016, issued August 31, 2022; 3 pages.

Examiner Signature	/MADISON L POOS/	Date Considered	02/05/2024
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.L.P./

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L8	0	b65d2501/14.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/20 01:04 PM
L15	13	kick-merrilee.in.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/20 01:05 PM
L16	906	220/269.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/20 01:07 PM
L17	633	b65d1/165.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/20 01:19 PM
L18	1492	b65d17/4012.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/21 03:03 PM
L19	340	b65d1/16.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/21 03:04 PM
L20	26	b65d2501/0009.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/22 10:39 AM
L21	5	b65d2501/24.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/22 10:52 AM
L22	7	b65d2501/00.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/22 10:53 AM
L23	96	b65d1/14.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/22 10:53 AM
L24	331	b65d1/12.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/22 10:55 AM
L25	218	b65d1/10.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/22 11:02 AM
L26	529	220/608.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/22 11:06 AM
L27	1086	220/669.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2021/09/22 01:30 PM
L28	12	("2745642" "3179036" "3314569" "4936482" "5407086" "6793094" "7051892" "7731053" "D254716").PN. OR ("10604296").URPN.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2021/09/28 11:59 AM
L29	0	b65d2501/14.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:45 AM
L30	906	220/269.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:45 AM
L31	648	b65d1/165.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:45 AM
L32	1514	b65d17/4012.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:45 AM
L33	348	b65d1/16.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:46 AM
L34	29	b65d2501/0009.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:46 AM

L35	5	b65d2501/24.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:46 AM
L36	7	b65d2501/00.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:46 AM
L37	98	b65d1/14.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:46 AM
L38	335	b65d1/12.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:46 AM
L39	225	b65d1/10.cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:46 AM
L40	529	220/608.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:46 AM
L41	1086	220/669.ccls.	(US-PGPUB; USPAT; USOCR; EPO; JPO)	OR	OFF	OFF	2022/02/16 09:46 AM
L42	22	((("KICK") near3 ("Merrilee"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2024/02/01 12:12 PM
L43	855	220/269.ccls.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN))	OR	ON	ON	2024/02/01 12:13 PM
L44	2205	B65D1/165.cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN))	OR	ON	ON	2024/02/01 12:13 PM
L45	1429	B65D1/16.cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO,	OR	ON	ON	2024/02/01 12:13 PM

L46	4990	B65D17/4012.cpc.	MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN)) (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN))	OR	ON	ON	2024/02/01 12:13 PM
L47	158	b65d2501/0009.cpc.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO))	OR	OFF	OFF	2024/02/01 03:55 PM
L48	24	b65d2501/24.cpc.	(US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO))	OR	OFF	OFF	2024/02/01 03:56 PM
L49	51	("10336496" OR "10604296" OR "11484152" OR "20140061328" OR "20150344177" OR "20190009952" OR "20200262601" OR "2745642" OR "3179036" OR	(US-PGPUB; USPAT)	OR	OFF	OFF	2024/02/01 04:18 PM

		"3314569" OR "4936482" OR "5407086" OR "6375031" OR "6574883" OR "6793094" OR "7051892" OR "7731053" OR "7784639" OR "9522482" OR "D049555" OR "D106034" OR "D223898" OR "D224516" OR "D235193" OR "D254716" OR "D352898" OR "D383646" OR "D448666" OR "D460693" OR "D512917" OR "D562685" OR "D565413" OR "D596489" OR "D606404" OR "D606405" OR "D612732" OR "D614971" OR "D634635" OR "D650280" OR "D663619" OR "D675528" OR "D699578" OR "D701767" OR "D703068" OR "D704567" OR "D711247" OR "D732978" OR "D739267" OR "D803376" OR "D889266" OR "D976704").pn.					
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PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

PE2E SEARCH - Search History (Prior Art)

There are no Prior Art searches to show.

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N45	0	(container AND body AND open\$3 AND lid AND cover\$3 AND resin AND metal AND side AND wall AND base AND depression AND bottom AND center AND diameter AND middle AND lower AND circular AND neck AND upper AND edge AND lip AND weakened AND scored AND arm AND end AND pivot\$4 AND horizontally AND second AND seal AND deformed AND angle AND third AND acute AND obtuse AND greater AND height).clm.	(US-PGPUB; USPAT)	OR	OFF	OFF	2024/02/01 04:02 PM
N46	0	(container AND body AND open\$3 AND lid AND resin AND metal AND side AND wall AND base AND bottom AND depression AND center AND diameter AND middle AND lower AND greater AND circular AND neck AND upper AND edge AND lip AND second AND horizontally AND weakened AND scored AND arm AND end AND deformed AND seal AND angle AND third AND acute AND obtuse AND height AND aluminum AND visible).clm.	(US-PGPUB; USPAT)	OR	OFF	OFF	2024/02/01 04:15 PM

Bibliographic Data

Application No: 18/506,811

Foreign Priority claimed: ☐ Yes ☒ No

35 USC 119 (a-d) conditions met: ☐ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged: /MADISON L POOS/

Examiner's Signature

Initials

Title: CONTAINER

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/10/2023	220	3733	58822.5US05
RULE			

APPLICANTS

INVENTORS

Merrilee Kick, Plano, TX, UNITED STATES

CONTINUING DATA

This application is a CON of 29824813 01/27/2022ABN

29824813 is a CON of 16800195 02/25/2020 PAT 11338955

16800195 is a CON of 12762934 04/19/2010 PAT 10604296

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

11/22/2023

STATE OR COUNTRY

UNITED STATES

ADDRESS

Haynes and Boone, LLP

IP Section

2801 N. Harwood St.

Suite 2300

Dallas, TX 75201

UNITED STATES

FILING FEE RECEIVED

\$6,160



UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC PAYMENT RECEIPT

APPLICATION #
18/506,811

RECEIPT DATE / TIME
02/13/2024 03:23:24 PM Z ET

ATTORNEY DOCKET #
58822.5US05

Title of Invention

CONTAINER

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 2957

FILED BY Q Dismuke

PATENT CENTER # 64306110

AUTHORIZED BY Alan Herda

CUSTOMER # 27683

FILING DATE 11/10/2023

CORRESPONDENCE
ADDRESS -

FIRST NAMED
INVENTOR Merrilee Kick

Payment Information

PAYMENT METHOD
CARD / 1103

PAYMENT TRANSACTION ID
E20242CF24016730

PAYMENT AUTHORIZED BY
Q Dismuke

PRE-AUTHORIZED ACCOUNT
081394

PRE-AUTHORIZED CATEGORY

37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees); 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post Issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges)

FEE CODE	DESCRIPTION	ITEM PRICE(\$)	QUANTITY	ITEM TOTAL(\$)
1501	UTILITY ISSUE FEE	1200.00	1	1200.00
TOTAL AMOUNT:				\$1,200.00

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement

Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Merrilee Kick	§	Docket No.: 58822.5US05
	§	
Application No.: 18/506,811	§	Examiner: Madison Lynn Poos
	§	
Filed: November 10, 2023	§	Art Unit: 3733
	§	
For: CONTAINER	§	Confirmation No.: 2957

Mail Stop Issue Fee

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

In the Notice of Allowance mailed February 12, 2024, the Examiner included a Statement of Reasons for Allowance. Although the Applicant agrees that the claims are allowable, the Applicant declines to agree with the Statement. The Applicant's silence should not be construed as agreement with any claim interpretation or characterization. The Applicant maintains that patentability is not necessarily limited to the specific claim elements cited by the Examiner, and it is the claims as a whole that determine patentability. Additionally, the Statement indicates that U.S. Patent No. 10,336,496 to Zimmer ("Zimmer") is prior art with respect to the allowed claims. However, the earliest possible priority date for Zimmer is May 19, 2011, which is more than one year after the priority date of the allowed claims, that is, April 19, 2010. Consequently, Zimmer is not prior art with respect to the allowed claims.

Respectfully submitted,

/Alan N. Herda/

Alan N. Herda
Registration No. 50,426

Date: February 13, 2024
HAYNES AND BOONE, LLP
Telephone: (214) 651-5924
IP Facsimile: (214) 200-0853

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via the USPTO patent electronic filing system.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

27683 7590 02/12/2024
Haynes and Boone, LLP
IP Section
2801 N. Harwood St.
Suite 2300
Dallas, TX 75201

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via the USPTO patent electronic filing system or by facsimile to (571) 273-2885, on the date below.

Q Dismuke	(Typed or printed name)
/Q Dismuke/	(Signature)
February 13, 2024	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/506,811	11/10/2023	Merrilee Kick	58822.5US05	2957

TITLE OF INVENTION: CONTAINER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	05/13/2024

EXAMINER	ART UNIT	CLASS-SUBCLASS
POOS, MADISON LYNN	3733	220-269000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 HAYNES AND BOONE, LLP

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required)

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☒ Electronic Payment via the USPTO patent electronic filing system ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 08-1394

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Alan N. Herda/

Date February 13, 2024

Typed or printed name Alan N. Herda

Registration No. 50,426



ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
18/506,811

RECEIPT DATE / TIME
02/13/2024 03:23:24 PM Z ET

ATTORNEY DOCKET #
58822.5US05

Title of Invention

CONTAINER

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 2957

FILED BY Q Dismuke

PATENT CENTER # 64306110

FILING DATE 11/10/2023

CUSTOMER # 27683

FIRST NAMED
INVENTOR Merrilee Kick

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Alan Herda

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
58822.5US05 Comments on Statement of Reasons for Allowance.pdf	1	Miscellaneous Incoming Letter	18 KB
58822.5US05 Issue Fee Transmittal.pdf	1	Issue Fee Payment (PTO-85B)	167 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
58822.5US05 Comments on Statement of Reasons for Allowance.pdf	7BE87DAEFE641A178DA3733ADE707B5CA2B887908AC43E4F F4D6A85E98E891EEF889B943B1D2D5C4C0C3DC0D151BF2B9 F511BCED311526B499214819887262C0

58822.5US05 Issue Fee
Transmittal.pdf

126A934455D6A4D74D346C8B9343F88A50DB8A82088D9C732
A0A1138300638FD10D0FCB883B4720981D2DAC449473FD651
72FDD07E3F412FC0E6696BE3306F6A

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/506,811	03/19/2024	11932441	58822.5US05	2957

27683 7590 02/28/2024
Haynes and Boone, LLP
IP Section
2801 N. Harwood St.
Suite 2300
Dallas, TX 75201

ISSUE NOTIFICATION

The projected patent number and issue date are specified above. The patent will issue electronically. The electronically issued patent is the official patent grant pursuant to 35 U.S.C. § 153. The patent may be accessed on or after the issue date through Patent Center at <https://patentcenter.uspto.gov/>. The patent will be available in both the public and the private sides of Patent Center. Further assistance in electronically accessing the patent, or about Patent Center, is available by calling the Patent Electronic Business Center at 1-888-217-9197.

The USPTO is implementing electronic patent issuance with a transition period, during which period the USPTO will mail a ceremonial paper copy of the electronic patent grant to the correspondence address of record. Additional copies of the patent (i.e., certified and presentation copies) may be ordered for a fee from the USPTO's Certified Copy Center at <https://certifiedcopycenter.uspto.gov/index.html>. The Certified Copy Center may be reached at (800)972-6382.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Center (<https://patentcenter.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PATENT CENTER site <https://patentcenter.uspto.gov> for additional inventors):

Merrilee Kick, Plano, TX;

APPLICANT(s) (Please see PATENT CENTER site <https://patentcenter.uspto.gov> for additional applicants):

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.



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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
18/506,811	11/10/2023	Merrilee Kick	58822.5US05	2957
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Please find below and/or attached an Office communication concerning this application or proceeding.

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