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Doctor

José Luis Salazar

Director de División de Nuevas Creaciones

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

E. S. D.

Referencia: Expediente No. 14.073.149

Solicitud de Patente de Invención titulada: "Tapa de espesor reducido para botella"

Solicitante: Frishman, Abe

MEMORIAL DE COMPLEMENTACIÓN

ÁLVARO CORREA ORDÓÑEZ, mayor de edad y vecino de Bogotá D.C., identificado según aparece al pie de mi firma, en mi condición de apoderado de la sociedad en referencia, manifiesto lo siguiente:

El día 4 de Abril de 2014, bajo el número de radicación 14.073.149-00000-0000, presenté la solicitud de patente de invención de la referencia, para la cual adjunto Capítulo reivindicatorio modificado según artículo 34 del PCT junto con la respectiva traducción al español.

Atentamente,

ÁLVARO CORREA ORDÓÑEZ

C.C. No. 79.143.366 de Usaquén

T.P.20.281

Anexo: -(IPEA/409) International Preliminary Report on Patentability Chapter II
-Traducción del capítulo reivindicatorio

PCT/US2012/047949 14.06.2013

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference OWORL.00102PCT	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/US12/47949	International filing date (day/month/year) 24 July 2012 (24.07.2012)	Priority date (day/month/year) 06 OCTOBER 2011 (06.10.2011)	
International Patent Classification (IPC) or national classification and IPC IPC: B65D 41/12(2006.01),41/14(2006.01) B65D 41/12(2006.01),41/14(2006.01) USPC: 215/328			
Applicant ABE FRISHMAN			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (sent to the applicant and to the International Bureau) a total of <u>8</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____ containing a sequence listing, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3bis of Annex C of the Administrative Instructions).			
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☒ Box No. IV Lack of unity of invention ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement ☐ Box No. VI Certain documents cited ☐ Box No. VII Certain defects in the international application ☐ Box No. VIII Certain observations on the international application			
Date of submission of the demand 06 May 2013 (06.05.2013)		Date of completion of this report 03 June 2013 (03.06.2013)	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Authorized officer /J. Gregory Pickett/ Telephone No. 571-272-3700	

Form PCT/IPEA/409 (cover sheet). (July 2011)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY	International application No. PCT/US12/47949
Box No. I Basis of the report	
1. With regard to the language, this report is based on: ☒ the international application in the language in which it was filed. ☐ a translation of the international application into <u>English</u> which is the language of a translation furnished for the purposes of: ☐ international search (Rules 12.3(a) and 23.1(b)). ☐ publication of the international application (Rule 12.4(a)). ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a) and (b)). 2. With regard to the elements of the international application, this report is based on <i>(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)</i>: ☐ the international application as originally filed/furnished ☒ the description: pages <u>1-16 and 19</u> as originally filed/furnished pages* <u>NONE</u> received by this Authority on _____ pages* <u>NONE</u> received by this Authority on _____ ☒ the claims: pages <u>NONE</u> as originally filed/furnished pages* <u>NONE</u> as amended (together with any statement) under Article 19 pages* <u>17 and 18</u> received by this Authority on <u>06 May 2013 (06.05.2013)</u> pages* <u>NONE</u> received by this Authority on _____ ☒ the drawings: pages <u>1/4-4/4</u> as originally filed/furnished pages* <u>NONE</u> received by this Authority on _____ pages* <u>NONE</u> received by this Authority on _____ ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing. 3. ☐ The amendments have resulted in the cancellation of: ☐ the description, pages _____ ☐ the claims, Nos. _____ ☐ the drawings, sheets/figs _____ ☐ the sequence listing (<i>specify</i>): _____ 4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)): ☐ the description, pages _____ ☐ the claims, Nos. _____ ☐ the drawings, sheets/figs _____ ☐ the sequence listing (<i>specify</i>): _____ 5. ☐ This report has been established: ☐ taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)). ☐ without taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rules 66.4bis) and 70.2(e)). 6. ☐ Supplementary international search report(s) from Authority(ies) _____ has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)). * If item 4 applies, some or all of those sheets may be marked "superseded."	

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
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Box No. IV Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has, within the applicable time limit:
 - ☐ restricted the claims.
 - ☐ paid additional fees.
 - ☐ paid additional fees under protest, and, where applicable, the protest fee.
 - ☐ paid additional fees under protest but the applicable protest fee was not paid.
 - ☐ neither restricted the claims nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
 - ☐ complied with.
 - ☒ not complied with for the following reasons:

Please See Continuation Sheet

4. Consequently, this report has been established in respect of the following parts of the international application:
 - ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-4

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY		International application No. PCT/US12/47949
Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement		
Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-4</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-4</u>	NO
Industrial Applicability (IA)	Claims <u>1-4</u>	YES
	Claims <u>NONE</u>	NO
2. Citations and Explanations (Rule 70.7)		
Claims 1-4 lack novelty under PCT Article 33(2) as being anticipated by Merino Caballero (WO 2009/009429 A1).		
'429 discloses a reduced gauge crown (FIGS. 1, 2A) for a container opening, the crown having a crown thickness gauge in the range of 0.12mm to 0.18mm ([34]) and comprising a top portion (FIG. 2A), an inner portion (20a, 22, 22a, 22b, 23) contiguous with the top portion and the inner portion being formed into a panel (FIGS. 1, 2A; [22-24]), an outer portion (30) contiguous with the top portion, the outer portion being formed into a skirt that descends from the top portion (FIGS. 1, 2A; [22-24]), the crown comprising corrugation (22, 22a, 22b, 23) formed in the panel sufficient to provide reinforcement against deflection of panel (FIGS. 1, 2A; [24]); wherein the corrugation comprises a recess that descends from the top to the panel (FIGS. 1, 2A; [6, 7, 25]); wherein the corrugation comprises one or more shapes formed in the panel (FIGS. 1, 2A; [23-25]); wherein the crown is lightweight ([6, 34]).		
Claims 1-4 lack an inventive step under PCT Article 33(3) as being obvious over Merino Caballero (WO 2009/009429 A1).		
See PCT Article 33(2) explanation, <i>supra</i> .		
Claims 1-4 meet the criteria set out in PCT Article 33(4), and thus exhibit industrial applicability because the subject matter claimed can be made or used in industry.		
----- NEW CITATIONS -----		
WO 2009/009429 A1 (MERINO) 15 January 2009, see FIGS. 1-2A, [34].		
US 3,229,842 A (LEENAARDS) 18 Jan 1966, see FIGS. 1-6, COL. 3{25-30}.		

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

IV. 3. This Authority considers that the requirement of unity of invention is accordance with Rules 13.1, 13.2 and 13.3 is not complied with for the following reasons:
REQUIREMENT FOR UNITY OF INVENTION

As provided in 37 CFR 1.475(a), an international application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention"). Where a group of inventions is claimed in an international application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.

The determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim. See 37 CFR 1.475(e).

WHEN CLAIMS ARE DIRECTED TO MULTIPLE PROCESSES, PRODUCTS, AND/OR APPARATUSES

Products, processes of manufacture, processes of use, and apparatuses are different categories of invention. When an application includes claims to more than one product, process, or apparatus, the first invention of the category first mentioned in the claims of the application and the first recited invention of each of the other categories related thereto will be considered as the "main invention" in the claims. In the case of non-compliance with unity of invention and where no additional fees are timely paid, the international search and/or international preliminary examination, as appropriate, will be based on the main invention in the claims. See PCT Article 17(3)(a), 37 CFR 1.475(d), 37 CFR 1.476(c) and 37 CFR 1.488(b)(3).

As provided in 37 CFR 1.475(b), an international application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following combinations of categories:

- (1) A product and a process specially adapted for the manufacture of said product; or
- (2) A product and process of use of said product; or
- (3) A product, a process specially adapted for the manufacture of the said product, and a use of the said product; or
- (4) A process and an apparatus or means specifically designed for carrying out the said process; or
- (5) A product, a process specially adapted for the manufacture of the said product, and an apparatus or means specifically designed for carrying out the said process.

Otherwise, unity of invention might not be present. See 37 CFR 1.475(c).

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Supplemental Box

• **Group I, claim(s) 1-4, drawn to a reduced gauge crown.**

• **Group II, claim(s) 5-6, drawn to a method of making a reduced gauge crown.**

The groups of inventions listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The groups of inventions listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of "reduced gauge crown thickness in the range of 0.12mm to 0.18mm and corrugation formed in the panel sufficient to provide reinforcement against deflection of panel," this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of WO 2009/009429 A1, which discloses this feature substantially as claimed. See the lack of novelty explanation, *supra*. REQUIREMENT FOR UNITY OF INVENTION

As provided in 37 CFR 1.475(a), an international application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention"). Where a group of inventions is claimed in an international application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.

The determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim. See 37 CFR 1.475(e).

WHEN CLAIMS ARE DIRECTED TO MULTIPLE PROCESSES, PRODUCTS, AND/OR APPARATUSES

Products, processes of manufacture, processes of use, and apparatuses are different categories of invention. When an application includes claims to more than one product, process, or apparatus, the first invention of the category first mentioned in the claims of the application and the first recited invention of each of the other categories related thereto will be considered as the "main invention" in the claims. In the case of non-compliance with unity of invention and where no additional fees are timely paid, the international search and/or international preliminary examination, as appropriate, will be based on the main invention in the claims. See PCT Article 17(3)(a), 37 CFR 1.475(d), 37 CFR 1.476(c) and 37 CFR 1.488(b)(3).

As provided in 37 CFR 1.475(b), an international application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following combinations of categories:

- (1) A product and a process specially adapted for the manufacture of said product; or
- (2) A product and process of use of said product; or
- (3) A product, a process specially adapted for the manufacture of the said product, and a use of the said product; or
- (4) A process and an apparatus or means specifically designed for carrying out the said process; or
- (5) A product, a process specially adapted for the manufacture of the said product, and an apparatus or means specifically designed for carrying out the said process.

Otherwise, unity of invention might not be present. See 37 CFR 1.475(c).

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

Group I, claim(s) 1-4, drawn to a reduced gauge crown.

Group II, claim(s) 5-6, drawn to a method of making a reduced gauge crown.

The groups of inventions listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The groups of inventions listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Groups I and II lack unity of invention because even though the inventions of these groups require the technical feature of "reduced gauge crown thickness in the range of 0.12mm to 0.18mm and corrugation formed in the panel sufficient to provide reinforcement against deflection of panel," this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of WO 2009/009429 A1, which discloses this feature substantially as claimed. See the lack of novelty explanation, *supra*.

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I claim:

1. A reduced gauge crown for a container opening, the crown having a crown thickness gauge in the range of 0.12mm to 0.18mm and comprising a top portion, an inner portion contiguous with the top portion and the inner portion being formed into a panel, an outer portion contiguous with the top portion, the outer portion being formed into a skirt that descends from the top portion, the crown comprising corrugation formed in the panel sufficient to provide reinforcement against deflection of panel.
2. The crown of claim 1, wherein the corrugation comprises a recess that descends from the top to the panel.
3. The crown of the claim 1, wherein the corrugation comprises one or more shapes formed in the panel.
4. The crown of claim 1, wherein the crown is lightweight.

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5. A method for making a reduced gauge crown for a container, the crown having a crown thickness gauge in the range of 0.12mm to 0.18mm, the method comprising:
- i. Shaping a sheet of crown material to provide a top portion, an inner portion contiguous with the top portion and formed into a panel, and an outer portion contiguous with the top portion and formed into a skirt that descends from the top portion; and
 - ii. forming corrugation in the panel sufficient to provide reinforcement against deflection of panel.
6. The method of claim 5, wherein the step of forming corrugation in the panel consists of forming a recess that descends from the top portion to the panel in the inner portion.

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I claim:

1. A reduced gauge crown for a container opening, the crown having a crown thickness gauge in the range of 0.12mm to 0.18mm and comprising a top portion, an inner portion contiguous with the top portion and the inner portion being formed into a panel, an outer portion contiguous with the top portion, the outer portion being formed into a skirt that descends from the top portion, the crown comprising corrugation formed in the panel sufficient to provide reinforcement against deflection of panel.
2. The crown of claim 1, wherein the corrugation comprises a recess that descends from the top to the panel.
3. The crown of the claim 1, wherein the corrugation comprises one or more shapes formed in the panel.
4. The crown of claim 1, wherein the crown is lightweight.

REDUCED GAUGE BOTTLE CAP

Specification

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AMENDED SHEET - IPEA/US

5. A method for making a reduced gauge crown for a container, the crown having a crown thickness gauge in the range of 0.12mm to 0.18mm, the method comprising:
- i. Shaping a sheet of crown material to provide a top portion, an inner portion contiguous with the top portion and formed into a panel, and an outer portion contiguous with the top portion and formed into a skirt that descends from the top portion; and
 - ii. forming corrugation in the panel sufficient to provide reinforcement against deflection of panel.
6. The method of claim 5, wherein the step of forming corrugation in the panel consists of forming a recess that descends from the top portion to the panel in the inner portion.

**IN THE UNITED STATES RECEIVING OFFICE
FOR THE PATENT COOPERATION TREATY**

In re application of: Abe Frishman	§
Serial Number: PCT/US2012/47949	§
Filed: 24 July 2012	§
Priority Date: 06 October 2011	§
Title: REDUCED GAUGE BOTTLE CAP	§

**REPLY TO THE WRITTEN OPINION AND AMENDMENTS
UNDER ARTICLE 34 OF THE PATENT COOPERATION TREATY**

An International Search Report and Written Opinion with a mailing date of 5 November 2012 were issued regarding the above-entitled international patent application. Applicant responds to the Written Opinion as set forth below, and files herewith a Demand for examination of the present application by the International Preliminary Examination Authority in view of the following amendments and remarks submitted under Article 34 of the PCT. The 19 month deadline for filing a Demand and Amendment under Article 34, as calculated from the priority date of the present application, expires 06 May 2013; thus, the Demand and Amendment are timely.

COMMENTS

Please remove original sheets 17-18 from the pending application. Please substitute enclosed replacement sheets 17-18 into the pending application. The enclosed replacement sheets 17-18 consist of 2 sheets and contain amendments to the Claims.

Amendments to the Claims are reflected in the listing of claims which begins on page 2.

Remarks/Arguments begin on page 4 of this paper.

Conclusion begins on page 6 of this paper.

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A reduced gauge crown for a container opening, the crown having a crown thickness gauge in the range of 0.12mm to 0.18mm and comprising the crown having a top portion, an inner portion contiguous with the top portion and the inner portion being formed into a panel, an outer portion contiguous with the top portion, the outer portion being formed into a skirt that descends from the top portion, the crown comprising corrugation formed in the panel sufficient to provide reinforcement against deflection of panel.
2. (Original) The crown of claim 1, wherein the corrugation comprises a recess that descends from the top to the panel.
3. (Original) The crown of the claim 1, wherein the corrugation comprises one or more shapes formed in the panel.
4. (Original) The crown of claim 1, wherein the crown is lightweight.

5. (Currently Amended) A method for making a reduced gauge crown for a container, the crown having a crown thickness gauge in the range of 0.12mm to 0.18mm, the method comprising:

- i. Shaping a sheet of crown material to provide a top portion, an inner portion contiguous with the top portion and formed into a panel, and an outer portion contiguous with the top portion and formed into a skirt that descends from the top portion; and
- ii. forming corrugation in the panel sufficient to provide reinforcement against deflection of panel.

6. (Original) The method of claim 5, wherein the step of forming corrugation in the panel consists of forming a recess that descends from the top portion to the panel in the inner portion.

REMARKS

The Written Opinion has cited U.S. Patent 2,327,455 to Punte as anticipating and rendering obvious claims 1-6, which includes independent claims 1 and 5, and thus that claims 1-6 do not recite novelty or an inventive step over the prior art. In addition, the Written Opinion has cited U.S. Patent 2,233,904 to Wagner as anticipating and rendering obvious claims 1-3 and 5-6, which includes independent claims 1 and 5, and thus that claims 1-3, 5-6 do not recite novelty or an inventive step over the prior art. In response, independent claims 1 and 5 have been amended to recite that the crown is a reduced gauge crown having a crown thickness gauge in the range of 0.12mm to 0.18 mm. Support for this amendment to the claims may be found at least in paragraph [0023] of the specification for the present application. As amended, independent claims 1 and 5 recite that the crown is a reduced gauge crown with a crown thickness gauge in the range of 0.12mm to 0.18mm. In addition, claims 1 and 5 have been amended to emphasize that the corrugation previously recited in these claims is sufficient to provide reinforcement of the panel against deflection of the panel, despite having a substantially reduced gauge when compared to the prior art. Support for this amendment may be found at least in paragraph [0014] of the specification.

The applicant respectfully submits that the references cited in the Written Opinion fail to disclose a reduced gauge crown, and related method of manufacturing a reduced gauge crown, having all of the limitations recited in the claims as herein amended. As discussed in detail in the present application, both the resource and monetary savings resulting from such a significant reduction in crown gauge are substantial, particularly in light of the great number of crowns produced annually around the world. However, the reduced range of crown gauge recited in the amended independent claims would be too thin to be structurally sound in a conventional crown design. Accordingly, the present independent claims further recite that the claimed crown and related method of manufacturing also comprise corrugation formed in the panel of the crown

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sufficient to provide reinforcement of the panel against deflection. As a result, the present claims not only provide for a significantly reduced crown gauge that provides substantial savings in terms of material resources and production costs, but also a new overall crown design structurally sound enough to permit use of such a reduced crown gauge, which would not be possible with conventional crown designs.

For at least the above reasons, the applicant respectfully asserts that the claims of the present application, as herein amended, recite both novelty and an inventive step, in addition to industrial applicability, over all of the cited prior art of record.

CONCLUSION

The applicant respectfully believes that the application as amended meets the criteria of novelty, inventive step, and industrial applicability on the grounds that the references of the prior art cited and asserted in the Written Opinion do not teach or suggest all of the elements of independent claims 1 and 5, as herein amended, or the claims dependent thereon. Accordingly, the applicant respectfully requests an International Preliminary Examination Report be issued by the International Preliminary Examination Authority indicating a favorable view of patentability of the present claims over the prior art.

Should the Office deem that any further amendment is desirable to place this application in condition for patentability, the Office is invited to telephone the undersigned at the number listed below.

Date: 06 May 2013

Respectfully submitted,

Carstens & Cahoon, LLP

/James H. Ortega/

James H. Ortega
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ARTÍCULO 34 - REIVINDICACIONES ENMENDADAS

1. Una tapa metálica de espesor reducido que se encuentra en el intervalo de 0,12 mm a 0,18 mm para la abertura de un recipiente que comprende una parte superior, una parte interna que se encuentra junto a la parte superior y que forma una superficie plana, una parte externa que se encuentra junto a la parte superior y que forma una falda que desciende desde la parte superior, y la tapa metálica comprende el corrugado de la superficie plana, el cual es suficiente para reforzar la superficie plana contra su deformación.
5
10
2. La tapa metálica de la reivindicación 1, en la que el corrugado comprende un desnivel que desciende desde la parte superior hasta la superficie plana.
15
3. La tapa metálica de la reivindicación 1, en la que el corrugado comprende una o más formas en la superficie plana.
20
4. La tapa metálica de la reivindicación 1, en la que la tapa metálica es liviana.

-
5. Un método para fabricar una tapa metálica de espesor reducido que se encuentra en el intervalo de 0,12 mm a 0,18 mm para un recipiente y que comprende:
- 5 *i.* Dar forma a una lámina de material metálico para obtener una parte superior, una parte interna que se encuentra junto a la parte superior y que forma una superficie plana, y una parte externa que se encuentra junto a la parte superior y que forma una falda que desciende desde la parte superior; y
- 10 *ii.* corrugar la superficie plana en forma suficiente para reforzar la superficie plana contra su deformación.
6. El método de la reivindicación 5, en el que la etapa de formación de corrugado en la superficie plana consiste
- 15 en generar un desnivel que desciende desde la parte superior hacia la superficie plana en la parte interna.