

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty

For receiving Office use only

International Application No

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) CU65802

Box No. I TITLE OF INVENTION

LOCKABLE CLOSURE

Box No. II APPLICANT

☐ This person is also inventor

Name and address (Family name followed by given name for a legal entity full official designation)
The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

GlaxoSmithKline Consumer Healthcare Holdings (US) LLC
251 Little Falls Drive
Wilmington, Delaware 19808
United States of America

Telephone No
610-270-6812

Facsimile No
610-270-5090

Applicant's registration No. with the Office

E-mail authorization Making one of the check-boxes below authorizes the receiving Office, the International Searching Authority, the International Bureau and the International Preliminary Examining Authority to use the e-mail address indicated in this Box to send, notifications issued in respect of this international application to that e-mail address if those offices are willing to do so

☐ as advance copies followed by paper notifications, or ☒ exclusively in electronic form (no paper notifications will be sent)

E-mail address US_CIPKOP@GSK.com

State (that is, country) of nationality
United States of America

State (that is, country) of residence
United States of America

This person is applicant for the purposes of ☒ all designated States ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

☒ Further applicants and/or (further) inventors are indicated on a continuation sheet

Box No. IV AGENT OR COMMON REPRESENTATIVE, OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as

☒ agent ☐ common representative

Name and address (Family name followed by given name for a legal entity full official designation)
The address must include postal code and name of country)

Stein, Nora L.
GLAXOSMITHKLINE
Global Patents, UW2220
709 Swedeland Road, P.O. Box 1539
King of Prussia, Pennsylvania 19406-0939
United States of America

Telephone No
610-270-6812

Facsimile No
610-270-5090

Agent's registration No. with the Office
36,689

E-mail authorization Making one of the check-boxes below authorizes the receiving Office, the International Searching Authority, the International Bureau and the International Preliminary Examining Authority to use the e-mail address indicated in this Box to send, notifications issued in respect of this international application to that e-mail address if those offices are willing to do so

☐ as advance copies followed by paper notifications, or ☒ exclusively in electronic form (no paper notifications will be sent)

E-mail address us_cipkop@gsk.com

☐ **Address for correspondence.** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet should not be included in the request

Name and address <i>(Family name followed by given name for a legal entity full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</i> SABHERWAL, Amit 184 Liberty Corner Road Warren, New Jersey 07059 United States of America		This person is ☐ applicant only ☐ applicant and inventor ☒ inventor only <i>(If this check-box is marked, do not fill in below.)</i>
Applicant's registration No. with the Office		
State <i>(that is, country)</i> of nationality	State <i>(that is, country)</i> of residence	
This person is applicant for the purposes of ☐ all designated States ☐ the States indicated in the Supplemental Box		
Name and address <i>(Family name followed by given name for a legal entity full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</i> 		This person is ☐ applicant only ☐ applicant and inventor ☐ inventor only <i>(If this check-box is marked, do not fill in below.)</i>
Applicant's registration No. with the Office		
State <i>(that is, country)</i> of nationality	State <i>(that is, country)</i> of residence	
This person is applicant for the purposes of ☐ all designated States ☐ the States indicated in the Supplemental Box		
Name and address <i>(Family name followed by given name for a legal entity full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</i> 		This person is ☐ applicant only ☐ applicant and inventor ☐ inventor only <i>(If this check-box is marked, do not fill in below.)</i>
Applicant's registration No. with the Office		
State <i>(that is, country)</i> of nationality	State <i>(that is, country)</i> of residence	
This person is applicant for the purposes of ☐ all designated States ☐ the States indicated in the Supplemental Box		
Name and address <i>(Family name followed by given name for a legal entity full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</i> 		This person is ☐ applicant only ☐ applicant and inventor ☐ inventor only <i>(If this check-box is marked, do not fill in below.)</i>
Applicant's registration No. with the Office		
State <i>(that is, country)</i> of nationality	State <i>(that is, country)</i> of residence	
This person is applicant for the purposes of ☐ all designated States ☐ the States indicated in the Supplemental Box		
Name and address <i>(Family name followed by given name for a legal entity full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</i> 		This person is ☐ applicant only ☐ applicant and inventor ☐ inventor only <i>(If this check-box is marked, do not fill in below.)</i>
Applicant's registration No. with the Office		
State <i>(that is, country)</i> of nationality	State <i>(that is, country)</i> of residence	
This person is applicant for the purposes of ☐ all designated States ☐ the States indicated in the Supplemental Box		
☐ Further applicants and/or (further) inventors are indicated on another continuation sheet		

Supplemental Box

If the Supplemental Box is not used, this sheet should not be included in the request

- 1 *If, in any of the Boxes, except Boxes Nos VIII(i) to (v) for which a special continuation box is provided, the space is insufficient to furnish all the information in such case, write "Continuation of Box No " (indicate the number of the Box) and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular*
 - (i) *if more than one person is to be indicated as applicant and/or inventor and no "continuation sheet" is available in such case, write "Continuation of Box No III" and indicate for each additional person the same type of information as required in Box No III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below*
 - (ii) *if, in Box No II or in any of the sub-boxes of Box No III, the indication "the States indicated in the Supplemental Box" is checked in such case, write "Continuation of Box No II" or "Continuation of Box No III" or "Continuation of Boxes No II and No III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO Eurasian European or OAPI patent) for the purposes of which the named person is applicant,*
 - (iii) *if, in Box No II or in any of the sub-boxes of Box No III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States in such case, write "Continuation of Box No II" or "Continuation of Box No III" or "Continuation of Boxes No II and No III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor,*
 - (iv) *if, in addition to the agent(s) indicated in Box No IV there are further agents in such case, write "Continuation of Box No IV" and indicate for each further agent the same type of information as required in Box No IV,*
 - (v) *if, in Box No VI, there are more than three earlier applications whose priority is claimed in such case, write "Continuation of Box No VI" and indicate for each additional earlier application the same type of information as required in Box No VI*
- 2 *If the applicant intends to make an indication of the wish that the international application be treated, in certain designated States, as an application for a patent of addition, certificate of addition, inventor's certificate of addition or utility certificate of addition in such case, write the name or two-letter code of each designated State concerned and the indication "patent of addition," "certificate of addition," "inventor's certificate of addition" or "utility certificate of addition," the number of the parent application or parent patent or other parent grant and the date of grant of the parent patent or other parent grant or the date of filing of the parent application (Rules 41(a)(i) and 49bis 1(a) or (b))*
- 3 *If the applicant intends to make an indication of the wish that the international application be treated, in the United States of America, as a continuation or continuation-in-part of an earlier application in such case, write "United States of America" or "US" and the indication "continuation" or "continuation-in-part" and the number and the filing date of the parent application (Rules 41(a)(ii) and 49bis 1(d))*

Continuation of Box No III

Continuation of Box No IV

Djung, Jane
Dustman, Wayne J
Fedon, Jason C
Fitch, Duke M
Furman, Diane E
Gimmi, Edward R
Han, William T
Hecht, Elizabeth J
Ho, Nicole
Hsu, Grace C
Kang, James
Ling, Lorraine B
Lissy, Natalie A
Lockenour, Andrea V
Long, William P
Lutowski, Kathryn A
Majarian, William R
Matovcik, Lisa M
Octavio, Leah
Qian, Fang
Sauermelch, Loretta J
Sanders, Joshua

All of GlaxoSmithKline, address as indicated in Box No IV

Box No. V DESIGNATIONS

The filing of this request **constitutes under Rule 4 9(a) the designation** of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents

However,

- ☐ DE Germany **is not designated** for any kind of national protection
- ☐ JP Japan **is not designated** for any kind of national protection
- ☐ KR Republic of Korea **is not designated** for any kind of national protection

(The check-boxes above may only be used to exclude (irrevocably) the designations concerned if, at the time of filing or subsequently under Rule 26bis 1 the international application contains in Box No. VI a priority claim to an earlier national application filed in the particular State concerned, in order to avoid the ceasing of the effect, under the national law, of this earlier national application)

Box No. VI PRIORITY CLAIM AND DOCUMENT

The priority of the following earlier application(s) is hereby claimed:

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is		
		national application country or Member of WTO	regional application regional Office	international application receiving Office
item (1) 24 August 2016 (24 08 2016)	201611028842	IN		
item (2)				
item (3)				

☐ Further priority claims are indicated in the Supplemental Box

Furnishing the priority document(s).

☐ The **receiving Office** is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application(s) was filed with the receiving Office which, for the purposes of this international application, is the receiving Office) identified above as

☐ all items ☐ item (1) ☐ item (2) ☐ item (3) ☐ other, see Supplemental Box

☐ The **International Bureau** is requested to obtain from a digital library a certified copy of the earlier application(s) identified above, using, where applicable, the access code(s) indicated below (if the earlier application(s) is available to it from a digital library)

☐ item (1) access code _____ ☐ item (2) access code _____ ☐ item (3) access code _____ ☐ other, see Supplemental Box

Restore the right of priority. the receiving Office is requested to restore the right of priority for the earlier application(s) identified above or in the Supplemental Box as item(s) (_____) (See also the Notes to Box No. VI, for the information **must** be provided to support a request to restore the right of priority)

Incorporation by reference. where an element of the international application referred to in Article 11(1)(iii)(d) or (e) or a part of the description, claims or drawings referred to in Rule 20 5(a) is not otherwise contained in this international application but is completely contained in an earlier application whose priority is claimed on the date on which one or more elements referred to in Article 11(1)(iii) were first received by the receiving Office, that element or part is, subject to confirmation under Rule 20 6 incorporated by reference in this international application for the purposes of Rule 20 6

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if more than one International Searching Authority is competent to carry out the international search, indicate the Authority chosen, the two-letter code may be used)

ISA/ US

Continuation of Box No VII USE OF RESULTS OF EARLIER SEARCH, REFERENCE TO THAT SEARCH

☐ The ISA indicated in Box No VII is requested to take into account the results of the earlier search(es) indicated below (*see also Notes to Box VII, use of results of more than one earlier search*)

Filing date (day/month/year)

Application Number

Country (or regional Office)

☐ **Statement (Rule 4.12(ii))** this international application is the same, or substantially the same, as the application in respect of which the earlier search was carried out except, where applicable that it is filed in a different language

☐ **Availability of documents** the following documents are available to the ISA in a form and manner acceptable to it and therefore do not need to be submitted by the applicant to the ISA (Rule 12bis 1(f))

☐ a copy of the results of the earlier search.*

☐ a copy of the earlier application,

☐ a translation of the earlier application into a language which is accepted by the ISA

☐ a translation of the results of the earlier search into a language which is accepted by the ISA,

☐ a copy of any document cited in the results of the earlier search (*If known, please indicate below the document(s) available to the ISA*)

☐ **Transmit copy of results of earlier search and other documents** (where the earlier search was not carried out by the ISA indicated above but by the same Office as that which is acting as the receiving Office) the receiving Office is requested to prepare and transmit to the ISA (Rule 12bis 1(c))

☐ a copy of the results of the earlier search *

☐ a copy of the earlier application

☐ a copy of any document cited in the results of the earlier search

* Where the results of the earlier search are neither available from a digital library nor transmitted by the receiving Office the applicant is required to submit them to the receiving Office (Rule 12bis 1(a)) (*See item 11 in the check-list and also Notes to Box No VII*)

Filing date (day/month/year)

Application Number

Country (or regional Office)

☐ **Statement (Rule 4.12(ii))** this international application is the same, or substantially the same, as the application in respect of which the earlier search was carried out except, where applicable that it is filed in a different language

☐ **Availability of documents** the following documents are available to the ISA in a form and manner acceptable to it and therefore do not need to be submitted by the applicant to the ISA (Rule 12bis 1(f))

☐ a copy of the results of the earlier search.*

☐ a copy of the earlier application,

☐ a translation of the earlier application into a language which is accepted by the ISA

☐ a translation of the results of the earlier search into a language which is accepted by the ISA,

☐ a copy of any document cited in the results of the earlier search (*If known, please indicate below the document(s) available to the ISA*)

☐ **Transmit copy of results of earlier search and other documents** (where the earlier search was not carried out by the ISA indicated above but by the same Office as that which is acting as the receiving Office) the receiving Office is requested to prepare and transmit to the ISA (Rule 12bis 1(c))

☐ a copy of the results of the earlier search,*

☐ a copy of the earlier application.

☐ a copy of any document cited in the results of the earlier search

* Where the results of the earlier search are neither available from a digital library nor transmitted by the receiving Office, the applicant is required to submit them to the receiving Office (Rule 12bis 1(a)) (*See item 11 in the check-list and also Notes to Box No VII*)

☐ Further earlier searches are indicated on a continuation sheet

Box No. VIII DECLARATIONS

The following **declarations** are contained in Boxes Nos VIII (i) to (v) (*mark the applicable check-boxes below and indicate in the right column the number of each type of declaration*)

Number of
declarations

☐ Box No VIII (i) Declaration as to the identity of the inventor

☐ Box No VIII (ii) Declaration as to the applicant's entitlement, as at the international filing date to apply for and be granted a patent

1

☐ Box No VIII (iii) Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application

1

☐ Box No VIII (iv) Declaration of inventorship (only for the purposes of the designation of the United States of America)

☐ Box No VIII (v) Declaration as to non-prejudicial disclosures or exceptions to lack of novelty

Box No VIII (ii) DECLARATION. ENTITLEMENT TO APPLY FOR AND BE GRANTED A PATENT

The declaration must conform to the standardized wording provided for in Section 212, see Notes to Boxes Nos VIII, VIII (i) to (v) (in general) and the specific Notes to Box No VIII (ii). If this Box is not used, this sheet should not be included in the request

Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4 17(ii) and 51bis 1(a)(ii)) in a case where the declaration under Rule 4 17(iv) is not appropriate

in relation to this International Application

GlaxoSmithKline Consumer Healthcare Holdings (US) LLC is entitled to apply for and be granted a patent by virtue of the following:

an assignment from inventor SABHERWAL, Amit to GlaxoSmithKline Consumer Healthcare Holdings (US) LLC dated 17 August 2017

☐ This declaration is continued on the following sheet, 'Continuation of Box No VIII (ii)'

Box No. VIII (iii) DECLARATION ENTITLEMENT TO CLAIM PRIORITY

The declaration must conform to the standardized wording provided for in Section 213, see Notes to Boxes Nos VIII, VIII (i) to (v) (in general) and the specific Notes to Box No VIII (iii). If this Box is not used, this sheet should not be included in the request

Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application specified below, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51bis 1(a)(iii))

in relation to this International Application

GlaxoSmithKline Consumer Healthcare Holdings (US) LLC is entitled to claim priority of earlier application No. 201611028842 filed in India by virtue of the following

an assignment from inventor SABHERWAL, Amit to GlaxoSmithKline Consumer Healthcare Holdings (US) LLC dated 17 August 2017

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII (iii)"

Box No. IX CHECK LIST for PAPER filings – this sheet is only to be used when filing an international application on PAPER

This international application contains the following	Number of sheets	This international application is accompanied by the following item(s) (<i>mark the applicable check-boxes below and indicate in right column the number of each item</i>)	Number of items
(a) request form PCT/RO/101 (including any declarations and supplemental sheets)	9	1 ☒ fee calculation sheet	1
(b) description (excluding any sequence listing part of the description see (f), below)	6	2 ☐ original separate power of attorney	
(c) claims	2	3 ☐ original general power of attorney	
(d) abstract	1	4 ☒ copy of general power of attorney reference number	1
(e) drawings (if any)	9	5 ☐ priority document(s) identified in Box No. VI as item(s)	
(f) sequence listing part of the description (if any)	0	6 ☐ Translation of international application into (language)	
Total number of sheets	27	7 ☐ separate indications concerning deposited microorganism or other biological material	
		8 ☐ copy in electronic form (Annex C/ST 25 text file) on physical data carrier(s) of the sequence listing, not forming part of the international application which is furnished only for the purposes of international search under Rule 13ter (type and number of physical data carriers)	
		9 ☐ a statement confirming that the information recorded in electronic form submitted under Rule 13ter is identical to the sequence listing as contained in the international application as filed on paper	
		10 ☐ copy of results of earlier search(es) (Rule 12bis 1(a))	
		11 ☐ other (specify)	
Figure of the drawings which should accompany the abstract		Language of filing of the international application English	

Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request)

GlaxoSmithKline Consumer Healthcare Holdings (US) LLC

By 
Nora L. Stein, Registration No. 36,689
Attorney for the Applicant

For receiving Office use only	
1 Date of actual receipt of the purported international application	2 Drawings ☐ received ☐ not received
3 Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
4 Date of timely receipt of the required corrections under PCT Article 11(2)	
5 International Searching Authority (if two or more are competent) ISA /	6 ☐ Transmittal of search copy delayed until search fee is paid

For International Bureau use only
Date of receipt of the record copy by the International Bureau

PCT

FEE CALCULATION SHEET

Annex to the Request

For receiving Office use only

International Application No

Date stamp of the receiving Office

Applicant's or agent's
file reference

CU65802

Applicant

GlaxoSmithKline Consumer Healthcare Holdings (US) LLC

CALCULATION OF PRESCRIBED FEES

1 TRANSMITTAL FEE

240 00 [T]

2 SEARCH FEE

2,080 00 [S]

International search to be carried out by ISA/US

(If two or more International Searching Authorities are competent to carry out the international search, indicate the name of the Authority which is chosen to carry out the international search)

3 INTERNATIONAL FILING FEE

Enter total number of sheets indicated in Box No IX 30

[1] first 30 sheets

1,264 00 [1]

[2]

0

x

15 00

=

0 [2]

number of sheets
in excess of 30

fee per sheet

Add amounts entered at 11 and 12 and enter total at 1

1,264 00 [1]

(Applicants from certain States are entitled to a reduction of 90% of the international filing fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at 1 is 10% of the international filing fee.)

4 FEE FOR PRIORITY DOCUMENT (if applicable)

0 [P]

5 FEE FOR RESTORATION OF THE RIGHT OF PRIORITY (if applicable)

0 [RP]

6 FEE FOR EARLIER SEARCH DOCUMENTS (if applicable)

0 [ES]

7 TOTAL FEES PAYABLE

3,584.00

Add amounts entered at T, S, I, P, RP and ES,
and enter total in the TOTAL box

TOTAL

MODE OF PAYMENT (Not all modes of payment may be available at all receiving Offices)



authorization to charge deposit
or current account (see below)



postal money order



credit card (details should
be furnished separately and
not included on this sheet)



cash



check



bank transfer



revenue stamps



other (specify)

AUTHORIZATION TO CHARGE (OR CREDIT) DEPOSIT OR CURRENT ACCOUNT

(This mode of payment may not be available at all receiving Offices)

Receiving Office RO/ US



Authorization to charge the total fees indicated above

Deposit or Current Account No 19-2570



(This check-box may be marked only if the conditions for deposit or current
accounts of the receiving Office so permit) Authorization to charge any
deficiency or credit any overpayment in the total fees indicated above

Date 24 August 2017



Authorization to charge the fee for priority document

Name Nora L. Stein

Signature

Nora L. Stein

POWER OF ATTORNEY

The undersigned,

GlaxoSmithKline Consumer Healthcare Holdings (US) LLC
251 Little Falls Drive, Wilmington, Delaware 19808
United States of America

hereby makes, constitutes and appoints

Dara L. Dinner	Registration No. 33,680	Grace C Hsu	Registration No. 51,336
Wayne J Dustman	Registration No. 33,870	Andrea Lockenour	Registration No. 51,962
William T Han	Registration No. 34,344	Fang Qian	Registration No. 56,744
Lorraine B. Ling	Registration No. 35,251	William P. Long	Registration No. 58,542
Nora L. Stein	Registration No. 36,689	Natalie A Lissy	Registration No. 59,651
Loretta J Sauermelch	Registration No. 37,347	Joshua C Sanders	Registration No. 62,439
Edward R Gimmi	Registration No. 38,891	Duke M Fitch	Registration No. 63,058
Kathryn A Lutomski	Registration No. 40,072	Nicole Ho	Registration No. 64,482
William R Majarian	Registration No. 41,173	Djung, Jane	Registration No. 70,344
Elizabeth J Hecht	Registration No. 41,824	James Kang	Registration No. 71,041
Jason C Fedon	Registration No. 48,138	Leah Octavio	Registration No. 72,852

all having an address at: GlaxoSmithKline, 709 Swedeland Road, King of Prussia, Pennsylvania 19406-0939, United States of America, and

Alice P. Bradney	Registration No. 51,491	James P. Riek	Registration No. 39,009
Robert H. Brink	Registration No. 36,094	Robert J. Smith	Registration No. 40,820
Virginia C. Campen	Registration No. 37,092	J. Michael Strickland	Registration No. 47,115
Eric Kron	Registration No. 45,941	Steve Thomas	Registration No. 52,284
		J. Scott Young	Registration No. 45,582

all having an address at: GlaxoSmithKline, Five Moore Drive, P O Box 13398, Research Triangle Park, North Carolina 27709, United States of America,

as attorneys to act on behalf of and in the name of the Company before the United States Patent & Trademark Office, an Office of the Patent Cooperation Treaty, or any foreign Patent Office in connection with any and all national and international applications filed by the company to make or receive payments on the company's behalf and to appoint additional agents or attorneys for purpose of acting before a PCT International Preliminary Examining Authority.

GlaxoSmithKline Consumer Healthcare Holdings (US) LLC

Date: 23 August 2017

By: _____

Lorraine B. Ling
Authorized Signatory
Global Patents - US

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference CU65802	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2017/048336	International filing date (<i>day/month/year</i>) 24 August 2017	(Earliest) Priority Date (<i>day/month/year</i>) 24 August 2016
Applicant GLAXOSMITH CONSUMER HEALTHCARE HOLDINGS (US) LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed.
☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1
☐ as suggested by the applicant.
☒ as selected by this Authority, because the applicant failed to suggest a figure.
☐ as selected by this Authority, because this figure better characterizes the invention.
- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2017/048336

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B65D 41/00; B65D 41/04; B65D 41/10; B65D 41/16; B65D 41/30; B65D 41/60 (2017.01)

CPC - B65D 41/00; B29L 2031/56; B29L 2031/565; B65D 41/0407; B65D 41/0485; B65D 41/10; B65D 41/16; B65D 41/30; B65D 41/60; B65D 47/0809; B65D 2251/1016; B65D 2251/1033 (2017.08)

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)

See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC - 215/317; 220/324; 220/780; 220/793; 220/794; 220/833; 220/834 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,295,726 A (HANSON) 03 January 1967 (03.01.1967) entire document	1-10, 12-19
---		---
Y		11, 20
Y	US 5,427,260 A (MUELLER et al) 27 June 1995 (27.06.1995) entire document	11, 20
A	US 4,790,442 A (GACH) 13 December 1988 (13.12.1988) entire document	1-20
A	US 2016/0009463 A1 (STULL, SR.) 14 January 2016 (14.01.2016) entire document	1-20

☐ Further documents are listed in the continuation of Box C.☐ See patent family 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 application or patent 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

"&" document member of the same patent family

Date of the actual completion of the international search

16 October 2017

Date of mailing of the international search report

08 NOV 2017

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450

Facsimile No. 571-273-8300

Authorized officer

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: NORA L. STEIN
GLAXOSMITHKLINE
GLOBAL PATENTS, UW2220
709 SWEDLAND ROAD, P.O. BOX 1539
KING OF PRUSSIA, PA 19406-0939

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year)

08 NOV 2017

Applicant's or agent's file reference
CU65802

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US2017/048336

International filing date (day/month/year)

24 August 2017

Priority date (day/month/year)

24 August 2016

International Patent Classification (IPC) or both national classification and IPC

IPC(8) - B65D 41/00; B65D 41/04; B65D 41/10; B65D 41/16; B65D 41/30; B65D 41/60 (2017.01)

CPC - B65D 41/00; B29L 2031/56; B29L 2031/565; B65D 41/0407; B65D 41/0485; B65D 41/10; B65D 41/16; B65D 41/30; B65D 41/60; B65D 47/0809; B65D 2251/1016; B65D 2251/1033 (2017.08)

Applicant GLAXOSMITH CONSUMER HEALTHCARE HOLDINGS (US) LLC

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ 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 Rule 43bis. I(a)(i) 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

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/US
Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450, Alexandria, VA 22313-1450
Facsimile No. 571-273-8300

Date of completion of this opinion

16 October 2017

Authorized officer

Blaine R. Copenheaver

PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US2017/048336

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed.
 - ☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a)).
3. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. ☐ forming part of the international application as filed:
 - ☐ in the form of an Annex C/ST.25 text file.
 - ☐ on paper or in the form of an image file.
 - b. ☐ furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
 - ☐ in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - ☐ on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	10, 11, 20	YES
	Claims	1-9, 12-19	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO

2. Citations and explanations:

Claims 1-9 and 12-19 lack novelty under PCT Article 33(2) as being anticipated by Hanson.

Regarding Claim 1, Hanson discloses a child-proof cap (container neck cap and seal arrangement, title) comprising:

a lid (lid 39, Fig. 9); and

a lid base (cap 38, Fig. 9) having an inner annular wall (interior wall 47, Fig. 9) defining an opening (Fig. 9), a base skirt (exterior wall 46, Fig. 9) extending around at least a portion of the inner annular wall (Fig. 9), and a moveable locking member (seal arrangement 36, Fig. 7) having a bottom portion affixed to the lid base (see Fig. 7 showing seal arrangement 36 having a bottom portion affixed to cap 38 where walls 46 and 47 are in sealing engagement on each side of wall 44 of container 37) and a top portion with a lip (top portion shown above side wall 44 of container 37 comprising mating bead 53 shown in Fig. 9) extending above the annular wall for securing the lid to the lid base (see Fig. 7 showing bead 53 extending above the annular wall 47 and securing lid 39 to cap 38); wherein the lid is in a closed position (Fig. 7) when the lid and lid base are mated and the moveable locking member lip is engaged with and above at least a portion of the lid (see Fig. 7 showing lid 39 and cap 38 are mated and bead 53 is engaged with annular groove 52, labeled in Fig. 9, above a portion of wall 42 of lid 39); and the top portion of the moveable locking member being displaceable outwardly away from the lid to disengage the lip from the lid thereby allowing the lid to be opened (there is provided a tab 41 upon which pressure may be put to disengage the lid 39 from the cap 38, Col.3 ln.75-Col.4 ln.2; as shown in Fig. 7, applying pressure to tab 41 applies pressure to spout 49 below tab 41, in which bead 53 moves outwardly from wall 42 of lid 39 thereby disengaging bead 53 from groove 52 and allowing lid 39 to be opened).

Regarding Claim 2, Hanson discloses the cap of claim 1, and further discloses:

wherein the lid further comprises an inner lid wall (see Fig. 7 showing lid 39 having an inner lid wall shown as an inner surface of plug 42) and a lid skirt extending around at least a portion of the inner lid wall (see Fig. 9 showing plug 42 as a lid skirt, extending outward from and around the inner surface of plug 42).

Regarding Claim 3, Hanson discloses the cap of claim 2, and further discloses:

wherein the lid skirt is mateable to the base skirt when the lid and lid base are in the closed position (see Fig. 7 showing lid 39 and cap 38 in a closed position in which plug 42 is mateable to exterior wall 46).

Regarding Claim 4, Hanson discloses the cap of claim 3, and further discloses:

wherein the lid and lid base are connected by a hinge (hinge 40, Fig. 9).

Regarding Claim 5, Hanson discloses the cap of claim 2, and further discloses:

wherein the inner lid wall fits within the inner annular wall when the closure is in the closed position. (inner surface of plug 42 fits within the inner annular wall 47 when the closure is in the closed position as shown in Fig. 7).

Regarding Claim 6, Hanson discloses the cap of claim 5, and further discloses:

wherein the inner annular wall and the inner lid wall form a seal (In the remaining FIGURES 7-10 there is shown another embodiment of a cap and seal arrangement which employs a snap-in type of seal and a plug seal to positively and effectively repetitively seal a container, Col.3 ln.59-62).

Regarding Claim 7, Hanson discloses the cap of claim 5, and further discloses:

wherein the inner annular wall and the inner lid wall form a resealable seal (In the remaining FIGURES 7-10 there is shown another embodiment of a cap and seal arrangement which employs a snap-in type of seal and a plug seal to positively and effectively repetitively seal a container, Col.3 ln.59-62).

Regarding Claim 8, Hanson discloses the cap of claim 5, and further discloses:

wherein the inner annular wall and the inner lid wall form a moisture-tight seal (In the remaining FIGURES 7-10 there is shown another embodiment of a cap and seal arrangement which employs a snap-in type of seal and a plug seal to positively and effectively repetitively seal a container, Col.3 ln.59-62).

Regarding Claim 9, Hanson discloses the cap of claim 1, and further discloses:

wherein the lid base is connected to a container (container 54, Fig. 10).

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Supplemental Box

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

Continuation of:

Regarding Claim 12, Hanson discloses a child-proof container system (container neck cap and seal arrangement, title) comprising: lid (lid 39, Fig. 9); and a container (container 37, Fig. 7) having a distal end (a bottom portion of container 37, not shown in figures) and a proximal end (a top portion of container 37, shown in Fig. 9) having an inner annular wall defining an opening (inside wall 44, Fig. 9), a base skirt (exterior wall 46, Fig. 9) extending around at least a portion of the inner annular wall (Fig. 9), and a moveable locking member (seal arrangement 36, Fig. 7) having a bottom portion affixed to the base skirt (see Fig. 7 showing seal arrangement 36 having a bottom portion affixed to cap 38 where walls 46 and 47 are in sealing engagement on each side of wall 44 of container 37) and a top portion with a lip (top portion shown above side wall 44 of container 37 comprising mating bead 53 shown in Fig. 9) extending above the annular wall for securing the lid to the container (see Fig. 7 showing bead 53 extending above the annular wall 47 and securing lid 39 to cap 38); wherein the lid is in a closed position when the lid and container are mated and the moveable locking member lip is engaged with and above at least a portion of the lid (see Fig. 7 showing lid 39 and cap 38 are mated and bead 53 is engaged with annular groove 52, labeled in Fig. 9, above a portion of wall 42 of lid 39); and the top portion of the moveable locking member being displaceable outwardly away from the lid to disengage the lip from the lid thereby allowing the lid to be opened (there is provided a tab 41 upon which pressure may be put to disengage the lid 39 from the cap 38, Col.3 ln.75-Col.4 ln.2; as shown in Fig. 7, applying pressure to tab 41 applies pressure to spout 49 below tab 41, in which bead 53 moves outwardly from wall 42 of lid 39 thereby disengaging bead 53 from groove 52 and allowing lid 39 to be opened).

Regarding Claim 13, Hanson discloses the system of claim 12, and further discloses: wherein the lid further comprises an inner lid wall (see Fig. 7 showing lid 39 having an inner lid wall shown as an inner surface of plug 42) and a lid skirt extending around at least a portion of the inner lid wall (see Fig. 9 showing plug 42 as a lid skirt, extending outward from and around the inner surface of plug 42).

Regarding Claim 14, Hanson discloses the system of claim 13, and further discloses: wherein the lid skirt is mateable to the base skirt when the lid and container are in the closed position (see Fig. 7 showing lid 39 and cap 38 in a closed position in which plug 42 is mateable to exterior wall 46).

Regarding Claim 15, Hanson discloses the system of claim 12, and further discloses: wherein the lid and container are connected by a hinge (hinge 40, Fig. 9).

Regarding Claim 16, Hanson discloses the system of claim 13, and further discloses: wherein the inner lid wall fits within the inner annular wall when the closure is in the closed position. (inner surface of plug 42 fits within the inner annular wall 47 when the closure is in the closed position as shown in Fig. 7).

Regarding Claim 17, Hanson discloses the system of claim 16, and further discloses: wherein the inner annular wall and the inner lid wall form a seal (In the remaining FIGURES 7-10 there is shown another embodiment of a cap and seal arrangement which employs a snap-in type of seal and a plug seal to positively and effectively repetitively seal a container, Col.3 lns.59-62).

Regarding Claim 18, Hanson discloses the system of claim 16, and further discloses: wherein the inner annular wall and the inner lid wall form a resealable seal (In the remaining FIGURES 7-10 there is shown another embodiment of a cap and seal arrangement which employs a snap-in type of seal and a plug seal to positively and effectively repetitively seal a container, Col.3 lns.59-62).

Regarding Claim 19, Hanson discloses the system of claim 16, and further discloses: wherein the inner annular wall and the inner lid wall form a moisture-tight seal (In the remaining FIGURES 7-10 there is shown another embodiment of a cap and seal arrangement which employs a snap-in type of seal and a plug seal to positively and effectively repetitively seal a container, Col.3 lns.59-62).

Claim 10 lacks an inventive step under PCT Article 33(3) as being obvious over Hanson.

Regarding Claim 10, Hanson discloses the cap of claim 6, but does not explicitly disclose: wherein the lid base is integrally connected to a container. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide wherein the lid base is integrally connected to a container, since the use of a one piece construction instead of the structure disclosed in the prior art would have required only routine skill in the art. The motivation for doing so would be for requiring fewer parts in manufacturing and assembling of the cap.

Claims 11 and 20 lack an inventive step under PCT Article 33(3) as being obvious over Hanson in view of Mueller et al. (hereinafter Mueller).

Regarding Claim 11, Hanson discloses the cap of claim 1, but does not explicitly disclose: a tamper-evident tab. However, Mueller discloses a container system (Fig. 1) comprising a tamper-evident tab (tamper-indicating element 90, Fig. 1). Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to modify the invention of Hanson to include the tamper-evident tab as taught by Mueller for the purpose of providing additional safety means for the container closure.

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INTERNATIONAL SEARCHING AUTHORITY

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PCT/US2017/048336

Supplemental Box

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

Continuation of:

Regarding Claim 20, Hanson discloses the system of claim 12, but does not explicitly disclose:
a tamper evident tab.

However, Mueller discloses a container system (Fig. 1) comprising a tamper-evident tab (tamper-indicating element 90, Fig. 1).
Therefore, it would be obvious to one of ordinary skill in the art at the time of invention to modify the invention of Hanson to include the tamper-evident tab as taught by Mueller for the purpose of providing additional safety means for the container closure.

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.



(51) International Patent Classification:

B65D 41/00 (2006.01) *B65D 41/16* (2006.01)
B65D 41/04 (2006.01) *B65D 41/30* (2006.01)
B65D 41/10 (2006.01) *B65D 41/60* (2006.01)

(21) International Application Number:

PCT/US2017/048336

(22) International Filing Date:

24 August 2017 (24.08.2017)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

201611028842 24 August 2016 (24.08.2016) IN

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(74) Agent: **STEIN, Nora, L.** et al.; GLAXOSMITHKLINE, Global Patents, UW2220, 709 Swedeland Road, P.O. Box 1539, King Of Prussia, PA 19406-0939 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,

SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

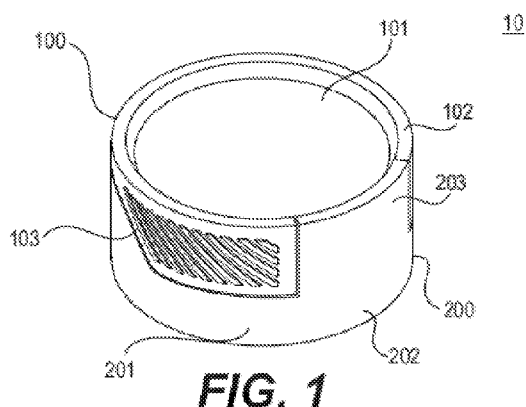
Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))

(54) Title: LOCKABLE CLOSURE



(57) Abstract: Aspects of the present invention are directed to a child-proof cap that is easier to open for adults than traditional child-resistant closures, yet remains resistant to opening by children. The child-proof cap may be opened in a pull-and-flip motion with a single hand.



SISTEMA DE CIERRE BLOQUEABLE

CAMPO DE TECNOLOGÍA

Los aspectos de la presente invención se dirigen a un cierre a prueba de niños y, en particular, a un cierre a prueba de niños que es manipulado más fácilmente por adultos con problemas de destreza manual.

FUNDAMENTO

Los cierres a prueba de niños diseñados para evitar que los niños ingieran sustancias potencialmente peligrosas son una prioridad para las empresas que venden productos que pueden ser peligrosos para los niños si se ingieren sin la supervisión de un adulto. Esto es particularmente cierto para las compañías farmacéuticas y de salud para el consumidor. Las estadísticas actuales muestran que casi un tercio de las exposiciones pediátricas reportadas a sustancias tóxicas se debieron a la ingestión involuntaria de medicamentos. Además, más del setenta por ciento de las muertes pediátricas resultantes se deben a la exposición involuntaria a sustancias peligrosas.

Por lo tanto, el embalaje resistente a los niños ha sido un área de investigación significativa en las últimas décadas. Los cierres a prueba de niños conocidos incluyen aparatos que requieren que el usuario: alinee los indicadores en la tapa con la botella, empuje hacia abajo la tapa mientras gira, apriete los lados de la tapa, apriete las pestañas y luego gire la tapa, o empuje la pestaña mientras levanta la tapa. Estos tipos de cierres cumplen con el estándar de resistencia a los niños y son efectivos para reducir el riesgo de exposición involuntaria a medicamentos pediátricos. Sin embargo, los cierres a prueba de niños pueden ser problemáticos para los adultos con problemas de destreza manual.

Los consumidores con artritis y las personas con discapacidades tienen una mayor tasa de consumo per cápita tanto de medicamentos de venta libre como de medicamentos recetados. La apertura de frascos de medicamentos con cierres a prueba de niños puede causar una tensión dolorosa en las articulaciones intercarpianas de los usuarios con artritis y afecciones similares. Se ha dado dificultad para abrir los cierres a prueba de niños como una razón para desviarse de los regímenes de dosificación de medicamentos prescritos. En consecuencia, un miembro de cierre resistente a los niños que sea fácilmente manipulado por adultos con problemas de destreza manual sería altamente deseable.

RESUMEN

Los aspectos de la presente invención se dirigen a un cierre a prueba de niños que comprende: una tapa y una base de tapa. La base de la tapa puede tener una pared anular interna que define una abertura, una falda de base que se extiende alrededor de al menos una parte de la pared anular interna, y un miembro de bloqueo móvil que tiene una parte inferior fijada a la base de la tapa y una parte superior con un borde que se extiende por encima de la pared anular para asegurar la tapa a la base de la tapa. La tapa está en una posición cerrada cuando la tapa y la base de la tapa están acopladas y el borde del elemento de bloqueo móvil está enganchado con y por encima de al menos una parte de la tapa. La parte superior del miembro de bloqueo móvil se puede desplazar hacia afuera alejándola de la tapa para desenganchar el labio de la tapa, lo que permite que la tapa se abra.

La tapa puede comprender además una pared de tapa interna y una falda de tapa que se extiende alrededor de al menos una parte de la pared de tapa interior. La falda de la tapa se puede acoplar a la falda de la base cuando la tapa y la base de la tapa están en la posición cerrada. En algunas modalidades, la tapa y la base de la tapa están conectadas por una bisagra. La pared de la tapa interior puede caber dentro de la pared anular interna cuando el cierre está en la posición cerrada. En algunas modalidades, la pared anular interna y la pared de la tapa interna forman un sello. El sello puede ser un sello resellable. El sello también puede ser un sello a prueba de humedad.

En ciertas modalidades, la base de la tapa puede estar conectada a un recipiente. La base de la tapa puede estar conectada integralmente a un recipiente. En algunas modalidades, la tapa de la presente invención puede comprender además una lengüeta de inviolabilidad.

Los aspectos adicionales de la presente invención pueden comprender un sistema de recipiente a prueba de niños que comprende una tapa y un recipiente. El contenedor puede tener un extremo distal y un extremo proximal que tiene una pared anular interna que define una abertura, una falda de base que se extiende alrededor de al menos una porción de la pared anular interna, y un miembro de bloqueo móvil que tiene una porción inferior fijada a la falda de base y una parte superior con un borde que se extiende sobre la pared anular para asegurar la tapa al recipiente. La tapa puede estar en una posición cerrada cuando la tapa y el recipiente están acoplados y el borde del elemento de bloqueo móvil está enganchado con y por encima de al menos una parte de la tapa. La parte superior del miembro de bloqueo móvil se puede desplazar hacia afuera alejándola de la tapa para desenganchar el labio de la tapa, lo que permite que la tapa se abra. La tapa puede comprender además una pared de tapa interna

y una falda de tapa que se extiende alrededor de al menos una parte de la pared de tapa interior. La falda de la tapa se puede acoplar a la falda de la base cuando la tapa y el recipiente están en la posición cerrada. En ciertas modalidades, la tapa y el recipiente están conectados por una bisagra. En algunas modalidades, la pared de la tapa interior encaja dentro de la pared anular interna cuando el cierre está en la posición cerrada y puede formar un sello. El sello puede ser resellable. El sello puede ser hermético a la humedad. Los sistemas de la presente invención pueden comprender además una pestaña de evidencia de manipulación indebida.

10 BREVE DESCRIPCIÓN DE LOS DIBUJOS

La FIG. 1 es una vista en perspectiva desde arriba de una modalidad de la presente invención en la posición cerrada;

La FIG. 2 es una vista en perspectiva desde arriba de una modalidad de la presente invención en la posición abierta;

15 La FIG. 3 es una vista en perspectiva desde abajo de una modalidad de la presente invención en la posición abierta;

La FIG. 4 es una vista lateral de una modalidad de la presente invención en la posición cerrada;

20 La FIG. 5 es una vista lateral de una modalidad de la presente invención en la posición abierta;

La FIG. 6 es una vista frontal de una modalidad de la presente invención en la posición cerrada;

La FIG. 7 es una vista desde arriba de una modalidad de la presente invención en la posición cerrada;

25 La FIG. 8 es una vista frontal en sección transversal de una modalidad de la presente invención en la posición cerrada.;

La FIG. 9 es una vista lateral en sección transversal de una modalidad de la presente invención en la posición abierta;

30 La FIG. 10 es una vista en perspectiva desde arriba de una modalidad alternativa de la presente invención en la posición cerrada;

La FIG. 11 es una vista en perspectiva desde arriba de una modalidad alternativa de la presente invención en la posición abierta.;

La FIG. 12 es una vista en perspectiva desde arriba de una modalidad alternativa de la presente invención en la posición cerrada;

La FIG. 13 es una vista en perspectiva desde arriba de una modalidad alternativa de la presente invención en la posición abierta; y

5 La FIG. 14 es una vista en perspectiva desde arriba de una modalidad de la presente invención en la posición cerrada;

La FIG. 15 es una vista en perspectiva desde arriba de una modalidad de la presente invención en la posición abierta; y

La FIG. 16 es un esquema de un método de uso de una modalidad de la presente invención.

10

DESCRIPCIÓN DETALLADA

Los aspectos de la presente invención están dirigidos a una tapa a prueba de niños que es más fácil de abrir para los adultos que los cierres tradicionales a prueba de niños, pero sigue siendo resistente a la apertura por parte de los niños. La tapa a prueba de niños se
15 puede abrir con un movimiento de tirar y voltear con una sola mano. La tapa puede comprender una tapa y una base de tapa. La base de la tapa puede tener una pared anular interna que define una abertura y una falda de base que se extiende alrededor de al menos una parte de la pared anular interna, y un miembro de bloqueo flexible. El miembro de bloqueo flexible puede tener una parte inferior fijada a la base de la tapa y una parte superior con un
20 borde que se extiende sobre la pared anular interna para asegurar la tapa a la base de la tapa. Cuando la tapa está en una posición cerrada, la tapa y la base de la tapa se pueden acoplar y el reborde del miembro de bloqueo flexible está enganchado con y por encima de al menos una parte de la tapa. Para abrir la tapa, la parte superior del miembro de bloqueo flexible se desplaza hacia afuera alejándola de la tapa para desenganchar el borde del miembro de
25 bloqueo flexible de la tapa, permitiendo así que se abra la tapa.

Las tapas de la presente invención pueden ser adecuadas para abrirse con una sola mano en un movimiento de "tirar y voltear". Un usuario puede tirar del miembro de bloqueo movable con el pulgar para desenganchar el borde del miembro de bloqueo flexible de la tapa y luego empujar hacia arriba o voltear la tapa con el pulgar en un solo movimiento.

30 Las tapas a prueba de niños de la presente invención se pueden conectar a un contenedor de manera integral o no integral. Si la tapa está conectada integralmente al contenedor, la tapa y el contenedor pueden estar formados por un material moldeado por soplado o moldeado por inyección usando métodos conocidos por un experto en la técnica.

Los conectados no integralmente pueden conectarse, por ejemplo, atornillando con rosca externa o interna o encajando a presión con un anillo anular. Preferiblemente, la tapa se fija permanentemente a la pared interior del cuerpo del contenedor después o antes de que se llene el contenedor, convirtiendo así el cuerpo y la tapa del contenedor en un sistema conectado. La

5 tapa puede fijarse permanentemente al cuerpo del recipiente de cualquier manera adecuada conocida en la técnica. Por ejemplo, la tapa y el cuerpo del recipiente pueden dimensionarse para proporcionar un ajuste de fricción para la tapa. Alternativamente, la tapa se puede unir permanentemente mediante un cierre mecánico. Aunque es preferible fijar permanentemente la tapa al cuerpo del contenedor después de que el contenedor se llene con el producto, los

10 expertos en la técnica apreciarán que tal accesorio permanente puede no ser necesario.

Además, la base de la tapa puede formarse integralmente con el contenedor y la tapa está unida de manera no integral, como, por ejemplo, con una correa o una bisagra extraíble. En otras modalidades, la tapa no se puede unir al recipiente.

Las tapas de la presente invención en combinación con contenedores son adecuadas

15 para el almacenamiento de componentes que son peligrosos para los niños si se consumen sin la supervisión de un adulto. Los contenidos de ejemplo incluyen, por ejemplo, medicamentos farmacéuticos, productos para el cuidado de la salud del consumidor, materiales tóxicos, materiales cáusticos, entre otros.

Las tapas y recipientes de la presente invención se pueden fabricar típicamente de un

20 material polímero que proporciona una protección adecuada para el producto envasado en el recipiente. El recipiente y la tapa pueden estar hechos del mismo o diferente material polimérico. Dependiendo de los requisitos del producto farmacéutico, se pueden usar materiales de barrera tales como cloruro de polivinilo, acetato de polietileno vinilo, polietileno, polipropileno y cloruro de polivinilideno. En otra modalidad, también se pueden

25 usar materiales no barrera. Los materiales termoplásticos no barrera incluyen poliestireno, policarbonato, poliéster tereftalato, polibutileno, poiolefinas catalizadas con metalloceno y anhídrido poli maléico. En una modalidad particular, el material puede ser polipropileno de alta densidad. En otra modalidad, el material puede ser acetato de vinilo de polietileno).

En una modalidad, el recipiente es hermético a la humedad y es resellable para

30 mantener las propiedades herméticas a la humedad. Tal como se usa en el presente documento, el término "resellable" significa que el contenedor se puede abrir/volver a abrir y cerrar o volver a cerrar varias veces (por ejemplo, más de 5 veces) y aún así conservar sus

propiedades herméticas a la humedad. Tal como se usa en el presente documento, el término "hermético a la humedad" significa que el ingreso de humedad del recipiente es inferior a aproximadamente 1500 microgramos de agua/día, determinado por el siguiente método de prueba: (a) coloque aproximadamente un gramo de tamiz molecular en el recipiente y registre el peso; (b) cerrar el mecanismo resellable; (c) coloque el contenedor sellado en una cámara ambiental en condiciones de 80% de humedad relativa y 72 °F; (d) después de un día, pesar el recipiente que contiene el tamiz molecular; (e) después de aproximadamente dos semanas, pesar el recipiente; y (f) reste la muestra del primer día del valor obtenido y divida por el número de días para calcular el ingreso de humedad del recipiente en unidades de microgramos de agua/día.

En otra modalidad, el recipiente incluye un desecante. El desecante puede ser arrastrado dentro del material polímero que forma el contenedor, o el desecante puede recubrirse a lo largo de la superficie interior del contenedor, o el desecante puede incluirse en un compartimiento dentro del contenedor o en la parte interior de la tapa.

Los recipientes de la presente invención pueden ser de formas y tamaños variados.

Las FIGs. 1 a 9 muestran varias vistas de una tapa a prueba de niños de la presente invención. La figura 1 muestra una tapa a prueba de niños de ejemplo en posición cerrada. La tapa 10 incluye la tapa 100 y la base 200 de la tapa. La tapa 100 incluye la parte superior 101, el borde superior 102, la falda de la tapa 103 y la pared interior de la tapa 104. La tapa 100 es circular y está rodeada por el borde superior 102. La falda de la tapa 103 se extiende hacia abajo desde el borde superior 102. La base de la tapa 200 incluye un faldón de base 201 y un miembro de bloqueo movable 202. El miembro de bloqueo movable 202 está conectado perfectamente a la falda base 201. El miembro de bloqueo movable 202 se extiende hacia arriba al miembro movable superior 203. La parte superior de bloqueo 203 móvil incluye el borde 204. En la posición cerrada, la falda de la tapa 103 y la falda de la base 201 son intercambiables y el borde 204 cubre una parte de la parte superior 101 para asegurar la tapa 100 a la base 200.

La FIG. 2 muestra el cierre 10 en posición abierta. La tapa 100 incluye la pared de la tapa interior 104, unida a la parte superior de la tapa 101 y es circular e interior a la falda de la tapa 103. La base de la tapa 200 incluye además una pared interna anular 205 interior a la falda de la base de la tapa 201 y define la abertura 400. La tapa 100 y la base de la tapa 200 están conectadas por la bisagra 300.

La FIG. 8 muestra una vista de sección transversal del cierre 10 en posición cerrada. En la posición cerrada, la pared de la tapa interior 104 se coloca interior a la pared interna anular 205 de la base 200. En posición cerrada, la falda de la tapa 103 y la falda de la base 201 están conectadas.

5 Las FIGs. 10-13 muestran diversas vistas de los sistemas de contenedores de la presente invención. Las FIGs. 10 y 11 muestran el sistema de contenedor 20 con tapa 10 en combinación con el contenedor 500. En esta modalidad, el cierre 10 y el contenedor 500 no están interconectados.

10 La FIG. 12 y 13 muestran el sistema de contenedor 30 con cierre 10 en combinación con el contenedor 600. En esta modalidad, la tapa 10 está conectada integralmente al contenedor 600.

La FIG. 14 y 15 muestran una modalidad alternativa del cierre que tiene una lengüeta a prueba de manipulación indebida 206 unida a la falda de base 201. Para abrir la parte superior 101, la lengüeta a prueba de manipulación 206 debe retirarse de la falda base 201. Después de quitar la lengüeta 206 de evidencia de manipulación indebida, el miembro de bloqueo movable 202 se puede desplazar hacia afuera desde la parte superior 101 para desenganchar el miembro de bloqueo movable superior 203 desde la parte superior 101 y posteriormente mover la parte superior 101 en una dirección hacia arriba para abrir el recipiente.

20 Las FIGs. 16A a fig. 16E muestran un método para abrir, dispensar y cerrar una tapa de la presente invención. La pestaña 206 a prueba de manipulación se retira de la tapa 10 (FIG. 16A), el miembro de bloqueo movable 202 se mueve de manera que el miembro de bloqueo movable superior 203 se aleja de la parte superior 101 y el borde 204 se desengancha de la parte superior 101 (FIG. 16B). La parte superior 101 se mueve luego hacia arriba
25 alrededor de la bisagra 300 para permitir el acceso a la abertura 400 (FIG. 16C). El material se puede dispensar luego desde la apertura (FIG. 16D) y la tapa 10 se puede volver a cerrar (FIG. 16E).

Reivindicaciones:

1. Una tapa a prueba de niños que comprende:

5 una tapa; y

10 una base de tapa que tiene una pared anular interna que define una abertura, una falda de base que se extiende alrededor de al menos una parte de la pared anular interna, y un miembro de bloqueo móvil que tiene una parte inferior fijada a la base de la tapa y una parte superior con un borde que se extiende por encima de la pared anular para asegurar la tapa a la base de la tapa;

15 en donde la tapa está en una posición cerrada cuando la tapa y la base de la tapa están acopladas y el borde del miembro de bloqueo móvil está enganchado con y por encima de al menos una parte de la tapa; y

20 la parte superior del elemento de bloqueo móvil se puede desplazar hacia afuera alejándose de la tapa para desenganchar el borde de la tapa, permitiendo así que se abra la tapa.

2. La tapa de la reivindicación 1, en donde la tapa comprende además una pared de la tapa interior y una falda de la tapa que se extiende alrededor de al menos una parte de la pared de la tapa interior.

- 25 3. La tapa de la reivindicación 2, en donde la falda de la tapa se puede acoplar a la falda de la base cuando la tapa y la base de la tapa están en la posición cerrada.

- 30 4. La tapa de la reivindicación 3, en donde la tapa y la base de la tapa están conectadas por una bisagra.

5. La tapa de la reivindicación 2, en donde la pared de la tapa interior encaja dentro de la pared anular interna cuando el cierre está en la posición cerrada.

- 35 6. La tapa de la reivindicación 5, en donde la pared anular interna y la pared de la tapa interna forman un sello.

7. La tapa de la reivindicación 5, en donde la pared anular interna y la pared de la tapa interna forman un sello que se puede cerrar..

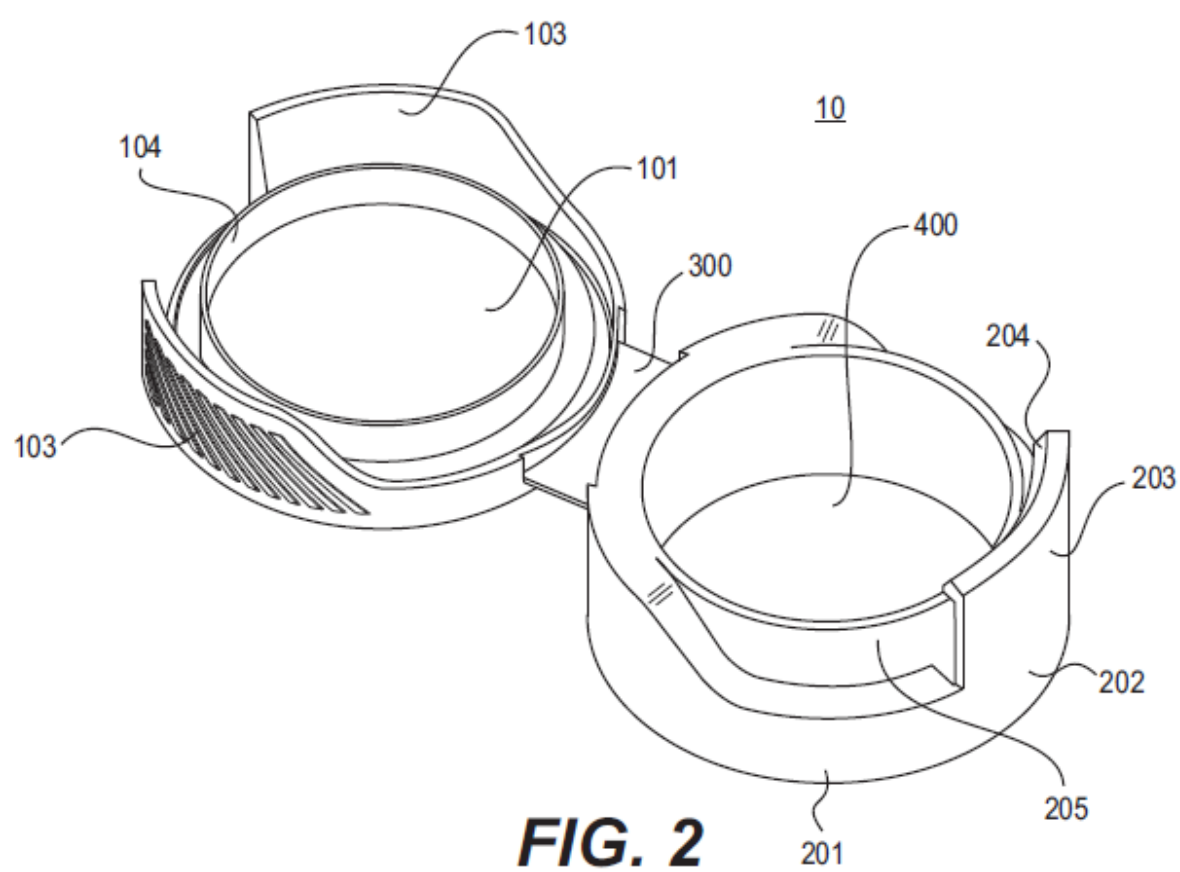
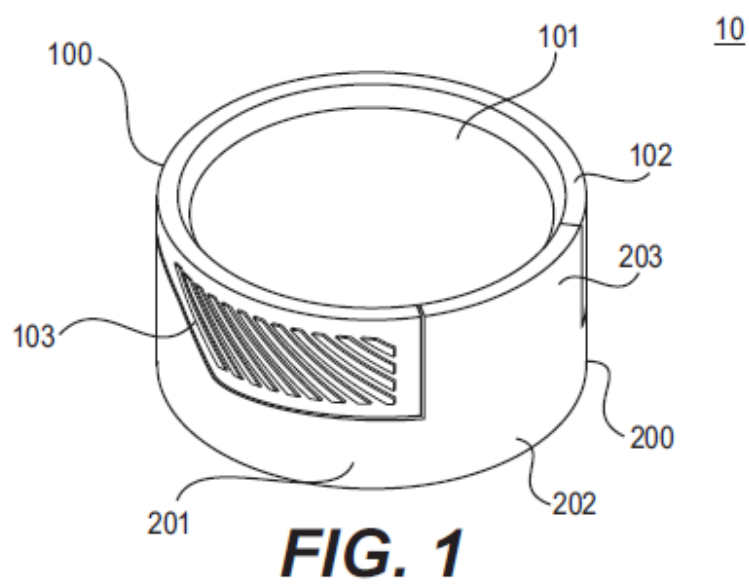
- 40 8. La tapa de la reivindicación 5, en donde la pared anular interna y la pared de la tapa interna forman un sello hermético a la humedad.

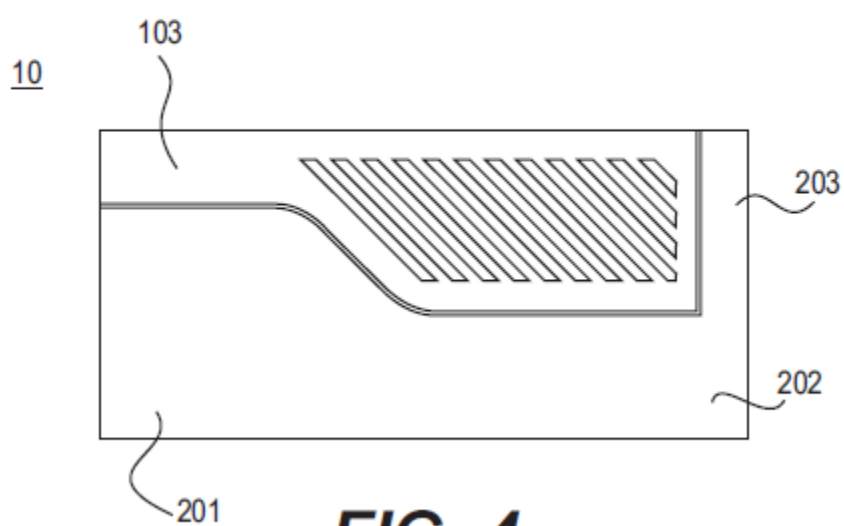
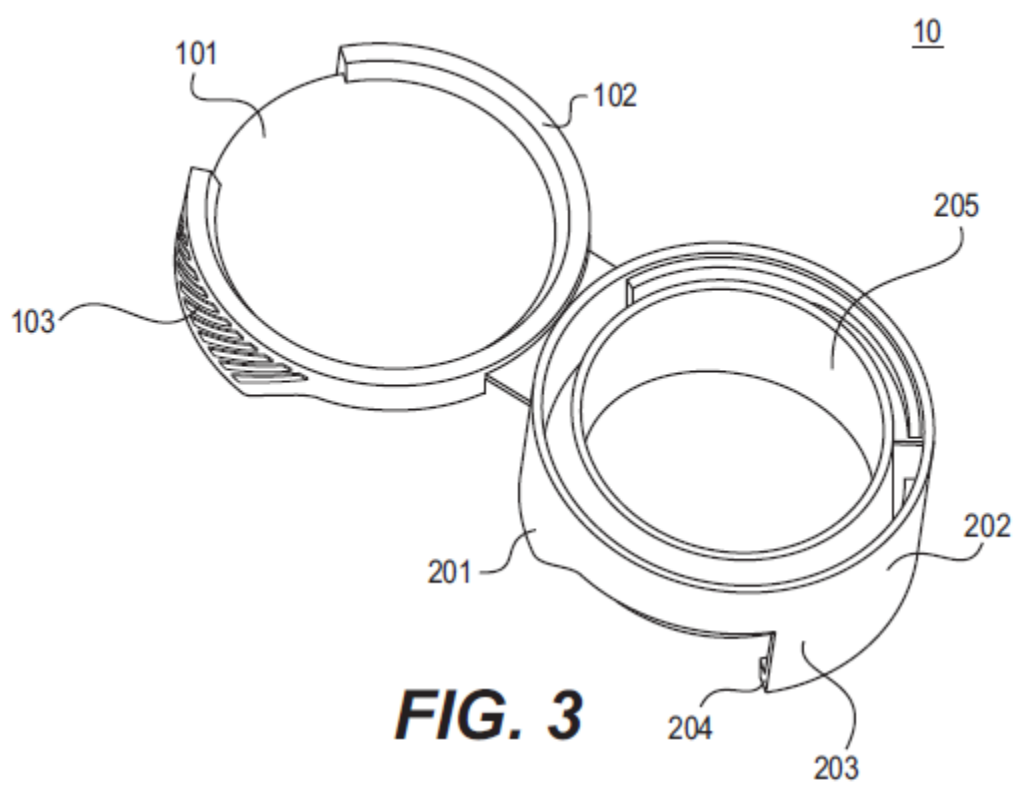
9. La tapa de la reivindicación 1, en donde la base de la tapa está conectada a un recipiente.
- 5 10. La tapa de la reivindicación 6, en donde la base de la tapa está conectada integralmente a un recipiente.
11. La tapa de la reivindicación 1, que comprende además una pestaña a prueba de manipulación.
- 10 12. Un sistema de contenedores a prueba de niños que comprende:
- tapa; y
- 15 un contenedor que tiene un extremo distal y un extremo proximal que tiene una pared anular interna que define una abertura, una falda de base que se extiende alrededor de al menos una porción de la pared anular interna, y un miembro de bloqueo móvil que tiene una porción inferior fijada a la falda de base y una parte superior con un borde que se extiende sobre la pared anular para asegurar la tapa al recipiente.
- 20 en donde la tapa está en una posición cerrada cuando la tapa y el recipiente están acoplados y el borde del elemento de bloqueo móvil está enganchado con y por encima de al menos una parte de la tapa; y
- 25 la parte superior del elemento de bloqueo móvil se puede desplazar hacia afuera alejándose de la tapa para desenganchar el borde de la tapa, permitiendo así que se abra la tapa.
- 30 13. El sistema de la reivindicación 12, en donde la tapa comprende además una pared de la tapa interior y una falda de tapa que se extiende alrededor de al menos una parte de la pared de la tapa interior.
- 35 14. El sistema según la reivindicación 13, en donde la falda de la tapa se puede acoplar a la falda de la base cuando la tapa y el recipiente están en la posición cerrada..
15. El sistema según la reivindicación 12, en el que la tapa y el recipiente están conectados por una bisagra.
- 40 16. El sistema de la reivindicación 13, en el que la pared de la tapa interior encaja dentro de la pared anular interna cuando el cierre está en la posición cerrada.

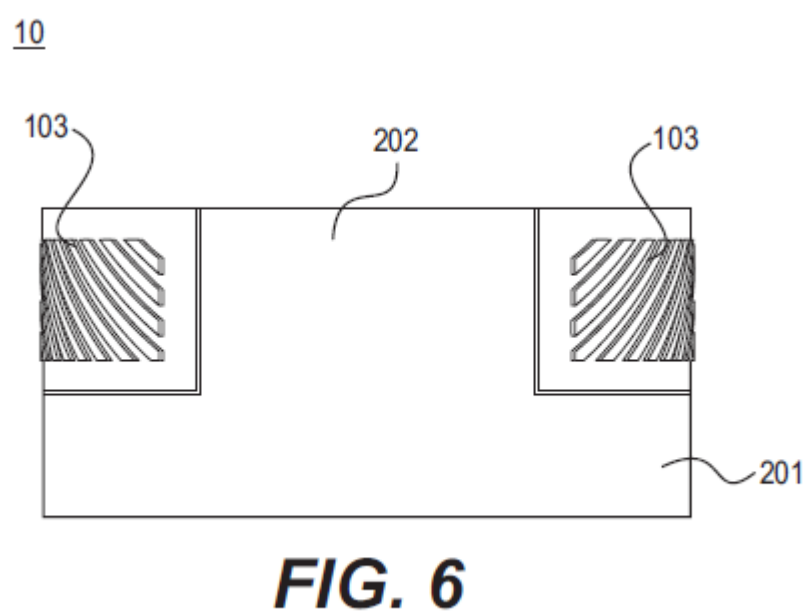
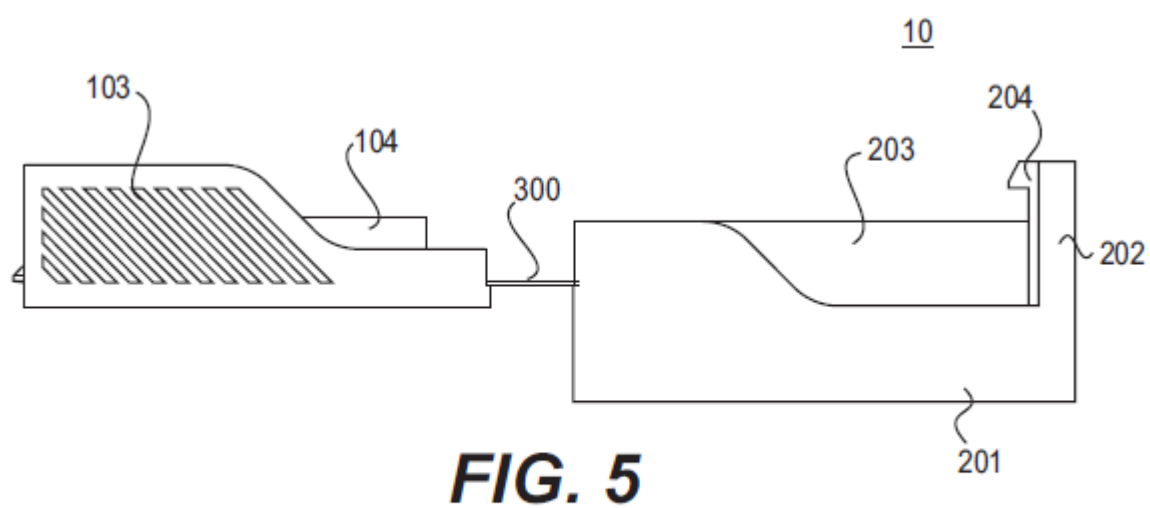
17. El sistema según la reivindicación 16, en donde la pared anular interna y la pared de la tapa interna forman un sello.
- 5 18. El sistema de la reivindicación 16, en el que la pared anular interna y la pared de la tapa interna forman un cierre hermético.
19. El sistema según la reivindicación 16, en donde la pared anular interna y la pared de la tapa interna forman un cierre hermético a la humedad.
- 10 20. El sistema de la reivindicación 12, que comprende además una pestaña de evidencia de manipulación indebida.

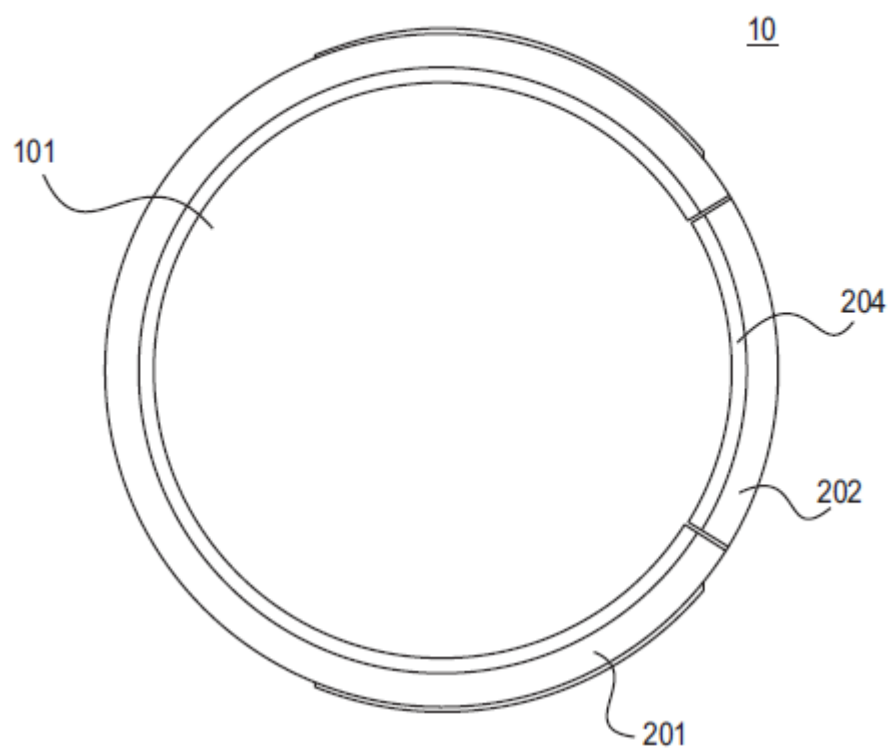
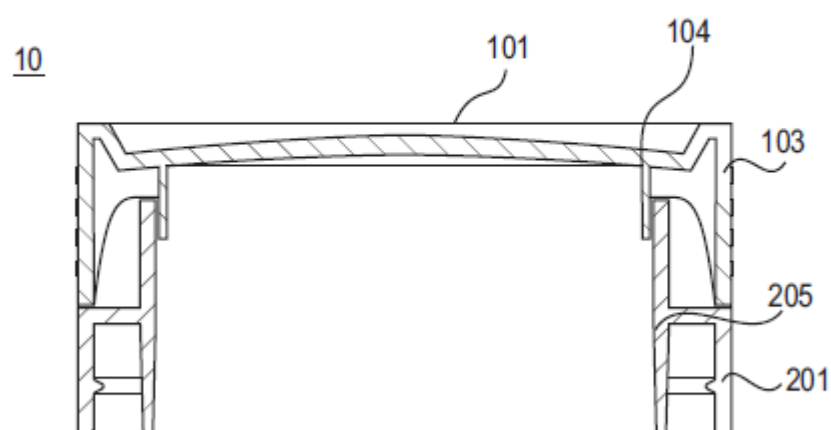
RESUMEN

5 Los aspectos de la presente invención están dirigidos a una tapa a prueba de niños que es más fácil de abrir para los adultos que los cierres tradicionales a prueba de niños, pero sigue siendo resistente a la apertura por parte de los niños. La tapa a prueba de niños se puede abrir con un movimiento de tirar y voltear con una sola mano.







**FIG. 7****FIG. 8**

10

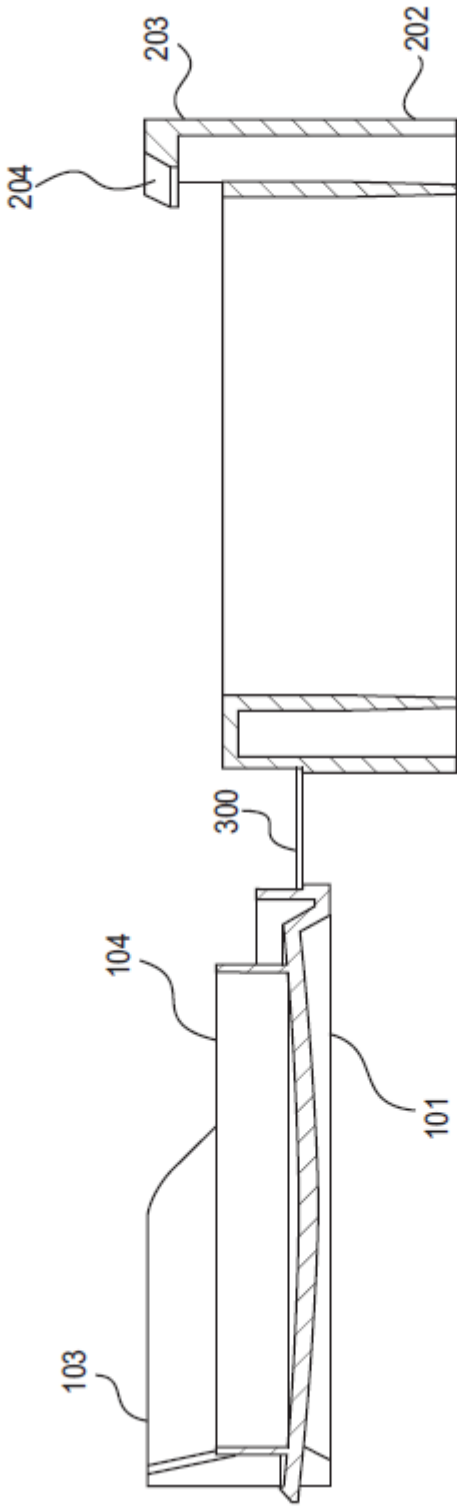
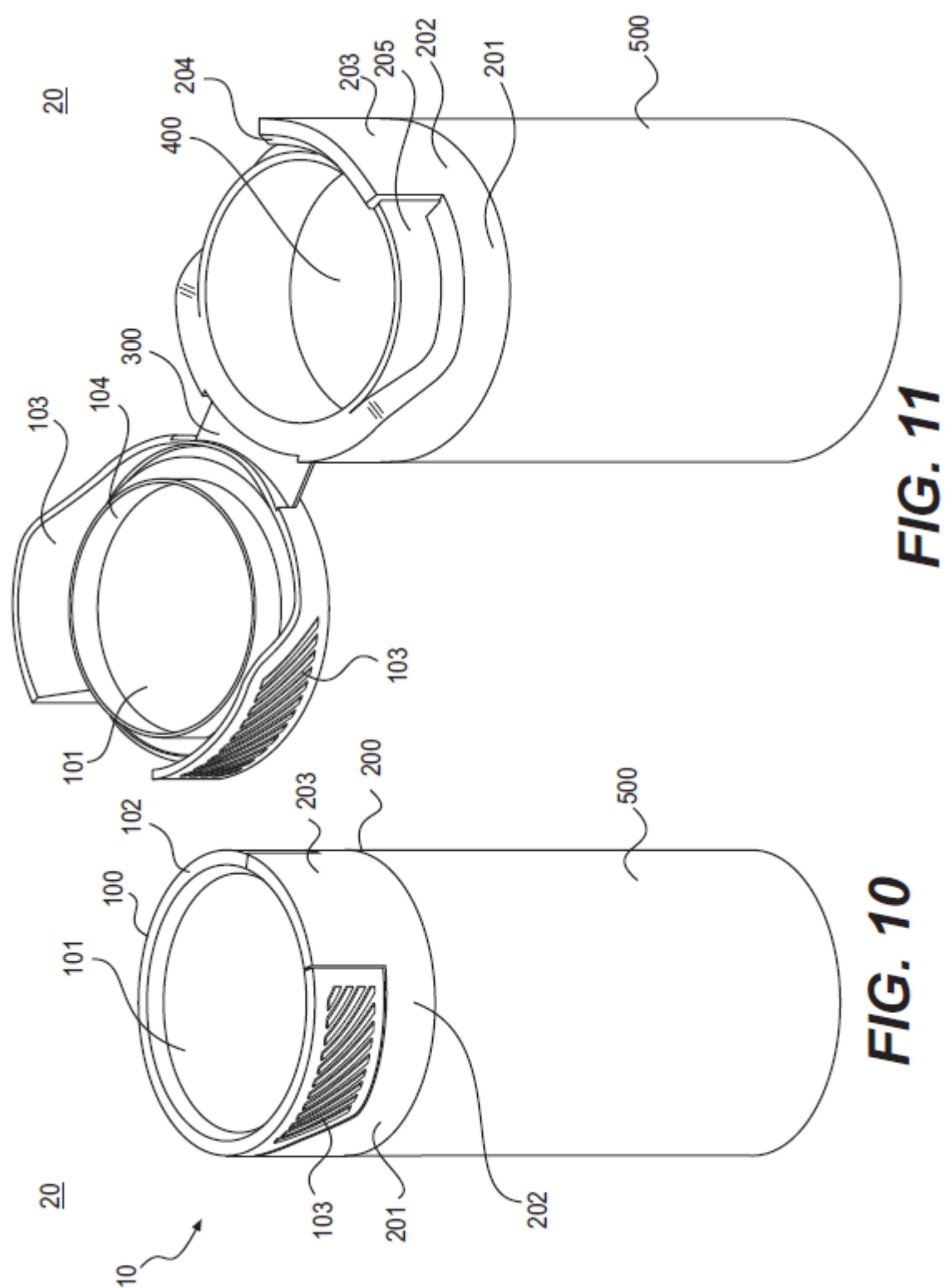
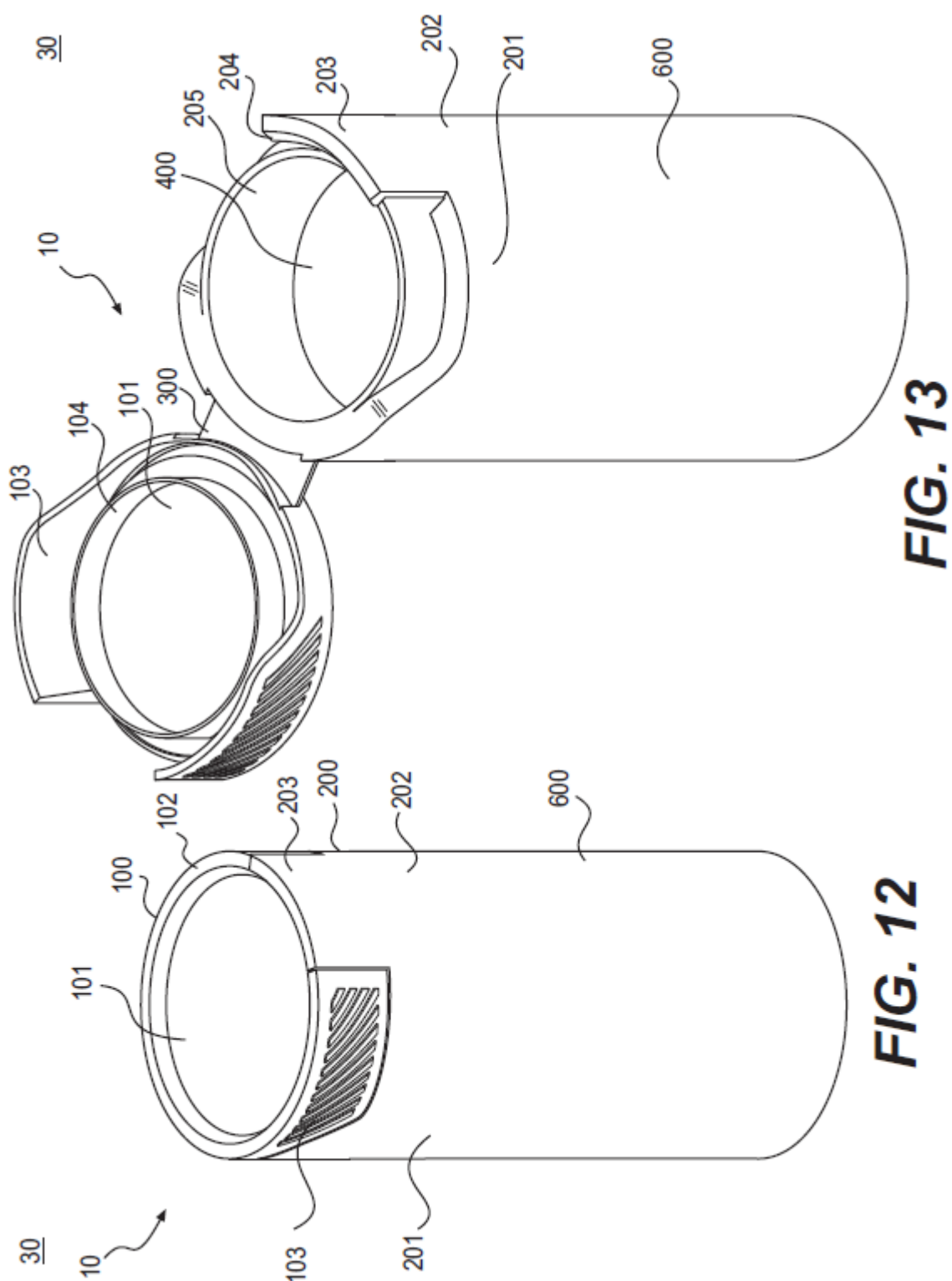
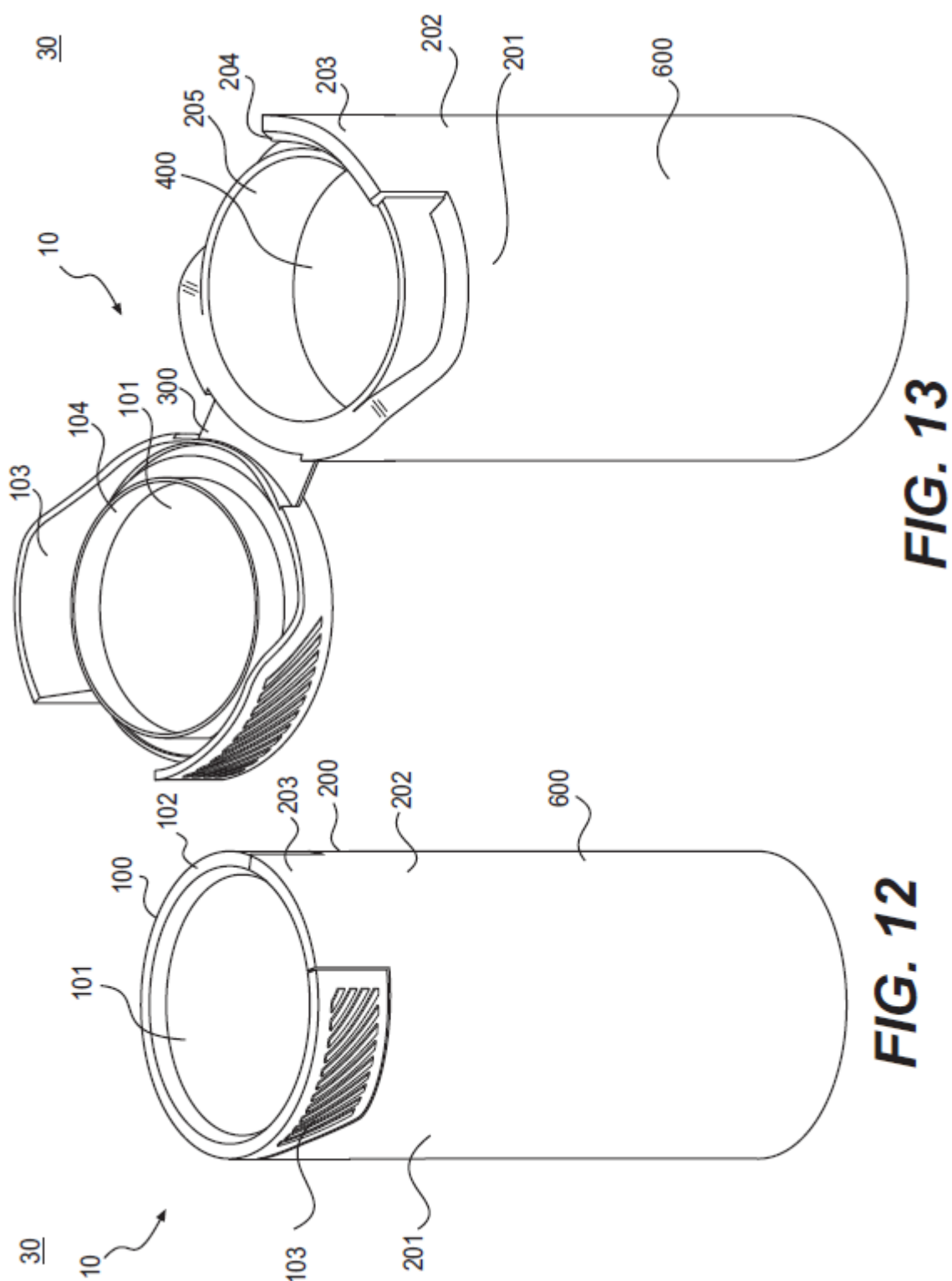
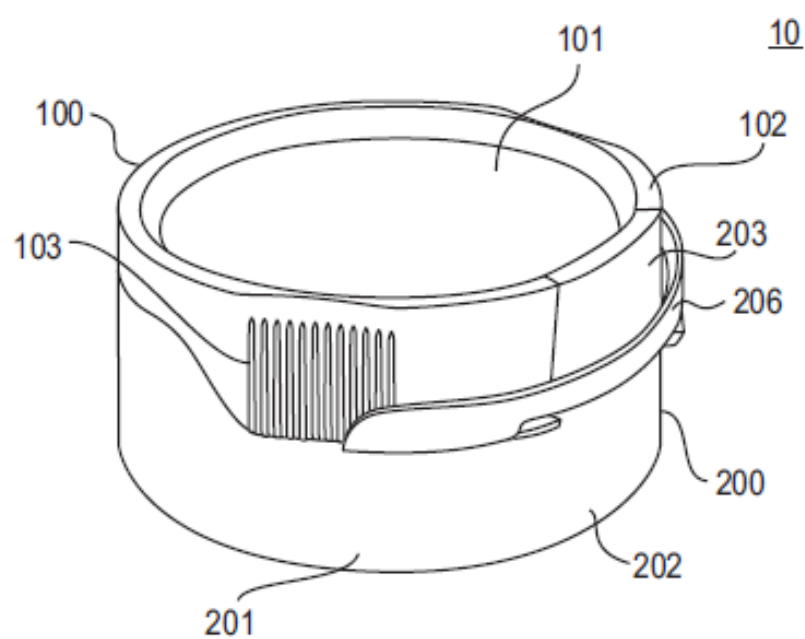
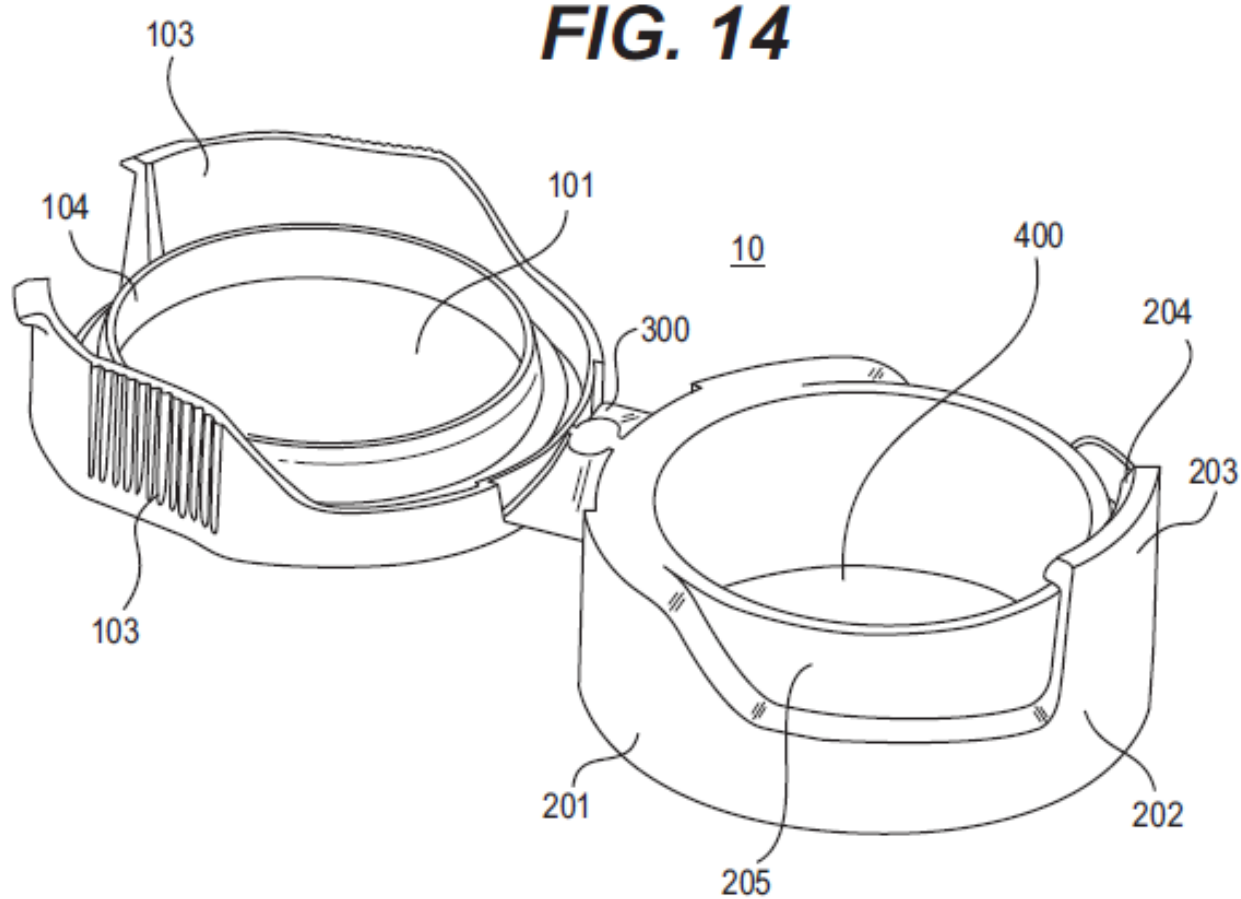


FIG. 9





**FIG. 14****FIG. 15**

