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Bogotá, D.C.**

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



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Tra. 2 PATENTES

Eve: 1 REGDEPOSITO

Act. 538 PETICION

Folios: 2

**Re.: Expediente No. 06 67.113
Solicitud de Patente
a nombre de
NICOLA FABIANO
Código 02 - 01 - 538**

En relación con la solicitud contenida en el Expediente de la referencia y, en particular, con la publicación del extracto de la misma en la Gaceta de la Propiedad Industrial No. 588 de 31 de Enero de 2008, por medio del presente escrito muy respetuosamente me permito solicitarle se sirva proceder a efectuar el **EXAMEN DE PATENTABILIDAD** de la solicitud aquí contenida.

Para tal efecto, acompaño el comprobante de pago por concepto de la tasa respectiva, Recibo No. **001122**

De Usted Atentamente,

GERMAN CASTILLO GRAU
T.P. No. 2.978 del C.S.J.

segunda posición, después del montaje y antes de abrirla. La tapa también comprende una porción central, que se encuentra hundida antes del montaje y sube hasta ponerse a ras con los bordes de la tapa después del montaje. La porción central y el elemento móvil cooperan en sus movimientos.

El problema planteado en esta solicitud es satisfacer la necesidad de evidenciar la abertura de una tapa de botella.

Para solucionar este problema técnico la solicitud en estudio proporciona una tapa que tiene una porción central que permanece hundida antes del montaje sobre la botella y, después del montaje, sube hasta ponerse a ras con el borde de la tapa. Además, la tapa tiene un elemento de palanca que está sustancialmente en paralelo con las paredes de la tapa antes del montaje, y, después del montaje, adopta una posición transversal, impidiendo que se pueda volver a cerrar completamente la tapa sobre la boca de la botella.

Clasificación Internacional de Patentes (IPC): B65D^{55/02,} 51/18, 41/32, 41/34

3. De la solicitud de Patente

Antes de entrar en detalles específicos, se le dan al solicitante ciertas indicaciones generales, algunas de las cuales son aplicables a este caso y todas deberán ser tenidas en cuenta en las eventuales modificaciones:

El título o nombre de la invención debe concordar con lo que se reclama en el capítulo reivindicatorio. Esto es, si en las reivindicaciones se reclama un producto, tal producto debe ser mencionado en el título, y si en las reivindicaciones se reclama un procedimiento o un sistema o un método, también debe ser mencionado allí. Normalmente, el título debe contener máximo diez palabras aunque eventualmente pueden ser más. El título no debe contener palabras cuyo significado no esté reconocido dentro del sector de la técnica de que se trate. Preferiblemente, deben ser palabras cuyo significado se encuentre en el Diccionario de la Real Academia Española (DRAE).

En Colombia, la máxima autoridad en cuestiones del lenguaje es la Academia Colombiana de la Lengua. En caso de duda sobre el significado de las palabras, se debe acoger la definición que trae el Diccionario de la Real Academia Española (DRAE).

En Colombia, es de uso obligatorio el Sistema Internacional de unidades. Esto implica, también, que la coma decimal es de uso obligatorio. Cuando aparezca algún valor con unidades diferentes a las exigidas, deberá incluirse su correspondiente conversión al Sistema Internacional.

La parte técnica de la solicitud se divide en tres secciones, debidamente separadas, preferiblemente en este orden: El capítulo descriptivo, el capítulo reivindicatorio y el juego de dibujos o figuras. Ninguna de estas secciones podrá llevar membretes (encabezamientos o pies de página) ajenos al contenido técnico de la solicitud.

Por lo menos el capítulo descriptivo debe estar debidamente paginado y estar escrito a doble espacio, con el fin de facilitar la referencia a los apartados del texto.

La terminología empleada en la descripción y en las reivindicaciones debe ser igual para designar las diferentes partes, piezas, elementos, detalles o

aspectos de lo que se mencione en ellas; los cuales, a su vez, deben estar designados con números o signos de referencia.

Dentro del texto de la descripción y las reivindicaciones se aconseja encerrar entre paréntesis el número o signo de referencia cada vez que se mencione el detalle correspondiente, con el fin de distinguirlo de otros tipos de números o signos que eventualmente aparezcan allí. Estos números o signos de referencia deben aparecer dentro del juego de dibujos (preferiblemente, sin paréntesis, aunque pueden estar encerrados dentro de un círculo) siempre acompañados de líneas o flechas que señalen o indiquen a qué parte, pieza, elemento o aspecto se encuentran asociados.

Las reivindicaciones deben estar numeradas individual y consecutivamente (1, 2, ... 5, 6, etc.) El capítulo reivindicatorio no debe tener subtítulos.

Normalmente se pueden encontrar dos categorías de reivindicaciones: una, la de producto y la otra, de procedimiento.

En las reivindicaciones se deben definir los alcances de la protección que desea el solicitante. En consecuencia, las reivindicaciones forman un cuerpo aparte de la descripción y como tal debe ser redactado: la primera vez que se mencione un nombre dentro de las reivindicaciones debería estar acompañado de un artículo indeterminado; y, la inclusión -entre paréntesis- de un número de referencia no sustituye la definición del elemento o aspecto al que se refiere, simplemente sirve de información complementaria. Se debe entender que la descripción sirve para interpretar las reivindicaciones y, en consecuencia, si en una reivindicación se reclama un aparato, por ejemplo, no se deberían mencionar aspectos del funcionamiento del aparato dentro de la reivindicación, limitándose a definir únicamente los elementos que constituyen el aparato.

Cada una de las figuras debe estar debidamente identificada, preferiblemente con un número consecutivo: Figura 1, figura 2, ...

Las figuras deben ser realizadas siguiendo las reglas del dibujo técnico.

Se prefiere que dentro de las figuras no se incluya ningún texto. Cada uno de los detalles ilustrados en las figuras deberá estar señalado con un número o signo de referencia, el cual será el mismo en todas las figuras en donde se encuentre el detalle en cuestión. Si en alguna figura no se encuentran números de referencia, se entiende que no se va a decir nada sobre ella dentro del texto de la descripción y, entonces, es preferible que se omita tal figura. Análogamente, si en una figura no se encuentra señalado algún detalle con el respectivo número de referencia, es preferible que se omita tal detalle.

La patente de **modelo de utilidad** no puede incluir los procedimientos, por definición. Si alguna de las reivindicaciones de una solicitud de patente de modelo de utilidad reclama un procedimiento, debe ser suprimida.

Descripción (artículo 28 D. 486)

Durante el análisis del texto de la descripción y de las ilustraciones anexadas, se observaron los siguientes defectos:

- 1) El capítulo descriptivo no se encuentra debidamente paginado, lo que dificulta hacer las referencias a los apartados del texto en donde se encuentran los defectos.
- 2) En el folio 37 aparece la expresión *la figura 1 es una vista... con el elemento de palanca en la segunda posición, antes de que la botella sea abierta por primera vez. La figura 2... con el elemento de palanca en la segunda posición después de que la botella ha sido abierta por primera vez.* Si la posición es la misma, (la

segunda) ¿porqué se hace la mención de que ha sido o no ha sido abierta?. Por lo demás, después de una lectura atenta, se llega a la conclusión de que el elemento de palanca adopta **tres** posiciones: la primera, antes del montaje sobre la botella; la segunda, después del montaje sobre la botella, pero antes de la primera abertura; y, la tercera posición, después del montaje y después de la primera abertura. Dentro del capítulo descriptivo sólo se mencionan una primera posición y una segunda posición -que no coinciden necesariamente con las que el examinador ha detallado-. Se debe hacer claridad sobre estos aspectos.

Se puede ver la confusión cuando el solicitante afirma, en el folio 39: *La tapa 1... comprende por lo menos un elemento de palanca (5) irreversiblemente móvil entre una primera posición, fijada antes del montaje del dispositivo...* Y, también, en el folio 40, donde dice: *...desde la primera posición, como se muestra por ejemplo en la figura 3, hasta la segunda posición, que se aprecia en la figura 1.*

3) En el folio 39 se menciona por primera vez un derivado del verbo *lacerar* cuyo significado, según el Diccionario de la Real Academia Española (DRAE), no concuerda con el contexto.

4) En el folio 40 aparece la expresión *la membrana 31* pero en ninguna figura se encuentra el número de referencia (31).

La descripción no cumple con los requisitos de claridad y divulgación completa, lo que dificulta o impide su comprensión y ejecución de acuerdo al Art. 28 de la Decisión 486

Reivindicaciones (artículo 30 D 486)

Durante el análisis del texto de las reivindicaciones se observaron los siguientes defectos:

1) En la reivindicación 2, folio 43, aparece la expresión *dispositivo... conforme a la reivindicación 1... para llevar al elemento de palanca (b)...* pero, en la reivindicación 1 -de la que depende- no se menciona ninguna *palanca (b)*, como tampoco se ilustra este signo de referencia *(b)* en ninguna de las figuras anexadas.

2) En la reivindicación 3, folio 43, se reclama un *dispositivo... conforme a la reivindicación 3 o 2* por lo que está autorreferenciada, lo cual no es admisible.

3) En la misma reivindicación 3 aparece la expresión *para interferir con 25 el mencionado escanciador* que carece de sentido, según el contexto.

Debe entenderse que las reivindicaciones dependientes de las reivindicaciones objetadas son, asimismo, objetadas, por razones análogas.

Las reivindicaciones no cumplen con los requisitos de definición, claridad, concisión o sustento por la descripción de acuerdo al Art. 30 de la Decisión 486.

Se deben presentar, entonces, nuevos capítulos descriptivo y reivindicatorio, ambos completos, junto con un nuevo juego de dibujos, donde se hayan corregido todas las objeciones que se han hecho arriba. Esto con el fin de evitar -cuando solo se presentan algunas páginas sueltas corregidas- que el lector tenga que desplazarse desde un sitio a otro de la solicitud y luego regresar a donde estaba antes sin perder la ilación de la lectura, porque esto produce confusión y afecta negativamente la claridad de dichos capítulos.

Se le advierte al interesado que las modificaciones sugeridas arriba podrían resultar inconducentes si se mantienen las objeciones a la patentabilidad que se insinúan adelante.

4. Determinación del Estado de la Técnica

La fecha que se ha tenido en cuenta para determinar el Estado de la Técnica es la

Fecha de presentación de la solicitud prioritaria 2005-07-12

Se realizó la búsqueda en el estado de la técnica de documentos relacionados con la solicitud teniendo en cuenta la fecha indicada; y durante la búsqueda de anterioridades se encontraron los siguientes documentos, que forman parte de la familia de patentes de la presente solicitud: Publicación US 2009/0166313 A1 del 2009-07-02; publicación EP 1 743 846 A1 del 2007-01-17; y, patente EP 1 743 846 B1 del 2008-12-10. Se anexa la copia de las primeras páginas de estos documentos junto con la copia del Informe de Búsqueda Europeo y la copia del capítulo reivindicatorio admitido por la Oficina Europea, en su versión en inglés. También se encontraron los siguientes documentos que forman parte del estado de la técnica más cercano al objeto de la solicitud:

n.º	Documento	Título	Fecha de publicación
D1	Patente US 3 612 320, cuyo inventor es Victor Wassilleff	«Inviolable fastening for receptacles»(Un cierre inviolable para receptáculos)	1971-10-12
D2	Patente US 5 738 231, cuyo inventor es Gary V. Montgomery, quien le cedió sus derechos a la Rexam Closures, Inc. Publicación	«Tamper indicating threaded closure-container package»(Un paquete recipiente – cierre con un indicador de manipulación enhebrado)	1998-04-14
D3	WO 2004/011347, cuyo inventor es David William Thomson, quien le cedió sus derechos a la Daniel Montgomery & Son Ltd.	«Liquid container closure assembly»(Un montaje de cierre para un recipiente para líquidos)	2004-02-05

Se anexa la copia de las páginas pertinentes de estos documentos

NOTAS: No se realizaron las evaluaciones de los demás requisitos de patentabilidad, porque se hicieron algunas objeciones respecto a la definición y la claridad de algunas de las reivindicaciones; esto es, no se pudo practicar un análisis comparativo, por ausencia de materia.

A pesar de lo anterior, con base en las enseñanzas de los documentos encontrados hasta ahora, se prevén objeciones respecto al nivel inventivo del objeto de la solicitud. Concretamente, según el Informe de Búsqueda Europeo mencionado arriba, las reivindicaciones 1, 3 y 4 se derivarían de manera evidente del estado de la técnica, porque serían el resultado de la combinación de las enseñanzas de los documentos D1 y D2.

En cada uno de estos casos, tomados aisladamente [esto es, en cada reivindicación objetada considerada por separado] la combinación, en sí misma, sería evidente, porque se trata de la combinación de elementos conocidos que son tomados de campos relacionados con la tecnología en cuestión y porque la combinación estaría basada en la escogencia de un número limitado de posibilidades; además la combinación no implicaría un efecto que es mayor que, o diferente de, el efecto esperado de la suma de los efectos de cada uno de los elementos combinados tomados individualmente, en otras palabras, en cada uno de estos casos en consideración, no se obtiene un resultado sorprendente o inesperado. También, para determinar que la combinación es obvia, se estableció que con la combinación no se supera ningún prejuicio de los expertos en el arte.

A continuación, los números de referencia son los de cada documento en comento.

En el documento D1 se revela, entre otras cosas, un sistema de cierre inviolable que deja rastros visibles de una manipulación, que comprende tres miembros: el primero es la boca del recipiente, el segundo es la tapa del recipiente y el tercero, un elemento de material deformable insertado entre los dos primeros, de tal forma que sea insertado dentro de uno de ellos mediante una herramienta y, al cerrar el recipiente, se inserte dentro del otro. En la figura 10 de este documento se ve la parte superior del recipiente, en su posición inicial, cerrado. En la figura 11 se puede ver, la parte cilíndrica (12) del tercer miembro que ha recobrado la posición antes de ser insertado sobre la boca del recipiente, impidiendo, así, que se pueda volver a cerrar la tapa completamente.

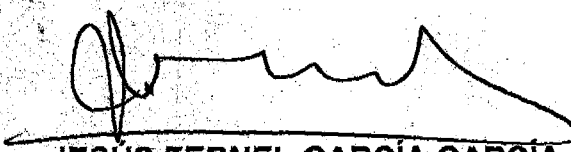
En el documento D2 se revela, entre otras cosas, un paquete para cierre de recipientes, que comprende: un recipiente; un cierre (22) con una parte superior (20) y un faldón cilíndrico que depende de ésta, con una rosca interna que coincide con la rosca externa del cuello del recipiente; un faldón o pestaña interna (78) anular que depende de la parte superior (20) del cierre y que se inclina hacia adentro después de que ha sido abierta la tapa por primera vez, impidiendo, así, que se cierre completamente la tapa de nuevo.

5. Conclusión:

Los requisitos de patentabilidad de la presente solicitud se encuentran afectados negativamente por la falta de claridad de la descripción y las reivindicaciones y por la falta de definición, de sustento y de concisión de estas últimas.

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta días contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el número 5.2, letra e), del capítulo quinto del título primero de la Circular Única n.º 10 de 2001.



JESÚS FERNEL GARCÍA GARCÍA
Director de Nuevas Creaciones (E)

El anterior requerimiento fue notificado por fijación en lista, de fecha
14 ENE. 2010

CONCEPTO TÉCNICO n.º 0095

EXAMINADOR TÉCNICO
Código n.º 202009

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US 20090166313A1

(19) **United States**
(12) **Patent Application Publication**
Fabiano

(10) Pub. No.: **US 2009/0166313 A1**
(43) Pub. Date: **Jul. 2, 2009**

(54) **DEVICE FOR CLOSING BOTTLES OF ALCOHOLIC DRINKS AND SPIRITS**

Publication Classification

(76) Inventor: **Nicola Fabiano, Buccinasco (Milan) (IT)**

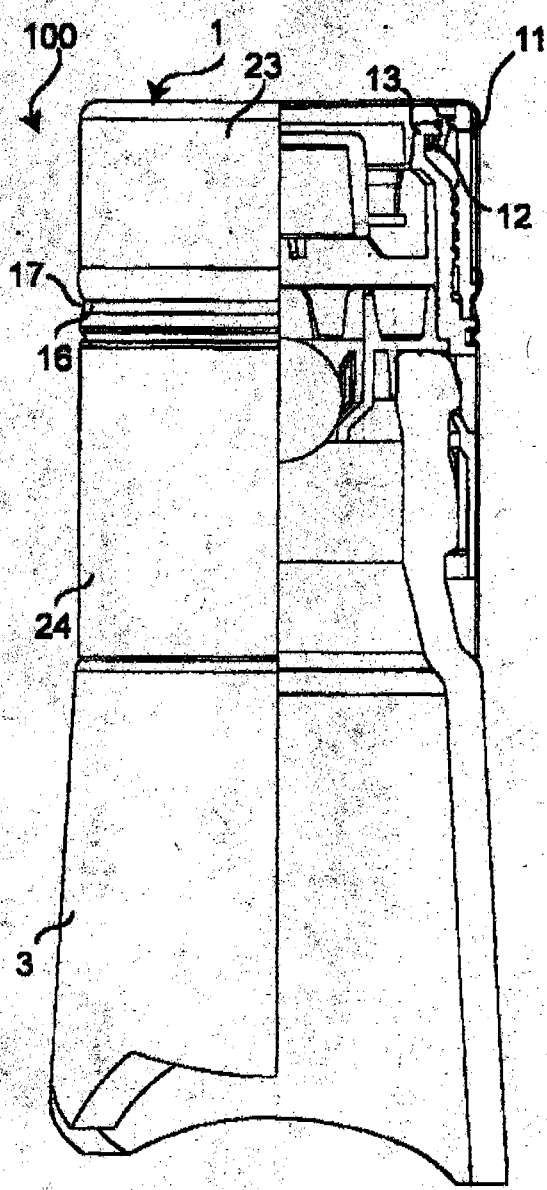
(51) Int. Cl. **B65D 41/00** (2006.01)
(52) U.S. CL **215/316**
(57) **ABSTRACT**

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Device (100) for closing bottles of alcoholic drinks and spirits of the type comprising a cap (1), a pourer (2), suitable for being fixed to the neck of the bottle (3), and a coating (4).

(21) Appl. No.: **12/006,244**
(22) Filed: **Dec. 31, 2007**

The cap (1) comprises at least one lever element (5) irreversibly mobile between a first position, achieved prior to assembly of the closing device (100), and a second position in which, once installed on the bottle and opened for the first time, the cap (1) prevents the device (100) from being completely closed again on the bottle.



(19)



(11)

EP 1 743 846 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

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(51) Int Cl.:

B65D 55/02 (2006.01)

(21) Application number: 08115847.7

(22) Date of filing: 19.08.2006

(84) Designated Contracting States:

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SK TR

Designated Extension States:

AL BA HR MK YU

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(30) Priority: 12.07.2005 IT MI20051322

(54) Device for closing bottles of alcoholic drinks and spirits

(57) Device (100) for closing bottles of alcoholic drinks and spirits of the type comprising a cap (1), a pourer (2), suitable for being fixed to the neck of the bottle (3), and a coating (4).

The cap (1) comprises at least one lever element (5) irreversibly mobile between a first position, achieved prior to assembly of the closing device (100), and a second position in which, once installed on the bottle and opened for the first time, the cap (1) prevents the device (100) from being completely closed again on the bottle.

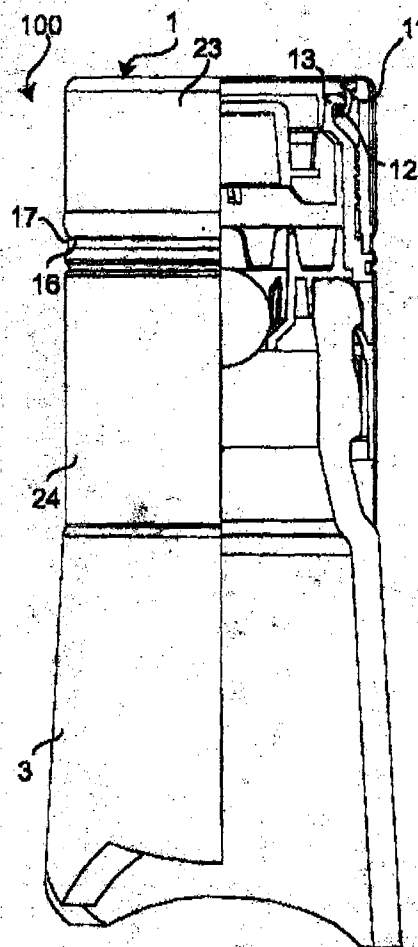


Fig. 1

EP 1 743 846 A1

(19)



(11)

EP 1 743 846 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
10.12.2008 Bulletin 2008/50

(51) Int Cl.:
B65D 55/02 (2006.01)

(21) Application number: 06115847.7

(22) Date of filing: 19.06.2006

(54) Device for closing bottles of alcoholic drinks and spirits

Vorrichtung zum Verschliessen von Kunststoffflaschen für alkoholische Getränke sowie spirituellen

Dispositif de fermeture de bouteilles en plastique pour des boissons alcoolisées et des liqueurs

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR
Designated Extension States:
AL BA HR MK RS

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(30) Priority: 12.07.2005 IT MI20051322

(43) Date of publication of application:
17.01.2007 Bulletin 2007/03

(56) References cited:
WO-A-20/04011347 US-A- 3 612 320
US-A- 5 738 231

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Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid, (Art. 99(1) European Patent Convention).

fore installation of the closing device 100 on the bottle 3, see figure 4, and a second position in which it prevents the device 100 from completely closing on the bottle 3, once installed on the bottle and opened for the first time, figure 6.

[0022] By assembly of the device 100 we mean the operation in which at least the cap 1, the pourer 2 and the coating 4 are associated with one another.

[0023] Possibly, during assembly, it is possible to associate a lower diffuser and a possible valve and/or ball with the pourer 2.

[0024] The cap 1 also comprises a central portion 6 to which the lever element 5 is fixedly connected and a tubular side portion 7 equipped with a threading 8 suitable for engaging in a corresponding threading 9 of the pourer.

[0025] The engagement between the threading 8 and the threading 9 closes the cap 1 on the pourer 2 and consequently closes the device 100 on the neck of the bottle 3.

[0026] The side portion 7 extends from the central portion 6 up to the predetermined breaking line 17.

[0027] The central portion 6 is mobile, during the assembly of the device 100, under the action of the pourer 2 to take the lever element 5 from the first position, as shown for example in figure 3, to the second position, shown in figure 1.

[0028] The lever element 5 comprises at least one membrane 11 and at least one interference element 12.

[0029] The membrane 11 connects the side portion 7 of the cap 1 with the central portion 6 thereof.

[0030] In detail, each cap 1 has a plurality of interference elements 12 arranged spaced apart along a circumference concentric to the central portion 6, see figure 6a and 5a.

[0031] Each interference element 12 is fixedly connected to the membrane 11 and prior to the assembly of the cap 1 onto the pourer 2 is arranged according to a determined angle.

[0032] In detail, following production, the cap 1 is as shown in figure 4, in other words with the membrane 11 inclined centrally downwards and the elements 12 almost parallel to the side portion 7.

[0033] During the first mounting of the device 100, or assembly, the drop-breaker 13 of the pourer 2 acts upon the central portion 6 of the cap moving it upwards, see figure 5.

[0034] The aforementioned movement causes the movement of the lever element 5 towards the second position in which the membrane 11 tilts upwards and each interference element 12 irreversibly rotates in the direction indicated by the arrows F of figure 5, so as to no longer be substantially parallel to the tubular element 7, but inclined towards the centre.

[0035] In other words, after the closing device 100 has been mounted, the cap 1 is in the configuration shown in figures 5, 5a with the central portion 6 moved upwards and the interference elements 12 irreversibly rotated into the second position, in other words substantially inclined

centrally downwards.

[0036] After the assembly of the device 100, the latter is associated with a bottle 3.

[0037] During the first time the bottle is opened causing the laceration of the predetermined annular breaking line 17 of the coating 4, the interference means 12, although in the second position, in any case allow the pourer 2 to slide downwards.

[0038] However, during the subsequent closing of the device 100 on the neck of the bottle 3, the drop-breaker 13 of the pourer 2 interferes with the bottom free end portion of the interference elements 12, bending them further upwards, as shown in figures 6, 6a.

[0039] The bending of the interference elements 12 upwards and towards the inside of the cap 1 does not allow the pourer 2 to reach the top limit switch and consequently does not allow the device 100 to completely close on the neck of the bottle 3.

[0040] In other words, the bending of the interference elements 12 upwards, during the closing of the cap 1 prevents the drop-breaker 13 from going into abutment on the central portion 6 of the cap 1, as however occurred previously.

[0041] In this condition, the top portion 23 of the coating remains separate from the bottom portion 24 making it obvious when the bottle 3 has been opened for the first time.

[0042] According to an advantageous aspect of the present invention, it can be made even more obvious that opening has occurred by providing the bottom portion of the side portion 7 of the cap 1, at the lacerated predetermined breaking line 17, with a colour that contrasts with the colour of the coating 4.

[0043] From the description that has been made the characteristics of the system object of the present invention are clear, just as the relative advantages are also clear, including:

- impossibility of opening the bottle without it becoming obvious that this has occurred;
- intuitive operation;
- simplicity of construction;
- relatively low manufacturing costs.

[0044] Finally, it is clear that the device for closing bottles of alcoholic drinks and spirits thus conceived can undergo numerous modifications and variations, all of which are covered by the invention; moreover, all of the details can be replaced with technically equivalent elements. In practice, the materials used, as well as the sizes, can be whatever according to the technical requirements.

Claims

1. Device (100) for closing bottles of alcoholic drinks and spirits of the type comprising a cap (1), a pourer

(2), suitable for being fixed to the neck of the bottle (3), and a coating (4) wherein said cap (1) comprises at least one lever element (5) irreversibly mobile between a first position, achieved prior to assembly of said closing device (100), and a second position, achieved after assembly of said device (100), in which once installed on said bottle and opened for the first time, said cap (1) prevents said device (100) from being completely closed again on the bottle (3), said lever element (5) comprises at least one membrane (11) and at least one interference element (12) suitable for interfering with said pourer (2) to prevent said cap (1) from completely closing on said pourer (2) and consequently to prevent said device (100) from completely closing on the bottle (3), **characterised in that** said cap (1) also comprises a central portion (6), to which said lever element (5) is fixed, mobile during the assembly of the device (100) under the action of said pourer (2) to take the lever element (5) from said first position to said second position.

2. Device (100) for closing bottles according to claim 1, **characterised in that** said lever element (5) comprises a plurality of interference elements (12) arranged along a circumference.
3. Device (100) for closing bottles according to claim 2, **characterised in that** prior to the assembly of said device (100), said cap (1) has said central portion (6) in lowered position, said membrane (11) centrally inclined downwards and said elements (12) substantially parallel to the side portion (7).
4. Device (100) for closing bottles according to claim 2, **characterised in that** after the assembly and the installation of said device (100) on the neck of a bottle, but prior to the first time that said cap (1) has been opened, said cap (1) has said central portion (6) in raised position, said membrane (11) centrally inclined upwards and said elements (12) substantially centrally inclined downwards.
5. Device (100) for closing bottles according to claim 2, **characterised in that** after the first time that said device (100) has been opened, each time it is re-closed said cap (1) has said central portion (6) in raised position, said membrane (11) centrally inclined upwards and said elements (12) substantially centrally inclined downwards so as to prevent said drop-breaker (13) from going into abutment on the central portion (6) of the cap.

Patentansprüche

1. Vorrichtung (100) zum Verschließen von Flaschen für alkoholische Getränke und Spirituosen des Typs, der eine Kappe (1), einen Ausgießer (2), der an dem

Hals der Flasche (3) befestigt werden kann, und einen Mantel (4) umfasst, wobei die Kappe (1) wenigstens ein Hebeelement (5) umfasst, das zwischen einer ersten Position, die vor der Anbringung der Verschlussvorrichtung (100) eingenommen wird, und einer zweiten Position, die nach der Anbringung der Vorrichtung (100) eingenommen wird, irreversibel beweglich ist, wobei dann, wenn die Vorrichtung (100) einmal an der Flasche angebracht worden ist und erstmals geöffnet wird, die Kappe (1) verhindert, dass die Vorrichtung (100) an der Flasche (3) erneut vollständig geschlossen wird, wobei das Hebeelement (5) wenigstens eine Membran (11) und wenigstens ein Eingriffelement (12) umfasst, das mit dem Ausgießer (2) in Eingriff gelangen kann, um zu verhindern, dass die Kappe (1) an dem Ausgießer (2) vollständig geschlossen wird und um folglich zu verhindern, dass die Vorrichtung (100) an der Flasche (3) vollständig geschlossen wird, **dadurch gekennzeichnet, dass** die Kappe (1) außerdem einen Mittelabschnitt (6) umfasst, an dem das Hebeelement (5) befestigt ist und das während der Anbringung der Vorrichtung (100) unter der Wirkung des Ausgießers (2) beweglich ist, um das Hebeelement (5) von der ersten Position in die zweite Position zu bringen.

2. Vorrichtung (100) zum Verschließen von Flaschen nach Anspruch 1, **dadurch gekennzeichnet, dass** das Hebeelement (5) mehrere Eingriffelemente (12) umfasst, die längs eines Umfangs angeordnet sind.
3. Vorrichtung (100) zum Verschließen von Flaschen nach Anspruch 2, **dadurch gekennzeichnet, dass** vor der Anbringung der Vorrichtung (100) der Mittelabschnitt (6) der Kappe (1) in einer abgesenkten Position ist, die Membran (11) in der Mitte nach unten geneigt ist und die Elemente (12) zu dem Seitenabschnitt (7) im Wesentlichen parallel sind.
4. Vorrichtung (100) zum Verschließen von Flaschen nach Anspruch 2, **dadurch gekennzeichnet, dass** nach der Anbringung und der Installation der Vorrichtung (100) am Hals einer Flasche, jedoch bevor die Kappe (1) erstmals geöffnet worden ist, der Mittelabschnitt (6) der Kappe (1) in einer erhöhten Position ist, die Membran (11) in der Mitte nach oben geneigt ist und die Elemente (12) im Wesentlichen in der Mitte nach unten geneigt sind.
5. Vorrichtung (100) zum Verschließen von Flaschen nach Anspruch 2, **dadurch gekennzeichnet, dass** nach dem erstmaligen Öffnen der Vorrichtung (100) jedesmal, wenn sie wieder verschlossen wird, der Mittelabschnitt (6) der Kappe (1) in der erhöhten Position ist, die Membran (11) in der Mitte nach oben geneigt ist und die Elemente (12) im Wesentlichen in der Mitte nach unten geneigt sind, um so zu verhindern, dass der Tropfenbrecher (13) in Anschlag

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FIG. 6

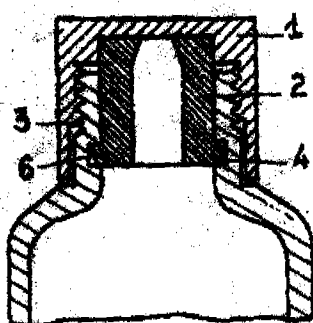


FIG. 8

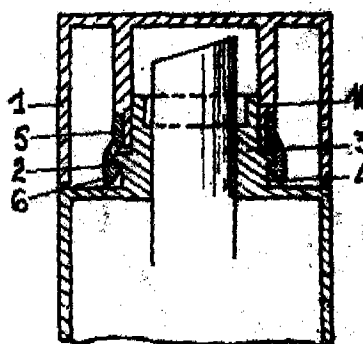


FIG. 7

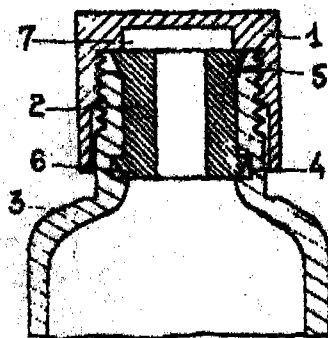


FIG. 9

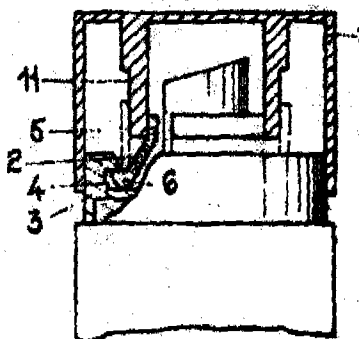


FIG. 10

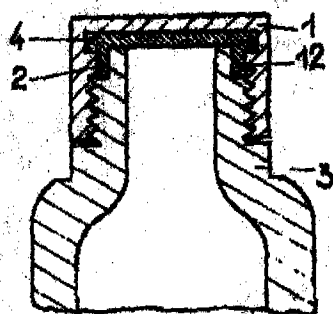
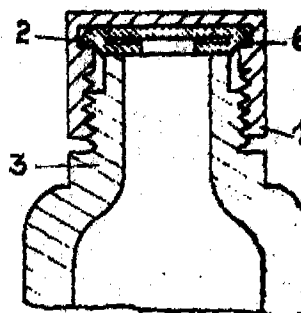


FIG. 11



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FIG. 12

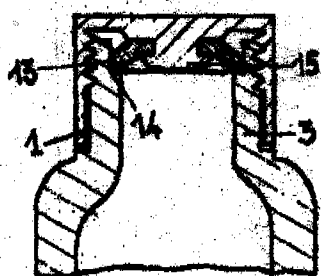


FIG. 13

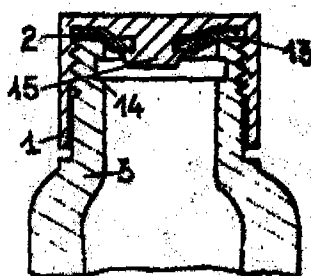


FIG. 14

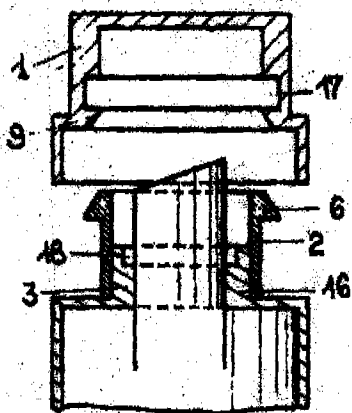


FIG. 15

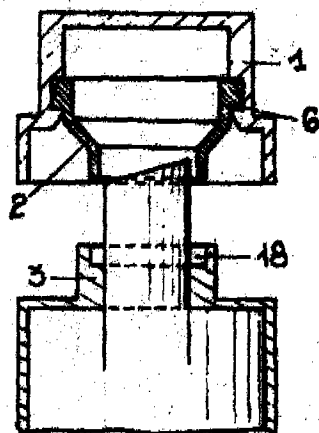


FIG. 16

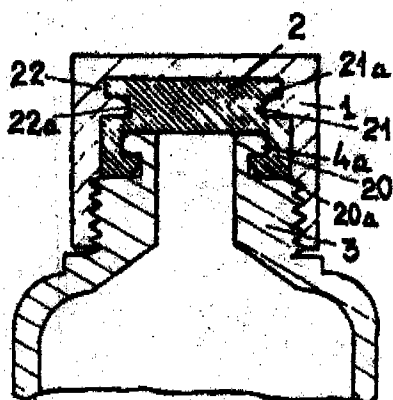
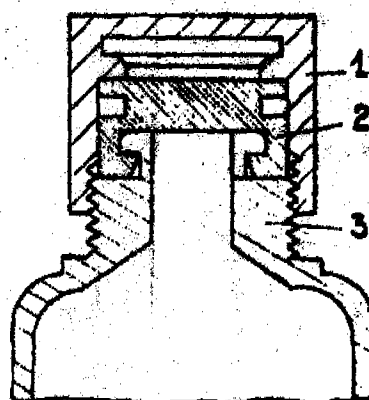


FIG. 17



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INVIOLENT FASTENING FOR RECEPTACLES

The present invention relates to inviolable fastenings or tamper indicating closure assembly for receptacles such as tubes, bottles, flasks, etc....

In numerous fields, it is actually desirable to produce a fastening that retains visible traces of the first opening of the receptacle and thus showing that it has been tampered with.

In known systems, these visible traces are generally obtained, either by tearing part of the fastening set in the receptacle and caused by the first opening, either by the necessity of tearing part of the fastening to make this opening possible.

However, these two systems have certain disadvantages; thus, it is possible to avoid tearing the fastening according to the first system by removing the setting before opening, and putting it back after closing, or the fastening of the second system can be opened without previous tearing, by a greater effort.

It should also be noted that the known systems do not enable the producing of fastenings of the inviolable type when they are applied with receptacles of the aerosol type or the like, in which these fastenings of cap shape are not screwed but directly pushed in, and held by friction on the necks of the receptacles.

The object of the invention is to produce an inviolable fastening system which, on the one hand, makes a fraudulent opening impossible, without leaving visible traces on the receptacle, and on the other hand, enables the fastening to be used on all stoppering systems, while remaining a simple structure, cheap and easily to fit by automatic machines.

To this end, the device for closing receptacles, according to the invention, occurs in the shape of a unit of at least three members: the first being the tip of the receptacle or any opening defining element, the second the cap or any other closure element, and the third, a sentinel element of deformable elastic material inserted between the two aforementioned elements characterized by the fact that the friction fitting of one end of this elastic element on one of the two aforementioned elements, can only be done by deforming this end by means of a tool before fitting, and by carrying out this fitting before definitely fixing the other end of the elastic element on the other of the two aforesaid elements.

It is obvious that the neck of the receptacle and the cap or closure element of the device according to the invention each comprise a part corresponding to one end of the elastic intermediate sentinel element, and enabling on one side, the friction fitment with one of these two ends and the fixed connection with the other.

The invention will be better understood by reading the following specification and examining the attached drawings which show, by way of nonrestrictive examples some methods of embodiment of the invention.

In the drawings

FIG. 1 is an axial section of a first embodiment of the inviolable fastening, the constitutive elements being shown separately before their assembly.

FIG. 2 is an axial section of part of the cap or closure element of the fastening of FIG. 1 assembled.

FIG. 3 is an axial section of the fastening of FIG. 1 shown screwed right onto the neck of the receptacle.

FIG. 4 is an axial section of the fastening of FIG. 1 shown closed after being first opened.

FIG. 5 is an axial section of another embodiment of the fastening.

FIG. 6 is an axial section of still another embodiment of the fastening.

FIG. 7 is an axial section of the fastening of FIG. 6 shown closed after a first opening.

FIG. 8 is an axial section of another embodiment of the fastening of the aerosol type with the cap without threading.

FIG. 9 is an axial section of another embodiment of the fastening with the cap without threading, the fastening being shown closed after being first opened.

FIG. 10 is an axial section of another embodiment of the fastening.

FIG. 11 is an axial section of the fastening of FIG. 10 after being first opened.

FIG. 12 is an axial section of another embodiment of the fastening.

FIG. 13 is an axial section of the fastening of FIG. 12 closed again after being first opened.

FIG. 14 is an axial section of another embodiment of the fastening of the type with cap without threading for aerosol.

FIG. 15 is an axial section of the fastening of FIG. 14 after opening.

FIG. 16 is an axial section of another embodiment of the fastening.

FIG. 17 is an axial section of the fastening of FIG. 16 shown closed after being first opened.

Now, referring to FIG. 1, one sees a threaded cap 1 constituting a closure element, an elastic intermediate surrounding sentinel part 2 and the threaded neck 3 of a receptacle with a groove 4 thus confining a bulge 4a. The part 2 is shaped so to have a tapered ring 5 in one of its ends, a recess 5a at its center of a shape complementary to the bulge 4a of the neck, whereas the other end of this surrounding part is shaped like a bevelled ring 6.

Two concentric grooves 7 and 8 are provided in the inner face of the cap 1. The groove 7 has a surrounding surface according to the axis of the cap, whereas a generatrix sloped in relation to the axis of the cap forms one of the two surfaces of the groove 8.

In FIG. 2, the cap 1 is shown friction assembled with the sentinel part 2. For this purpose, the ring 5 enlarged by a punch (not shown in FIG. 2) has been pushed into the groove 7 of the cap 1.

In the position shown in FIG. 3, the cap 1 closes the receptacle 3. The bevelled ring of the sentinel part 2 after having slid on the bevelled tip 9 of the receptacle, during the screwing of the cap 1, has taken its place in the groove 7 of the neck so that the part 5a of the part 2 cooperating with the bulge 4a of the neck fixes the part 2 on said neck 3.

In the position shown in FIG. 4, in which the cap has been closed after a first opening, the cap 1, while closing the neck 3 of the receptacle, cannot be screwed right in, as shown in FIG. 3. Actually, after the first opening, the collar 5 of the part 2 slides, quits the cylindrical groove 7 of the cap, and resumes its natural tapered shape. The cap 1 can be again screwed on the neck 3 of the receptacle according to the position shown in FIG. 4, in which the tapered collar 5 abuts in the bottom of the groove 8 of the cap 1.

FIG. 5 shows, by way of example, an embodiment of the fastening, in which the groove 4 of the neck 3, ensuring the fixing of the member 2, by means of the bevelled ring 6, on this neck, is placed after the threaded part of the receptacle. After the first opening, the tapered collar 5 of the part 2 is tightened around part of the threading of the neck 3 and prevents the cap from resuming the position shown in FIG. 5.

In FIGS. 6 and 7, an embodiment is shown of the fastening in which the part 2 having the shape of a plug with an opening in the center, has been friction fitted by means of a tool by a preliminary pressure in the recess provided at the bottom of the cap 1. The fixed connection between the part 2 with the rim 6 and the neck 3 of the receptacle with the inner groove 4 occurs after the first closing of the cap 1 as can be seen in FIG. 6.

In the position shown in FIG. 7, the part 2, by resuming its shape before the previous compression, prevents the threaded cap 1 from resuming the position shown in FIG. 5.

FIG. 8 shows a method of embodiment of the fastening in which the cap 1 without threading of the type used for aerosols, is fixed on the cylindrical part 10 of the receptacle 3 by friction. After the first opening, the collar 5 of the part 2 elastically deformed so that it can be friction fitted on the cap 1, retightens by itself on part of the cylindrical neck 10, and prevents the cap from resuming the position shown in FIG. 8.

FIG. 9 shows an embodiment of the fastening of the aerosol type in which the part 2 previously fitted by deformation on the cylindrical part 11 of the cap 1 is then automatically fixed

during the first closing by its rim 6 in the inner groove 4 of the neck 3 of the receptacle.

The position, represented in FIG. 9, shows that the collar 5 of the part 2 has quitted the cylindrical part 11 and, by resuming its natural profile, prevents the cap 1 from retaking the position that it occupied before the first opening.

FIG. 10 shows an embodiment of the fastening in which the elastic sentinel part 2, previously deformed, has been friction fitted on the cylindrical part 12 of the neck 3 of the receptacle. In the position shown, the threaded cap 1, screwed right on to the neck, is fixed with the sentinel part 2.

FIG. 11 shows the sentinel part 2 of FIG. 10 fixed on the cap 1 that is partly unscrewed. The part 2 has resumed its natural profile and will prevent the cap from resuming the position of the first closing.

In FIG. 12, the intermediate sentinel part 2, having the shape of a washer with the central tapered hole 13, is friction fitted, by a previous deformation, inside the neck 3. The outer edge of the washer 2 presses on the edge 14 of the neck. The central part of the cap 1, of press-button shape 15, ensures the fixed connection between the cap 1 and washer 2 at the end of the first closing of the cap.

FIG. 13 shows the position of the cap 1 of FIG. 12 in relation to the neck 3, the washer have resumed its flat shape after the first opening of the cap. The absolute sealtightness of the fastening is ensured before and after the first opening by means of the washer 2 which always presses on the neck.

In FIG. 14, the part 2, previously deformed, is friction fitted on the cylindrical part 16 of the neck 3. The inner groove 17, provided in the central part of the cap 1 of the aerosol type, will ensure the fixed connection between the cap 1 and the elastic sentinel part 2 after the first closing.

FIG. 15 shows the position relating to the members of the fastening of FIG. 14, after the first closing. The part 2, by resuming its natural shape and by abutting in the bottom of the cylindrical groove 18, will prevent the cap 1 from resuming the position of the first closing.

One can thus see from the foregoing, that the cap, the intermediate sentinel part and the neck of the receptacle can be of different shapes; the connection between the receptacle and cap can be made by screwing, friction or the like; the parts friction fitted by a previous deformation and the means of fixed linking during the fastening of the receptacle can also have all suitable shapes without going outside the idea of the invention.

Furthermore, in the event that the neck of the receptacle and cap are of elastically deformable material, the intermediate sentinel part can be made of hard material, the cap undergoing previous deformation, necessary for its friction fitting.

In FIG. 16, a receptacle is shown whose neck 3 is of flexible and elastic plastic material. In this embodiment, the sentinel part 2 is moulded in hard plastic material and has two annular grooves 20, 21 defining two circular crowns 20a, 21a, the revolving surface of the crown 20a being sloped towards the interior. The cap 1 is confined for internally forming an annular groove 22 and a crown 22a of respectively complementary shape, to the groove 21 and crown 21a of the part 2, the surrounding surface of the crown 22a being also sloped towards the interior (FIG. 17).

The cap 1 is shown friction assembled with the part 2. For this purpose, the crown 22a of the cap 1, enlarged by a punch (not shown), receives the corresponding groove 21 of the part 2 so that the crown 21a reenters the groove 22 of the cap 1.

The cap 1 being thus integralized with the part 2 is fixed on the neck 3 of the receptacle by screwing, for instance. In the position shown in FIG. 16, the cap closes the receptacle. The bevelled bulge 4a of the elastic neck 3, after having slide on the bevelled crown 20a of the part 2 during the screwing of the cap 1, has taken its place in the groove 20 of the part 2. As in

the other embodiments of the invention, the cap 1 is thus made fixed with the neck 3 by means of the part 2, the only difference being that here the part 2 is of hard material.

In the position shown in FIG. 17, the cap 1 has been replaced on the receptacle after have been once removed. Then, the cap 1 cannot be screwed right in, as was done after a first closing shown in FIG. 16. Actually, after the first opening, the bevelled annular groove 22a of the elastic cap 1 slides on the annular groove 21a of the part 2. The stopper 1 can thus only be screwed on the neck 3 up to the position shown in FIG. 17, in which the crown 21a of the hard intermediate part 2 abuts on the crown 22a of the stopper 1 which does not have a sloping surface on that side.

The invention is not restricted to the examples of embodiment shown and described in detail, for various modifications can be applied to it without going outside its scope.

I claim:

1. A tamper indicating closure assembly comprising:

an opening defining element,
a closure element for said opening defining element, and
an elastically deformable sentinel element intermediate the opening defining element and the closure element; wherein, with the assembly first closed, the sentinel element is in engagement both with the opening defining element and the closure element, one engagement being readily releasable and the other engagement being retained on opening the assembly, the readily releasable engagement being effected by elastic deformation of one portion of the sentinel element with the aid of a special tool with the elastic deformation being maintained until the first opening of the assembly and the retained engagement being effected automatically by the first fastening of the closure element on the opening defining element by inwardly and outwardly cooperating shoulders on the opening defining element and the sentinel element so that on opening the assembly the sentinel element resumes its undeformed configuration while undeformed retained on one element and released from the other, said undeformed configuration guarding against the opening defining element and the closure element taking up the relative position they occupied when the assembly was first closed and thereby indicating that the assembly has been opened.

2. A tamper indicating closure assembly for receptacles and other opening defining element comprising at least one sentinel element intermediate said opening defining element and a closure element or cap constituting two cooperating members, wherein said sentinel element is friction fitted on a cooperating part of one of the two other aforesaid cooperating members, a previous elastic deformation of one of the two parts being necessary to couple them up for ensuring this friction fitting, said sentinel element being in a locked connection during the first closing of said opening defining element to the aforesaid fitting, on a cooperating part of the other of said two cooperating members.

3. An assembly as set forth in claim 2, in which said connection between said sentinel element and the other said two cooperating members is ensured by a groove and a cooperating bevelled ring placed in these members.

4. An assembly as set forth in claim 3, in which said sentinel element is of elastically deformable material whereby, after a first opening, it slides and quits the part of the member on which it is friction fitted by previous deformation and when resuming its natural shape, prevents the cooperating member from resuming the position of the first closing.

5. An assembly as set forth in claim 5, wherein in said sentinel element comprises a collar frictionally urging said closure element, said collar having a rim at the lower part thereof and engaging a neck of said opening defining element.

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US005738231A

United States Patent [19]
Montgomery

[11] **Patent Number:** 5,738,231
[45] **Date of Patent:** Apr. 14, 1998

D2

[54] **TAMPER INDICATING THREADED
CLOSURE-CONTAINER PACKAGE**

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[75] **Inventor:** Gary V. Montgomery, Evansville, Ind.

[73] **Assignee:** Rexam Closures, Inc., Evansville, Ind.

[21] **Appl. No.:** 635,371

[22] **Filed:** Apr. 19, 1996

[51] **Int. Cl.⁶** B65D 1/02

[52] **U.S. Cl.** 215/44; 215/230; 215/344

[58] **Field of Search** 215/44, 45, 230,
215/252, 258, 329, 341, 344, 349, DIG. 1,
901; 220/288, 289, 290; 206/459.1, 459.5

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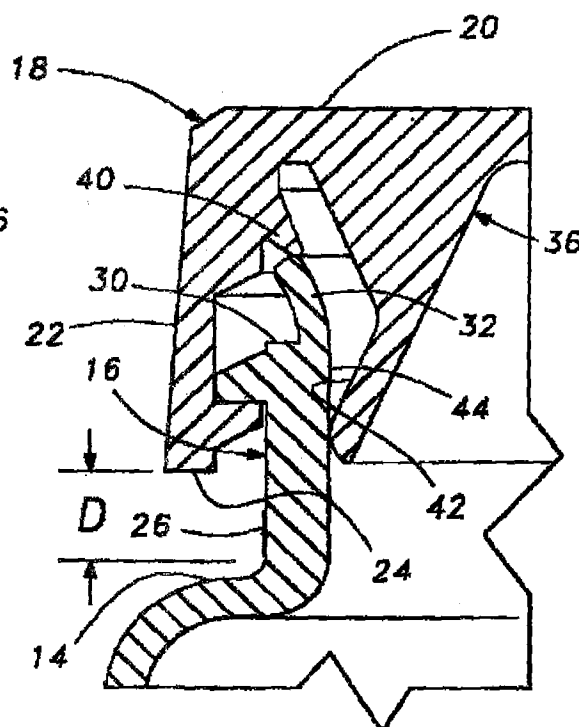
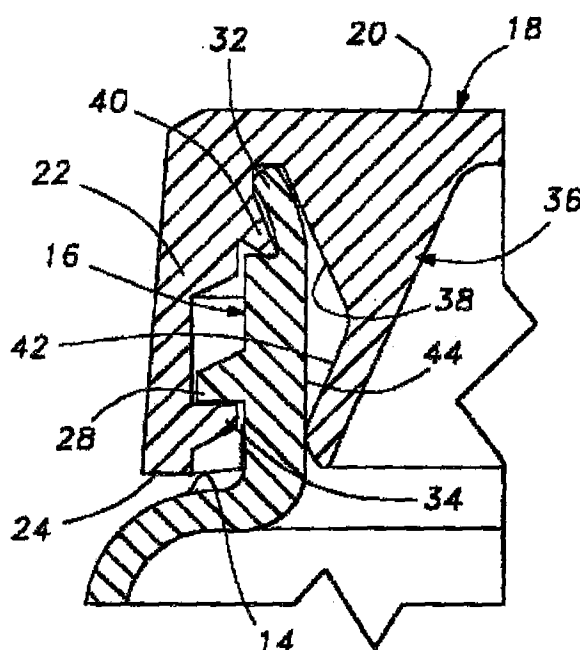
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Primary Examiner—Allan N. Shoap
Assistant Examiner—Nathan Newhouse
Attorney, Agent, or Firm—Gifford, Krass, Groh, Sprinkle,
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[57] **ABSTRACT**

A threaded tamper indicating closure-container package provides an indication of initial opening by how far the closure threads onto the container neck. In the original package condition the bottom of the closure skirt is adjacent a shoulder on the container. After the package has been initially opened and the closure reapplied, the bottom of the closure skirt is noticeably above the container shoulder. A word message such as "opened" can also be exposed on the container neck between the shoulder and the bottom of the closure skirt when the closure is reapplied.

22 Claims, 5 Drawing Sheets



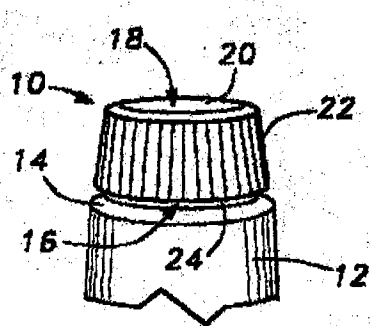


Fig-1

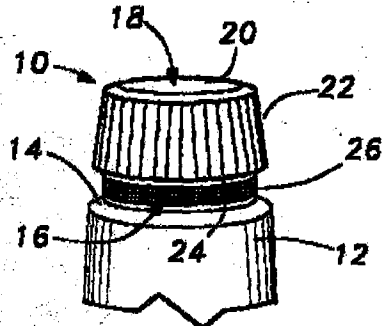


Fig-2

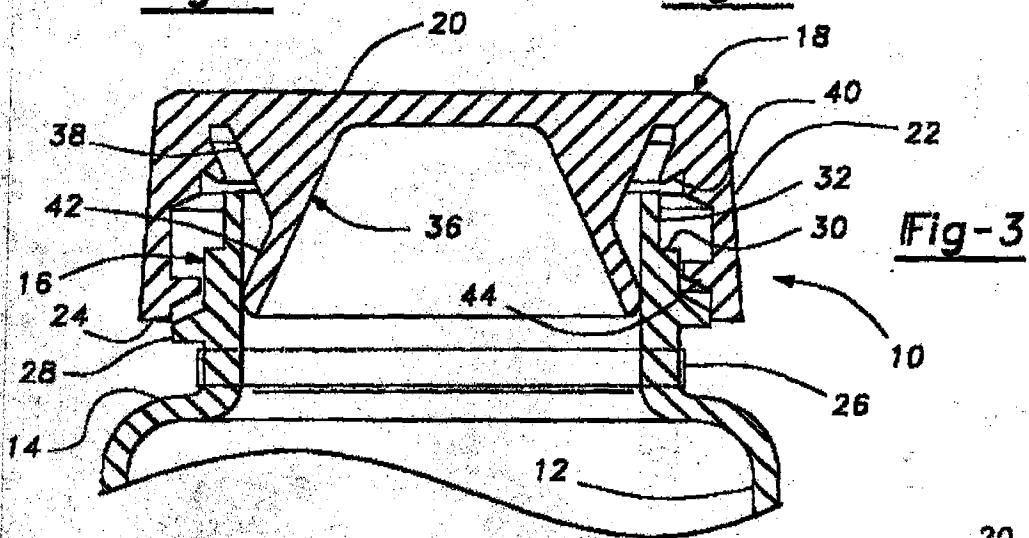


Fig-3

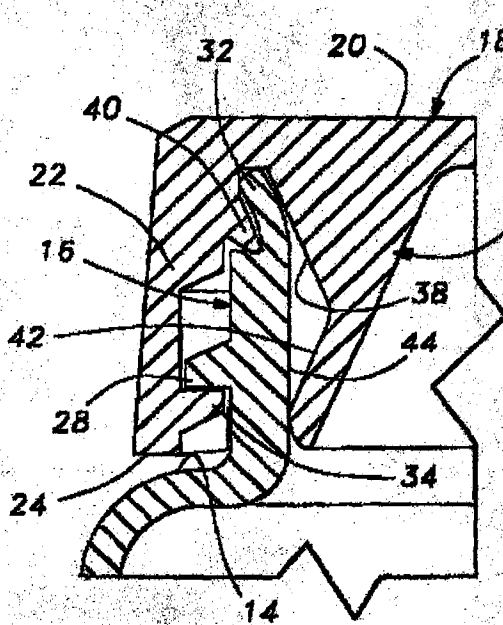


Fig-4

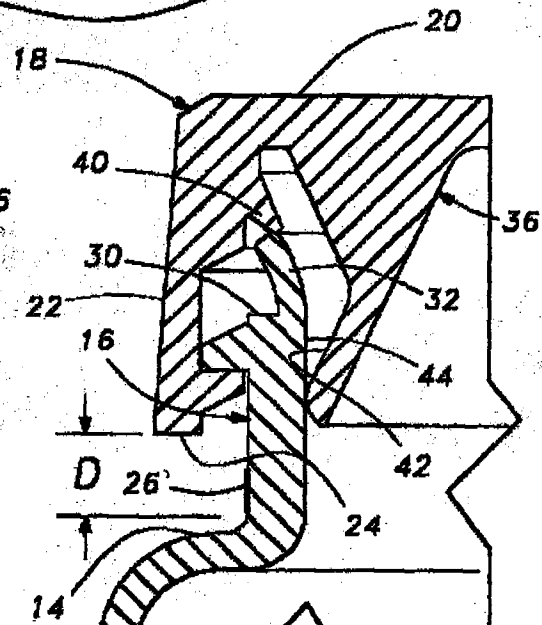


Fig-5

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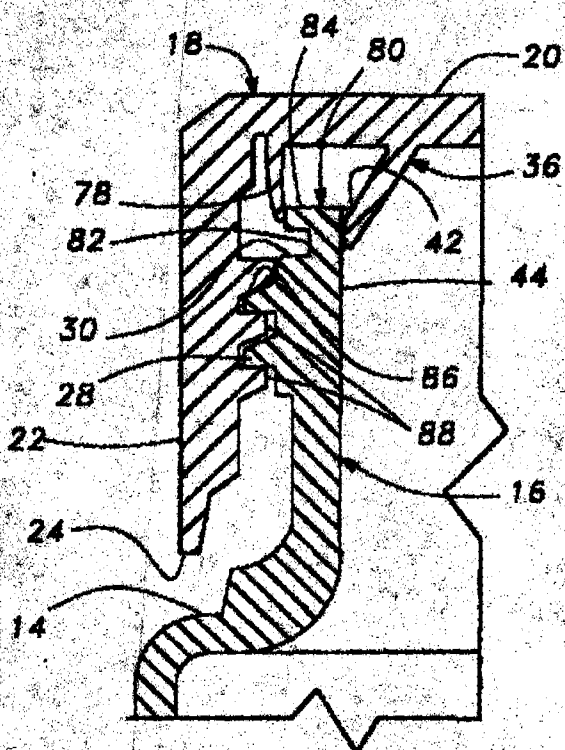


Fig-18

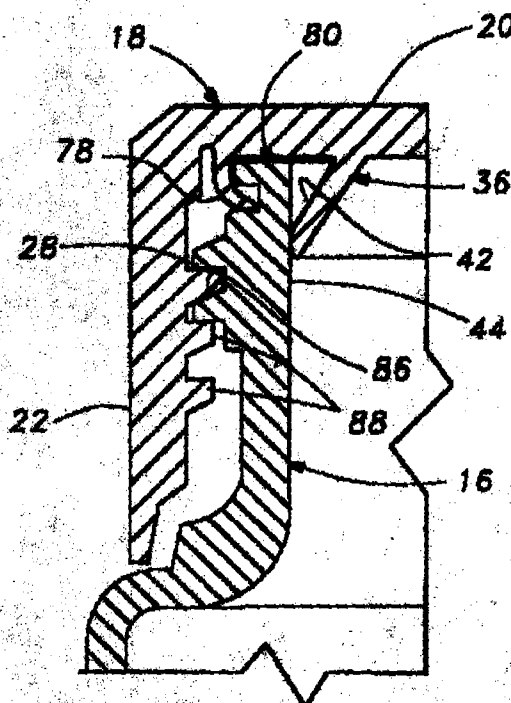


Fig-19

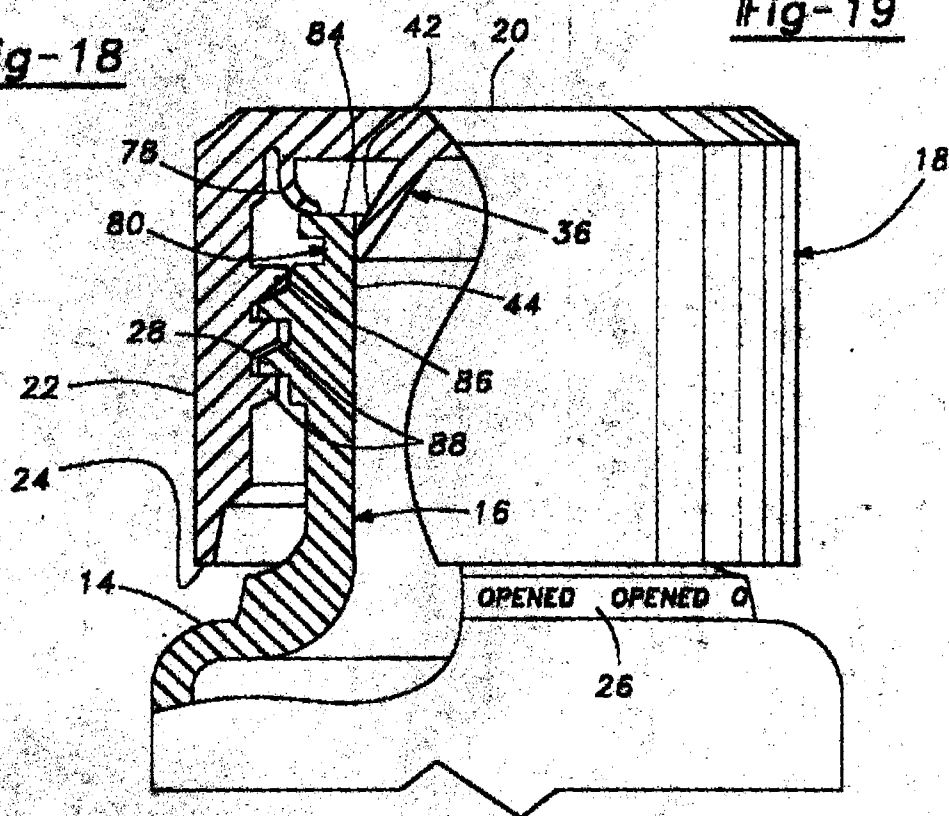


Fig-20

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coaction with the internal cap neck thread 34, and it has an inwardly extending projection 52 on its neck 16. The projection 52 has a bottom first abutment surface 54 and a top second abutment surface 56. The closure 18 has an inner skirt 58 which extends downwardly from the cap top 20. The closure 18 is threaded onto the fitment 50 with the inner skirt 58 passing inside of the fitment projection 52 before the fitment is bonded to the container as shown in FIG. 6. A flaring tool 60 is introduced into the assembled fitment and closure to form an outwardly diverging annular flange 62 at the end of the inner skirt 58 as seen in FIG. 7. The outwardly diverging annular flange 62 contacts and seals against the first abutment surface 54, and the fitment is bonded to the container as shown in FIG. 8 with the bottom 24 of the annular closure skirt 22 abutting or being adjacent to the shoulder 14. When the closure 18 is initially removed and reapplied, the lower edge of the downwardly projecting diverging annular flange 62 will contact and seal against the second abutment surface 56 on the upper side of projection 52, and the bottom 24 of the closure skirt 22 will be at a distance D above its initial sealing position, also exposing the "opened" indicia 26 on the container neck as shown in FIG. 9.

In the embodiments of FIGS. 10-13, the lower portion of the closure skirt 22 is undercut at 64 to form a thin section constituting an annular flange 66. The container shoulder 14 constitutes the first abutment surface, and the container neck 16 has an outwardly extending ledge 68 between the shoulder 14 and the external thread 28 which constitutes the second abutment surface. When the closure 18 is initially threaded onto the container neck, as seen in FIGS. 10, 11 and 13, the annular flange 66 contacts and forms a secondary seal with the container shoulder 14 permanently skewing or bowing the annular flange 14 inwardly. The undercut 64 can also contact the ledge 68, and the neck wall below the ledge 68 and above the shoulder 14 can have an inward relief at 70, as shown in FIG. 10, to control the inward set given to the annular flange 66.

The primary seal in the embodiment of FIGS. 10-12 is the same continuous rotary seal as that used in the embodiment of FIGS. 3-5 between the diverging plug portion 42 of the inner skirt 36 and the internal neck surface 44 of the container neck 16. In the optional construction of FIG. 13, the primary seal is furnished by the insert or gasket 72 acting between the container neck lip 30 and the closure top 28. An inwardly directed bead 74 on the closure skirt 22 above the internal closure thread and contacting the outside cylindrical surface 76 of the container neck 16 provides a continuous rotary secondary seal.

As the closure 18 of FIGS. 10-13 is initially threaded onto the container neck 16, as seen in FIGS. 10 and 11, the annular flange 66 at the bottom of the cap skirt 22 contacts and forms a secondary seal with the container shoulder 14 causing the flange to bow inwardly with a permanent set. In this initial capping position, the bottom 24 of the cap skirt obviously abuts against the shoulder 14.

When the closure 18 is removed and reapplied, the now converging annular flange portion 66 of the cap skirt 22 will contact and form a secondary seal with the container neck ledge 68 with the bottom 24 of the cap skirt 22 being a distance D above its initial sealing position as seen in FIG. 12 to indicate prior opening.

In the embodiments of FIGS. 14-17 and FIGS. 18-20, an annular flange 78 depends downwardly from the cap top 20 preferably at a slight inward angle, and a projection 80 extends upwardly from the container neck lip 30. The

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projection 80 has an outer relief surface 82, which in the embodiment of FIGS. 14-17 is shown as a conical surface diverging outwardly and in the embodiment of FIGS. 18-20 is shown as an undercut surface, which acts at least as a portion of a first abutment surface. The top surface 84 of the projection 80 acts as a second abutment surface. In both embodiments, as seen in FIGS. 14 and 18, as the closure is being threaded onto the container neck for the first time, the annular flange 78 will clear the top surface 84 of the projection 80 and will contact the container neck lip 30, moving toward the outer projection surface 82 as a guide as the closure is tightened as seen in FIGS. 15 and 19. The lip 30 and the outer projection surface 82 act as the first abutment surface, giving the annular flange 78 a further inward set. When the closure is removed and reapplied, the annular flange 78 will be pointed toward the top, second abutment surface 84 as best seen in FIG. 16 and will tighten in contact with the top surface as seen in FIGS. 17 and 20. The bottom of the cap skirt 24 will be spaced above its original tightened position a distance D as shown in FIG. 17 which can expose a worded "opened" message 26 on the container neck as seen in FIG. 20.

In the embodiments of FIGS. 14-17, the primary seal is between the annular flange 78 of the closure 18 and the lip 30 and first abutment surface 82 when the closure is initially applied to the container neck. An additional seal may be used such as a fin seal extending downwardly from the cap top to engage the top surface 84 of the projection 80. When the closure has been removed and reapplied, the primary seal will be between the annular flange 78 and the second abutment surface, top surface 84 of the projection 80.

In the embodiment of FIGS. 18-20, the primary seal is a continuous rotary seal between the diverging end portion 42 of inner skirt 36 and the inner neck surface 44 in a manner similar to the seal supplied in the embodiments of FIGS. 3-5 and 10-12. It will be apparent that while the rotary seal provides a very good primary seal, other seals such as a fin seal depending from the cap top to contact the top of the projection can be used.

In this embodiment of FIGS. 18-20, the external container neck thread 28 is a full continuous thread, but the closure thread is only a full, heavy or deep thread in its portion 86 closest to the cap top 20 and it makes a transition into a shallower thread portion 88 towards the bottom of the cap skirt. When the closure 18 is initially applied to the container neck 16, the container neck thread 28 will fully engage the full thread portion 86 of the cap. However, when the package has been opened and the closure 18 is reapplied to the container neck 16, the engagement of the annular flange 78 with the second abutment surface 80 will prevent the closure from threading on past the shallow thread portion 88, and any attempt to further tighten the closure will result in merely stripping the thread.

I claim:

1. A threaded tamper indicating closure-container package comprising:

a container having a shoulder and a neck extending upward from said shoulder, said neck having an external thread;

a closure having a top and a cylindrical skirt depending from the periphery of said top, said skirt having an internal thread complementary to said container neck thread;

one of said closure and container having an axially extending annular flange and the other of said closure and container having first and second abutment surfaces;

said closure being initially threaded onto said container neck to pass said second abutment surface and engage said first abutment surface to deflect said annular flange radially to a new configuration at which the bottom of said closure skirt assumes a first position adjacent said container shoulder and said annular flange takes a permanent set to assume said new configuration upon removal of said closure from said container; and

said closure being removable from said container neck and reapplied to said container neck during which time, said annular flange remains substantially in said new configuration and engages said second abutment surface to limit closing movement so that the bottom of said closure skirt will assume a second position vertically above said first position to indicate that said closure has been previously opened.

2. The closure-container package according to claim 1 wherein said container neck has a word indicia above said shoulder indicating the closure has been opened, said indicia being visible when said closure is reapplied and the bottom of said closure skirt is in its second position.

3. The closure-container package according to claim 1 wherein said annular flange extends upwardly from a lip of said container neck; said first abutment surface is on an inner skirt of said closure as a converging conical surface extending downwardly from said closure top; and said second abutment surface is on a projection extending inwardly from said closure skirt above said closure thread.

4. The closure-container package according to claim 3 wherein said annular flange seals against said first abutment surface when said closure is initially threaded onto said container neck.

5. The closure-container package according to claim 3 wherein said projection seals against said container neck lip when said closure is initially threaded onto said container neck.

6. The closure-container package according to claim 3 wherein said inner skirt diverges outwardly from said conical surface to form a rotary seal with an internal surface of said container neck.

7. The closure-container package according to claim 3 wherein said annular flange seals against said second abutment surface when said closure is reapplied to said container neck.

8. The closure-container package according to claim 1 wherein said annular flange extends downwardly from said closure, and said first and second abutment surfaces project from said container neck.

9. The closure-container package according to claim 8 wherein said annular flange extends downwardly from said closure top; a fitment is applied to said container to provide said container shoulder and said container neck, and an inwardly directed projection on said container neck provides said first and second abutment surfaces.

10. The closure-container package according to claim 9 wherein an axially extending portion of said inwardly directed projection provides at least a portion of said first abutment surface.

11. The closure-container package according to claim 9 wherein an end portion of said annular flange diverges

outwardly and a bottom portion of said inwardly directed projection provides at least a portion of said first abutment surface in contact with an upper surface of the diverging end portion of said annular flange.

12. The closure-container package according to claim 10 wherein a top portion of said inwardly directed projection provides said second abutment surface in contact with the diverging end portion of said annular flange.

13. The closure-container package according to claim 8 wherein a lower portion of said closure skirt constitutes said annular flange; said shoulder constitutes said first abutment surface; and a ledge extending outwardly from said container neck between said shoulder and said external thread provides said second abutment surface.

14. The closure-container package according to claim 13 wherein a liner provides a seal between said closure top and a lip of said container neck when said closure is initially applied to said container neck.

15. The closure-container package according to claim 13 wherein an inwardly projecting bead on said closure skirt above said internal thread provides a rotary seal in contact with an external surface of said neck.

16. The closure-container package according to claim 13 wherein a diverging inner skirt extending downwardly from said closure top provides a rotary seal with an internal surface of said container neck.

17. The closure-container package according to claim 8 wherein said annular flange extends downwardly from said closure top; said first abutment surface includes an outer portion of a projection extending upwardly from a lip of said container neck; and said second abutment surface is an upper portion of said projection.

18. The closure-container package according to claim 17 wherein said annular flange converges inwardly.

19. The closure-container package according to claim 17 wherein said projection has a conical surface diverging outwardly which forms a portion of said first abutment surface.

20. The closure-container package according to claim 17 wherein a diverging inner skirt extending downwardly from said closure top provides a rotary seal with an internal surface of said container neck.

21. The closure-container package according to claim 17 wherein said internal closure skirt thread has a first heavy deep thread portion adjacent said closure top for initial threading said closure onto said container neck, flexing said annular flange into contact with said first abutment surface and a second shallower thread portion extending from said first thread portion away from said closure top which allows reapplication of said closure onto said container neck with said annular flange in contact with said second abutment surface.

22. The closure-container package according to claim 20 wherein when said closure is reapplied to said container neck, the second shallower thread portion allows the closure to be threaded-on until said annular flange contacts said second abutment surface, but further threading-on effort results in stripping said second shallower thread portion.

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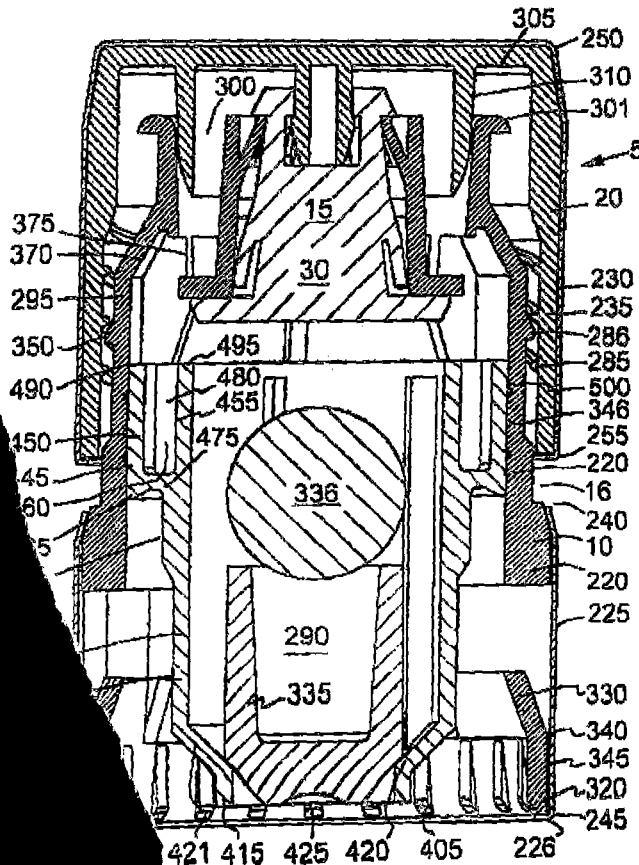
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(54) Title: LIQUID CONTAINER CLOSURE ASSEMBLY



(57) Abstract: There is disclosed an improved closure assembly (5) adapted to be applied to a mouth and neck portion of a container (e.g. for liquid) such as a neck of a bottle. Known container closure assemblies suffer from a number of problems, e.g. simplicity of manufacture and provision of tamper evidence. Accordingly, the closure assembly (5) (or tamper-evident device) of the present invention comprises: a first body part (10); a tamper-evident member or lock means (15); and a container closure member (20), wherein prior to initial opening the tamper-evident member or lock means (15) is in a first position such that the first body 15 part (10) and the container closure member (20) are disposed in a first relation to one another, and initial opening of the closure assembly (5) causes the tamper-evident member or lock means (15) to move a second position. Upon reclosure the lock means (15) causes the first body part (10) and the container closure member (20) to be disposed in a second (spaced) relation to one another, thereby evidencing opening and reclosure.

