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INVENCION

TITULO: TAPA A PRESIÓN PARA RECIPIENTE DE BEBIDAS Y ALIMENTOS



SOLICITANTE: MARIO VALDERRAMA CHAPARRO

DIRECCIÓN: World Trade Center Torre A, Cille 100 No. 8A-37 Piso 10

APODERADO: CARLOS R. OLARTE

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Patente de Invención.



Patente de Modelo de Utilidad.



Capítulo I.



Capítulo II.

2

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ANEXOS

- ☒ Comprobante de pago de la tasa de presentación de la solicitud.
- ☐ Documento que acredita la existencia y representación legal cuando el solicitante sea persona jurídica.
- ☒ Poderes, si fuere el caso.
- ☐ Documento de cesión del inventor al solicitante o a su causante.
- ☐ Declaraciones.
- ☒ Copia de la solicitud internacional. (Resumen, descripción, reivindicaciones, dibujos).
- ☒ Traducción de la solicitud internacional al castellano. (Resumen, descripción, reivindicaciones, dibujos).
- ☒ Copia del examen preliminar internacional efectuado por la Autoridad Internacional de Examen Preliminar (IPEA).
- ☐ Traducción del examen preliminar internacional efectuado por la IPEA.
- ☐ De ser el caso, copia del contrato de acceso.
- ☐ De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas.
- ☐ De ser el caso, certificado de depósito del material biológico.
- ☐ Arte final 12 x 12.
- ☐ De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.
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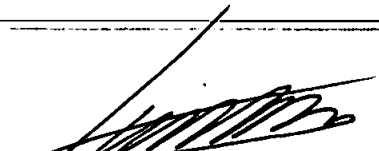
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FIGURA CARACTERÍSTICA:



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3

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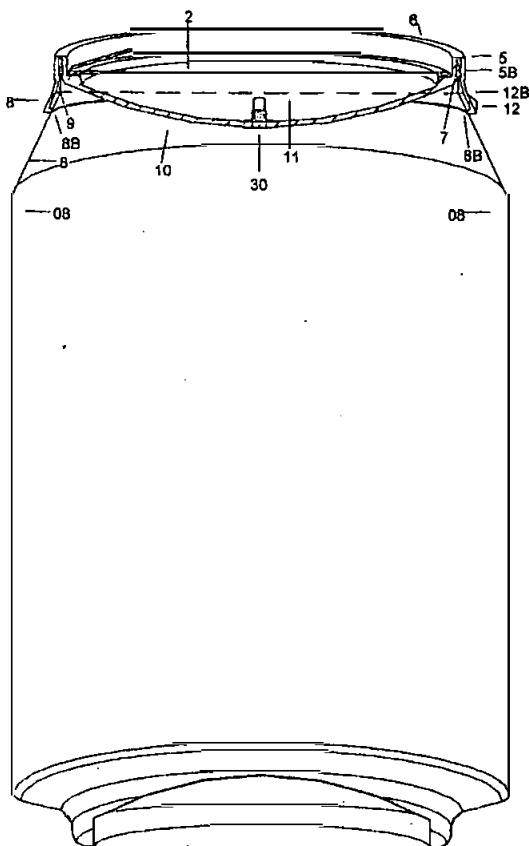
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(54) Title: PRESSURE CLOSURE FOR BEVERAGE AND FOOD CONTAINERS



(57) Abstract: A container and its airtight closure. By crimping an open container a new rim (050) is made having two salient outer (05B) and inner (05A) sides and planes (05A, 05B) where a gasket (24) can be accommodated. A typical airtight closure for the open container is made up of a protecting cover (2) joined to an outer rim (5) that accommodates with precision to the brim of the can (05). It has also an internal rim (4) which along with the outer rim (5) forms a slot (070) on the protecting lid, which has an inner (5A) and outer (5B) sides which conform to the inner and outer sides (05A) and (05B) of the sealed brim. The closing surface (2) has an inverted arch-like (25) shape, which by mechanical action and gas pressure of the content, renders an airtight seal on the contact planes (2B, 05B).

PRESSURE CLOSURE FOR BEVERAGE AND FOOD CONTAINERS**BACKGROUND OF THE INVENTION****5 Field of the invention**

The invention relates to: 1) an airtight closure installed by pressure to protect containers closed by double seam, and open with the fingers, 2) a container and its airtight closure by pressure that is opened with the fingers and replaces the depressed double seam closure. The invention prevents that a depressed closure like the aluminum can for beverages, collects dirt during transport and storage. It also improves the esthetics and can be used as an advertising media. The lid is installed by the manufacturer.

15 State of the Art

Laminate metal containers like the aluminum can for beverages are closed by doubled seaming the closure to the container which creates a depressed sealing surface where dirt is accumulated that gets in contact with the product when emptying or drinking. This makes it prone to contaminate product and consumer, which has been caused of deceased. The invention proposes an airtight closure that protects from dirt containers with depressed closures. Although, the proposed lid is of low cost, it is additional to the can as it is used currently. The invention proposes additionally a modified container which is hermetically closed by a lid derived from the first, which closes by pressure and is opened without tools. The invention can be used with current containers, can be made and installed with the same machines, reduces cost and prevents contamination.

It is an object of the invention to provide a hermetic protecting lid on top of depressed closures of containers of beverages and food, machine installed by pressure after the filling, which is opened with no tools and closes the container after being opened. This lid can be printed, stamped and engraved and has a space for advertising inserts.

A second object of the invention is to provide a container that can be hermetically closed by pressure with a closure, which can be opened with no tools.

A third object of the invention is to provide an airtight closure by pressure, machine installed after the filling by the manufacturer of the beverage, that can be opened without tools, protects the contaminable surfaces from contacting the product when emptying and consuming and closes the container of the second object of the invention.

A fourth object of the invention is to provide a sealable receptacle for special inserts that can be accommodated in the space created in the aforementioned lids.

DESCRIPTION OF CURRENT ART

The double seam closure requires room for the internal roll, which leaves a depressed surface exposed to dirt and contamination, which can disseminate diseases. Although food and beverages are packed by the manufacturer with asepsis, this condition is lost during transport and storage, which can become a hazard for consumers. Manufacturers of canned beverages and food do not have an efficient and cost effective mean to protect the exposed areas of the container. They use for example an aluminum foil, which is fragile and is not airtight (Kronseder, US2004134913). They use also plastic wrappings all over the cans.

In the art there are various closures proposed to protect the container once it has been opened, to facilitate consumption and protecting for foreign elements, as in CA2262341 that is closed by pressure using L-shaped hooks. (Reusable Beverage Can Cap Robinson Kenton I). It also allows inserting a low disk-like in the inside rim of the can. Telmon (US2004226951 *Pressure-applied lid for canned beverages*) this lid can be opened by pulling on a handle and includes tear-off lines indicating that the lid has been opened.

A large number of arts can be cited with the objective of protecting the aluminum can. (2004060937 *Protective covering for beverage cans with breakable opening in the lid*), consists of a conical strip and cylindrical strip between the top surface and the conical strip. Schatz (WO2004014747, *Protective device for beverage cans*) this invention has a circular shape covering with an opening and fixing brim to the beverage can. Clarke (WO02092451, *Lid*). This lid comprises a flexible arm having a closure member that bends on the lid to close and opening. Ullmann (EP1232953, *Beverage can with neck collar*) presents a lid forming truncate cone with a non or slightly expandable that is easily torn at least at one point., made of paper, card board, textile or laminate metal. Suh Dong-Yeol (WO2004110891, *Cap of can for drinking and can for*

drinking having the same) proposes a lid hold by L-shaped hooks with a fixed and other movable portion that can be rotated and lifted to expose an opening. Chang C. (WO00/69734, Double groove beverage can lid) suggest a lid with four grooves on a depressed platform that can be mounted with a crimping tool. Tucker discloses several arts for beverage cans. (US5240132, US5203467, US5125525 *Protective cap with seal for beverage container*) disclose a gas-tight seal plastic lid that snaps on with a grate positioned to cover the opening in the top of the can with a hingeable cover having a seal. Dvoracek (US4961510, *Sanitary lid for metal beverage container*) discloses a spill-proof auxiliary top with a unitary molded piece of resilient material that includes a base and a pedestal-like mouthpiece. Kellner (US4938379, *Cover for a beverage can*) discloses a protective dish shaped plastic beverage can top cover having a meshed opening to prevent insects to enter. Boyd (US4917258, *Snap-on lid for opened soft drink cans*) discloses a lid with a dome and a skirt. A collar grips the bead, at least from the outer side of the bead, and preferably from both its inner and outer sides, sealing to keep in the beverage gas and which is seal by the pressure of the gas. It also has an element to open the container. Nabinger (US4796774, *Removable and resealable lid for a container*) discloses a resealable cover for snap-fitting on a container, and a spout cover pivotally mounted. Faltermeier (US4162023, *Dust cover for flip top opening containers*) discloses a dust cover which has multiple layers for integrating the ring pull of a flip top opener, which permits a user to simultaneously remove the cover and opener, and which utilizes the escaping carbonated gas to assist in removal of the cover. Knight US5090596, *Scalloped paperboard insert for use with plastic lid*. Discloses a plastic spout, a dispensing valve attached to the perforation element, and an accessory circular adaptor for rounded containers. Also US4389802. Dumestre 5088614 *Canned drink cover apparatus*, La Barge 4580692 *Container Sealing Cap*, Sorari 4125203 *Twist can top*, Wells 4039101 *Clean cover for easy-open container tab*, Kinain, Hanish, May.

The invention differs from the former ones on several traits. For example, this invention in besides using two rings that create a slot where the edge of the container inserts, the inner and outer sides of the brim have the same shape of this edge to secure hermeticity, essential for sanitary protection, still having the condition of being opened with the fingers. The lid of the invention is airtight even when the lower portion of this ring is torn off for security purposes. The lids of the invention have been designed to be machine installed by the manufacturer of the beverage or food, while most of the ones cited are designed to be put on by the consumer. The art cited does not include a ring with a salient or slot to retain inserts within the lid or a receptacle that can accommodate in such space. The space between the protecting cover and

the upper surface of the container closure is variable and can take a variety of forms, depending on the advertising purposes. The invention includes several security means to show whether the lid was opened.

5 As for closure systems for containers using pressure the review of the art shows Uhlig (US 4487326, , *Carbonate beverage package*) proposing a plastic closure by pressure for a container specially designed. Hancocks (EP761557, *Wide-mouthed pressurisable beverage container*) proposes a threaded closure which withstands the internal pressure in the container. The present invention differs from the ones listed in that the invention is designed to be used on current
10 containers, with modifications made and installed with the same equipment used for double seaming.

SUMMARY OF THE INVENTION

15 The airtight closure of containers like the beverage can is achieved with a design that takes advantage of some of its traits. Essentially the closure is made up of a **protecting cover (2)** affixed on top of the closed container by its **depressed surface (02)**, unitified to an **outer rim (5)** that accommodates with precision to the **brim of the can (5)**. It has also an **internal rim (4)** which along with the **outer rim (5)** forms a **slot (7)** on the protecting lid. The protecting
20 covering (2) prolongs downside forming a **protecting skirt (8)** adapted to the form of the container to be protected.

The lid is secure by pressure, with no glues, and covers and seals the upper part and the sides of the container that can be in contact with the consumer's lips. It has also a **salient rim (3)** in the internal side of the protecting cover to engage by pressure en groove (3A) of the
25 container. The function of these three elements (3, 4 and 5) is to secure, without glue, the protecting lid to the upper part of the container, acting individually or cooperating.

The design also embodies an **internal security ring (10)** which is an extension of the
30 internal rim (5) and a **hinge (9)**. It also includes **stack rims (6)**. The internal rim (4) has at least one **salient rim or slot (4B)**. Forming part of the outer rim (5) the protecting lid has an inner surface (5B) with shape and dimensions matching the ones in the salient outer rim (05B) to secure airtight seal, in addition to a plane (05B") that keeps it in position. The protecting skirt (8) has a sealing edge (8B).

It is possible to make a closure to replace the depressed one, avoiding contamination. The container of the invention does not have the depressed surface (02) and its brim (05) is salient in both sides (05A, 05B). This container has a closure derived from the former, which in its rim (5) has an internal salient (5A) with shape and dimensions matching the ones of the salient contour of the internal side of the brim (05A) to secure airtight seal. The surface (2) is an inverted arch like whose impost (05A') contacts the plane (05A''), keeping the lid in position. The container and its closure are made with the equipment used to make the aluminum can.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is embodied in the following drawings, which do not limit its scope:

Figures 1 to 6 show the airtight closure, the closed container and the installed closure, and a receptacle when the container to be protected has its own closure.

Figures 7 to 10 show an open container and its airtight closure when the content develops internal pressure, as in pop beverages and beer. Although described, examples of containers and its airtight closure when the content does not generate internal pressure are not shown.

Figure 11 shows examples of rolls for the double seam of the metallic closure.

DETAILED DESCRIPTION OF THE INVENTION

The following embodiments broadly illustrate the invention but do not limit its scope:

Referring in general to Figures 1 to 6 the inventive closure is made up of a **protecting cover (2)** affixed on top of the closed container by its **depressed surface (02)**, join to an **outer rim (5)** that accommodates with precision to the **brim of the can (05)**. It has also an **internal rim (4)** which along with the outer rim (5) forms a **slot (7)** on the protecting lid. The protecting cover (2) prolongs downside forming a **protecting skirt (8)** adapted to the form of the container to be protected, that has a **sealing edge (8B)**, also useful when the closure is installed.

The lid snaps on a typical aluminum can, and covers and seals the upper part and the sides of the container that can be in contact with the product and the consumer's lips. It has also a **salient rim (3)** in the internal side of the protecting cover to engage by pressure in groove (3A) of the container. The function of these three elements (3, 4 and 5) is to secure the protecting lid to the upper part of the container, acting individually or cooperating.

The closure also embodies an **internal security ring (10)** which is an extension of the internal rim (5) and a **hinge (9)** to discard the lid along with the container. This security ring (10) can be located in various places. It also includes **stack rims (6)**. The internal rim (4) has at least one **salient rim or slot (4B)** to keep in place advertising inserts in the void (11) created between the depressed surface (02) and the protecting cover (2), which also has the salient rim or slot (3, 3B). These rims (3B, 4B) are also useful to secure a **sealable receptacle (1)** that can be inserted in the void (11).

The outer rim (5) has an **inner surface (5B)** with shape and dimensions matching the ones in the **salient outer rim (05B)** of the container to secure airtight seal, in addition to an **engaging plane (05B'')** that keeps it in position.

In this invention it is essential that airtightness is achieved with the precise matching of the salient contours of the brim of the can and not just with a L-shaped hook that snaps the closure in. This is used to support and to retain, but not to seal, since it can be torn off as part of the inner security rim.

Fig. 1 depicts the perspective and cross section of the closure with the protecting cover (2) the salient rim (3), inner rim (4), the outer rim (5) and the slot (7), that accommodates with precision to the brim of the can (05) to secure the closure by pressure and renders gas-tight sealing. It shows also the protecting skirt (8) which extends downside adopting the form of the container to be protected. As indicated, the purpose of these elements is to secure the protecting lid to the upper part of the container, acting individually or cooperating, to render a substantially airtight sealing and to cover the upper part and sides of the container to prevent contamination of these surfaces that can be in contact with the consumer's lips or the product when drinking or emptying.

Fig 1. also shows the inner security ring (10) that tears off and indicates whether the lid

has been previously opened. There are several suitable places and ways to provide the closure with a security device. This rim is also useful to keep the closure linked to the container by the hinge (9) when discarded. This figure also depicts the **flange (12)** when it is used the current security system, that will be described later on.

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It also shows the stacking rims (6) which should be preferably no contiguous to prevent dirt and water to build up on the protecting cover. The figure depicts the outer rim (5) the inner surface (5B) with shape and dimensions matching the ones on the salient outer rim (05B) of the container to secure airtight seal, and the engaging plane (05B").

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The protected void (11) can hold advertising inserts hold in place with the salient rim or slot (4B) of the inner rim (4) or with (3B) of the rim (3). In this invention this space is of variable height (15) since the protecting cover (2) can have different heights with respect to the plane on the brim of the container, allowing for inserts of varying dimensions. As mentioned these rims or grooves (3B, 4B) are also useful to secure a sealable receptacle (1) that can be inserted in the void (11).

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Fig. 2 depicts the perspective and cross section of a typical metal beverage container with the opening handle (01), the depressed cover (02), the groove (03) and the seamed brim (05) with its inner side (05A), the outer one (05B) and its inferior engaging planes (05A") and (05B"), the sloped surface (08) and the body of the container (09).

20

Fig. 3 depicts the perspective and cross section of a typical closure assembled to a typical container showing the elements described previously, including the receptacle for inserts whose description follows.

25

Fig. 4 depicts the perspective and cross section of a typical **receptacle (1)** for special inserts. Although the inserts can be placed directly in the protected void (11) and hold in place by the brims or grooves (4B, 3B) some can be taken from the closure with this protection to be used later on. The sealable receptacle (1) is made up of a **flat ring (16)** to glue on the **sealing cover (17)** by any suitable mean and material; of **grooves and brims (14)** matching the grooves and brims (4B, 3B). These elements have shapes to conform to the contours and dimensions of each container and to the height of the protecting cover (2), in such a way for the receptacle to take the shape of void (11) of the closure.

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Fig. 5 depicts the perspective and cross section of other options of the protecting cover (2), including a dome that allows stacking (Fig. 5 a). However, these surfaces can vary in shape and dimensions, according to advertising purposes. In its simplest embodiment (Fig. 5 b) the protecting closure of this invention does not have the security ring (10), the flange (12) to remove a security band, the rim (3), the protecting skirt (8) or the stack rims (6). Others may be designed to create maximum room but not interfering with dispensing machines, others not interfering the stacking, like the dome of Fig. 5 a, others with no limit of form, to meet advertising purposes. Like wise, the sealable receptacles will have shapes matching every closure design.

Fig. 6 shows examples of uses for the closure like to carry a plural number of containers (Fig 6 a) by means (23) that are part of its fabrication and that can be removed from the lids, with holes (20) to insert a handle (21, 22). A device to collect advertising lids (Fig. 6 b) and when used to assemble and advertising object (Fig. 6 c)

Fig. 7 depicts the perspective and cross section of a **typical open container**, without the depressed surface (02) to which, by double seam, a **new rim (050)** is made having two **salient outer (05B)** and **inner (05 A)** sides and **planes (05A", 05B")** where a **gasket (24')** can be accommodated. The geometry of the brim and of the surfaces (05A, 05B) cooperates with the corresponding one in the groove (070) of the closure of the invention.

The gasket (24') is to secure airtight contact between the planes (05 A" y 05B") and the corresponding ones on the lid (5 A' y 5B'), must be of material that meets norms and can be a ring put on when seaming or perhaps more practically, the seaming is made with a co-extrude foil on one or both sides with a polymer, as is done currently, which gives more volume to the brim and more contacting area. In this case the brim of the container has a finishing that prevents direct contact of the lips with the metal. Neither the salient sides or its downside longitude have to be symmetrical, one can protrude more and be longer than the other and have different geometries on their surfaces. What is essential is that they match with the corresponding ones on the closure.

Fig. 8 depicts the perspective and cross section of a **typical airtight closure** for the open container of the invention. This closure has the same traits of the protecting lid already

described (Figs. 1 to 6), to which are added: the **groove (070)** has an **inner (5A)** and **outer (5B)** sides which conform to the inner and outer sides (05A) and (05B) of the seamed brim. The geometry of the groove (070) and the surfaces of the sides (5 A', 5B') cooperate with their similar (05 A'' y 05B'') in the seamed brim of the open container. If the container is made of plastics or glass the salient inner and outer sides are made on the mold and will require a gasket only on the closure when this is metallic.

For an embodiment for a metal closure these elements prolong down side, forming an **entrance (2A)** and a **plane (2B)** which contacts the inner side (05B'') of the rim. This plane has a **gasket (24')** to secure airtight sealing. The closing surface (2') has an **inverted arch like (25)** shape, which by mechanical action and gas pressure of the content, renders airtight sealing on the **contact planes (2B, 05B'')**. As it is known in the art, the alloy, rays and rings on the surface, enhance the capacity to withstand pressure and closing. The concavity is covered with a **lid (2E)** that accommodates in the **entrance (2A)**, or is glued on the **surface (2C)**. It can have a **flange (2D)** to remove it. This can also be accomplished with pre-cuts on (2E).

The grove (070) snaps on the rim (050) of the container and then the crimping rolls press and stamp their shapes to the rim and to the closure (Fig. 7b) to complete the close up. The groove of the closure (070) can be slightly opened before it is snapped on (Fig. 7c) having the final pressure with the rolls. The brim of plastic closures can also be pressed with rolls, with or without heat, thermo fusion or laser are techniques applied for similar purposes. In each case it will be decided how much pressure or heat are convenient, and still removing the closure without undue difficulty.

Several convenient arch-like shapes can be used. Figs. 9C, D and E depict various possible shapes for a metal closure. Fig. 8B depicts a cross section and perspective of a plastic closure which prolongs internally downside until reaching the conical part of the container, which becomes a second support plane.

These brims (5A and 5B) have also security rings (10) that tear off when the lid is opened, as the ones described, to protect the integrity of the product and of the insert. Besides this security mean of the inventive closure, it is possible to use external means known in the art, remove by pulling a flange (12). It is also viable to make pre cuts on the metal material or breaking points on other materials, to tear them off from the closure and remaining affixed to the container. As it

is known in the art, it is possible to provide a hinge (9) to keep the closure affixed to the container.

For containers withstanding internal pressure the inventive closure can be of two types:

5

1. The arch like section is integral and a flat surface is added (Fig. 8), and
2. The flat surface is integral and the arch like section is added.

10 In a second embodiment not shown, the flat surface (2') is an integral part of the closure and the entrance (2A) is in the inside to receive the arch like section (25), achieving the same effect of gas pressure. In both modalities the void (11) between the arch like section (25) and the flat surface (2E) can accommodate advertising inserts or a sealable receptacle (1).

15 The airtight closure of the invention meets standard norms for this type of containers, like gas pressure, keeping airtightness under different circumstances, normal mishandling in transport and of the final user, droppings, daily differences in temperature and atmospheric pressure. It also provides proper security for the integrity of the product and the advertising inserts. There are several means to meet these norms: design and construction to transmitting the tensions like convexities, rings and rays, appropriate thickness and complementing use of heat, pressure and
20 laser.

Fig. 8 depicts also a valve (30) installed on the surface of the closure in a convenient place and whose function is to liberate gases in controlled way to reduce pressure before opening, if needed, and to fill in the container previously closed, modifying the current filling in system. 49,
25 239

Fig. 9 shows the perspective and cross section of the closure assembled on the container, with the elements described previously.

30 An expert in the art will know that this airtight closure can be used for containers not withstanding gas internal pressure. For these containers the design is similar minimizing or not including the arch like shape, and hermeticity is achieved with grabs and pressure of the elements described.

Construction

The protecting lid is made separately with any material suitable for molding, for each type and dimensions of container. The airtight closure is made separately of plastics, metals, composites, paper, cardboard, synthetic paper. It can also be thermo fuse (blister) on the container. Several combinations are possible: container and closure made of aluminum, container of aluminum, plastic or glass and closure made of plastics. When the closure is made of aluminum it is fabricated with the equipment and methods currently used for the construction of the depressed closure.

The open container of the invention and its closure are made from any container currently in use. For example, for the aluminum can is sufficient to double seam a circular crown using the hook of the container that is used today to double seam the depressed closure. It is convenient that this hook bends in instead of out. This double seam is made with the same equipment and process currently in used, adapting the form of the rolls. Figs. 11a, 11b.

Installation

The closure is installed on the container with the machine and process currently used to double seam the depressed closure. The pressure on the brim is made is similar to the method and machine for double seaming of the depressed closure to the container, giving to the rolls a convenient geometric shape.

The process to make and install the new container and its closure, for an aluminum can is:

1. Double seam to the container a brim with salient surfaces on both sides,
2. Made a closure with geometry conforming the one in the container, as suggested in the invention,
3. On top of a container filled in, machine install the closure by pressing, or
4. If the container has been close empty, fill in the liquid using the valve.

For consumption

1. Verify that the container has not been previously opened

2. Open the container pushing up the lower edge of the skirt. Press down the valve if it is necessary to alleviate excessive gas pressure within the container, before opening
3. Take out advertising inserts or the sealable receptacle
4. From a wide mouth container, consume part of the content and close again by pressing
5 down with bare hand.

Applications

10 The closure of the invention can be used for any open container on which a brim with salient on both sides can be made and whose geometry can be repeated on the closure. It can be useful to close containers of wide or narrow mouths as tin cans, aluminum cans, and glass bottles for wines, sparkling wines, pops, beer and the like. Also for plastic bottles currently using threaded closures. Using appropriate materials it can be used for products heated after closing.

15 The invention can be used as an advertising device. Most materials used for construction can be printed, imprinted, stamped with colors and are suitable for stickers. The void (11) is useful to insert advertising objects, like the ones used in similar means by the experts in advertising and promotion. The sealable receptacle widens these
20 applications.

CLAIMS

1. A protecting lid for containers of beverages and food previously closed with a
5 depressed surface comprising:
 - a) A protecting cover (2) extending all over the closing area of the container including
 its brim;
 - b) An outer rim (5) being integral part of the protecting cover (2), with an inner side
 (5B) that coincides with the outer side of the brim (05) of the container, rendering a
10 substantially airtight sealing between the lid and the container;
 - c) An inner rim (4) being integral part of the protecting cover (2), contacting the inner
 side (5A) of the brim of the container and cooperates with the outer rim (5) to render
 a substantially airtight sealing;
 - d) A slot (7) formed by the rims (4) and (5) with shapes and dimensions matching the
15 side (05B) of the brim of the container;
 - e) A salient rim (3) under the protecting cover to engage in groove (3A) of the
 container.
 - f) A void (11) of variable height between the depressed upper surface of the container
 (02) and the protecting cover (2);
 - 20 g) Brims or grooves (3B and 4B) to retain advertising means and objects inserted in the
 void (11);
 - h) An inner security ring (10) that tears off when opening the container, showing that it
 has been opened;
 - i) A hinge (9) to keep the security ring (10) linked to the lid and keeps it adhere to the
25 container after being opened, and
 - j) A stacking rims (6) to keep in position the containers for stacking.
2. An open container with a brim (050) having two salient outer (05B) and inner (05A)
 sides both forming contact planes (05A", 05B") where a gasket (24') accommodates.
30 The geometry of the brim and of the surfaces (05A, 05B) precisely coincides with the
 corresponding ones in the groove (070) of the closure of the invention.
3. An airtight closure matching the correspondent open container of Claim 2, with the traits
 of the lid of Claim 1 and additionally with:

- a) A slot (070) having inner sides (5A', 5B') cooperating with the outer sides (05A'', 05B'') of the double seam brim of the container of Claim 2;
 - b) An entrance (2A) and a support plane (2B) contacting the plane (05B'') inferior on the brim of the container;
 - 5 c) A gasket (24) accommodated in the plane (05B'') inferior on the brim of the container or co-extrude on the metal bended to make the double seams on the brim of the container and on the closure, when they are made of laminate metal;
 - d) An inverted arch like shape (25) firmly contacting the plane (05B'') and the gasket (24);
 - 10 e) Or an inverted arch like shape (25) affixed to the closure in the entrance (2F) holding a gasket (24);
 - f) A cover on the convexity (11) inserting the entrance (2 A) or bonded on (2C);
 - g) An inner security ring (10) that tears off when opening the container, showing that it has been opened;
 - 15 h) A hinge (9) to keep the security ring (10) linked to the lid and keeps it adhere to the container after being opened, and
 - i) A stack rims (6) to keep in position the containers for stacking.
- 4. The closures of Claims 1 and 3 having cover (2) with varied shapes and heights allowing for different insert sizes in the void (11);
 - 20 5. The closures of Claims 1 and 3 having cover (2) that can be printed, imprinted, and stamped;
 - 6. The closures of Claims 1 and 3 having a protecting skirt (8) shaping the area of the container that can be in contact with the product or the consumer's lips;
 - 7. The closures of Claims 1 and 3 having a salient rim (3) matching shape and dimensions of the slot (03) on the container's surface;
 - 25 8. The closures of Claims 1 and 3 holding advertising material or objects in the void (11) which is kept in the closure by the edges or slots (4B) o (3B) or by any other mean;
 - 9. The closures of Claims 1 and 3 with advertising material or objects in the void (11) having a mean for the security of the product and the advertising material and objects;
 - 30 10. A sealable receptacle (1) insert in the void (11) and kept in the closure by the edges or slots (4B) o (3B) or by any other mean;
 - 11. The closure of Claim 3 having a valve to fill in the container and to alleviate the internal gas pressure within the container;
 - 12. A plural number of closures of Claims 1 and 3 kept together with a handle (21).

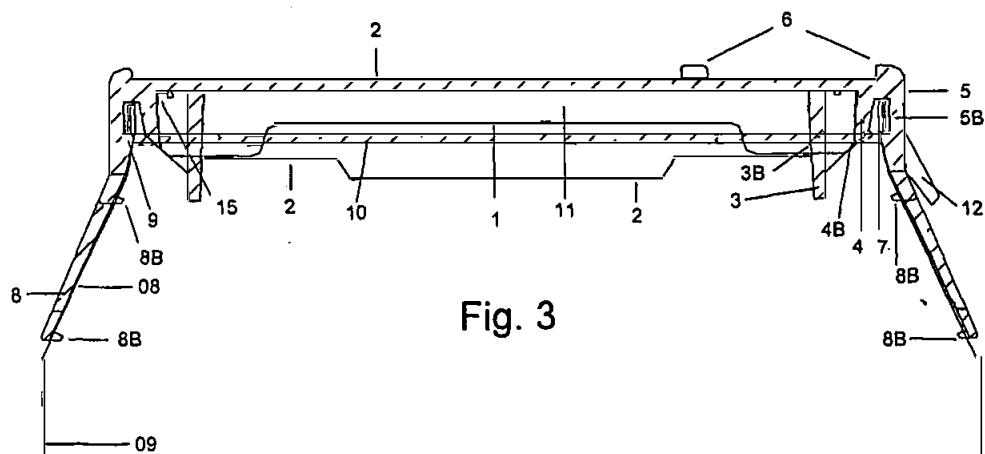


Fig. 3

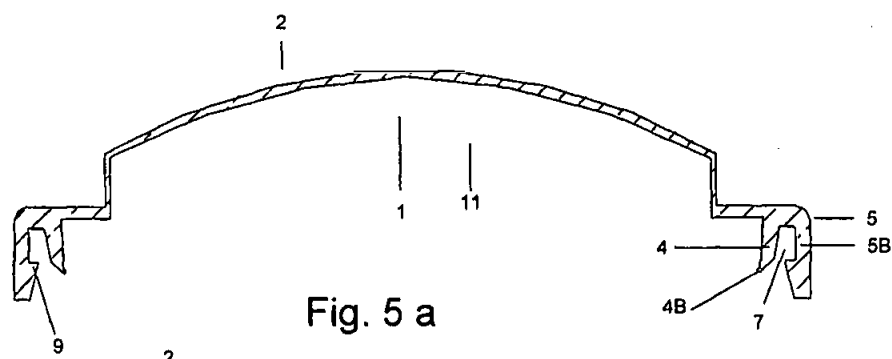


Fig. 5 a

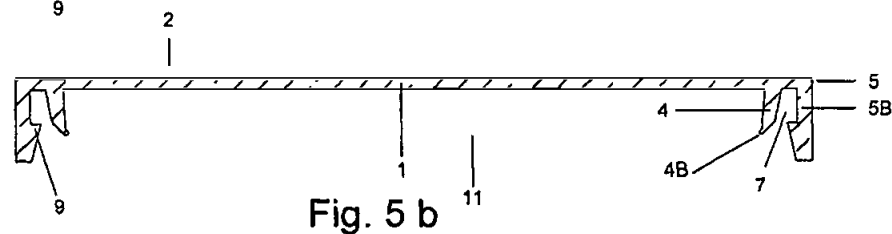


Fig. 5 b

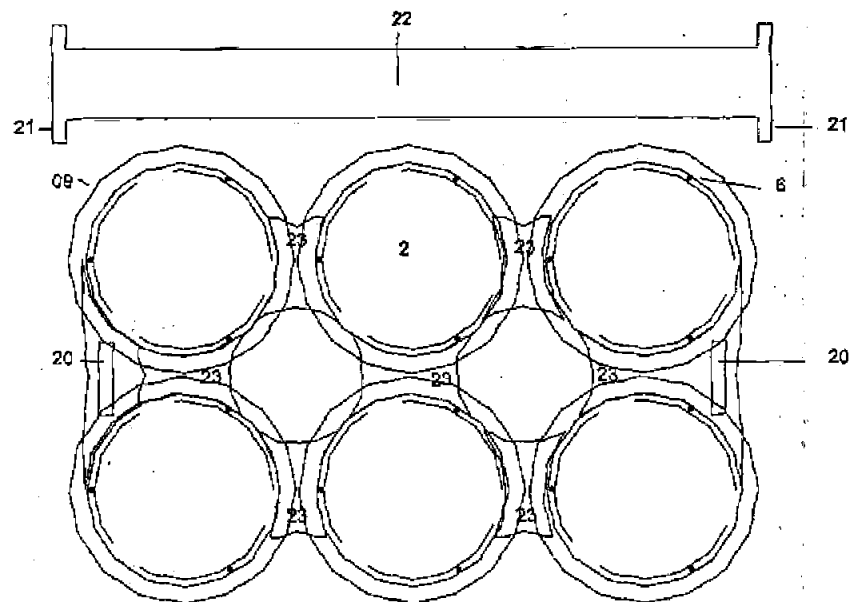


Fig. 6a

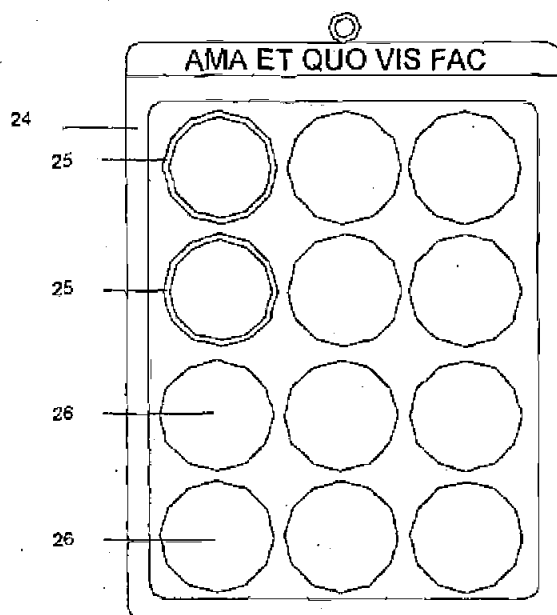


Fig. 6b

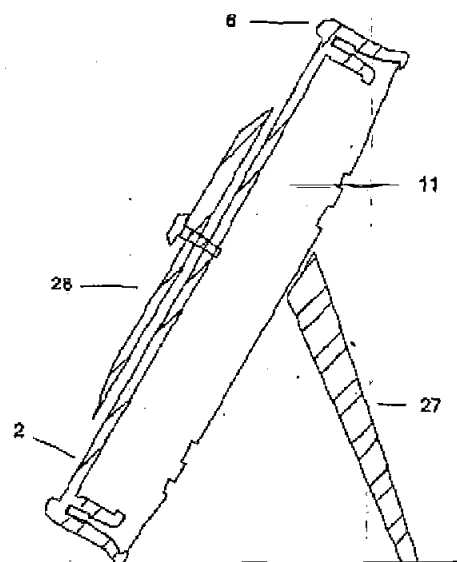
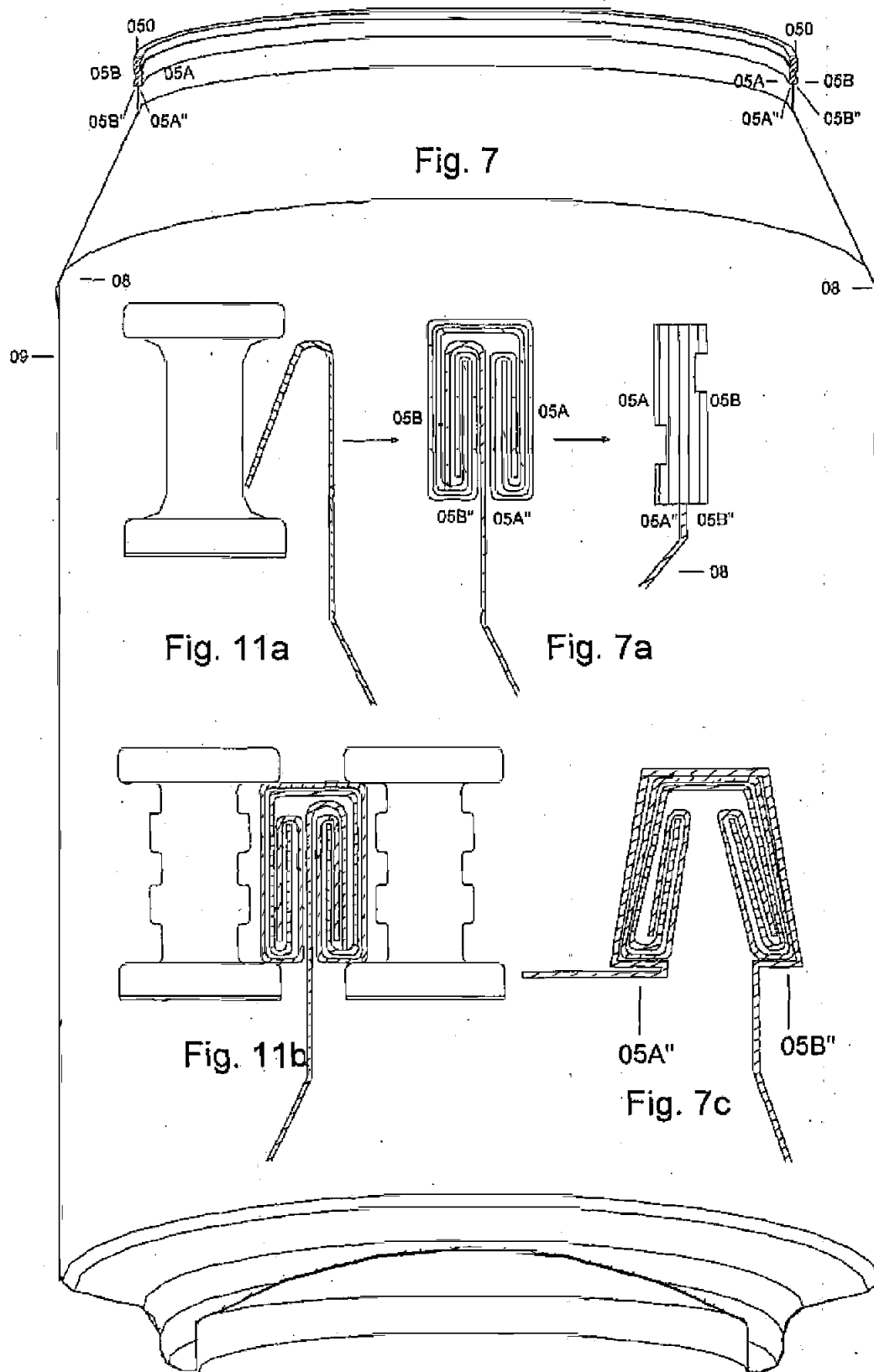


Fig. 6c



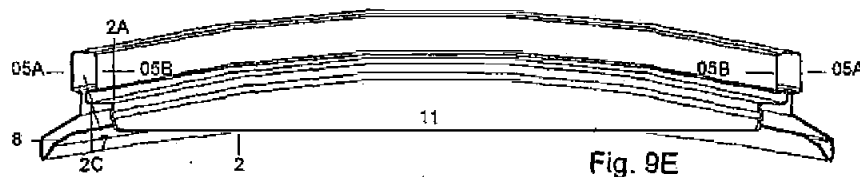
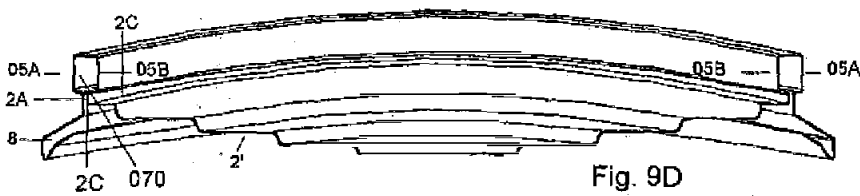
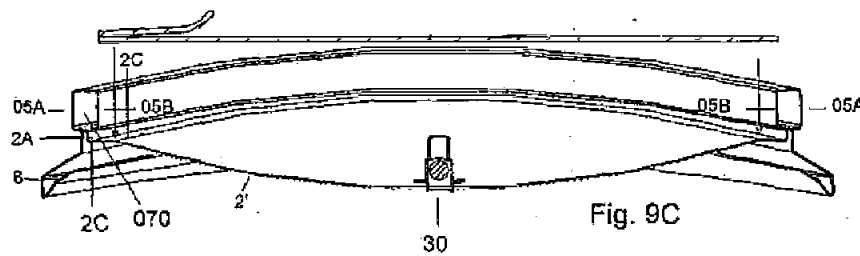
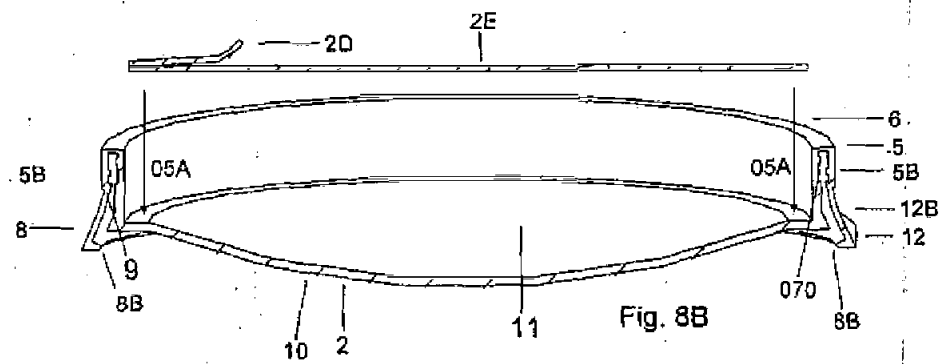
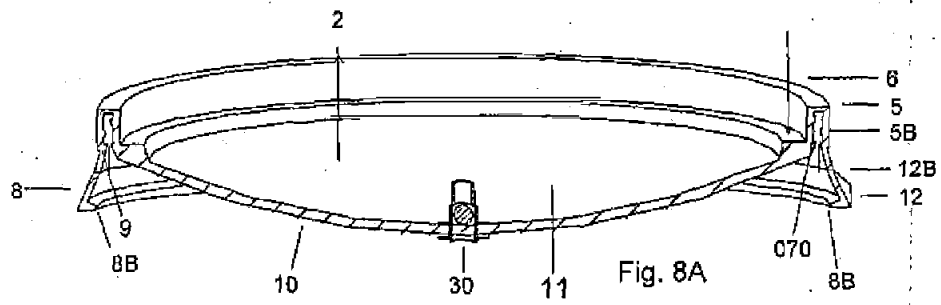


Fig. 9

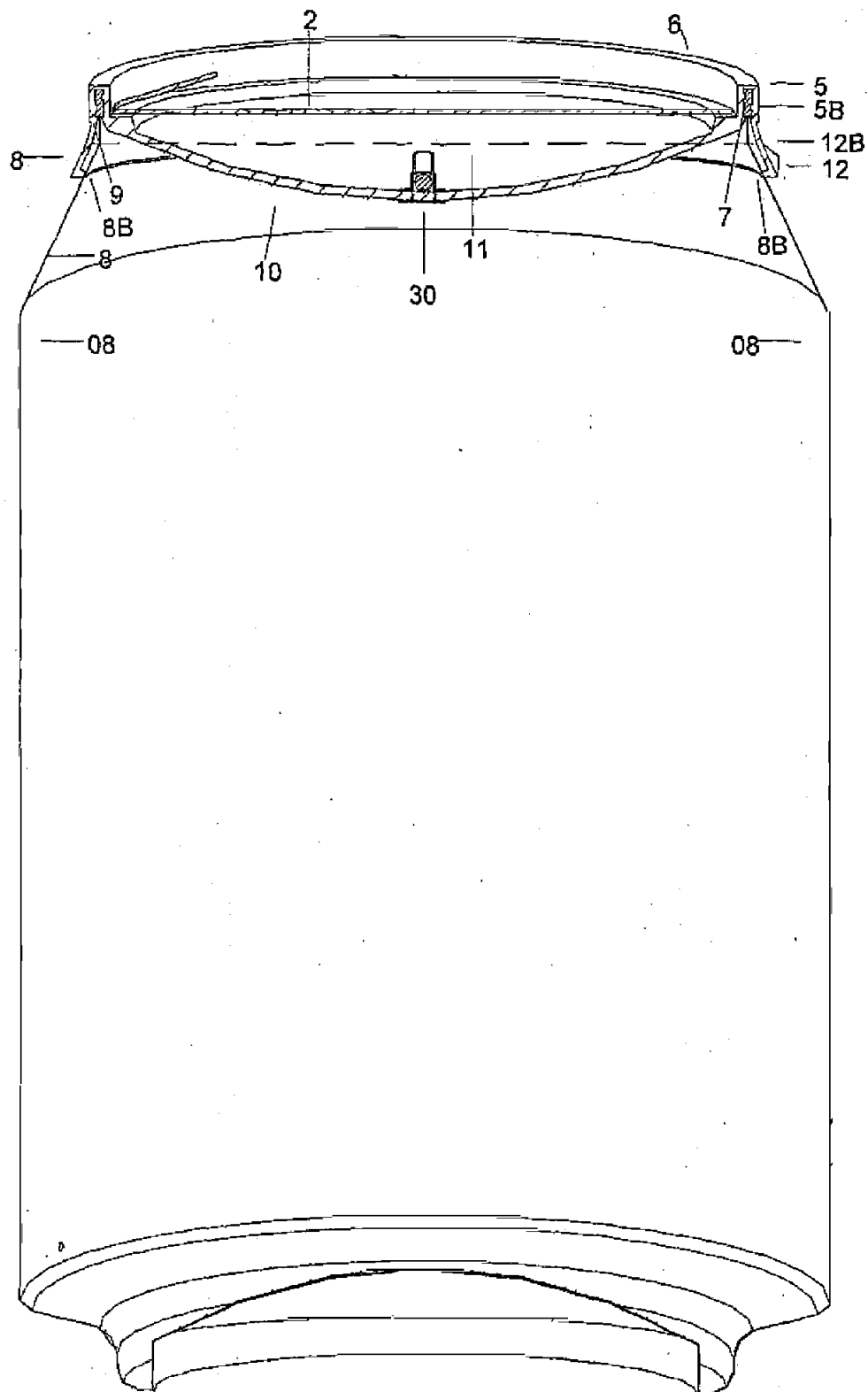


Fig.10

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D43/02 B65D21/02 B65D51/24

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)

B65D

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

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

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 93 01 469 U1 (EUSTACHI, ERWIN, 6800 MANNHEIM, DE) 6 May 1993 (1993-05-06) page 1, lines 1-4	1
A	WO 97/19001 A (BJOERNSSEN PETTER KONRAD [NO]) 29 May 1997 (1997-05-29) page 8, line 13 - page 9, line 9; figures 16-18	1,12
X	US 3 458 079 A (GASBARRA ANTHONY J) 29 July 1969 (1969-07-29) figure 4	2
X	US 4 512 493 A (VON HOLDT JOHN W [US]) 23 April 1985 (1985-04-23) figure 2	2

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☒ 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

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"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.

"Z" document member of the same patent family

Date of the actual completion of the international search

13 November 2006

Date of mailing of the international search report

20/11/2006

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 705 212 A (ATKINSON PATRICK J [US]) 6 January 1998 (1998-01-06) figure 2 -----	10

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 9301469	U1	06-05-1993	NONE	
WO 9719001	A	29-05-1997	AT 212938 T	15-02-2002
			AU 717287 B2	23-03-2000
			AU 1042697 A	11-06-1997
			BR 9611453 A	17-02-1999
			CA 2238078 A1	29-05-1997
			CN 1207713 A	10-02-1999
			DE 69619135 D1	21-03-2002
			EP 0869907 A1	14-10-1998
			JP 2000500420 T	18-01-2000
			NO 964469 A	26-05-1997
			NZ 323473 A	28-02-2000
			PL 326675 A1	12-10-1998
US 3458079	A	29-07-1969	NONE	
US 4512493	A	23-04-1985	NONE	
US 5705212	A	06-01-1998	CA 2204549 A1	06-11-1998

TAPA A PRESIÓN PARA RECIPIENTE DE BEBIDAS Y ALIMENTOS

ANTECEDENTE DE LA INVENCION

Campo de la invención

La invención consiste en: 1) una tapa hermética instalada por presión para proteger recipientes cerrados por grafado y abierta con los dedos; 2) un recipiente y su tapa de cierre hermético por presión que es abierta con los dedos y reemplaza la tapa hundida grafada. La invención evita que una tapa hundida, como la lata de aluminio para bebidas, acumule suciedad en el transporte y almacenado. También mejora su estética y puede utilizarse como medio de divulgación. La tapa es instalada por el fabricante de la bebida o el alimento.

Estado de la Técnica

Los recipientes metálicos como la lata de aluminio para bebidas se cierran grafando la tapa al recipiente, lo cual crea una cubierta hundida donde se acumula suciedad que entra en contacto con el producto al vaciar o beber. Esto la hace propensa a contaminar producto y consumidor, lo que ha causado muertes. La invención propone una tapa hermética que protege de suciedad recipientes con cierre hundido. Si bien la tapa propuesta es de bajo costo, es adicional a la lata tal como se usa actualmente. La invención propone además un recipiente modificado que es cerrado herméticamente por una tapa derivada de la primera, la cual cierra por presión y es abierta sin herramientas. La invención puede ser usada con los actuales recipientes, puede ser fabricada y colocada con las mismas máquinas, reduce costos y evita contaminación.

Es un objeto de la invención proporcionar una tapa protectora hermética encima de tapas hundidas de recipientes de bebidas y alimentos, colocada a máquina por presión después del llenado, que se abre sin herramientas y cierra el recipiente después de abierto. Esta tapa se puede imprimir, estampar y grabar y tiene un espacio para insertos divulgativos.

Un segundo objeto de la invención es proporcionar un recipiente que puede ser cerrado herméticamente por una tapa a presión, que puede ser abierta sin herramientas.

Un tercer objeto de la invención es proporcionar una tapa de cierre hermético por presión,

colocada a máquina después del llenado, que se abre sin herramientas, cubre las áreas contaminables que entran en contacto con el producto al vaciarlo y consumirlo y cierra el recipiente del segundo objeto de la invención.

Un cuarto objeto de la invención es proporcionar un receptáculo sellable para insertos, que pueda ser alojado en la cavidad creado en las anteriores tapas.

DESCRIPCIÓN DE LA TÉCNICA ACTUAL

El cierre por grafado requiere espacio para el rodillo interno lo que deja una cubierta hundida expuesta a suciedad y contaminación que puede diseminar enfermedades. Si bien los alimentos y bebidas son empacados por los fabricantes con asepsia, ésta se pierde durante el transporte y almacenamiento, lo que puede constituir peligro para el consumidor. A pesar de la variedad de artes, los fabricantes de bebidas y alimentos enlatados no tienen un medio eficaz y barato para proteger las áreas expuestas del recipiente. Usan, por ejemplo, cubiertas de película de aluminio, que es frágil y no hermética (Kronseder, US2004134913). También usan envolturas de plástico.

En el arte hay varias tapas propuestas para proteger el recipiente una vez que ha sido abierto, para facilitar el consumo del producto o protegerlo de elementos externos, como en CA2262341 que se fija por presión, pero no fue diseñada para uso industrial. (*Reusable Beverage Can Cap*, Robinson Kenton I). Permite además insertar un disco delgado sobre el recipiente. Telmon (US2004226951 *Pressure-applied lid for canned beverages*) esta tapa puede ser abierta halando una lengüeta e incluye líneas de rotura que indican si la lata fue abierta.

Puede citarse un gran número de artes con propósito de proteger la lata de aluminio. (US2004060937 *Protective covering for beverage cans with breakable opening in the lid*), consiste en una faja cónica y una faja cilíndrica entre el tope y la faja cónica. Schatz (WO2004014747, *Protective device for beverage cans*). Esta invención tiene una tapa circular con un hueco y un anillo fijador al recipiente. Clarke (WO202092451, *Lid*). Esta tapa tiene un brazo flexible conectado con un elemento de cierre que encaja en dicha abertura para abrir y cerrar. Ullmann (EP1232953, *Beverage can with neck collar*) presenta una tapa con forma de cono truncado de material no o ligeramente expandible que se puede romper, fabricada de papel, cartón, textil o hoja metálica. Suh Dong-Yeol (WO2004110891, *Cap of can for drinking and can for drinking having the same*) propone una tapa fija con ganchos en L, que comprende una

porción fija y otra que puede ser girada y levantada para formar una apertura. Chang C. (WO00/69734, *Double groove beverage can lid*) sugiere una tapa con cuatro ranuras en una superficie hundida que puede ser grafada. Tucker presenta varios artes para tapas de latas de bebidas: (US5240132, US5203467, US5125525 *Protective cap with seal for beverage container*) muestra una tapa plástica ensamblada a presión con una cubierta movable que tiene un sello. Dvoracek (US4961510, *Sanitary lid for metal beverage container*) presenta una tapa plástica antiderrame a presión, con una base y pedestal que simula el arco de los labios. Kellner (US4938379, *Cover for a beverage can*) presenta una tapa protectora con una apertura con red para evitar la entrada de insectos. Boyd (US4917258, *Snap-on lid for opened soft drink cans*) presenta una tapa con un domo y una falda. Un anillo ajusta a presión la pestaña al menos del lado externo, y preferiblemente de ambos lados, sellando para mantener el gas de la bebida y que es sellado por la presión del gas. Tiene un elemento que abre la lata. Nabinger (US4796774, *Removable and resealable lid for a container*) presenta una tapa para ser colocada a presión en una lata abierta, con conducto montado en un pivote. Faltermeier (US4162023, *Dust cover for flip top opening containers*) presenta un protector de polvo que permite remover simultáneamente el protector y la apertura del recipiente, ayudado por el gas que se expelle. Knight (US5090596, *Scalloped paperboard insert for use with plastic lid*). Presenta un ducto, una válvula unida al ducto y un accesorio circular adaptado para recipientes circulares. También US4389802, Dumestre (5088614 *Canned drink cover apparatus*), La Barge (4580692 *Container Sealing Cap*), Sorari (4125203 *Twist can top*), Wells (4039101 *Clean cover for easy-open container tab*), Kinain, Hanish, May.

La invención difiere de las anterioridades en varios aspectos. Por ejemplo, esta invención además de usar dos anillos que crean una ranura donde se inserta el borde del recipiente, sus lados interno y externo tiene la forma de este borde para asegurar hermeticidad, esencial para la protección sanitaria, manteniendo la condición de ser retirada sólo con los dedos. La tapa de la invención es hermética aun cuando una porción de este anillo sea rota para propósitos de seguridad. Las tapas de la invención están diseñadas para ser colocada a máquina por el fabricante de la bebida o alimento, mientras que la mayoría de las citadas están diseñadas para ser puestas por el consumidor. El arte citado no incluye un anillo con borde saliente o ranura para retener insertos dentro de la tapa ni un receptáculo sellable que se acomoda en tal espacio. El espacio creado entre la cubierta protectora y la superficie del recipiente es variable y puede tomar diversas formas, dependiendo del propósito de divulgación. La invención incluye varios mecanismos de seguridad para mostrar si la tapa fue abierta.

En cuanto a sistemas de cierre de recipientes por presión, la revisión del arte muestra a Uhlig (US 4487326, *Carbonate beverage package*) que propone un cierre plástico a presión para un recipiente especialmente diseñado. Hancocks (EP761557, *Wide-mouthed pressurisable beverage container*) propone un cierre roscable que resiste la presión interna dentro del recipiente. La presente invención difiere de las propuestas en que está diseñada para ser usada en los actuales recipientes, y las modificaciones propuestas se hacen e instalan con los mismos equipos usados para grafar.

RESUMEN DE LA INVENCION

La tapa hermética de recipientes como la lata para bebidas se logra con un diseño que aprovecha algunas de sus características. En esencia la tapa inventiva está compuesta por una **cubierta protectora (2)** fijada sobre el recipiente cerrado por la **superficie hundida (02)**, unida a un **anillo externo (5)** que se amolda con precisión y se sujeta al **borde del recipiente (05)**. Tiene también un **anillo interno (4)**, que junto con el **anillo externo (5)** forma una **ranura (7)** en la tapa protectora. La cubierta protectora (2) se prolonga hacia abajo formando una **falda protectora (8)** adaptada a la forma del recipiente a proteger.

La tapa se fija por presión, sin pegantes, y cubre y sella la parte superior y los lados del recipiente que puedan estar en contacto con los labios del consumidor. Tiene también un **anillo saliente (3)** en la parte interna de la cubierta protectora para asegurar por presión en la ranura (3A) del recipiente. La función de estos tres elementos (3, 4 y 5) es asegurar por presión, sin pegante, la tapa protectora a la parte superior del recipiente, actuando en forma individual o cooperando.

La tapa incluye también un **anillo de seguridad interno (10)** que es prolongación del lado interno del anillo (5) y una **bisagra (9)**. Igualmente incluye **bordes de apilado (6)**. El anillo interno (4) tiene al menos una **aro saliente o ranura (4B)**. Formando parte del anillo interno (5) la tapa protectora tiene una **superficie interna (5B)** con forma y dimensiones iguales a las del anillo saliente externo (05B) para asegurar sellado hermético, con un plano (05B") que la mantiene en posición. La falda protectora (8) tiene un borde sellante (8B), que se acopla con el borde 8 A en el recipiente.

Es posible fabricar una tapa que reemplace la hundida y evitar contaminación. El recipiente

de la invención no tiene la superficie hundida (02) y su borde (05) tiene salientes a ambos lados (05A, 05B). Este recipiente es cerrado por una tapa derivada de la anterior que en su borde (5) forma una superficie interna (5A) con forma y dimensiones que igualan las del contorno saliente del lado interno del recipiente (05A) para asegurar cierre hermético. La superficie (2) es un arco invertido cuya base (05A') contacta la saliente (05A'') del recipiente y mantiene la tapa en posición. El recipiente y su cierre se fabrican con los equipos usados para hacer la lata de aluminio.

BREVE DESCRIPCIÓN DE LOS DIBUJOS

La invención se ejemplifica en los siguientes dibujos, que no limitan su alcance:

Las Gráficas 1 a 6 muestran la tapa protectora hermética, el recipiente cerrado y el ensamble de la tapa, y un receptáculo cuando el recipiente a proteger tiene su propia tapa.

Las Gráficas 7 a 10 muestran un recipiente abierto y su cierre hermético cuando el contenido genera presión interna, como en bebidas gaseosas y cerveza. Aunque descritos, no son mostrados los ejemplos de recipientes y su cierre hermético cuando el contenido no genera presión interna.

Las Gráfica 11 muestra ejemplos de rodillos para hacer el grafado de la tapa metálica.

DESCRIPCION DETALLADA DE LA INVENCION

Los siguientes ejemplos en forma amplia ilustran la invención pero no limitan su alcance:

Con referencia general a las Gráficas 1 a 6, el cierre inventivo está compuesto por una **cubierta protectora (2)** fijada sobre el recipiente cerrado por su **superficie hundida (02)**, unida a un **anillo externo (5)** que se amolda con precisión al **borde del recipiente (05)**. Tiene también un **anillo interno (4)**, que junto con el anillo externo (5) forma una **ranura (7)** en la tapa protectora. La cubierta protectora (2) se prolonga hacia abajo formando una **falda protectora (8)** adaptada a la forma del recipiente a proteger, que tiene un **borde de cierre (8B)**, útil también cuando la tapa es instalada.

La tapa se presiona sobre una lata típica de bebidas y cubre y sella la parte superior y los lados del recipiente que pueden estar en contacto con el producto y los labios del consumidor. Tiene también un **anillo saliente (3)** en la parte interna de la cubierta protectora que entra a presión en la ranura (3A) del recipiente. La función de estos tres elementos (3, 4 y 5) es asegurar la tapa protectora a la parte superior del recipiente, actuando en forma individual o cooperando.

La tapa incluye también un **anillo interno de seguridad (10)** que es prolongación del lado interno del anillo (5) y una **bisagra (9)** para desechar la tapa junto con el recipiente. Este anillo de seguridad puede ser ubicado en varios sitios. También incluye **bordes de apilado (6)**. El anillo interno (4) tiene al menos una **aro saliente o ranura (4B)** para asegurar insertos publicitarios en el **vano (11)** creado entre la superficie hundida (02) y la cubierta protectora (2), los cuales también los tiene el anillo (3, 3B). Estos bordes (3B, 4B) sirven también para asegurar un **receptáculo sellable (1)** que se puede insertar en el vano (11).

El anillo externo (5) tiene una **superficie interna (5B)** con forma y dimensiones iguales a las de la **saliente externo del borde (05B)** del recipiente para asegurar el cierre hermético, además de un **plano de acople (05B'')** que la mantiene en posición:

En esta invención es esencial lograr la hermeticidad con el ajuste preciso a los contornos salientes del borde del contenedor y no sólo con el plano que acopla la tapa con ganchos en de L. Este se usa para apoyar y retener, más no para sellar, pues puede ser desprendida como parte del anillo interno de seguridad.

El **Gráf. 1** muestra la perspectiva y el corte de sección de la tapa con la cubierta protectora (2), el anillo saliente (3), el anillo interno (4), el anillo de externo (5) y la ranura (7), que aloja con precisión el borde del recipiente (05) para asegurar la tapa por presión y crear cierre hermético. También muestra la falda protectora (8) que se extiende hacia abajo adoptando la forma del contenedor a proteger. Como se indicó, el propósito de estos elementos es asegurar la tapa protectora a la parte superior del recipiente, actuando en forma individual o combinada, para generar un sello sustancialmente hermético y cubrir la parte superior y los lados del contenedor para evitar la contaminación de estas superficies, que pueden estar en contacto con los labios del consumidor o con el producto al beber o vaciar.

El **Gráf. 1** también muestra el anillo interno de seguridad (10) que se desprende de la tapa y

muestra si ha sido previamente abierta. Hay varios sitios adecuados para darle a la tapa un medio apropiado de seguridad. Este anillo sirve también para mantener unida la tapa al contenedor mediante la bisagra (9) cuando la tapa se deseché. Esta Gráfica muestra también la **pestaña (12)** cuando se usa el sistema de seguridad corriente, que será descrita más adelante.

También muestra el borde de apilado (6) que deben ser preferiblemente discontinuos para evitar que suciedad y agua se acumulen sobre la cubierta protectora. La Gráfica ilustra el anillo externo (5) la superficie interna (5B) con forma y dimensiones que igualan las del borde saliente externo (05B) del recipiente para asegurar cierre hermético, y el plano de acople (05B").

En el espacio protegido (11) puede alojar insertos divulgativos sostenidos con el aro saliente o ranura (4B) del anillo interno (4) o por 3B del anillo (3). En esta invención este espacio es de altura variable (15) ya que la cubierta protectora (2) puede tener diferentes alturas con respecto al borde del recipiente, permitiendo alojar insertos de varias dimensiones. Como se mencionó, estos bordes o ranuras (3B, 4B) son también usados para sostener el receptáculo sellable que puede ser insertado en el vano (11).

El **Gráf. 2** muestra la perspectiva y el corte de sección de un recipiente metálico de bebida típico con la manija de apertura (01), la cubierta hundida (02), la ranura (03) y el borde grafado (05) con su lado interno (05 A) y el externo (05B) y sus planos inferiores de acople (05 A") y (05B"), la superficie inclinada (08) y el cuerpo del recipiente (09).

El **Gráf. 3** muestra la perspectiva y el corte de sección de una tapa protectora típica acoplada a un recipiente típico que muestra los elementos descritos antes, incluyendo el receptáculo para insertos que se describe a continuación.

El **Gráf. 4** muestra la perspectiva y el corte de sección de un **receptáculo** típico (1) para insertos especiales. Si bien los insertos pueden ser colocados directamente en el espacio protegido (11) y sostenidos por los bordes o ranuras (4B, 3B), algunos pueden ser retirados de la tapa con esta protección para ser usados después. El receptáculo sellable (1) está formado por un **anillo plano (16)** para pegar la **cubierta de sellado (17)** por cualquier medio y con material adecuado, por **ranuras o bordes (14)** que acoplan en los bordes o ranuras (4B o 3B). Tiene también una **base (19)** y **paredes (20)** que forman el receptáculo con su **cavidad (18)**. Estos elementos tienen formas que se ajustan al contorno y dimensiones de cada recipiente y a la altura

de la cubierta protectora (2) de modo que el receptáculo adopte la forma del vano (11) de la tapa.

El **Gráf. 5** muestra la perspectiva y corte de sección de otras opciones de forma de la cubierta protectora (2), incluyendo un domo que permite el apilado (Gráf. 5 a). Sin embargo, estas superficies pueden variar en forma y dimensiones, de acuerdo con las necesidades de divulgación. En su forma más simple (Gráf. 5 b), la tapa protectora de esta invención no tiene el anillo de seguridad (10), la pestaña (12) para retirar elementos de seguridad, el anillo (3), la falda protectora (8) ni los bordes de apilado (6). Otras estarán diseñadas para crear el máximo espacio sin interferir con las máquinas dispensadoras, otras sin interferir el apilado, como el domo del Gráf. 5 a, y otras sin limitación de forma, de acuerdo con los objetivos de divulgación. En igual forma, los receptáculos sellados tendrán formas que se acoplen con cada diseño de tapa.

El **Gráf. 6** muestra ejemplos de aplicaciones de la tapa como para llevar un número plural de recipientes (Gráf. 6 a) con medios (23) que forman parte de su fabricación y que pueden ser retirados de las tapas, con huecos para insertar un asa (21, 22). Un elemento de colección (Gráf. 6 b) y un elemento para armar objetos con la tapa (Gráf. 6 c).

El **Gráf. 7** muestra la perspectiva y el corte de sección de un **recipiente típico abierto**, sin la superficie hundida (02), al cual con doble grafado se crea un **nuevo borde (050)** que tiene dos **lados salientes, interno (05A) y externo (05B)** y los **planos (05A'', 05B'')** donde se puede acomodar un **empaquetadura (24')**. La geometría del borde y de las superficies (05A, 05B) coopera con la correspondiente en la ranura (070) de la tapa de la invención.

La empaquetadura (24') cuya función es asegurar contacto hermético entre los planos (05 A'' y 05B'') los correspondientes de la tapa (5A' y 5B'), debe ser de material que cumpla normas y puede ser un anillo que se coloca al grafar o quizá en forma más práctica, el grafado se hace con una lámina metálica, co-extruída a uno o ambos lados con un polímero, como se hace actualmente, lo que da más volumen al borde y más área de contacto. En este caso el borde del recipiente tendrá un terminado que evita el contacto directo de los labios con el metal. Los lados salientes ni su longitud hacia abajo tienen que ser simétricos, un lado puede ser más protuberante y largo que otro y tener geometrías diferentes en sus superficies. Lo que es esencial es que conformen con sus correspondientes en la tapa.

El **Gráf. 8** muestra la perspectiva y corte del **cierre hermético típico** para el recipiente

abierto de la invención. Este cierre tiene los mismos elementos de la tapa protectora ya descritos (Gráf. 1 a 6), a los cuales se adicionan: la **ranura (070)** tiene lados interno (5 A) y externo (5B) que conforman con el lado interno y externo (05 A) y (05B) del borde grafado del recipiente. La geometría de la ranura (070) y las superficies de sus lados (5 A', 5B') cooperan con sus similares (05 A'' y 05B'') en el borde grafado del recipiente abierto y crean cierre hermético. Si el recipiente es construido en plásticos o vidrio las protuberancias interna y externa se forman en el molde y requerirá empaquetadura sólo en la tapa, cuando ésta es metálica.

En un ejemplo de tapa metálica los elementos anteriores se prolongan hacia abajo formando una **hendidura (2A)** y un **plano (2B)** que contacta el anillo interior (05B'') del borde. Este plano tiene **empaquetadura (24')** para asegurar sello hermético. La cubierta de sellado (2') tiene forma **arqueada invertida (25)**, que por acción mecánica y presión del gas del contenido, crea sello hermético en los **planos de contacto (2B, 05B'')**. Como se conoce en el arte, la aleación, radios y anillos en la cubierta, refuerzan la capacidad de soportar presión y el cierre. La concavidad se cubre con una **tapa (2E)** que se aloja en la **ranura (2A)**, o se pega en la **superficie (2C)**. Puede tener una **lengüeta (2D)** para retirarla. Esto también se puede lograr con pre-muecas en (2E).

La ranura (070) acopla en el borde (050) del recipiente y luego los rodillos de grafado presionan y estampan sus formas al borde y a la tapa (Gráf. 7b) para completar el cierre. La ranura de la tapa (070) puede estar ligeramente abierta antes de colocarla (Gráf. 7c) y recibir la presión final con los rodillos. El borde de los cierres de plásticos también puede ser presionado con rodillos, con o sin calor, con termofusión o láser y otras técnicas aplicadas para propósitos similares. Para cada caso se decidirá cuánta presión o calor son convenientes, sin impedir el retiro de la tapa con los dedos.

Pueden usarse muchas formas arqueadas apropiadas. Los Grafts. 9C, D y E muestran varias posibles formas para una tapa metálica. El Gráf. 8B muestra cortes de sección y perspectiva de una tapa de plástico que se prolonga internamente hacia abajo hasta alcanzar la parte cónica del recipiente la cual actúa también como un segundo plano de apoyo.

Estos bordes (5A y 5B) tienen también anillos seguridad (10) que se rompen al abrir la tapa, como los descritos, para proteger la integridad del producto y del inserto. Además de este medio de seguridad de la tapa inventiva, es posible usar medios externos conocidos en el arte, retirados

al halar una lengüeta o pestaña (12). Es también viable hacer pre-muecas sobre la lámina metálica o puntos de rotura en otros materiales, para desprenderlos de la tapa y queden fijos al recipiente. Como se conoce en el arte, se puede dejar un punto fijo que sirva de bisagra (9) y retenga la tapa al recipiente.

En recipientes que soportan presión interna la tapa inventiva puede ser de dos clases:

1. Sección arqueada integrada e interna y superficie plana externa adicionada (Fig. 8), y
2. Superficie plana integrada y externa y sección arqueada interna adicionada.

En una segunda modalidad no mostrada, la superficie plana (2'), es parte integral de la tapa y la hendidura (2A) está en el interior y recibe la sección arqueada (25) consiguiendo el mismo efecto de presión del gas. En ambas modalidades el espacio (11) entre la forma arqueada (25) y la superficie plana (2E) puede alojar insertos o un receptáculo sellable (1).

La tapa hermética de la invención cumple normas para esta clase de recipientes como presión de gas, mantener hermeticidad en diferentes circunstancias, maltrato normal en acarreo y del usuario final, caídas, diferencias cotidianas de temperatura y de presión atmosférica. También proporciona adecuada seguridad a la integridad del producto y de los insertos publicitarios. Hay varios medios para cumplir estas normas: diseño y construcción que transmita los esfuerzos, como convexidades, anillos y rayos, espesor apropiado y complemento con uso de calor, presión y laser.

El **Gráf. 8** muestra también una **válvula (30)** que se instala en la cubierta de la tapa en sitio conveniente y cuya función es liberar gases en forma controlada para reducir presión antes de abrir, si es necesario, y para llenar un recipiente previamente cerrado, modificando el sistema actual de llenado.

El **Gráf. 9** muestra la perspectiva y corte transversal del recipiente y la tapa ensambladas, con las características ya descritas.

Un conocedor del arte sabrá que esta tapa se puede usar para cierre hermético cuando el recipiente no soporta presión interna de gas. En estos casos los diseños son similares, puede minimizar o suprimir la forma arqueada, y la hermeticidad se obtiene por agarres y presiones de

las superficies descritas.

Construcción

La tapa protectora se construye en forma separada con material moldeable, para cada forma y medidas del recipiente. La tapa de cierre es construida en forma separada de plásticos, metales, compuestos, papel cartón, papel sintético. Puede también ser termo-fundida (blister) sobre la lata. Se puede combinar contenedor y tapa de aluminio, contenedor de aluminio, plástico o vidrio y tapa de plásticos. La tapa de aluminio se construye con los mismos equipos y métodos actualmente usados para construir la tapa hundida de doble grafado.

El recipiente abierto de la invención y su cierre se fabrican de cualquier recipiente actualmente en uso. Por ejemplo, en la lata de aluminio es suficiente grafar una corona circular usando la pestaña del recipiente que ahora se usa para asegurar la tapa hundida. Es conveniente que esta pestaña doble hacia adentro del recipiente y no hacia afuera. Este grafado se hace con la misma máquina y proceso actuales, adecuando la forma de los rodillos. Gráfs. 11a, 11b.

Instalación

La tapa se instala sobre el recipiente abierto con la máquina y proceso que actualmente se usan para colocar la tapa hundida. La presión en el borde se hace en forma similar al método y máquina de grafado de la tapa hundida al recipiente, dando a los rodillos la forma geométrica conveniente.

El proceso para producir e instalar el nuevo recipiente y su tapa, para una lata de aluminio es:

1. Grafar un borde en la boca del recipiente con salientes a ambos lados,
2. Fabricar la tapa con geometría que conforme el recipiente como se sugiere en la invención,
3. Sobre un recipiente con líquido colocar por presión la tapa sobre el recipiente, o
4. Si el recipiente ha sido tapado vacío, llenar con el líquido utilizando la válvula.

Para consumir



1. Verifique que el contenedor no ha sido previamente abierto
2. Abra la lata presionando el borde inferior de la falda. Si es necesario, antes de abrir presione la válvula para aliviar la presión excesiva de gases dentro del recipiente.
3. Retirar insertos publicitarios o el receptáculo sellado.
4. De un recipiente de boca amplia, consumir parte del contenido y vuelva a cerrar con presión de la mano.

Aplicaciones

La tapa de la invención puede usarse en cualquier recipiente abierto al cual pueda construirse un borde con salientes a ambos lados y que permita repetir tal geometría en la tapa. Puede servir para cerrar recipientes de diámetro ancho como los de alimentos y de diámetro pequeño como las latas de latón, aluminio, botellas de vidrio para vino, champaña, gaseosas, cervezas y similares. También para botellas hechas de plástico que actualmente usan tapas roscadas. Usando los materiales apropiados puede ser usado para alimentos envasados, sometidos a calor después de cerrados.

La invención puede ser utilizada como medio de divulgación. La mayoría de los materiales usados pueden ser grabados, impresos con colores y ponerle autoadhesivos. El vano (11) es útil para insertar objetos publicitarios, como los usados en medios similares por los expertos en divulgación y promoción. El receptáculo sellable amplía estas aplicaciones.

REIVINDICACIONES

1. Una tapa protectora para recipientes de bebidas y alimentos con cubierta de sellado hundido que consiste en:
 - a) una cubierta protectora (2) extendida en toda el área de cierre del recipiente incluyendo su borde;
 - b) un anillo externo (5) siendo parte integral de la cubierta protectora (2), con un lado interno (5B) que coincide con el lado externo del borde (05B) del recipiente, formando cierre sustancialmente hermético entre la tapa y el recipiente;
 - c) un anillo interno (4) siendo parte integral de la cubierta protectora (2) que contacta el lado interno del borde del recipiente (5A) y coopera con el anillo externo (5) para formar cierre sustancialmente hermético;
 - d) una ranura (7) formada por los anillos (4) y (5) con forma y dimensiones concordantes con los flancos del borde (05B) del recipiente;
 - e) Un anillo saliente (3) bajo de la cubierta protectora que acopla en la ranura (3A) del recipiente;
 - f) Una cavidad (11) de altura variable entre la superficie superior del recipiente (02) y la cubierta protectora (2);
 - g) Salientes o ranuras (3B y 4B) para retener medios de divulgación y objetos insertos en el vano (11);
 - h) Un anillo interno de seguridad (10) que se rompe al abrir el recipiente, indicando que ha sido abierta;
 - i) Una bisagra (9) que une el anillo de seguridad (10) a la tapa y la mantiene adherida al recipiente después de haber sido abierta, y
 - j) Un borde de apilado (6) para mantener en posición los recipientes cuando se apilan.
2. Un recipiente abierto con un borde (050) con salientes en sus lados exterior (05B) e interior (05A) y ambos formando planos de contacto (05A", 05B") donde se acomoda un empaquetadura (24). La geometría del borde y las superficies (05A y 05B) coinciden con precisión con sus correspondientes en la ranura (070) de la tapa de la invención.
3. Una tapa de cierre hermético conformada para un correspondiente recipiente abierto de la reivindicación 2, con las características de la tapa de la reivindicación 1, y además

con:

- a) Una ranura (070) que tiene lados internos (5A', 5B') que cooperan con los lados externos (05A'', 05B'') del borde grafado del recipiente abierto de la reivindicación 2;
 - b) Una entrante (2A) y un plano de apoyo (2B) que contacta el plano (05B'') inferior del borde del recipiente;
 - c) Un empaquetadura (24) alojada en el espacio (05B'') inferior del borde del recipiente, coextruída en la lámina que se dobla para hacer el borde y la tapa, cuando ésta es metálica;
 - d) Una forma general arqueada invertida (25) que contacta firmemente el plano (05B'') y la empaquetadura (24);
 - e) una forma arqueada invertida que se fija a la tapa en la entrante (2F) que aloja un empaquetadura (24);
 - f) Una cubierta sobre el vano (11) que inserta en la ranura (2 A) o se pega sobre la superficie (2C);
 - g) Un anillo interno de seguridad (10) que se rompe al abrir el recipiente, indicando que fue abierto;
 - h) Una bisagra (9) que une el anillo de seguridad (10) a la tapa y la mantiene adherida al recipiente después de haber sido abierta, y
 - i) Un borde de apilado (6) para mantener en posición los recipientes cuando son apilados.
4. Las tapas de las reivindicaciones 1 y 3, cuya cubierta (2) tiene diversas formas y alturas permitiendo diferentes tamaños de insertos en el vano (11).
 5. Las tapas de las reivindicaciones 1 y 3, cuya cubierta protectora (2) es imprimible o grabable.
 6. Las tapas de las reivindicaciones 1 y 3, con falda protectora (8) que conformando con el área que puede entrar en contacto con el producto o labios del consumidor.
 7. La tapa de las reivindicaciones 1 a 3, con un anillo (3) que concuerda en forma y dimensiones con la ranura (3A) de la cubierta del recipiente.
 8. Las tapas de las reivindicaciones 1 y 3, que alojan material publicitario u objetos en el vano (11) los cuales son retenidos en la tapa por el borde o ranura (4B) o (3B) o por cualquier otro medio;
 9. Las tapas de las reivindicaciones 1 y 3, con material publicitario u objetos en el vano

(11) las cuales tienen medios para la seguridad e integridad del producto y del material publicitario;

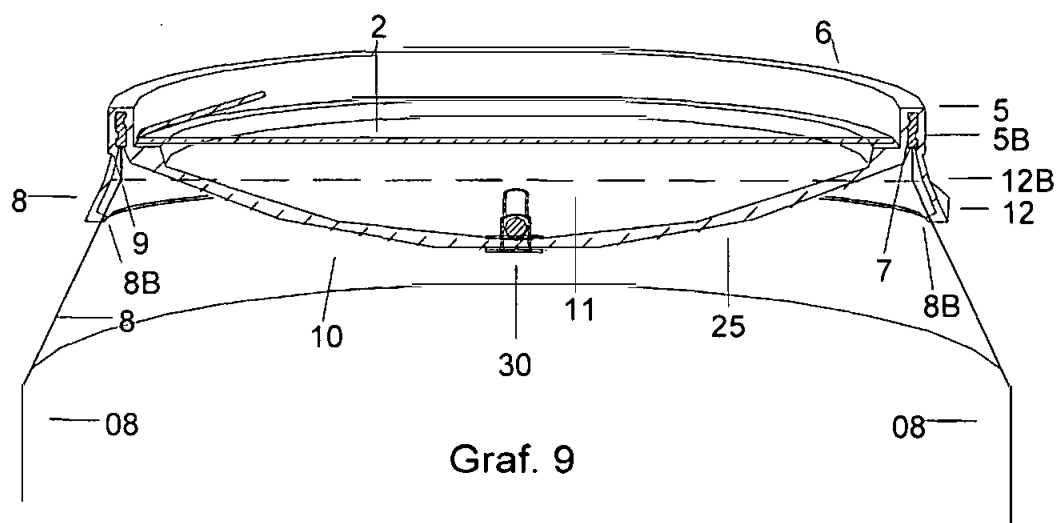
10. Un receptáculo sellado (1) inserto en los espacios (11) y retenido en la tapa por el borde o ranura (4B) o (3B) o por cualquier otro medio;

11. La tapa de la reivindicación 3 con una válvula para llenar el recipiente y reducir presión del gas dentro del recipiente antes de abrirlo;

12. Un número plural de tapas según las reivindicaciones 1 y 3 unidas con un asa (21).

RESUMEN

Grafando un recipiente abierto se crea un nuevo borde (050) que tiene dos lados salientes interno (05A) y externo (05B) y los planos (05A'', 05B'') donde se puede acomodar un empaquetadura (24'). Una tapa hermética típica para este recipiente abierto está compuesta por una cubierta protectora (2) unida a un anillo externo (5) que se amolda con precisión y se sujeta al borde del recipiente (05). Tiene también un anillo interno (4), que con el anillo externo (5) forma una ranura (070) en la tapa protectora, que tiene lados internos (5A) y externo (5B) que se amoldan con los lados externos (05 A) e internos (05B) del borde de sello. La superficie de cierre (2) tiene forma de arco invertido (25), que por acción mecánica y presión de gas del contenido, produce cierre hermético en los planos de contacto (2B, 05B).



Graf. 9

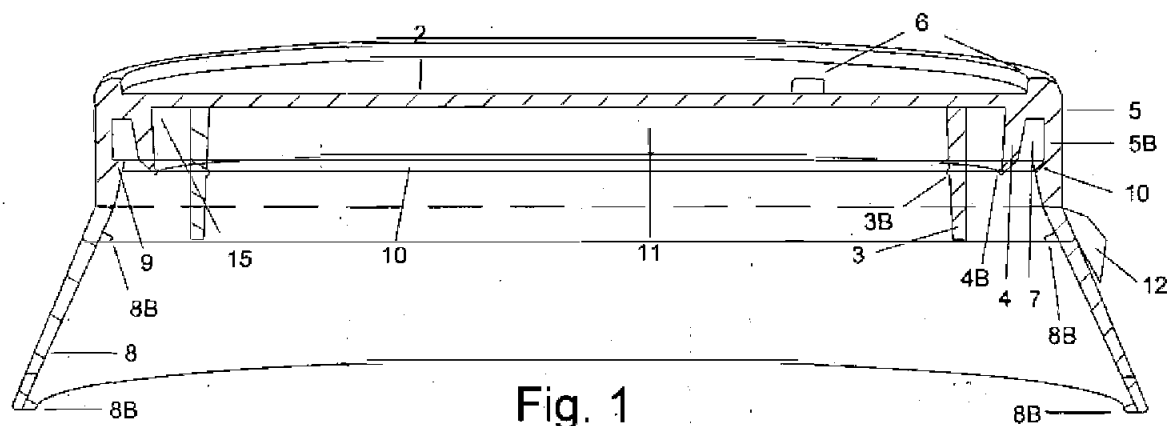


Fig. 1

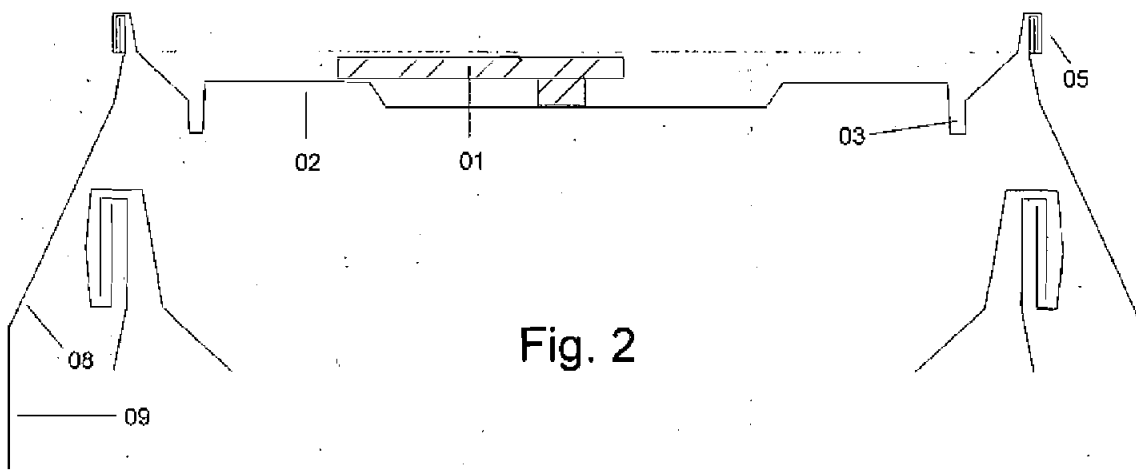


Fig. 2

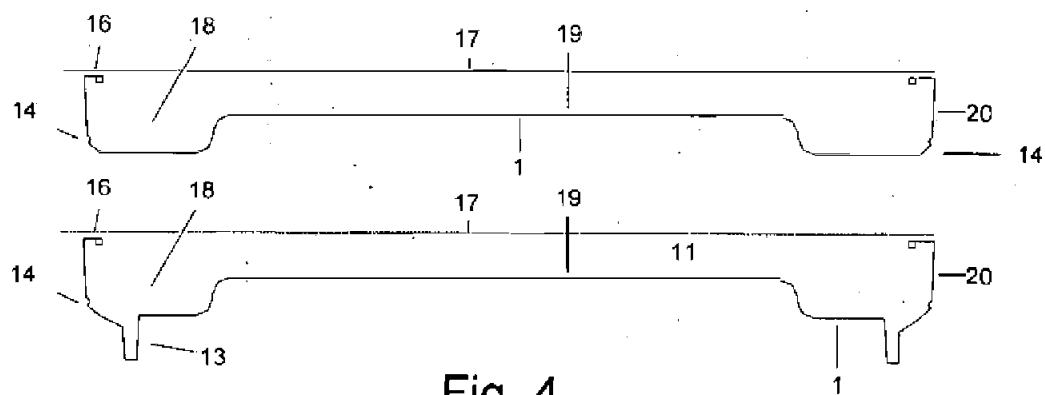


Fig. 4

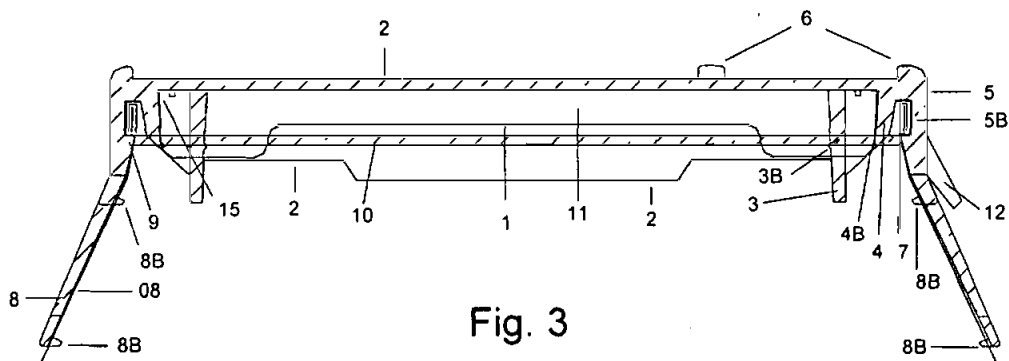


Fig. 3

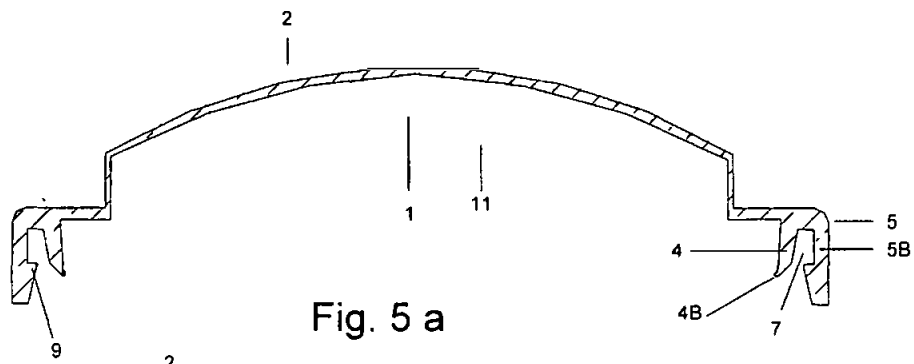


Fig. 5 a

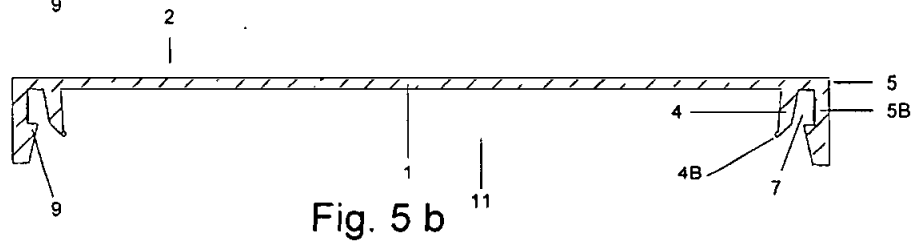


Fig. 5 b

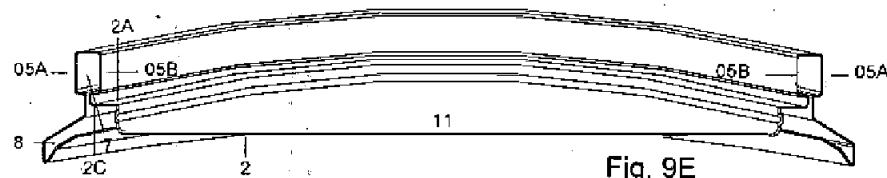
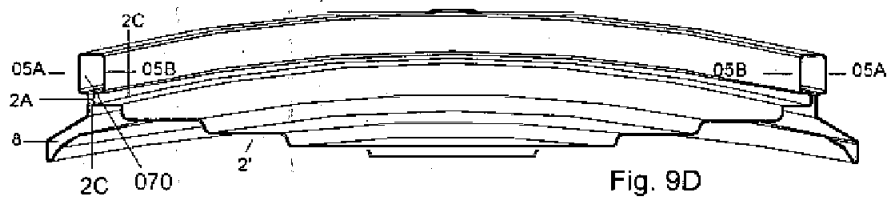
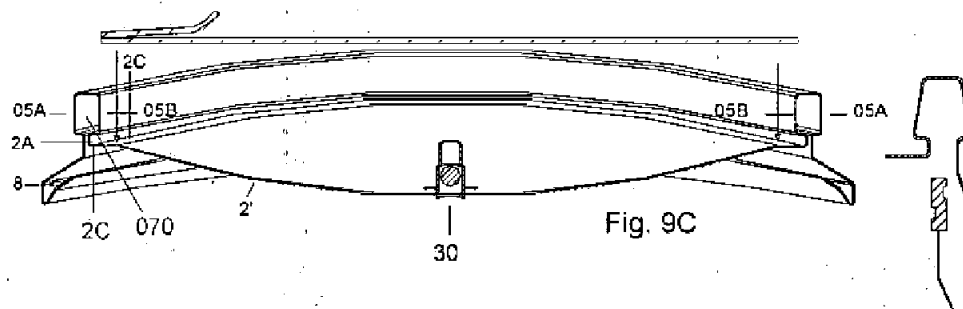
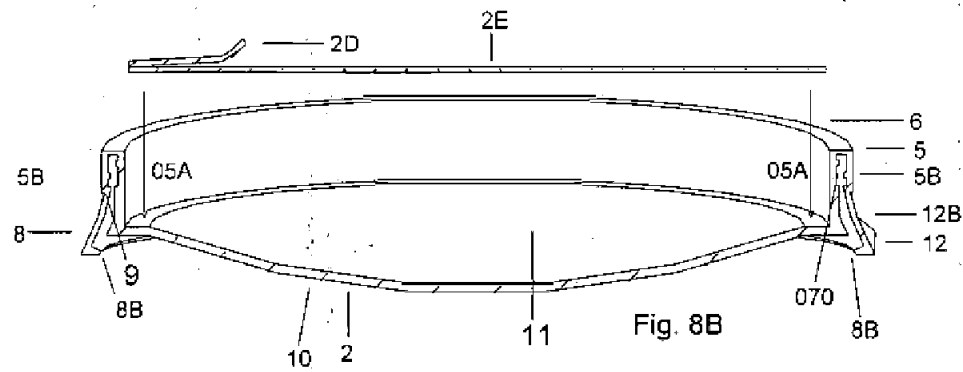
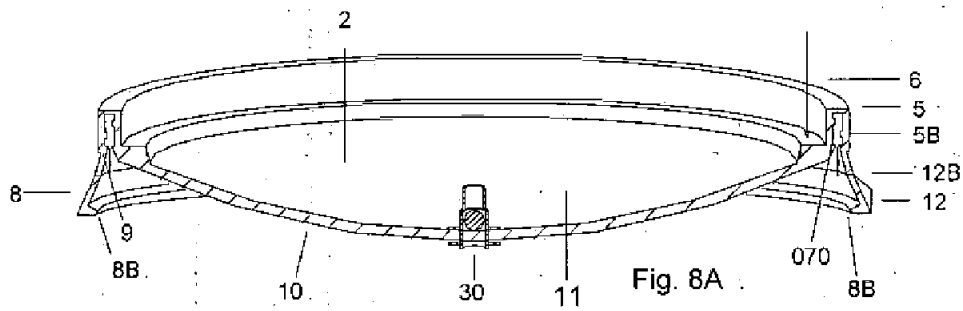


Fig. 9

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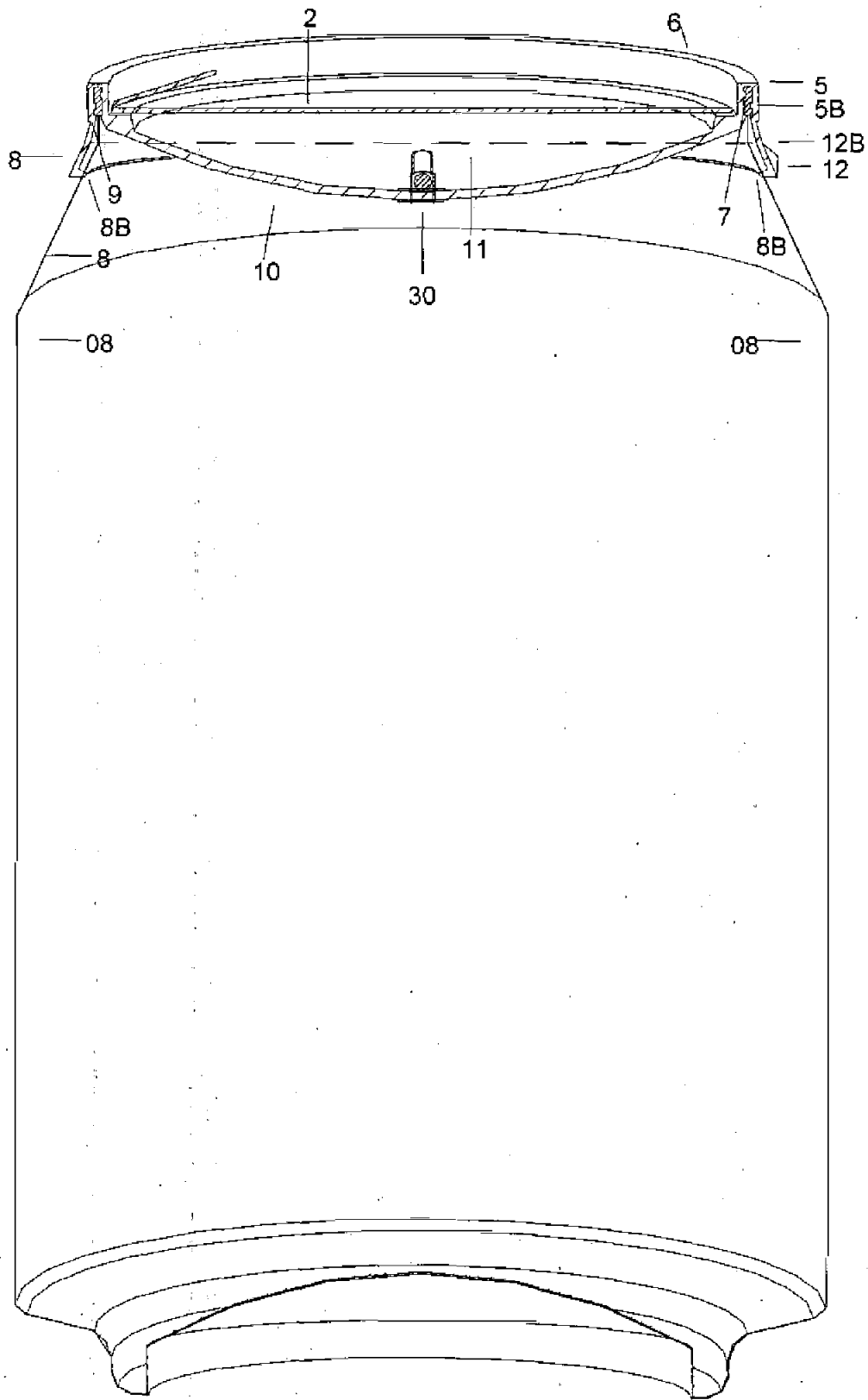


Fig.10

PATENT COOPERATION TREATY

OLARTI BECK

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

VALDERRAMA CHAPARRO, Mario
World Trade Center Torre A.
Calle 100 No. 8A-37, Piso 10
001 Bogotá Bogotá
COLOMBIE

10 OCT. 2007
PCT
WE ACKNOWLEDGE RECEIPT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

Date of mailing
(day/month/year)

28.09.2007

Applicant's or agent's file reference
P2005/000103

IMPORTANT NOTIFICATION

International application No.
PCT/IB2006/002523

International filing date (day/month/year)
12.07.2006

Priority date (day/month/year)
13.07.2005

Applicant
VALDERRAMA CHAPARRO, Mario

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



European Patent Office - P.O. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Blouw, Jurre

Tel. +31 70 340-4118



PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference P2005/000103		FOR FURTHER ACTION		See Form PCT/PEPA/416
International application No. PCT/IB2006/002523		International filing date (day/month/year) 12.07.2006	Priority date (day/month/year) 13.07.2005	
International Patent Classification (IPC) or national classification and IPC INV. B65D43/02				
Applicant VALDERRAMA CHAPARRO Mario				
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☐ sent to the applicant and to the International Bureau a total of sheets, as follows: ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).				
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☐ Box No. IV Lack of unity of invention ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement ☐ Box No. VI Certain documents cited ☐ Box No. VII Certain defects in the international application ☐ Box No. VIII Certain observations on the international application				
Date of submission of the demand 2007-05-09		Date of completion of this report 28.09.2007		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized officer Sundell, Olli Telephone No. +31 70 340-0		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/IB2006/002523

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Box No. I Basis of the report

1. With regard to the **language**, this report is based on

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-12 as originally filed

Claims, Numbers

1-12 as originally filed

Drawings, Sheets

1/6-6/6 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing *(specify):*
- ☐ any table(s) related to sequence listing *(specify):*

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing *(specify):*
- ☐ any table(s) related to sequence listing *(specify):*

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/IB2006/002523

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1,3-9,11,12</u>
	No: Claims	<u>2,10</u>
Inventive step (IS)	Yes: Claims	<u>1,3-9,11,12</u>
	No: Claims	<u>2,10</u>
Industrial applicability (IA)	Yes: Claims	<u>1-12</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

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Re Item V.

1. Reference is made to the following documents:

D1 : DE 93 01 469 U1 (EUSTACHI, ERWIN, 6800 MANNHEIM, DE) 6 May 1993
(1993-05-06)

D2 : US 3 458 079 A (GASBARRA ANTHONY J) 29 July 1969 (1969-07-29)

D3 : US 5 705 212 A (ATKINSON PATRICK J [US]) 6 January 1998 (1998-01-06)

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 2 is not new in the sense of Article 33(2) PCT.
Using as far as possible the wording of claim 2, document D2 discloses the following (the references in parentheses applying to this document):

An open container (8) with a brim (15) having two salient outer and inner sides (20, 22) both forming contact planes for a lid (30) with a gasket (40), wherein the geometry of the brim and of the surfaces coincides with the corresponding ones in the groove of the lid (30).

3. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 10 is not new in the sense of Article 33(2) PCT.
Using as far as possible the wording of claim 10, Document D3 discloses (the references in parentheses applying to this document):

A receptacle (12), sealed with a depressed surface (21), with an insert (22) in a void between a closure (14) and the depressed surface (21), wherein the insert is (22) kept in the closure (14) by edges (30, 32) of the closure.

4. Document D1, which is considered to represent the most relevant state of the art, discloses (cf. Fig. 1) a protecting lid from which the subject-matter of claim 1 differs in that it comprises a salient rim and a (substantial) void under the protecting cover.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

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The problem to be solved by the present invention may be regarded as poor tightness of the seal between the lid and the container, in particular when the lid is subjected to external loads. This problem is solved by the salient rim providing an additional sealing surface and preventing the snapping edge of rim (5) from being rotated outwards when an external load presses the lid. No prior art proposes this solution.

5. Claims 3-9, 11 and 12 are dependent on claim 1 and as such also meets the requirements of the PCT with respect to novelty and inventive step.

PATENT COOPERATION TREATY

PCT

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P2005/000103	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/IB2006/002523	International filing date (day/month/year) 12/07/2006	(Earliest) Priority Date (day/month/year) 13/07/2005
Applicant VALDERRAMA CHAPARRO, Mario		

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 5 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. ☐ 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(b), 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. 10
☒ 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/IB2006/002523

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

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A container and its airtight closure. By crimping an open container a new rim (050) is made having two salient outer (05B) and inner (05A) sides and planes (05A, 05B) where a gasket (24) can be accommodated. A typical airtight closure for the open container is made up of a protecting cover (2) joined to an outer rim (5) that accommodates with precision to the brim of the can (05). It has also an internal rim (4) which along with the outer rim (5) forms a slot (070) on the protecting lid, which has an inner (5A) and outer (5B) sides which conform to the inner and outer sides (05A) and (05B) of the sealed brim. The closing surface (2) has an inverted arch-like (25) shape, which by mechanical action and gas pressure of the content, renders an airtight seal on the contact planes (2B, 05B).

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2006/002523

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D43/02 B65D21/02 B65D51/24

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)

B65D

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

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

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 93 01 469 U1 (EUSTACHI, ERWIN, 6800 MANNHEIM, DE) 6 May 1993 (1993-05-06) page 1, lines 1-4	1
A	WO 97/19001 A (BJOERNSEN PETTER KONRAD [NO]) 29 May 1997 (1997-05-29) page 8, line 13 - page 9, line 9; figures 16-18	1, 12
X	US 3 458 079 A (GASBARRA ANTHONY J) 29 July 1969 (1969-07-29) figure 4	2
X	US 4 512 493 A (VON HOLDT JOHN W [US]) 23 April 1985 (1985-04-23) figure 2	2
	----- -/-	

☒ 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 document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

13 November 2006

Date of mailing of the international search report

20/11/2006

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
tel. (+31-70) 340-2040, Tx. 31 651 epo nl,

Authorized officer

Sundell 0114

INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2006/002523

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 705 212 A (ATKINSON PATRICK J [US]) 6 January 1998 (1998-01-06) figure 2 -----	10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2006/002523

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 9301469	U1	06-05-1993	NONE	
WO 9719001	A	29-05-1997	AT 212938 T AU 717287 B2 AU 1042697 A BR 9611453 A CA 2238078 A1 CN 1207713 A DE 69619135 D1 EP 0869907 A1 JP 2000500420 T NO 964469 A NZ 323473 A PL 326675 A1	15-02-2002 23-03-2000 11-06-1997 17-02-1999 29-05-1997 10-02-1999 21-03-2002 14-10-1998 18-01-2000 26-05-1997 28-02-2000 12-10-1998
US 3458079	A	29-07-1969	NONE	
US 4512493	A	23-04-1985	NONE	
US 5705212	A	06-01-1998	CA 2204549 A1	06-11-1998