



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 865 993 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 158(3) EPC

(43) Date of publication:
23.09.1998 Bulletin 1998/39

(51) Int. Cl.⁶: **B65D 47/06**

(21) Application number: 97926007.2

(86) International application number:
PCT/ES97/00153

(22) Date of filing: 13.06.1997

(87) International publication number:
WO 97/47529 (18.12.1997 Gazette 1997/54)

(84) Designated Contracting States:
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE

(72) Inventor:
PUENTE PUBILL, Gustavo,
Investigacion, Desarrollo,
E-08800 Vilanova i La Geltru (ES)

(30) Priority: 14.06.1996 ES 9601332

(74) Representative:
Aragones Forner, Rafael Angel
Pastells & Aragones, S.L.
Pau Claris, 138
08009 Barcelona (ES)

(71) Applicant:
INVESTIGACION DESARROLLO,
CREACION Y MEJORA DE PRODUCTOS, S.L.
08800 Vilanova i La Geltru (ES)

(54) **CONTAINER FOR BEVERAGES, PRESERVED FOOD AND THE LIKE**

(57) Container for beverages, preserved food and the like, comprising a tubular body arranged in the internal portion of the lid and which, when opening the container, emerges to the outside and enables the product contained to come out without contacting the external portion of the container, said tubular body extending in the form of a continuous sheet which is made integral by its perimetric edge with the internal face of the lid along

a closed line arranged between the weakening line of the lid and the flange of the container. The tubular body is closed at its extremity by means of a membrane. The tear-off part of the lid, delimited by the weakening line, incorporates a folding line in order to fold upon itself when the tear-off part of the lid opens the container.

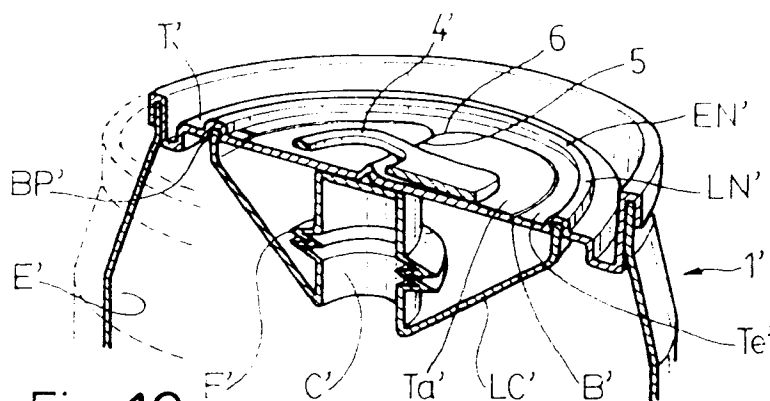


Fig. 19

EP 0 865 993 A1

Description

This invention is concerned with a container for drinks, canned foods and similar.

As is well known, containers for drinks, especially soft drinks, and for canned foods and others have, on the lid of the container, indentation lines with a ring-pull tab or imaginary cutting lines for the corresponding cutting implements.

These containers for soft drinks, canned foods and others display serious problems of contamination. So, on the one hand these well-known containers display a total lack of hygiene and safety for the user, as it is easy for dust, dirt, germs and others, which could affect users' health, to collect on these containers.

So, whereas old and current drinks containers are fitted with ring-pull tabs and indentation lines, which, in order to open them, in the old models are submitted to bending and pulling, tearing these ring-pull tabs which become separated from the container and which define an opening in the lid, and in modern models these ring-pull tabs are submitted by the user to bending which inserts part of them into an opening they make in the lid, and of which they form a part.

In both the aforesaid cases, in order to drink the product, the user applies his mouth and lips to the opening made in the lid, which may be covered in dust, dirt and germs, whereby he could become infected with some disease. In the second case, corresponding to the more modern model of container, as part of the lid penetrates inside the container, when the user drinks the liquid, as well as applying his mouth and lips to the container as has been described, this liquid, when it comes out, comes into direct contact with said part of the submerged lid, whereby the liquid itself is also contaminated, as it comes out of the container.

There have been half-hearted attempts to prevent user contact with the container part of the drink, but these have not achieved satisfactory results.

Thus, the patent US-A-3 547 308 from GILLIEM LESTER G presents a drinking tube which incorporates elastic means to push it outwards when the container is opened. These means can be enclosed inside the drinking tube. This method of production complicates the manufacture of the container, and does not allow all the contents of same to be drunk, and does not keep the contents of the container completely contamination-free.

The German patent DE-U-88 02 548.9, from LIN CHUAN-SHENG could also be cited, which introduces a container incorporating a straw. It requires a device for attaching the straw, equipped with a concertina, to the container. It complicates manufacture and assembly of the container. It requires parts in different materials. It does not allow all the contents of the container to be drunk. It does not keep the contents of the container contamination-free.

There are other inventions which have tried to solve

these problems, likewise for drinks containers, but they have not managed it, such as the patent FR-A-2 696 720 from GRANGEOT, which presents a unit with a neck which, after the flask is opened, is submitted to pulling and protrudes. It does not prevent contamination of the contents, as the actual user drinks from this neck.

There is also the patent US-A-4 428 498 from OBEY RICHARD, which presents a concertina-like neck, outside the container, to be extended by pulling.

This has the drawback that it is completely outside the container and, therefore, does not prevent contamination of the contents when the user drinks.

As far as canned food containers are concerned, there are two types of opening: one in which the lid of the container is equipped with a ring-pull tab and an indentation line similar to those for the old model of soft drinks containers, in which the indentation line is positioned around the whole circumference of the lid, and in which the ring-pull tabs are submitted by the user to bending and pulling. The opening made is defined by the indentation line and takes up practically the whole surface of the lid.

The other type of lid is not fitted with any kind of ring-pull tab or indentation line, and the user makes the corresponding opening with suitable independent cutting implements, following an imaginary line very close to the circumference of the lid, with the assistance of the rim of the body of the container. The opening made is similar to the type with ring-pull tab.

In the said canned food containers, for both the type fitted with ring-pull tab and indentation line or the type without, the same problem arises, consisting of the fact that while the user is making the opening in the lid, the liquid - oil or otherwise - contained inside the container floods the lid which has not yet been removed, running over the rim of the container, which is usually covered in dust, dirt, germs, etc. So, whilst the container is being opened, the liquid contained in the product to be consumed is being contaminated, and often the liquid is consumed as well as the canned product itself.

Moreover, as well as the lack of hygiene, it has been detected that these well-known containers have another serious drawback, in that, when the container is opened with the ring-pull tab attached or the independent cutting implements, particles, chips or others, of iron, aluminium and others fall into the container, dissolving and/or spreading into the drinks, canned foods, etc., and these are swallowed by the consumer of the product contained inside, and these materials are very damaging to the health, as they produce very serious, irreversible diseases.

Spanish patent No. P9401620, from the same applicant, is concerned with eliminating these drawbacks, in such a way that the consumption of soft drinks, canned foods and others by the user does not present the slightest risk of contamination, with these products, drinks and/or canned foods, being kept perfectly hygienic during their consumption, totally preventing the

possibility of swallowing metal particles and the like, which causes irreversible diseases, very serious to the health, where the user's health is safeguarded at all times.

This patent No. P9401620 is concerned with a container for drinks, canned foods and similar, which has, in its mouth, a device combined with the lid inside same which, when it is opened, causes the emergence, from the mouth of the container, of a tube, via which the product contained in the container has a direct outlet, without coming into contact with the outside of same. The tube protrudes from the body of the container thanks to the action of an elastic concertina. The tube is connected at the bottom to a wrapper concertina which forms part of the lid. The tube itself may form the concertina. The tube is sealed at its end by a tear-away membrane which forms part of same. For fizzy drinks, it is the pressure of the actual gas which makes the tube protrude from the body of the container.

The container as per the said patent No. P9401620 has two major drawbacks.

One of the drawbacks is the production of the rim of the container, positioning the continuous strip between the lid and the body of the container, considerably complicating the construction of the rim and making manufacture of the whole container expensive.

The other drawback is the fact that the edge of the part of the lid torn away when the container is opened can injure the user whilst he is consuming the product. This invention eliminates these problems, whereby, essentially, on the one hand, it attaches the perimeter edge of the continuous strip onto the actual lid, and, on the other hand, it makes bending of the tear-away section of the lid easier, and furthermore, the edge is blunted.

According to this invention, the container for drinks and canned foods is characterized by the fact that the tube extends in the form of a continuous strip, the perimeter edge of which is hermetically joined to the inside of the lid by a closed line between the indentation line on the lid to open the container, and the rim of the container; the end of this tube is sealed by a membrane, and by the fact that the tear-away section of the lid, marked by the indentation line, includes an intermediate fold line which, when opening the container, enables the tear-away section of the lid to be folded over onto itself.

According to the invention, the indentation line of the lid, when the container is opened, has two opposing recesses, matching up with the intermediate fold line.

The edge of the continuous strip is hermetically joined in a continuous housing provided on the inside of the lid, between the lid indentation line and the rim of the container.

Meanwhile the edge of the tear-away section of the lid is blunted.

The membrane is permanently joined to the tube and may be torn away from the tube to open it and enable it to be resealed, using a conventional lid, cap or

stopper, or it may be attachable to the tube after opening, to enable it to be resealed.

The tube may have a concertina-like section, or a series of continuous, concertina-like folds.

According to the invention, for fizzy drinks, the tube emerges through the opening in the lid thanks to the pressure inside the container. Similarly, this tube may be provided with lengthways reinforcements which extend into the continuous strip and cause the emergence of this through this opening in the lid.

The tube may incorporate a straw inside.

These and other characteristics will be made clearer by the detailed description which follows, to assist which six sheets of sketches accompany, representing a practical case of production, which is cited solely for illustrative purposes and is not limitative of the scope of this invention.

In the sketches:

Figure 1 is a plan view of the container, according to one method of production,
 figure 2 is a part fragmented, cross-section elevational view of the container before opening,
 figure 3 is a part fragmented, cross-section, elevational view of the container at the start of opening,
 figures 4, 5, 6 and 7 are part fragmented, cross-section, elevational views of different stages in the opening of the container,
 figure 8 is a part sectioned and fragmented, top perspective view of the container before opening,
 figures 9, 10 and 11 are part-sectioned and fragmented, top perspective views of the container in its open position,
 figure 12 is a plan view of the container according to a different method of production,
 figure 13 is a part fragmented, cross-section, elevational view of the container before opening,
 figure 14 is a part fragmented, cross-section, elevational view of the container at the start of opening,
 figures 15, 16, 17 and 18 are part fragmented, cross-section, elevational views of different stages in the opening of the container,
 figure 19 is a part sectioned, fragmented, top perspective view of the container before opening,
 figure 20 is a part fragmented, lengthways section, elevational view of the container whilst closed,
 figure 21 is a top perspective view of the container in its open position,
 figure 22 is a fragmented, enlarged cross-section view of the lid along the indentation line,
 figure 23 is a fragmented, enlarged, cross-section view of the tear-away section of the lid folded over onto itself, and
 figure 24 is a top view of the open container, with the tear-away section of the lid folded over.

In accordance with the sketches, the first method of production according to this invention, illustrated in fig-

ures 1 to 11, consists of a container -1- for drinks, canned foods and similar, comprising a body -E- and, on the underside of the lid -T-, it incorporates a tube -C- which extends in the form of a continuous strip -LC-. The perimeter edge -BP- of this continuous strip is hermetically joined to the inside of the lid -T- along a closed line -LN- between the edge -B- of the mouth of the lid -T- when the container -1- is opened and the rim -RE- of the container. This tube -C- is sealed at the end by a tear-away membrane -Ca-.

In the first method of production, in order to gain access to the contents of the container, the sealing membrane -Ca- is torn away by a tear-away flange -Cc-. As can be seen in figure 7, when the membrane -Ca- is torn away with the flange -Cc-, the indentation lines -Cb- open the tube -C- like a channel, which makes it possible for the user to drink the contents of the container -1-, as air can penetrate inside the container.

The second method of production according to this invention, illustrated in figures 12 to 24, consists of a container -1'- for drinks, canned foods and similar, which comprises the body -E'- and, inside the lid -T'-, it incorporates a tube -C'- which extends in the form of a continuous strip -LC'-. The perimeter edge -BP'- of this continuous strip is hermetically joined to the inside of the lid -T'- along a closed line -LN'- between the edge of the indentation line -B'- of the lid -T'-, which enables the container -1'- to be opened, and the rim -RE'- of the container. This tube -C'- is sealed at the end by a membrane -Ca'-.

In this second method of production, the indentation line -B'- of the lid -T'- divides it into two parts, one tear-away section -Ta'- inside and one outside -Te'-, which remains in the container -1'- after it has been opened. The tear-away section -Ta'- of the lid, as is illustrated in the sketches, incorporates an intermediate fold line -5-, which, when the container is opened, enables this tear-away section -Ta'- to be folded over onto itself (see figures 18, 23 and 24). This fold line -5- can consist of a fold, as illustrated, or an indentation line or other which will enable this tear-away section -Ta'- to be folded over.

As can be seen in figures 12, 19 and 24, the indentation line -B'- of the lid -T'- displays two opposing recesses -6-, which match up with the ends of the intermediate fold line -5-. These recesses -6- assist folding of the tear-away section -Ta'- along the fold line -5-.

As can be seen in figures 16 to 18, in the opening of the container, when the tear-away section -Ta'- is folded over onto itself along the fold line -5-, this tear-away section is folded over onto itself, matching up with its blunted edges, see figure 23, whereby it is impossible for the user to cut himself with the edge of the indentation line -B'-.

This intermediate fold line -5- makes it possible, when the container is being opened, during this operation or afterwards, for the tear-away lid -Ta'- to fold over onto itself, as is shown in the figures.

The edge of the indentation line -B'- of the lid -T'-, in the tear-away section -Ta'-, is blunted, as is shown particularly in figure 22, whereby it is made more impossible for the user to cut himself whilst drinking the contents of the container -1'-.

The sealing membrane -Ca'- of the tube -C'- is always joined to this tube, and this membrane may be tear-away (although in figure 21, to make the sketch simpler, it is illustrated separately), as well as the tear-away section -Ta'- of the lid. This arrangement makes it possible to reseal the tube -C'- with a conventional, independent cap, lid or stopper. The tube -C'- may be provided with screw-threading -7- (as is illustrated in this figure 21), and enables screw closing with a screw cap. However, the tube -C'- may be provided with an end rim to enable sealing with a cap with slight pressure.

The sealing membrane -Ca'-, always joined to the tube -C'-, for example, directly joined to the end of the tube, or by a nerve -8- (see figure 18), enabling this sealing membrane -Ca'- to be attachable to the tube, enabling it to be opened and resealed with this membrane.

As is illustrated in figure 20, the tube -C'- may incorporate a straw -CA'- inside, which helps air to come out whilst the user is drinking.

However, in both methods of production, illustrated in figures 1 to 24, the perimeter edge -BP-, -BP'- of the continuous strip -LC-, -LC'- is hermetically joined in a continuous housing -EN-, -EN'- provided on the inside of the lid -T-, -T'- between the indentation line -B-, -B'- of the lid and the rim -RE-, -RE'- of the container -1-, -1'-.

The membrane -Ca-, -Ca'- seals the end of the tube -C-, -C'- and, if a fizzy drink -P-, -P'- is inside the container, when the container -1-, -1'- is opened, see figures 3, 4, 5, 6 and 7, of the first method of production, and figures 14, 15, 16, 17 and 18 of the second method of production, the pressure -P-, -P'- of the drink contained in the container causes the tube -C-, -C'- to emerge through the opening made in the lid -T-, -T'-.

Although it is not illustrated, the beginning of the tube -C-, -C'- may be provided with lengthways reinforcements which extend into the continuous strip -LC-, -LC'- and which, when the lid -T-, -T'- is opened, as is shown in the said figures 3, 4, 5, 6, 7, 14, 15, 16, 17 and 18, cause the emergence of this tube -C-, -C'- by elasticity, through the opening made in the lid -T-, -T'-. If the drink is still or for canned foods, and the tube does not have these lengthways reinforcements, the tube -C-, -C'- can be made to emerge simply by the user pulling on the sealing membrane -Ca-, -Ca'-.

As is shown in the figures, the lid -T-, -T'- has the indentation line -B-, -B'-, which matches up with the opening made in the lid -T-, -T'-, with conventional ring-pull tabs -4-, -4'-.

Meanwhile, the indentation line -B-, -B'- of the lid -T-, -T'-, in an opposite position to the point of incision -I-, -I'- of the ring-pull tabs -4-, -4'- extends along two indentation lines -2-, -2'- (see figure 1), which increase the

separation of the tear-away section of the lid from the tube -C-, -C', which has emerged from the body -E-, -E' of the container, so that it bothers the user as little as possible whilst he is drinking the contents of the container. Naturally, the particular arrangement of these indentation lines -2-, -2' is not absolutely necessary.

As is shown in figures 8, 9, 10, 11 and 19, the tube -C-, -C' has a concertina-like portion -F-, -F', or alternatively, as is shown in figures 2, 3, 4, 5, 6, 7, 13, 14, 15, 16, 17 and 18, it can have continuous, concertina-like folds -PL-, -PL' along part or all of its length.

The tube -C-, -C' can be positioned centrally to the container -1-, -1', as is shown in figures 8, 9, 10, 19 and 20, or off-centre, as is shown in figure 11.

Similarly, the tube -C-, -C' can have any cross-section as required, and this may be small or large.

The invention comprises containers for drinks, canned foods and similar of any shape as required, even or irregular. The indentation line -B-, -B' of the lid -T-, -T' and the tube -C-, -C' may be centred or off-centre in respect of the rim -RE-, -RE' of the container -1-, -1'.

Naturally, the housing -EN-, -EN' of the lid, onto which the perimeter edge -BP-, -BP' of the continuous strip -LC-, -LC' is attached inside, is defined by a closed line which is comprised between the indentation line -B-, -B' of the lid -T-, -T', and the rim -RE-, -RE' of the container -1-, -1', and may be centred or off-centre.

Naturally, the material making up the tube and the continuous membrane may be any as required, provided it is compatible with drinks and canned foods.

The invention, within its essence, may be put into practice in other methods of production, differing solely in detail from the above indications, solely for illustrative purposes, and the protection granted shall likewise cover same. The container for drinks, canned foods and similar with which this invention is concerned may, therefore, be produced in any shape or size, with the most suitable means and materials and with the most appropriate accessories, and the component parts may be substituted by others which are technically equivalent, all of which is included in the claims.

Claims

1. Container for drinks, canned foods and similar, which comprises, in its mouth, a device combined with the lid inside same which, when the container is opened, causes the emergence, from the mouth of the container, of a tube, through which the product contained in the container has a direct outlet, without coming into contact with the outside of same, characterized by the fact that the tube extends in the form of a continuous strip, the perimeter edge of which is hermetically joined to the inside of the lid along a closed line between the indentation line of the lid, enabling the container to be opened, and the rim of the container; which tube

is sealed at the end by a membrane.

2. Container for drinks, canned foods and similar, as per claim 1, characterized by the fact that the tear-away section of the lid, marked by the indentation line, has an intermediate fold line which, when the container is opened, enables the tear-away section of the lid to fold over onto itself.
3. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the indentation line of the lid has two opposing recesses matching up with the ends of the intermediate fold line.
4. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the edge of the tear-away section of the lid is blunted.
5. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the membrane can be torn away jointly from the tube and enables the tube to be resealed by a conventional cap, lid or stopper.
6. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the membrane can be attached jointly to the tube to allow it to be resealed.
7. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the tube has a straw inside it.
8. Container for drinks, canned foods and similar, as per claims 1 and/or 2, characterized by the fact that the edge of the continuous strip is joined hermetically in a continuous housing provided on the inside of the lid, between the indentation line of the lid and the rim of the container.
9. Container for drinks, canned foods and similar, as per claims 1 and/or 2, characterized by the fact that the tube has at least one concertina-like section.
10. Container for drinks, canned foods and similar, as per claims 1 and/or 2, characterized by the fact that the tube has continuous, concertina-like folds.
11. Container for drinks, canned foods and similar, as per claims 1 and/or 2, characterized by the fact that the tube emerges through the opening in the lid by the pressure inside the container.
12. Container for drinks, canned foods and similar, as per claims 1 and/or 2, characterized by the fact that the tube has lengthways reinforcements which extend into the continuous strip, which cause the

emergence of the tube through the opening in the lid.

Amended claims under Art. 19.1 PCT

1. Container for drinks, canned foods and similar, which comprises a flexible tube, joined to the inside of the lid of the container, corresponding to the mouth; this tube, on its inside end, is attached to the inside of the lid and, on its outside end, it is provided with a sealing membrane; this tube, when the container is opened, emerges out of the container through the opening made in the lid marked by the indentation line, characterized by the fact that the inner end of the tube extends in the form of a continuous strip, and by the fact that the attachment of the tube to the inside of the lid of the container is made by hermetically joining the perimeter edge of the continuous strip of the tube in a continuous housing along a closed line, provided on the inside of the lid in an intermediate position between the indentation line on the lid for opening the container and the rim of the container.

2. Container for drinks, canned foods and similar, as per claim 1, characterized by the fact that the tear-away section of the lid, marked by the indentation line, has an intermediate fold line which, when the container is opened, enables the tear-away section of the lid to fold over onto itself.

3. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the indentation line of the lid has two opposing recesses matching up with the ends of the intermediate fold line.

4. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the edge of the tear-away section of the lid is blunted.

5. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the membrane can be torn away jointly from the tube and enables the tube to be resealed by a conventional cap, lid or stopper.

6. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the membrane can be attached jointly to the tube to enable it to be resealed.

7. Container for drinks, canned foods and similar, as per claim 2, characterized by the fact that the tube has a straw inside it.

8. Container for drinks, canned foods and similar, as per claims 1 and/or 2, characterized by the fact

that the tube has continuous, concertina-like folds.

9. Container for drinks, canned foods and similar, as per claims 1 and/or 2, characterized by the fact that the tube emerges through the opening in the lid by the pressure inside the container.

10. Container for drinks, canned foods and similar, as per claims 1 and/or 2, characterized by the fact that the tube has lengthways reinforcements which extend into the continuous strip, which cause the emergence of the tube through the opening in the lid.

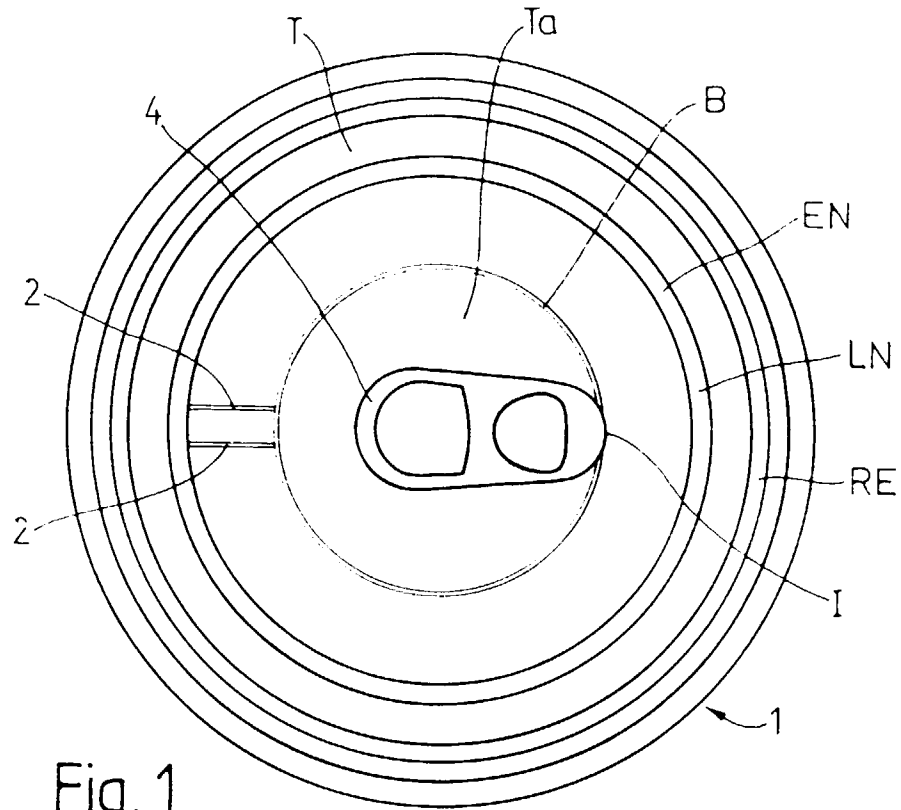


Fig. 1

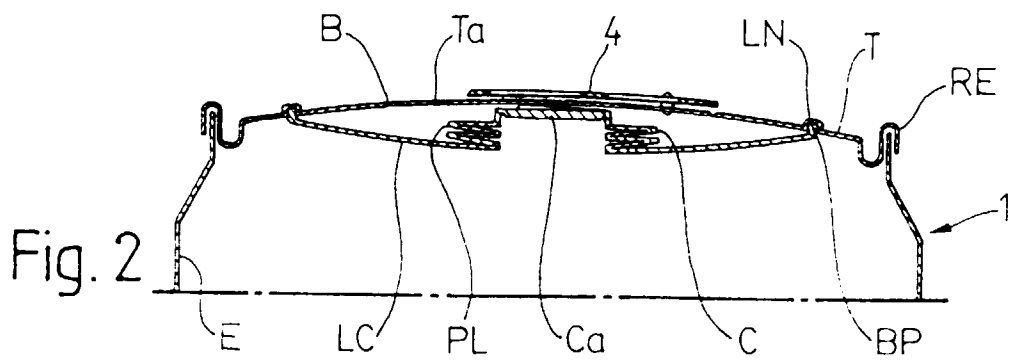


Fig. 2

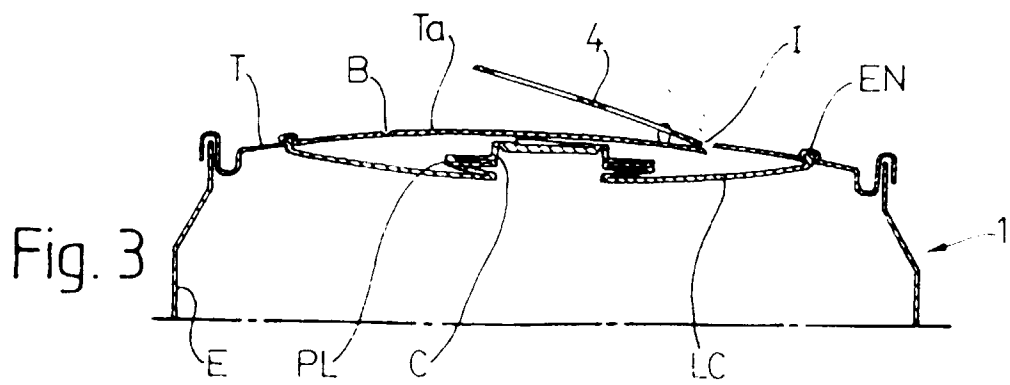
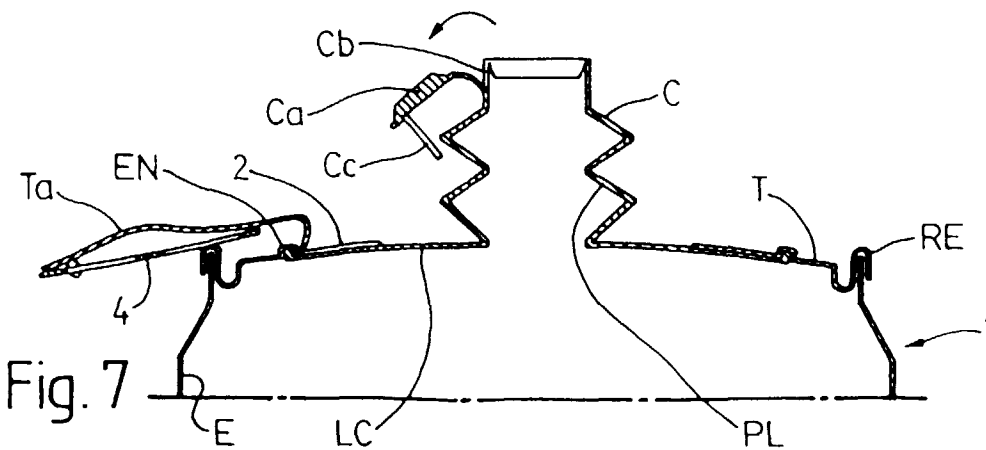
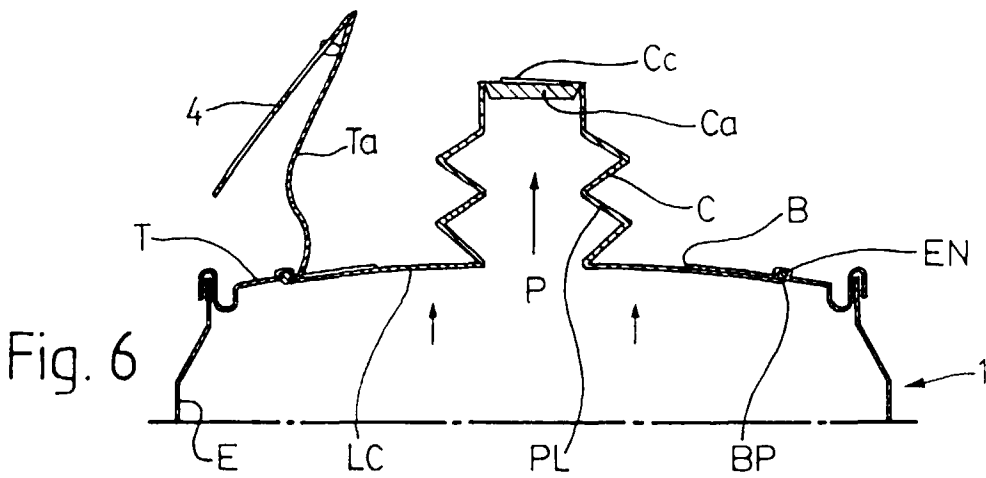
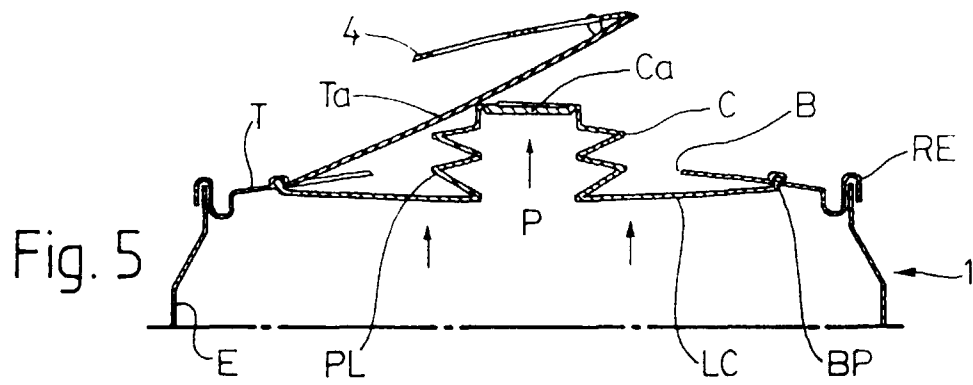
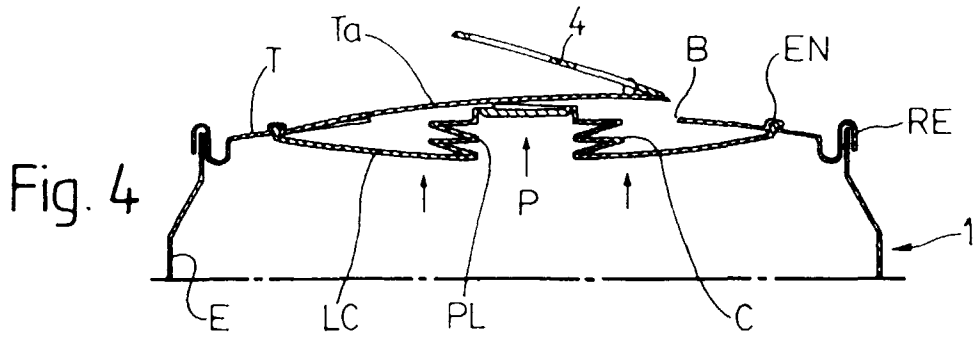
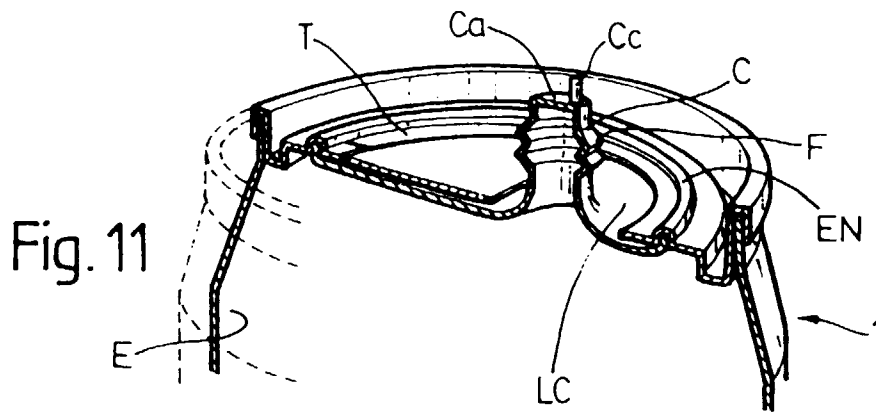
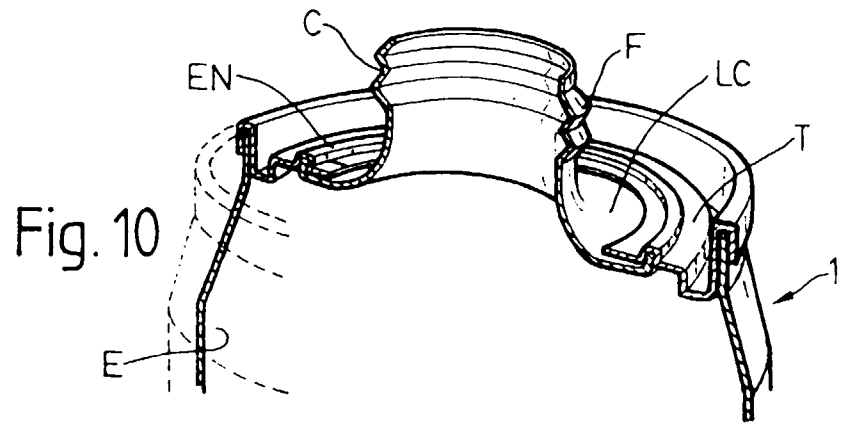
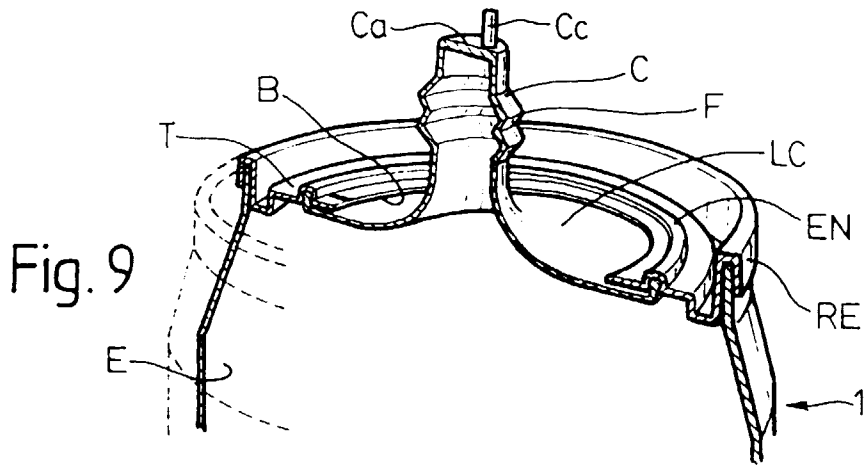
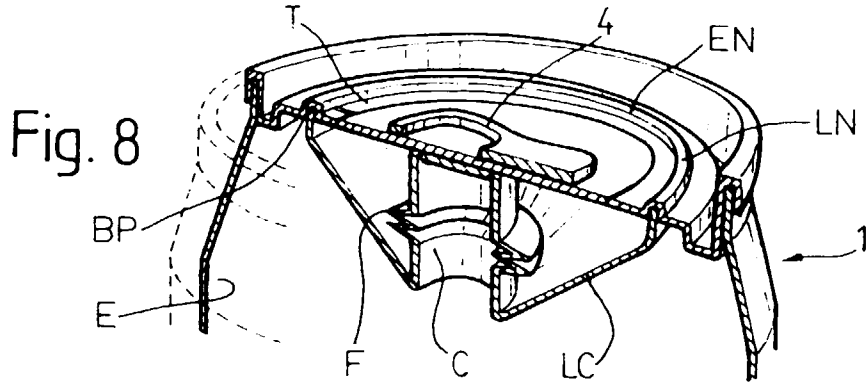


Fig. 3





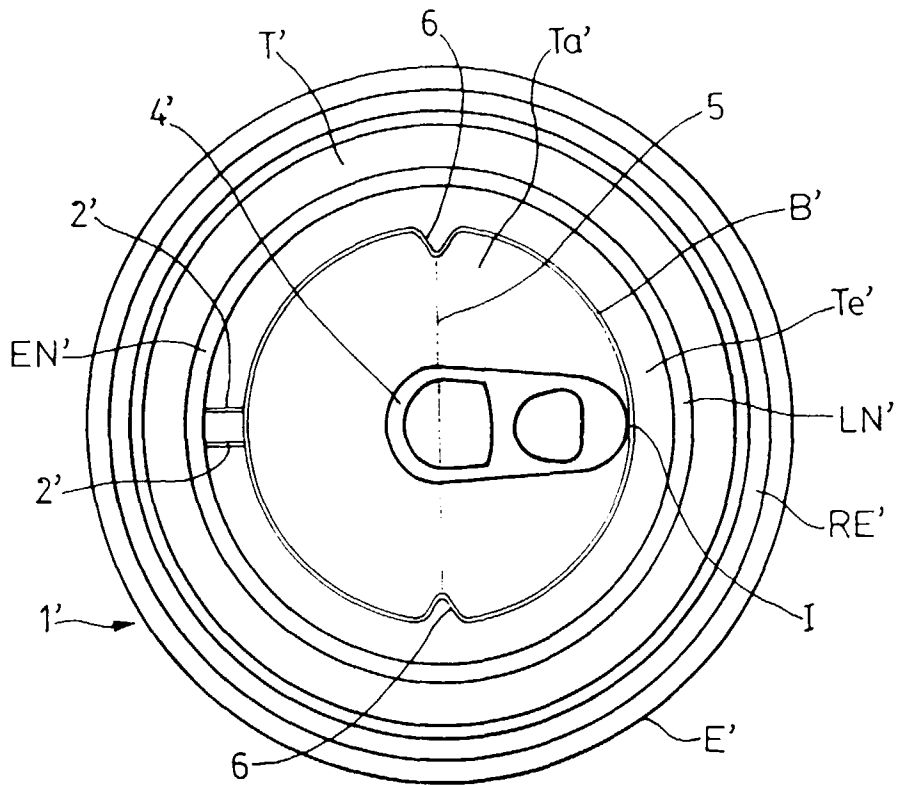


Fig. 12

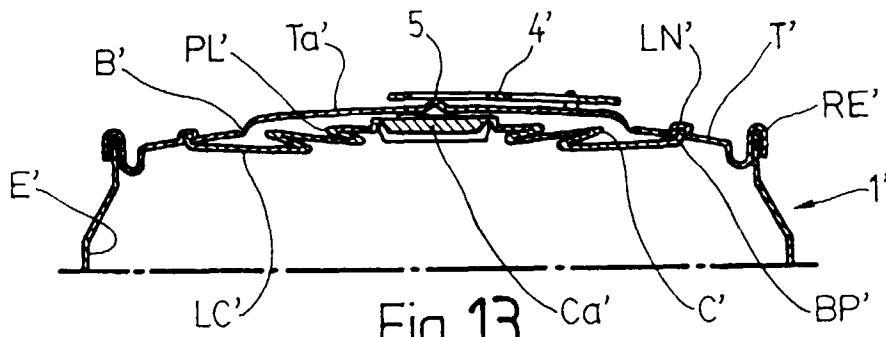


Fig. 13

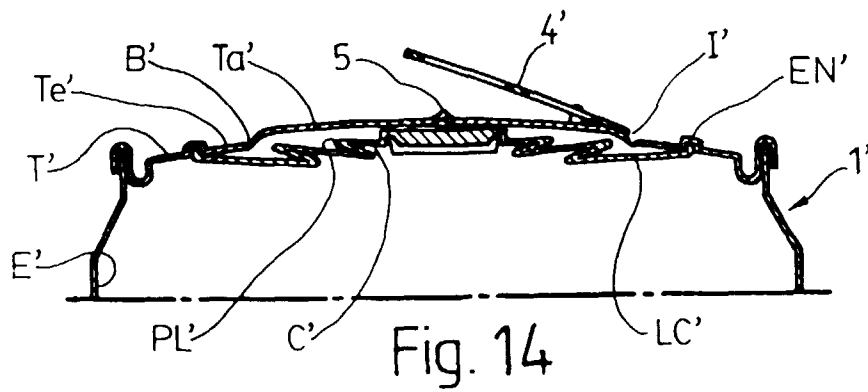
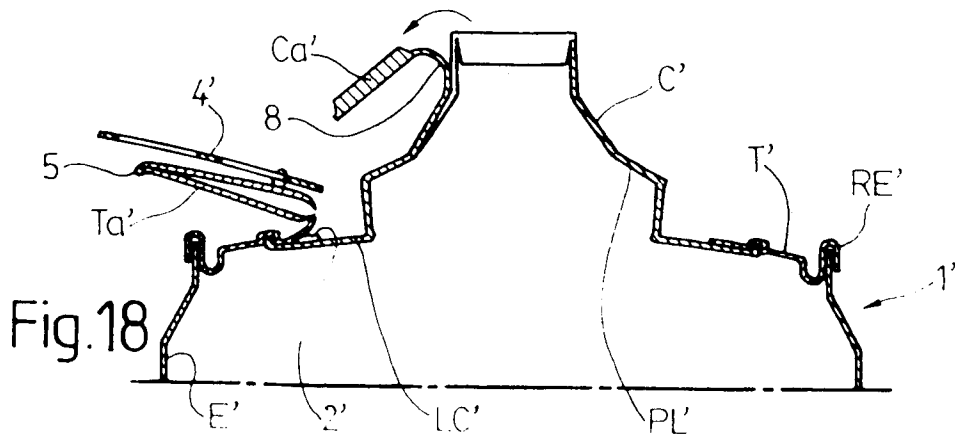
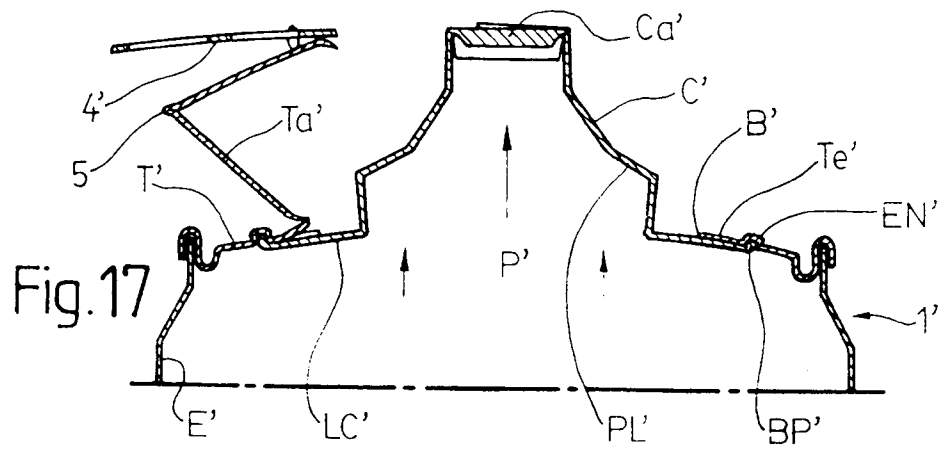
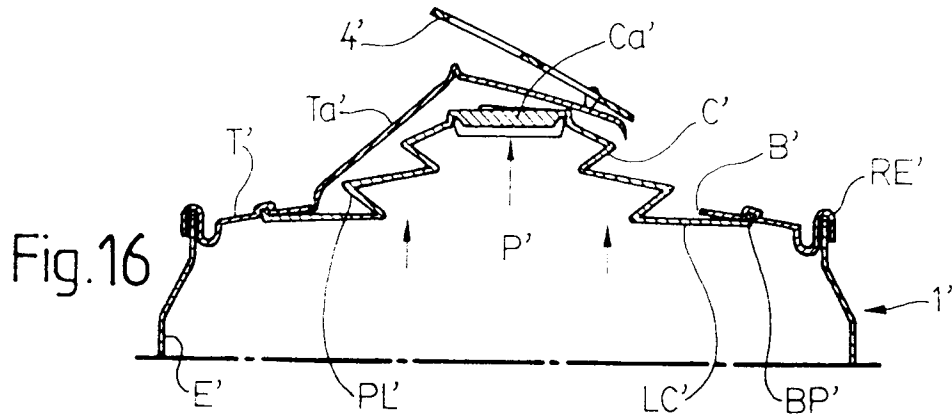
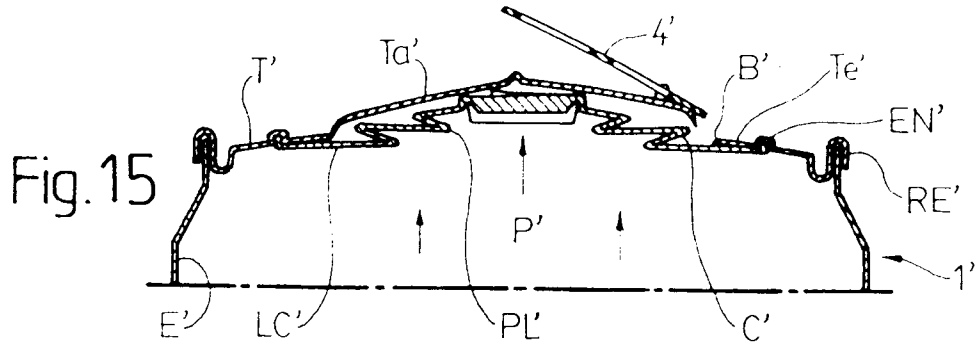


Fig. 14



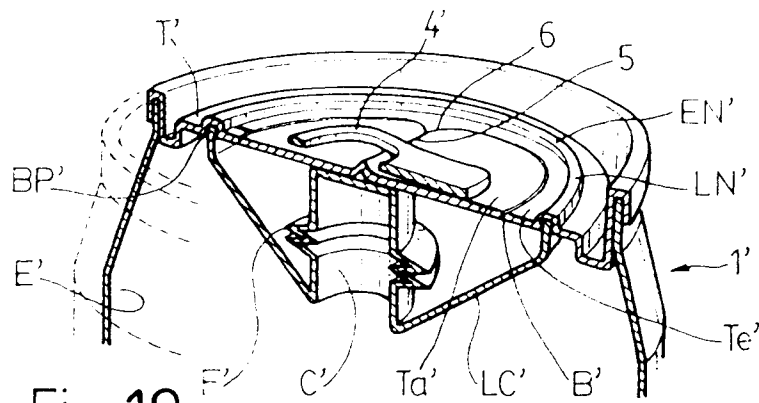


Fig. 19

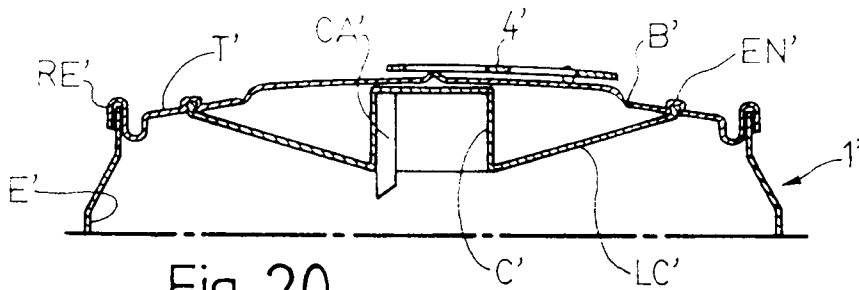


Fig. 20

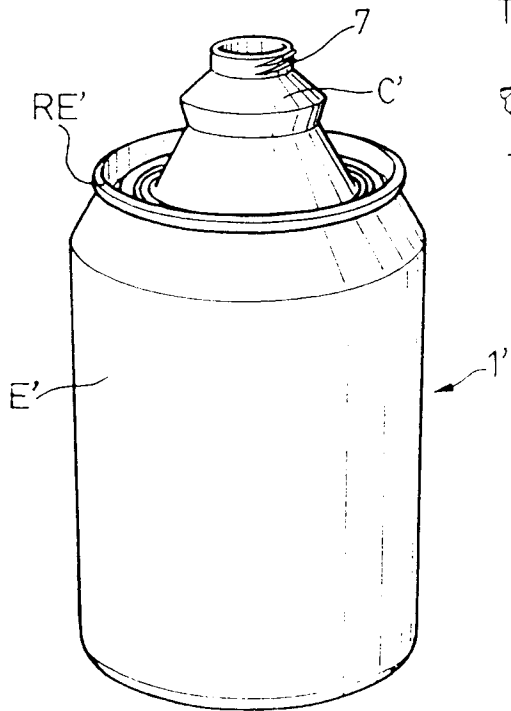


Fig. 21

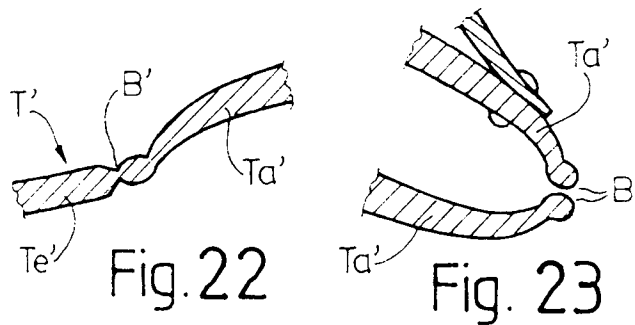


Fig. 22

Fig. 23

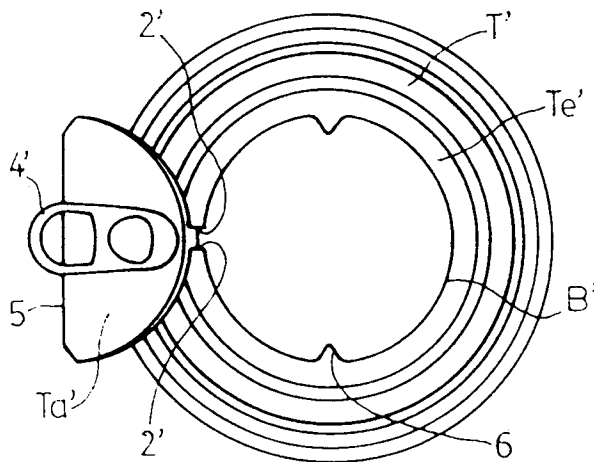


Fig. 24

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES 97/00153

A. CLASSIFICATION OF SUBJECT MATTER				
IPC ⁶ : B65D 47/06 According to International Patent Classification (IPC) or to both national classification and IPC				
B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols) IPC ⁶ : 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 practicable, search terms used) CIBEPAT, EPODOC, PAJ, WPI.				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X A	US 2 661 128 A (RIEKE) 1 December 1953 (01.12.53) Column 1, line 53-column 3, line 45; figures	1, 9 8		
X A	ES 0424 748 A (GUALA) 16 October 1976 (16.10.76) Page 4, line 14-page 5, line 21; claims 1-3; figures 1-4.	1, 9 8		
A	US 4 560 081 A (ADAMS) 24 December 1985 (24.12.85) See the whole document	1, 8-10		
A	ES 1 003 023 U (JIMENEZ) 1 July 1988 (01.07.88) Page 3, line 12-page 4, line 5; claim 1, figures	1, 9-11		
A	ES 0 256 870 U (SABADELL) 1 July 1981 (01.07.81) See the whole document	1, 9, 10		
A	US 3 951 316 (O'NEAL) 20 April 1976 (20.04.76)			
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.				
* Special categories of cited documents: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> "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 </td> <td style="width: 50%; vertical-align: top;"> "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family </td> </tr> </table>			"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 "&" document member of the same patent family
"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 "&" document member of the same patent family			
Date of the actual completion of the international search 8 September 1997 (08.09.97)		Date of mailing of the international search report 11 September 1997 (11.09.97)		
Name and mailing address of the ISA/ S.P.T.O. Facsimile No.		Authorized officer Telephone No.		