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(54) Title: INSERT FOR BEVERAGE CANS IN GENERAL

(57) Abstract: Insert for beverage cans in general, developed for use with cans (4) employed for holding beverages in general, such as those used for marketing soft drinks, beers, juices, and the like, the insert (1) comprising a main structure (2); the main structure (2) of the insert (1) comprising a close wall (5), connected to the edge of said main structure (2) by a perforated line (6), that allows, upon pulling, a portion (7) of said closing wall (5) to be partially or completely detached by breaking the material along the perforated line (6); the inner face (12) of the wall portion (7) comprises a material section (13) positioned along the travel the beverage flow has to follow when leaving the can (4) once opened.
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
"INSERT FOR BEVERAGE CANS IN GENERAL"

The present invention relates to an insert especially developed for use in beverage cans in general, such as those used for marketing soft drinks, beers, juices, and the like also known as "cans".

As widely known, the matter involving the consumption of beverages marketed in cans has deserved special attention of departments and entities engaged with public health as a result of the several cases in which consumers, when drinking directly from the can, are contaminated with bacteria and other pathogenic microorganisms that, in some cases, may even lead to death.

US 6,290,084 describes a rotary protective cover attachment for beverage cans providing a resealing mechanism, in the form of a rotary door, once the can is open, said cover protecting the beverage from possible contamination.

Generally, contamination of beverage cans occurs out of the manufacturing site said contamination being almost always related to the sales points where the cans in conditions which do not fulfil appropriate hygiene criteria.

In view of the abovementioned and as an attempt to solve this problem, the present insert was developed to be hermetically secured or coupled to the upper portion of the can, that is the portion of the can provided with opening means for pouring the beverage. The insert includes means to protect said opening portion, thus preventing a direct contact with any kind of substance or pathogenic organism that could endanger the consumers' health.
In addition to have evident advantages from the hygiene point of view, the insert of the present invention further includes another novelty consisting of a lining on which the beverage is poured when served for consumption. Said lining, depending on the kind of beverage, is able to change the physical characteristics of the product or further add to it, by means of a simple contact, substances like colorants, chemical additives for changing the flavor, color or texture and the like.

The abovementioned insert is easily manufactured with low-cost, thus allowing its production in large scale.

The insert of the present invention comprises a main structure having a perfect ring shape and being sized so as to be properly coupled in an airtight manner to the upper portion of a conventional can.

The main structure of said insert comprises a closing wall connected to the substantially circular edge of said ring by a perforated or weakening line. Upon pulling opening means in the form of a ring, a portion of said wall is partially or completely separated from the ring edge by breaking the previously defined perforated or weakening line.

The inner surface of the breakable portion of the closing wall comprises a lining material section that, as mentioned above, is able to change the beverage characteristics simply by contact of the beverage with said lining.

Within this development, construction modifications are provided in the insert for beverage cans in general to allow more practical and appropriate optional locations for the insert on the beverage cans.
The present invention will be now described with reference to the attached drawings, in which:

Figure 1 is a perspective view of the insert of the present invention;

Figure 2 is a perspective view of said insert properly coupled to a generic can model of the type usually used for marketing beverages.

Figure 3 shows the breakage of the insert of the present invention; and

Figure 4 shows the beverage being poured from the opened can.

Figure 5 is a perspective view of a beverage can according to a first embodiment of the insert of the present invention in its inoperative and sealed condition;

Figure 6 is a perspective view of the can showed in Figure 5, with said insert with its seal broken and being initially displaced to its operative condition;

Figure 7 is a perspective view of the can showed in Figures 5 and 6, with said insert displaced toward its final travel condition and ready for use;

Figure 8 is a perspective view of the beverage can showed in Figures de 5 to 7, the can being open and in its pouring position to serve the liquid that moves on the lined portion of the insert before reaching the user’s glass;

Figure 9 is a perspective view of the beverage can provided with a second embodiment of the insert of the present invention in its inoperative and sealed condition;

Figure 10 is a front view of the can showed in
Figure 9, with said insert in its inoperative and sealed condition;

Figure 11 is a front view of the can showed in Figures 9 and 10, with said insert being extended toward its final travel condition and ready for use; and

Figure 12 is a side and partial view of the beverage can showed in Figure 11, the can being open and in its pouring position to serve the liquid that moves on the lined portion of the insert before reaching the user’s glass.

As showed in the abovementioned figures, the present invention relates to an insert 1 comprising a main structure 2, preferably shaped as a ring.

The insert main structure 2 is defined, in terms of shape and size, so as to be hermetically coupled to the upper portion 3 of a can 4 of the conventional type and commonly used for holding beverages.

The main structure 2 comprises a closing wall 5, connected to the substantially circular edge of said ring-shaped insert by a perforated or weakening line 6 that allows, upon pulling, a portion 7 of said closing wall 5 to be partially or completely detached by breaking the material along the perforated or weakening line 6, as better understood by viewing Figures 3 and 4.

The wall portion 7 is pulled using opening means in the form, for example, of a ring 8 that is clinched against the edge of the main structure 2 before breaking the insert 1, as better seen in Figures 1 and 2.

The wall portion 7 of insert 1 covers the upper
wall 9 of the upper portion 3 of the can 4, thus hiding and protecting the opening means 10 of can 4, as well as the opening point 11 forming the can structure, thus preventing said upper portion from being contaminated by any kind of substance hazardous to health.

The inner face 12 of wall portion 7 comprises a material section 13 that is strategically positioned along all or part of the travel the beverage flow will follow when leaving the can 4 once opened, as specifically depicted in Figure 4.

The lining section 13, depending on the kind of beverage contained in can 4, may have one of the various specific functions.

For example, lining section 13 can be made of porous paper or fabric of any kind, having a special function as in the case of beverages containing CO₂ or nitrogen, fermented, carbonated or not that produce bubbles.

Particularly in such a case, lining 13 is to produce, by means of friction, an increased number of bubbles released, thus changing the natural generation of beverage foam (for instance, beer), as well as the lightness of the final product before being effectively consumed.

Lining 13 may further contain one or several substances, such as chemical additives capable of changing the product's flavor, color or texture by means of simple contact. For this reason, is can be applied to products such as juices, soft drinks and the like.

The insert 1 can be made of different materials as, for instance, as plastic, PVC, aluminum and others.
Figures 5, 6, 7 and 8 show the insert 21 consisting of a laminar structure of substantially rectangular outline slidingly mounted on a rectangular frame 22 formed by a U-shaped profiled structure adapted on the vertical wall of can 4, on its front face and aligned with the outlet plane of liquid L coming from opening 11 of the upper wall 9 of can 4.

The laminar structure 21 forming the insert in its initially inoperative and completely retracted condition on frame 22 (see Figures 5 and 6) is axially displaceable upwards after breaking a perforated line 23 that keeps it hermetically coupled to the front wall of can 4, said axial displacement being performed by lifting a small ring 8 incorporated on the upper edge of this laminar structure 21 and that originally remains clinched against the outer face of structure 21.

The inner face 24 of the laminar structure 21 comprises a material section 25 that is strategically positioned along the travel the beverage flow L has to follow when leaving the can 4 once opened, as specifically depicted in Figure 8.

In another version showed in Figures 9, 10, 11 and 12, the insert 31 comprises a main tubular structure made of semi-rigid material, such as cardboard or plastic film, having a hollow cylindrical shape with creased and folded lines lying in planes perpendicular to the longitudinal axis to form an accordion-shaped collapsible surface on the insert 31 (see Figures 10, 11 and 12). Such accordion-shaped tubular structure 31 is sized so as to be properly coupled, in an axial and airtight manner on and around the upper portion of can 4.

The main structure of the insert 31 has, inside
each of its upper 32 and lower 33 edges, an adhesive surface that
will allow the airtight adaptation of insert 31 in its accordion-
shaped, inoperative, collapsed condition on the outer cylindrical
surface of the can 4, the insert 31 being thus directly secured by
its edges 32 and 33 on the outer wall of the can 4 (see Figures 9
and 10).

The upper edge 32 of insert 31 is provided with a
perforated or weakening line 34. By pulling tabs or lugs 35
provided on the outer face of insert 31, the perforated or
weakening line 34 can be broken and the upper edge of the
accordion-shaped tubular structure 31 can be released from the
adhesive upper edge 32 adhered to the can 4 (see Figures 11 and
12), thus moving the collapsible accordion-shaped insert 31
toward its operating position (see Figures 11 and 12) where the
outlet opening 36 protrudes beyond the edge of the can 4 that, in
this condition, is completely lined and remains inside the
accordion-shaped insert 31.

The inner face of the accordion-shaped tubular
structure 31 is internally lined with a material, for instance,
paper or other porous film 37 that acts to change the beverage
characteristics by simple contact between the beverage L and said
lining 37 when pouring beverage L (see Figure 12).

Particularly as showed in Figure 12, beverage L
runs on the inner and lined wall 37 of insert 31 in its extended
condition when leaving opening 11 of can 4 before being poured,
thus allowing the characteristics of beverage L to be changed
during said travel as desired. The lining section 37, depending on
the type of beverage contained in can 4, may have one or more
specific functions.

Therefore, for both versions of insert 21, 31, lining 25, 37 may further contain one or more substances, such as chemical additives capable of changing the product’s flavor, color or texture by means of simple contact. For this reason, it can be applied to products such as juices, soft drinks and the like.

For example, if the inner face of insert 21, 31 is made of porous paper or fabric of any kind, it will have a special function as in the case of beverages containing CO₂ or nitrogen, fermented, carbonated or not that produce bubbles. Particularly in such a case, the function of the lining 25 or 37 is to produce, by means of friction, an increased number of bubbles released, thus changing the natural generation of beverage foam (for instance, beer), as well as the lightness of the final product before being effectively consumed.

Generally, the manufacture of the versions 21, 31 of the insert is not limited to a single material, since several materials can be employed, such as plastic, PVC, aluminum and others.

A variety of further modifications and improvements to the neck insert will be apparent to those skilled in the art. Accordingly no limitation on the invention is intended by way of the foregoing description and accompanying drawings except as set forth in the appended claims.
CLAIMS

1. - "INSERT FOR BEVERAGE CANS IN GENERAL", developed for use with cans (4) employed for holding beverages in general, such as those used for marketing soft drinks, beers, juices and the like, the insert (1) comprising a main structure (2) characterized in that said main structure (2) comprises a closing wall (5), connected to the edge of said main structure (2) by a perforated line (6), a portion (7) of said closing wall (5) being, upon pulling, partially or completely detached from the main structure (2) by breaking the material along the perforated line (6); the inner surface (12) of said portion (7) of the closing wall (5) comprises a material section (13) adapted to be positioned along the beverage path while pouring it once the can (4) is opened.

2. - "INSERT", as claimed in claim 1, characterized in that the main structure (2) of insert (1) has a ring shape.

3. - "INSERT", as claimed in claim 1, characterized in that the perforated line (6) can the alternatively replaced with a weakening line.

4. - "INSERT", as claimed in claim 1, characterized in that the wall portion (7) is pulled using a ring (8).

5. - "INSERT", as claimed in claim 1, characterized in that the wall portion (7) of insert (1) is adapted to line the upper wall (9) of the upper portion (3) of can (4), thus hiding and protecting both the opening means (10) of the can (4) and the opening point (11) forming the can structure.
6. - "INSERT", as claimed in claim 1, characterized in that the lining section (13), depending on the kind of beverage contained in the can (4), is made of a material adapted to change one or more characteristics of the beverage contained in the can (4) by simple contact between the lining section (13) and the beverage.

7. - "INSERT", as claimed in anyone of the preceding claims characterized in that the lining section (13) is made of porous paper.

8. - "INSERT", as claimed in claims 1 to 6 characterized in that the lining section (13) is made of fabric.

9. - "INSERT", as claimed in claim 7 or 8, characterized in that the lining section (13) is adapted to change the beverage foaming conditions and lightness.

10. - "INSERT", as claimed in claim 1 or 6, characterized in that the lining section (13) contain one or more substances, such as chemical additives capable of changing the product's flavor, color or texture by means of simple contact.

11. - "INSERT FOR BEVERAGE CANS IN GENERAL capable of being adapted to a can (4) of the conventional type and commonly used for holding beverages in general, such as soft drinks, beers, juices and others; characterized in that insert (21), comprises a laminar structure of rectangular shape slidingly mounted on a rectangular frame (22) formed by a U-shaped profiled structure to be adapted on the vertical wall of can (4) on its front face and aligned with the outlet plane of liquid (L) coming from opening (11) of the upper wall (9) of can (4).

12. - "INSERT", according to claim 11,
characterized in that the laminar structure, when mounted on a can (4), (21) remains in its initially inoperative and completely retracted condition on the frame (22), being axially displaceable upwards after breaking a perforated line (23) that keeps it hermetically and initially coupled to the front wall of can (4), said axial displacement being performed by lifting a ring (8) incorporated on the upper edge of this laminar structure (21) and that originally remains clinched against the outer surface of structure (21); the inner surface (24) of structure (21) comprises a material section (25) that is strategically positioned along the travel the beverage flow (L) has to follow when leaving can (4) once opened.

13. - "INSERT FOR BEVERAGE CANS IN GENERAL" capable of being adapted to a can of the conventional type and commonly used for holding beverages in general, such as soft drinks, beers, juices and others; characterized in that insert (31) comprises a main tubular structure made of semi-rigid material having a hollow cylindrical shape with creased and folded lines lying in planes perpendicular to the longitudinal axis of the tubular structure to form an accordion-shaped collapsible structure, and being sized so as to tightly fit axially on and around the upper portion of a can (4).

14. - "INSERT"*, according to claim 13, characterized in that insert (31) is made of cardboard or plastic film.

15. - "INSERT"*, according to claim 13, characterized in that insert (31) has, inside each of its upper (32) and lower (33) edges, an adhesive surface for directly and
airtight sealing the insert (31) in its, inoperative or collapsed condition on the outer cylindrical surface of a can (4).

16. - "INSERT", according to claims 13, 14 or 15, characterized in that the upper edge (32) of insert (31) is provided with a perforated or weakening line (34) that, by using tabs or lugs (35) provided on the outer face of insert (31), allows one to pull and consequently break the perforated or weakening line (34), thus releasing the upper edge of the accordion-shaped tubular structure (31) from the adhesive upper edge (32) initially adhered to the can (4).

17. - "INSERT", according to claims 13, 14, 15 and 16, characterized in that the accordion-shaped insert (31) can be extended in its operating position, where the outlet opening (36) protrudes beyond the edge of can (4) to which it is completely lined and remains inside the accordion-shaped insert (31).

18. - "INSERT", according to claims 13, 14, 15, 16 and 17, characterized in that the inner face of the accordion-shaped tubular structure (31) is lined with a material (37) that acts to change the beverage (L) characteristics (L) by simple contact of the beverage (L) with said lining (37) when pouring the beverage.

19. - "INSERT", according to claims 11 and 13, characterized in that insert (21, 31) has its lining (25, 37) further impregnated with one or more substances, such as chemical additives capable of changing the product’s flavor, color or texture by means of simple contact.

20. - "INSERT", according to claims 11, 13 and
19, characterized in that the inner face of insert (21, 31) is made of porous paper or fabric of any kind, and act on beverages containing CO₂ or nitrogen, fermented, carbonated or not that produce bubbles.

21. - "INSERT", according to claims 11, 13 and 19, characterized in that lining (25, 37) of the inner face of insert (21, 31) comprises various substances, such as chemical additives capable of changing the product's flavor, color or texture by means of simples contact, being thus appropriate for application to products such as juices, soft drinks and the like.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC*: B65D 25/44
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*: 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)
EPODOC, PAJ, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>A</td>
<td>US 1881403 A (GUYSER WALTER E.) 4 October 1932 (04.10.1932) fig. 1-5, claims.</td>
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<td>A</td>
<td>US 1901742 A (G. FITZHUGH) 14 March 1933 (14.03.1933) fig. 1-3, claims.</td>
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<td>A</td>
<td>US 2729956 A (GILBERT PHILIP E.) 10 January 1956 (10.01.1956) fig. 1-8, claims.</td>
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Further documents are listed in the continuation of Box C.

See patent family annex.

Date of the actual completion of the international search
18 October 2004 (18.10.2004)

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29 October 2004 (29.10.2004)

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<td>A</td>
<td>GB 2259241 A (TARWINSKI EDMUND CHARLES) 10 March 1993 (10.03.1993) abstract, fig. 1-3.</td>
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