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(54) Title: BOTTLE

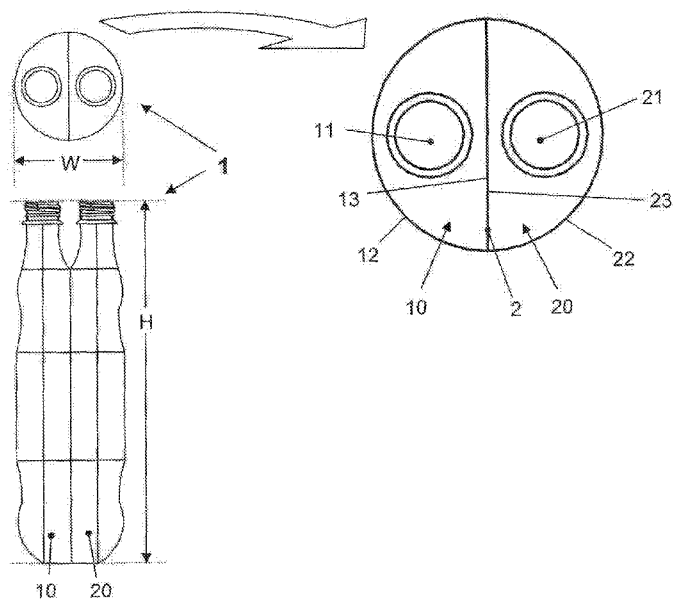


FIG. 1

(57) Abstract: A bottle assembly (1; 3) having a height (H), a width (W) and a volume, comprises, multiple longitudinal compartments (10, 20) all having the same height (H), and each having a separate closure (11, 21) at its top. While one compartment is used, the carbon dioxide contents in the other compartment(s) remain intact.



TITLE: BOTTLE

FIELD OF THE INVENTION

The present invention relates in general to plastic bottles of the type used for carbonated beverages.

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BACKGROUND OF THE INVENTION

Generally, it can be said that a bottle with a carbonated beverage, such as soda or soft drinks, in its condition as filled by a manufacturer, has the right balance with aroma flavours and carbon dioxide, which keeps the quality of taste in balance. At each opening of the cap of a conventional bottle, and pouring an amount of beverage in a glass to consume it, the amount of carbon dioxide remaining in the bottle will be less. This is partly due to the volume of air getting in the bottle. As a result, mainly the aroma flavours remains where the taste of the beverage be more and more like a syrup. The problem is that the beverage loses quality.

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The problem mentioned is effectively caused by a combination of aspects. The carbon dioxide is dissolved in the liquid, and is in balance with the pressure of gas above the liquid, which pressure is above ambient. When the bottle is opened, the pressurized gas escapes to the surroundings, i.e. carbon dioxide leaves the bottle. As long as the bottle remains open, carbon dioxide leaves the liquid and also escapes to the surroundings. When the bottle is closed, carbon dioxide continues to leave the liquid and accumulates above the liquid to build up pressure, until new equilibrium is reached. When part of the beverage is poured out of the bottle, the volume of gas above the liquid increases while the remaining volume of liquid decreases, so that a larger quantity of carbon dioxide can escape from the liquid before equilibrium is reached.

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The problem mentioned increases with larger volumes of bottles. After all, the larger the bottle, the more cycles of opening and closing may happen, and at the end the ratio of gas volume to liquid volume is larger. It is therefore known to reduce the problem by pouring remaining liquid into a smaller bottle.

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In the field of beverage bottles, standard sizes have been developed, typically 0.75, 1, 1.5 and 2 litre bottles. As mentioned, the durability problems are less in the case of smaller bottles, but smaller bottles are more expensive with a view to

manufacture, filling process, transport and storage. Nevertheless, each bottle size has durability problems to some extent.

5 SUMMARY OF THE INVENTION

It is an objective of the present invention, for each bottle size, to increase durability of carbonated beverages while maintaining the bottle size.

To this end, the present invention proposes a bottle assembly having an
10 overall arrangement substantially equal to a standard bottle, yet being subdivided in two or more individual bottle compartments, each bottle compartment having its own individual opening and cap. The bottle compartments may be attached to each other to behave as an integral whole. The combination of bottle compartments may be handled as a single bottle. Overall, the combination of bottle compartments occupies
15 the same volume as a standard bottle, thus involving the same costs for transport and storage. If desired, the bottle compartments may contain different beverages. In any case, when a beverage is poured out, it is taken from one compartment only while the other compartment(s) remain(s) closed.

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BRIEF DESCRIPTION OF THE DRAWINGS

These and other aspects, features and advantages of the present invention will be further explained by the following description of one or more preferred
25 embodiments with reference to the drawings, in which same reference numerals indicate same or similar parts, and in which:

figure 1 schematically shows a top view and a side view of a first exemplary
embodiment of a bottle assembly according to the present invention;
figure 2 schematically shows a top view and a side view of a second exemplary
embodiment of a bottle assembly according to the present invention;
30 figure 3 shows compartments in separate condition.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 schematically shows a top view and a side view of an exemplary
embodiment of a bottle assembly 1 according to the present invention. The height is
35 indicated H, and the width is indicated W. The bottle assembly 1 as a whole has the same appearance, or in any case has the same dimensions regarding width/diameter W and height H, as a standard bottle, so that it can be stored and transported in the same manner and via the same channels as standard bottles. The assembly 1

further has an overall contents (volume) substantially equal to the contents (volume) of such standard bottle.

A key aspect of the present invention is that the bottle assembly 1 comprises multiple longitudinal compartments 10, 20 (also indicated as containers), all having the same height H, and each having a separate closure, preferably and as shown a screw cap 11, 21.

In the embodiment shown, the number of compartments equals 2, but it is also possible to have 3 or 4 compartments. Theoretically, 5 and more compartments would also be possible, but the more compartments the more problematic it becomes for having standard closures.

The compartments may have mutually equal contents, but that is not essential.

Conveniently, and efficiently, the individual compartments may be identical to each other, but that is not essential.

Each container 10, 20 has a first side wall portion 12, 22 directed to the surroundings, and indicated hereinafter as outer side wall portion, and a second side wall portion 13, 23 (indicated hereinafter as inner side wall portion) directed to one or more other compartments. Caps 11, 21 are arranged at the upper end of the compartments.

In the embodiment shown, with 2 containers, the inner side wall portions may be planar. In the case of 3 containers, the inner side wall portions may comprise two planar wings at an angle of 120° with respect to each other.

Alternatively, however, the inner wall portions may for instance be curved or bent in matching manner.

In the embodiment as shown in figure 1, the inner side wall portions of the respective compartments form integral, inseparable wholes with each other. In other words, there is a single separation wall 2 being both inner side wall 13 for the first compartment 10 and inner side wall 23 for the second compartment 20. Figure 2 presents views similar to figure 1, respectively, of an embodiment 3 where the compartments 10, 20 have individual inner side walls 13, 23 separate from each other. The compartments 10, 20 can be made independently from each other; figure 3 shows the compartments 10, 20 in separated condition. The compartments 10, 20 can then be joined together, for instance by adhering or welding the inner side walls 13, 23 together.

In use, the consumer will pour drinks from one of the containers only. The other container(s) remain(s) closed, and will not lose carbon dioxide and hence will retain their quality. Only when the first container is empty, the consumer will address the second container, which at that moment still has the original quality as regards

carbonation. Further, in a compartment in use, the problem of loss of quality is reduced as compared to the standard sized bottle, simply because the individual compartments have a volume smaller than the standard sized bottle, i.e. the overall volume of the container assembly.

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It is noted that the bottle is typically made from plastic, specifically PET.

It should be clear to a person skilled in the art that the present invention is not limited to the exemplary embodiments discussed above, but that several variations and modifications are possible within the protective scope of the invention as defined in the appending claims. For instance, two or more functions may be performed by one single entity, unit or processor. Even if certain features are recited in different dependent claims, the present invention also relates to an embodiment comprising these features in common. Even if certain features have been described in combination with each other, the present invention also relates to an embodiment in which one or more of these features are omitted. Features which have not been explicitly described as being essential may also be omitted. Any reference signs in a claim should not be construed as limiting the scope of that claim.

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CLAIMS

1. Bottle assembly (1; 3) for carbonated drinks, having a height (H), a width (W) and a volume (V);
characterized in that the bottle assembly comprises multiple longitudinal compartments (10, 20) all having the same height (H), and each having a separate
5 closure (11, 21) at its top.
2. Bottle assembly according to claim 1, wherein the various compartments are formed as an integral whole, with at least one separation wall (2) being side wall to two adjacent compartments.
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3. Bottle assembly according to claim 1, wherein each compartment is self-contained, having its own dedicated side walls (13; 23).
4. Bottle assembly according to claim 3, wherein side walls of adjacent
15 containers are adhered or welded together.
5. Bottle assembly according to any of the previous claims, wherein each closure comprises a screw cap.
- 20 6. Bottle assembly according to any of the previous claims, wherein all compartments are mutually identical.
7. Bottle assembly according to any of the previous claims, wherein the overall assembly has shape and size substantially equal to a standard PET bottle for drinks,
25 particularly carbonated water or sodas or soft drinks.
8. Bottle assembly according to any of the previous claims, wherein all compartments are filled with the same drink.
- 30 9. Bottle assembly according to any of the previous claims, wherein compartments are filled with different drinks.

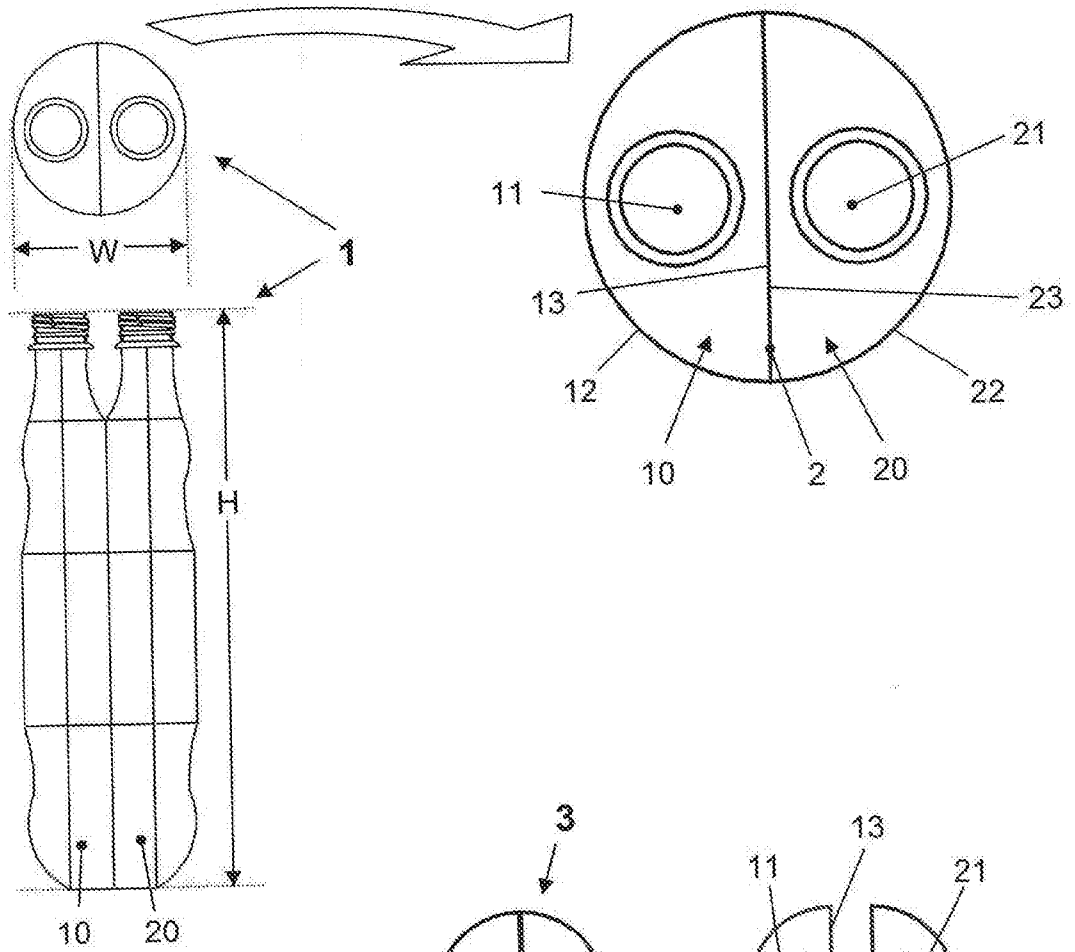


FIG. 1

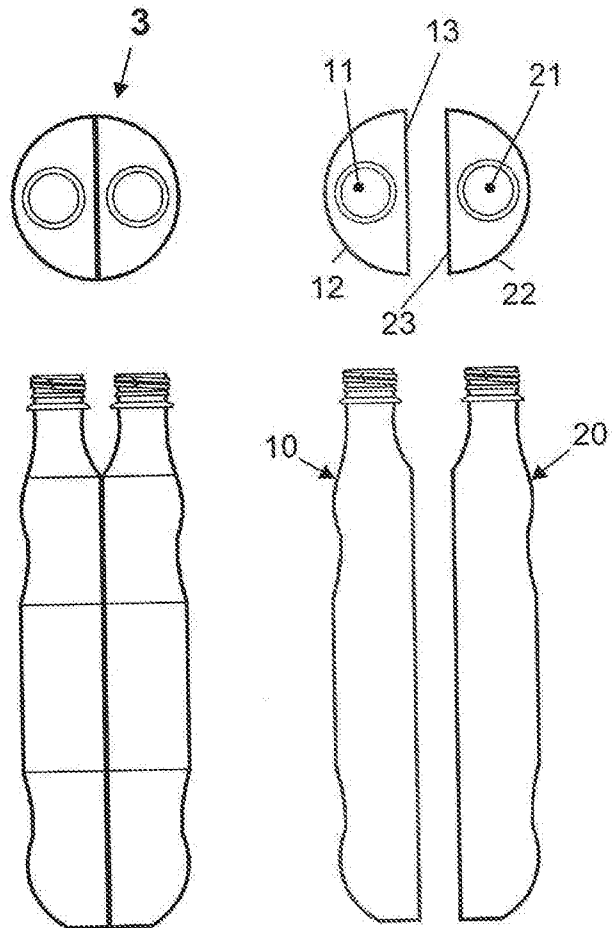


FIG. 2

FIG. 3

INTERNATIONAL SEARCH REPORT

International application No
PCT/NL2018/000011

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D21/02 B65D1/04
ADD.
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 practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011/253725 A1 (KILLIAN WILLIAM [US]) 20 October 2011 (2011-10-20) paragraph [0003] paragraph [0010] paragraph [0037] - paragraph [0042]; figure 1	1-9
X	US 2015/090712 A1 (WASHINGTON CYNTHIA [US] ET AL) 2 April 2015 (2015-04-02) paragraph [0037] - paragraph [0039]; figures 1, 2	1,3,5-9
X	US 6 325 229 B1 (ANDERS STUART [US]) 4 December 2001 (2001-12-04) claims 1-9; figures 1-2	1,3,5-9
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Mans-Kamerbeek, M
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INTERNATIONAL SEARCH REPORT

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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	WO 2007/040311 A1 (KIM BYEONG SOO [KR]) 12 April 2007 (2007-04-12) paragraph [0021] - paragraph [0025]; figures 4-6	1,3-6,8, 9
X	----- US D 539 167 S1 (GARRETT LAMILLS A [US]) 27 March 2007 (2007-03-27) figures 1-9	1,3,5,6
X	----- CH 19 289 A (MANEGOLD F W [DE]) 15 June 1900 (1900-06-15) column 1; figure 1 -----	1,3,4,6

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 2015090712	A1	02-04-2015	NONE

US 6325229	B1	04-12-2001	NONE

WO 2007040311	A1	12-04-2007	KR 200404793 Y1 28-12-2005
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US D539167	S1	27-03-2007	-----
CH 19289	A	15-06-1900	NONE
