

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number
WO 2005/063589 A1

(51) International Patent Classification⁷: **B65D 33/02**,
75/00

(21) International Application Number:
PCT/EP2004/012433

(22) International Filing Date:
3 November 2004 (03.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
P 200303073 30 December 2003 (30.12.2003) ES

(71) Applicant (for all designated States except US): **VOL-PAK, S.A.** [ES/ES]; 4, calle Can Vinyalets, (Pol.Ind. C.Vinyalets), E-08130 Santa Perpetua de Mogoda (ES).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **FIGOLS GAMIZ, Ramon** [ES/ES]; 4, calle Can Vinyalets, (Pol.Ind. C.Vinyalets), E-08130 Santa Perpetua de Mogoda (ES).

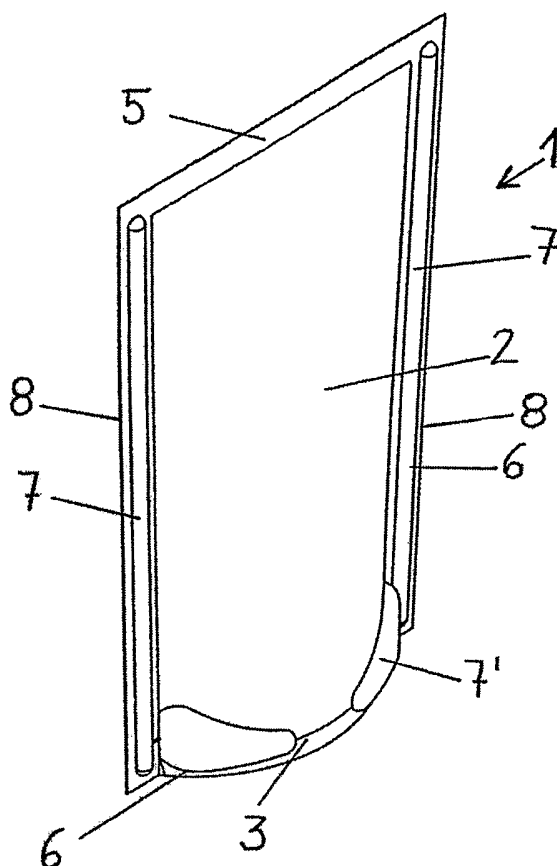
(74) Agent: **SUGRAÑES-VERDONCES-FERREGÜELA**; Calle Provenza, 304, E-08008 Barcelona (ES).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: CONTAINER OF FLEXIBLE MATERIAL



(57) Abstract: Container formed from a flexible flaccid sheet-like material (1), particularly applicable for containing formless products or products lacking consistency, comprising a hermetically sealed hollow body (2), designed to enclose the product contained in the container and which is formed from a base (3), at least one side wall (4) and an upper closed portion (5), wherein a product dispensing outlet may be arranged. The container (1) is provided with a stiffening element (6) which comprises at least one hermetically sealed cavity (7) of any configuration. The stiffening element (6) extends from at least one part of the base to at least one part of the edge (8) of the side wall, and a fluid or a powdered material, at sufficient pressure to stiffen the container is placed therein.



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

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.

- 1 -

DESCRIPTION

"Container of flexible material"

5 Technical field of the invention

The present invention relates to a container formed from a flexible flaccid sheet-like material, being especially applicable for containing formless products or products lacking consistency, said container comprising a hermetically sealed cavity, designed to enclose the product contained in the container and which is
10 formed from a base, at least one side wall and an upper closed portion, which may have a product dispensing outlet.

Background of the Invention

Containers formed from flexible materials which contain liquids or formless
15 substances therein are widely known. For example, drink containers, cosmetic products and/or products for clinical use, granulated food, etc, etc. They are generally formed so that they comprise a base and side walls, which together form a hermetic cavity. The container can stand upright when it is full of the product it contains. The liquid or formless substance is dispensed by cutting the upper part of
20 the container or using a cap, in general, also arranged on the upper part of the container.

The containers of this type have the advantage that they adapt to the form or content of the liquid or substance they comprise, they are easier to transport and better use is made of the space where they are displayed or stored.

25 Nevertheless, containers formed from flexible materials have some drawbacks due to their flaccid constitution, which makes them difficult to handle. One of said drawbacks is that the containers lose stability as the product is consumed, so that they only stand upright when they are full of the product contained. Another of the drawbacks is that they are awkward to hold as they lose
30 shape when they are lightly squeezed.

Furthermore, the opening operation thereof involves the involuntary spilling of the product contained due to the fact that, when the container is held or squeezed, it loses shape, the product spilling very easily out of the opening.

To overcome some of said problems, there are containers provided with
35 stiffening elements, such as rigid-polymer wire or rods, which are adhered to the flexible material which forms the container.

- 2 -

Another way of avoiding the container from bending or twisting as its content is emptied, consists of performing non-linear welding between the flexible sheets which form the container, or on the sheet if it is a container manufactured from a folded flexible sheet. An embodiment of this type is disclosed in patent US 5,971,613 of Bell, but, in this case, it does not resolve the problem of being able to easily handle the container without the content spilling out due to picking it up or holding it.

On the market, one can also find containers stiffened by welding combined with the folding of the material. An example of this type of container is that disclosed in patent US 5,352,043.

An alternative to all the containers disclosed up to the present, consists of the food bag disclosed in patent US 5,137,154. This patent presents a structure of a food bag which comprises two superimposed sections designed to contain food, and elongated stiffening compartments, arranged on the edges of the bag, containing a low-pressure gas therein. With this configuration, the cavities with food, placed on top of one another, are kept in a vertical upright position to avoid the food, mainly solids like crisps, nuts and dried fruit, dry pasta, etc., from being broken into pieces due to the weight the upper cavity exerts on the lower one, or due to the handling and storage of the containers.

The container of flexible flaccid material object of the present invention provides solutions for the problems raised, provided with the required rigidity and easy to produce and handle.

Explanation of the invention

The container formed from a flexible flaccid material applicable for containing formless products object of the invention, is characterized in that is provided with a stiffening element which comprises at least one hermetically sealed cavity of any configuration, the stiffening element extending from at least one part of the base to at least one part of the side wall edge, and a fluid or powdered material being placed inside said cavity, at sufficient pressure to stiffen the container.

According to another characteristic of the invention, the stiffening element comprises at least one first hermetically sealed cavity, totally or partially arranged throughout the length of the side wall edge, and a second independent cavity, totally or partially arranged on the base of the body.

The container of flexible flaccid sheet-like material, object of the invention, is also characterized in that it comprises a base and two side walls, the hermetically

- 3 -

sealed cavities containing fluid or powdered material, throughout the length of the wall edges, and ending in at least one part of the base.

Brief description of the drawings

- 5 The attached drawings illustrate, by way of non-limiting example, containers of flexible flaccid material according to the invention, being able to observe their characteristics and advantages therein, as well as facilitating the understanding of the invention. In said drawings:
- Fig. 1 represents a perspective view of a container according to the invention;
- 10 Fig. 2 is a side elevation view of the container; and
- Fig. 3 corresponds to a diagram of the base of the flexible sheet container in accordance with the invention.

Detailed description of the drawings

- 15 In the attached drawing it can be observed that a container of flexible flaccid sheet-like material 1 comprises a hermetically sealed hollow body 2, whose function is for containing products which are formless or lacking consistency therein. The hollow body 2 is formed from a base 3 and by at least one side wall 4. The hollow body 2 is also provided with an upper closed portion 5 wherein, although not represented, it may have a product dispensing outlet.
- 20

- In accordance with Figs 1 to 3, the container 1 is provided with a stiffening element 6 which comprises at least one hermetically sealed cavity 7, which extends from at least one part of the base 3 to at least one part of the side wall edge 8. Said hermetically sealed cavity 7 may be of any configuration and is designed to contain
- 25 a fluid or a powdered material therein, at sufficient pressure to stiffen the container 1 and keep it in an upright vertical position.

- The hermetically sealed cavity 7 of the stiffening element 6 contains, in a preferred embodiment, a fluid such as a gas, which is generally air. Liquid fluids or powdered products, such as sand or any other granulated element, can also be
- 30 used. The arrangement of gas or sand exerting pressure on the walls of the hermetically sealed cavity 7, permits it to be in an expanded upright position, maintaining, in turn, the container 1 in upright position.

- With a stiffening element 6 like that which comprises the container 1, arranged on at least one part of the base 3 and at least one part of the side wall
- 35 edge 8, it is achieved that the container 1 is always in an upright position as the content thereof is emptied, and is not spilled by the user grasping the container 1.

- 4 -

In accordance with the representation of Fig. 1, which corresponds to a diagrammatic perspective view of the container 1 according to the invention, it can be observed that the stiffening element 6 consists of first independent cavities 7 arranged along the edges 8 of the container side wall 4. The container 1 represented also comprises second cavities 7' on the base 3 thereof, also independent from one another and, in turn, from the first cavities 7. The array of cavities 7 and 7', facilitates that the container is always kept in a vertical upright position, and that the base 3 thereof is expanded even when there is no more formless product inside.

The case represented in the figures, and as can be observed in Figs 1 and 2, corresponds to a container formed from a flexible flaccid sheet-like material 1 which comprises a base 3 and two side walls 4 joined together by longitudinal edges 8. On the base 3, four hermetically sealed cavities 7' have been arranged which, when filled with a pressurized fluid or powder, are expanded, in turn, expanding the base 3. Likewise, when the hermetically sealed cavities 7, arranged along the length of the edges 8 of the walls 4, contain said pressurized fluid or powder, the side walls 4 are completely expanded, avoiding unwanted bending which may cause the container 1 to lose shape and collapse due to the weight decompensation or distribution of the product contained.

Fig. 3 represents an example of the base 3 of the container 1 according to the invention. In this case, the stiffening element 6 consists of two hermetically sealed cavities 7', arranged at the ends of the base 3; and in two cavities 7, independent from the first, arranged on the edges 8. In the case represented, the cavities 7' only extend partially along the surface and perimeter of the base 3. Nevertheless, containers 1 provided with hermetically sealed cavities 7 which extend throughout the surface and perimeter of the base 3, as a double bottom or base of the container, are also object of the invention.

It is provided that, if desired, the cavities 7 arranged along the edges are connected to the adjacent cavities 7' on the container base 3, to form a single cavity and single working pressure.

The manufacturing process of the container 1 according to the invention, consists of the general process of manufacturing containers from sheet-like material, which is folded, cut and heat-sealed to form the useful configuration to be able to contain the products of interest. During the configuration process of the container 1, the volumes which will form the stiffening element 6 are created and, preferably, said volumes are filled with pressurized air and their ends immediately welded to

- 5 -

form, in this way, the hermetically sealed cavities 7.

Naturally, this technical solution of providing a container formed from a flexible flaccid sheet-like material 1 with a stiffening element 6 which comprises at least one hermetically sealed cavity 7 with a pressurized element therein, is
5 applicable to any form, material or size of container 1 without, due to this, due to this departing from the object of the invention.

CLAIMS

1. Container formed from flexible flaccid sheet-like material (1), particularly applicable for containing formless products or products lacking consistency, said
5 container comprising a hermetically sealed hollow body (2), designed to enclose the product contained in the container and which is formed from a base (3), at least one side wall (4) and an upper closed portion (5), wherein a product dispensing outlet may be arranged, characterized in that it is provided with a stiffening element (6) which comprises at least one hermetically sealed cavity (7) of any configuration, the
10 stiffening element stretching from at least one part of the base to at least one part of the edge (8) of the side wall, and a fluid or powdered material being placed inside said cavity, at sufficient pressure to stiffen the container.
2. Container according to claim 1, characterized in that the stiffening element
15 (6) comprises at least one first hermetically sealed cavity (7), totally or partially arranged throughout the length of the edge of the side wall (8), and a second independent cavity (7'), totally or partially arranged on the base (3) of the body.
3. Container according to any of the preceding claims, characterized in that it
20 comprises a base (3) and two side walls (4), said hermetically sealed cavities (7) containing fluid or powdered material extending throughout the length of the wall edges (8), and finishing in at least one part of the base (3).
4. Container according to claim 1, characterized in that the hermetically sealed
25 cavity (7) arranged from at least one part of the base (3) consists of an independent cavity, as a double bottom or base of the container.

1 / 1

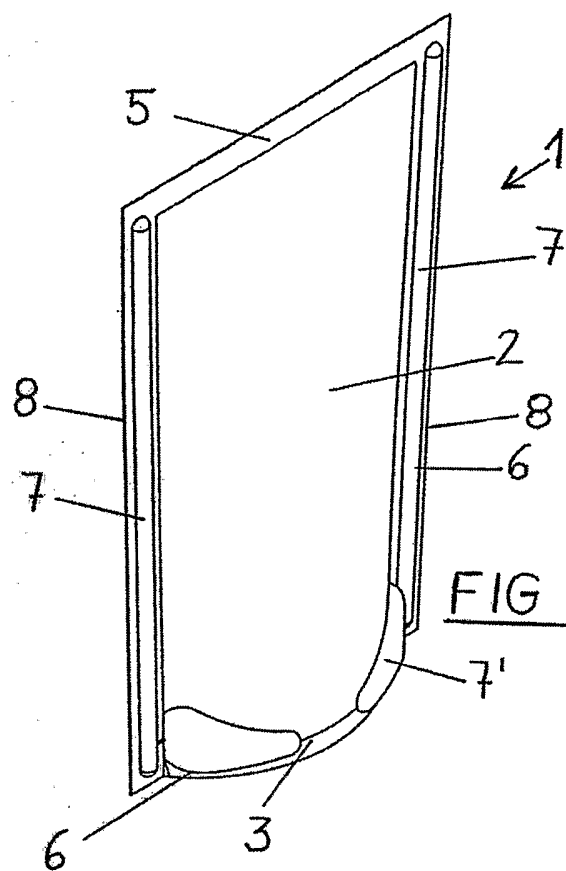


FIG 1

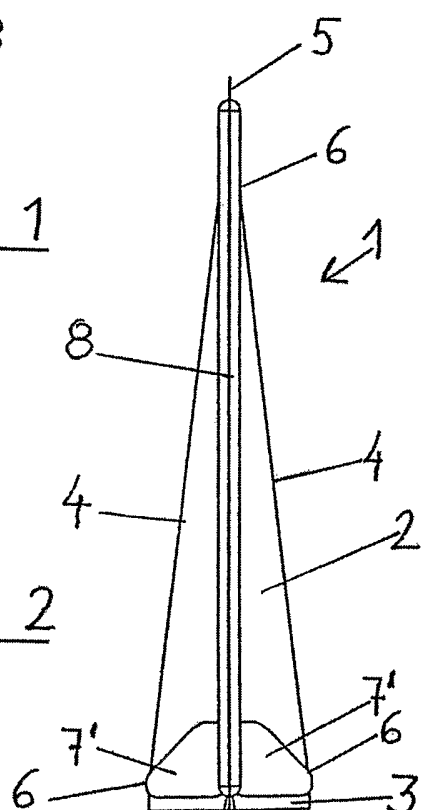


FIG 2

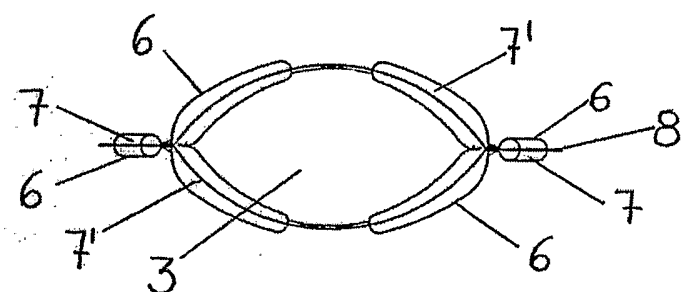


FIG 3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/012433

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65D33/02 B65D75/00

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 7 B65D B31B

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.
X	WO 02/085729 A1 (ECO LEAN RESEARCH & DEVELOPMENT A/S; ROSEN, AAKE) 31 October 2002 (2002-10-31) page 5, line 35 - page 10, line 16 figures 1-3	1,3
X	US 4 384 603 A (TYRER ET AL) 24 May 1983 (1983-05-24) column 3, line 32 - column 4, line 42 figures 1,2	1-4
X	WO 03/051740 A2 (CRYOVAC, INC; PALUMBO, RICCARDO; SANTAGOSTINO, STEFANO; FERRI, ISABELL) 26 June 2003 (2003-06-26) page 3, line 22 - page 6, line 9 figures 1-4	1-4
	----- -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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.
- *&* document member of the same patent family

Date of the actual completion of the international search

1 February 2005

Date of mailing of the international search report

11/02/2005

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,
Fax: (+31-70) 340-3016

Authorized officer

Fitterer, J

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/012433

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 5 791 485 A (CARBONNEAU ET AL) 11 August 1998 (1998-08-11) column 3, line 36 - column 4, line 1 column 5, line 1 - line 8 figures 1,2 -----	1-4
X	US 5 950 833 A (JAMES ET AL) 14 September 1999 (1999-09-14) column 8, line 49 - column 10, line 58 figures 1-11 -----	1,3
X	US 6 244 466 B1 (N&AUMI ET AL) 12 June 2001 (2001-06-12) column 3, line 57 - column 6, line 6 figures 1-5 -----	1,3
X	US 5 137 154 A (COHEN ET AL) 11 August 1992 (1992-08-11) cited in the application column 2, line 35 - column 3, line 11 figure -----	1,3

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/012433

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 02085729	A1	31-10-2002	SE 518406 C2 AT 286477 T BR 0205098 A CA 2411496 A1 CN 1462252 T EP 1383686 A1 HU 0301328 A2 JP 2004520240 T PL 358120 A1 SE 0101440 A TW 508335 B US 2004035865 A1	08-10-2002 15-01-2005 18-03-2003 31-10-2002 17-12-2003 28-01-2004 28-08-2003 08-07-2004 09-08-2004 08-10-2002 01-11-2002 26-02-2004
US 4384603	A	24-05-1983	AU 6668481 A DK 37481 A EP 0034419 A2 FI 810227 A GB 2067972 A ,B NO 810293 A	06-08-1981 29-07-1981 26-08-1981 29-07-1981 05-08-1981 29-07-1981
WO 03051740	A2	26-06-2003	EP 1321380 A1 AU 2002364972 A1 CA 2470292 A1 EP 1465816 A2	25-06-2003 30-06-2003 26-06-2003 13-10-2004
US 5791485	A	11-08-1998	NONE	
US 5950833	A	14-09-1999	NONE	
US 6244466	B1	12-06-2001	AT 283801 T AU 724450 B2 AU 3637097 A BR 9710267 A CA 2259921 A1 CN 1228744 A ,C DE 69731839 D1 EP 0929457 A1 HK 1021356 A1 JP 2000514385 T KR 2000022409 A PL 331050 A1 RU 2181095 C2 WO 9801354 A1 TR 9900015 T2 ZA 9706078 A	15-12-2004 21-09-2000 02-02-1998 10-08-1999 15-01-1998 15-09-1999 05-01-2005 21-07-1999 26-07-2002 31-10-2000 25-04-2000 21-06-1999 10-04-2002 15-01-1998 21-04-1999 02-02-1998
US 5137154	A	11-08-1992	NONE	