(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 950 522 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
09.02.2022 Bulletin 2022/06

(21) Application number: **20472009.8**

(22) Date of filing: **04.08.2020**

(51) International Patent Classification (IPC):
B65D 5/06 *(2006.01)* ***B65D 5/60*** *(2006.01)*
B65D 5/66 *(2006.01)* ***B65D 5/74*** *(2006.01)*
B65D 77/06 *(2006.01)*

(52) Cooperative Patent Classification (CPC):
B65D 5/60; B65D 5/067; B65D 5/66; B65D 5/746; B65D 77/065

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(71) Applicant: **FORT OOD**
4004 Plovdiv (BG)

(72) Inventor: **Chakov, Todor Simeonov**
4108 s. Markovo, Plovdiv (BG)

(54) **ASSEMBLY FOR USE IN THE MANUFACTURE OF GABLE TOP CONTAINERS**

(57) The invention relates to an assembly for use in the manufacture of gable top containers being well recyclable, which can be applied in the food industry and more particular in the production of packaging for liquid, beverage or other goods. The assembly for use in the manufacturing of a gable top containers consists of a blank (1) and a pouch (2). The pouch (2) is adhered to the blank (1) in heat sealing dots, which are applied in equal intervals on the first side (A) of the blank (1). The blank 1 is further coated with adhesive in heat sealing layers (21, 22) on the first side (A) and on the second side (B) of the blank (1).

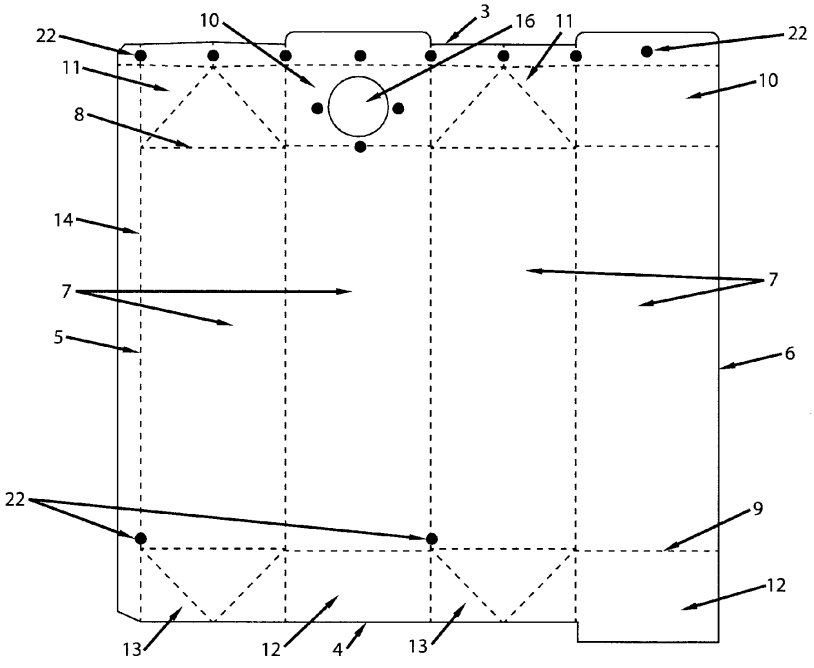

FIG. 2

EP 3 950 522 A1

Description

Technical filed

[0001] The invention relates to an assembly for use in the manufacture of gable top containers, which can be applied in the food industry and more particularly in the production of packaging for liquid, beverage or other good.

Background

[0002] The gable top containers are well known for a long time and have become very popular. Many containers, used to hold liquids and foodstuffs, are made from a packaging laminate such as laminated paperboard or cardboard. These laminates typically include a thin layer of a plastics material such as polyethylene covering at least one side of a sheet of paperboard or other fibre-based material. The laminate is folded to form the container, so that the plastics layer is on the inside and provides a barrier layer, that prevents the content of the container from coming into contact with the paperboard. These containers are not easy to be recycled due to the intimate bond between the plastics layer and the paperboard. The whole container, therefore, typically ends up in landfill.

[0003] An assembly for use in the manufacture of gable top containers is disclosed in patent document EP3204313. The known assembly consists of blank and pouch. The blank of the assembly has two sides and is made from a sheet of paperboard. The blank has top edge, bottom edge and two side edges and includes four wall panels, each having top edge and bottom edge. The wall panels are arranged adjacent to each other across the blank. The blank has gable panels and top gusset panels, which are extended from top edges of the wall panels and the blank has base panels and bottom gusset panels, which are extended from the bottom edges of the wall panels. The blank has also three tabs, which are extended from the first wall panel and four fin panels, which additionally extended from gable panels and top gusset panels. The top edge of the blank is defined from the edges of the fin panels, and the bottom edge is defined from the edges of the bottom gusset panels and base panels. The first side edge is defined from the side edges of first fin panel, first wall panel and first bottom gusset panel, and the second side edge is defined from the side edges of last fin panel, last wall panel and last base panel. The blank has an aperture for spout element in the first gable panel. The pouch has an opening with perimeter, which is equal to the distance between opposing side edges of the blank. The pouch has an aperture for spout element and the pouch is adhered to first side of the blank, so that both apertures for spout element are aligned to each other. The known assembly for use in the manufacture of gable top containers has a line of weakness, extending around at least part of the periphery of the assembly and defining a first portion of the gable top container on one side of said line of weakness and a second portion of the container on the other side of said line of weakness. The line of weakness is permitting the first portion of the container, made from the known assembly, to be separated from the second portion.

[0004] The known assembly for use in the manufacture of gable top containers from EP3204313 permits recycling of at least part of the container, made out of it, so the gable top container is not suitable to be fully recycled. After separating the first portion from the second portion, part of the cardboard of the blank remains firmly glued to the pouch. These parts of the assembly cannot be recycled without the intervention of a consumer, who must separate the cardboard from the assembly, wherein in most cases the adhesive and the cardboard remain on the pouch.

Summary of the invention

[0005] It is an object of the present invention to provide an improved assembly for use in the manufacture of gable top containers, that can make the container fully recyclable.

[0006] The present invention discloses an assembly for use in the manufacture of gable top containers, which consists of blank and pouch. The blank has two sides and is made from a sheet of paperboard. The blank has top edge, bottom edge and two side edges and includes four wall panels, each having top edge and bottom edge, so that the wall panels are arranged adjacent to each other across the blank. Furthermore, the blank has gable panels and top gusset panels, which are extended from top edges of the wall panels and the blank has also base panels and bottom gusset panels, which are extended from the bottom edges of the wall panels. The blank has tab and four fin panels, which are extended from the edges of gable panels and top gusset panels. The top edge of the blank is defined from the top edges of the fin panels. The bottom edge of the blank is defined from the bottom edges of the bottom gusset panels and base panels. The first side edge is defined from the side edges of the first fin panel, the first wall panel and the first bottom gusset panel. The second side edge is defined from the side edges of the last fin panel, the last wall panel and the last base panel. The blank has an aperture for spout element in the first gable panel. The pouch has an opening with perimeter, which is equal to the distance between opposing side edges of the blank, and the pouch has an aperture for the spout element. The pouch is adhered to the first side of the blank, so that both apertures for the spout element are aligned to each other.

[0007] According to the present invention the tab is extended from the first side edge of the blank and has length, equal to the distance between the top and bottom edge. The pouch is adhered to the blank in heat sealing dots, which are applied in equal intervals on the first side of the blank in such a way, that the heat sealing dots are

placed:

- between the tab and the first fin panel;
- between every two fin panels;
- in the middles of each fin panel, so that one of the heat sealing dots is above the aperture of the blank.

[0008] Three more heat sealing dots are placed circularly around the aperture of the blank, so that each one of them is offset by an angle of 90° from the previous one and the first one of them is offset by an angle of 90° from that heat sealing dot, which is placed above the aperture of the blank.

[0009] The blank is coated with adhesive in heat sealing layers, wherein the first heat sealing layers are of strip type and are applied:

- in the top corners of the gable panels on the first side of the blank;
- along the last base panel on the side of the bottom edge on the first side of the blank;
- in the both ends of the fin panels of the top gusset panels on the second side of the blank.

[0010] The second heat sealing layers are applied in bottom corners of base panels on the second side of the blank in such a way, that the second heat sealing layers are forming triangle areas, which are defined between top corners, bottom corners and the middles of the bottom edges of bottom gusset panels.

[0011] The both side edges are bonded together, using the tab, along which there is additional heat sealing layer on the second side of the blank.

[0012] In embodiment of the assembly for use in the manufacture of gable top containers, there are additional heat sealing dots on the first side of the blank, placed between the tab and first wall panel and between second and third wall panels, which are placed next to the bottom edge of the wall panels.

[0013] In another embodiment, the pouch is made from laminated polymeric or metallic material.

[0014] In another embodiment of the assembly for use in the manufacture of gable top containers, the adhesive for all heat sealing dots and layers is water based or is one of the following: Vinyl Acetate Ethylene (VAE), Ethylene-vinyl acetate (EVA), Polyurethane (PU), Polyvinyl alcohol (PVOH) or Polyvinyl acetate (PVA).

Brief description of the drawings

[0015] Embodiments of the present invention are illustrated by way of example and not limitation in the figures of the accompanying drawings, and in which:

FIG. 1 is an illustration view of the blank and pouch for making the assembly for use in the manufacturing of a gable top containers according to the present invention;

FIG. 2 is showing the blank for forming the gable top containers according to the present invention and the heat sealing dots for adhesion of a pouch to the blank;

FIG. 3 is the blank of FIG. 2 showing first side of the blank with heat sealing layers;

FIG. 4 is the blank of FIG. 2 showing second side of the blank with heat sealing layers;

FIG. 5 is showing an illustration view of the assembly for use in the manufacturing;

FIG. 6 is a perspective view of a partially assembled container, according to the present invention;

FIG. 7 is an exploded view of a part of a container, according to the present invention, showing the folded blank, the pouch and the spout element of the gable top container;

FIG. 8 is a perspective view of the opening of empty gable top container, made from the assembly, according to the present invention;

FIG. 9 is a perspective view of the separating of the pouch from the gable top container.

Detailed description

[0016] Reference is made to the drawings that illustrate exemplary embodiments of the present invention. FIG. 1 represents illustration view of the assembly for use in the manufacturing of a gable top containers, which consists of blank 1 and pouch 2. The blank 1 has two sides A, B and is made from a sheet of paperboard. The blank 1 is made from unlaminated paperboard material and the pouch 2 is designed to hold a liquid or foodstuff within the container. The pouch 2 may be made from a suitable laminated polymeric or metallic material and may have different shapes, for example: squire, oval, round or any other, known in the art. FIG. 2 illustrates the blank 1, which has top edge 3, bottom edge 4 and two side edges 5, 6 and includes four wall panels 7, each having top edge 8 and bottom edge 9. The wall panels 7 are arranged adjacent to each other across the blank 1.

[0017] Furthermore, as is shown on Fig. 2, the blank 1 has similar construction as the ones, known from the state of the art. The blank 1 includes gable panels 10 and top gusset panels 11, which are extended from top edges 8 of the wall panels 7. The blank 1 has also base panels 12 and bottom gusset panels 13, which are extended from the bottom edges 9 of the wall panels 7. The blank 1 has tab 14 and four fin panels 15. The four fin panels 15 are extended from the free edges of gable panels 10 and top gusset panels 11. The top edge 3 of the blank 1 is defined from the free top edges of the fin panels 15.

The bottom edge 4 of the blank 1 is defined from the free bottom edges of the bottom gusset panels 13 and base panels 12. The first side edge 5 is defined from the free side edges of first fin panel 15, first wall panel 7 and first bottom gusset panel 13. The second side edge 6 is defined from the free side edges of last fin panel 15, last wall panel 7 and last base panel 12. The blank 1 has an aperture 16 for spout element 17 in the first gable panel 10. The pouch 2 has an opening 18 with perimeter, which is equal to the distance between opposing side edges 5,6 of the blank 1. The pouch 2 has also an aperture 19 for the spout element 17. The pouch 2 is adhered to the first side A of the blank 1, so that both apertures 16, 19 for the spout element 17 are aligned to each other. The tab 14 is extended from the first side edge 5 of the blank 1 and has length, equal to the distance between the top edge 3 and bottom edge 4.

[0018] The pouch 2 is adhered to the blank 1 in heat sealing dots 20 (shown on FIG. 2), which are applied in equal intervals on the first side A of the blank 1 in such a way, that the heat sealing dots 20 are placed:

- between the tab 14 and the first fin panel 15;
- between every two fin panels 15;
- in the middles of each fin panel 15, so that one of the heat sealing dots 20 is above the aperture 16 of the blank 1.

[0019] Three more heat sealing dots 20 are placed circularly around the aperture 16 of the blank 1, so that each one of them is offset by an angle of 90° from the previous one and the first one of them is offset by an angle of 90° from that heat sealing dot 20, which is placed above the aperture 16 of the blank 2.

[0020] The blank 1 is coated with adhesive in heat sealing layers 21, 22 (shown grey on FIG. 3 and 4), wherein the first heat sealing layers 21 are of strip type and are applied:

- in the top corners of the gable panels 10 on the first side A of the blank 1;
- along the last base panel 12 on the side of the bottom edge 4 on the first side A of the blank 1;
- in the both ends of the fin panels 15 of the top gusset panels 11 on the second side B of the blank 1.

[0021] The second heat sealing layers 22 are applied in bottom corners of base panels 12 on the second side B of the blank 1 in such a way, that the second heat sealing layers 22 are forming triangle areas, which are defined between top corners, bottom corners and the middles of the bottom edges of bottom gusset panels 13.

[0022] In embodiment of the assembly for use in the manufacture of gable top containers (shown on FIG. 2), there are additional heat sealing dots 20' on the first side A of the blank 1, placed between the tab 14 and first wall panel 7 and between second and third wall panels 7, which are placed next to the bottom edge 9 of the wall panels 7.

[0023] In one another embodiment of the assembly for use in the manufacture of gable top containers, the adhesive for all heat sealing dots and layers 20, 20', 21, 22 and 23 is water based or is one of the following: Vinyl Acetate Ethylene (VAE), Ethylene-vinyl acetate (EVA), Polyurethane (PU), Polyvinyl alcohol (PVOH) or Polyvinyl acetate (PVA).

[0024] The assembly (as shown on Fig. 5) is ready for use in the manufacture of gable top containers, when the both side edges 5,6 are bonded together, using the tab 14, along which there is additional heat sealing layer 23 on the second side B of the blank 1 (shown in grey on FIG. 4) and the pouch 2 is adhered to the blank 1 in heat sealing dots 20, which are placed in the area of adhesion around the opening 18 (shown on Fig. 3). More importantly the area of adhesion around the apertures 16, 19 is also has four heat sealing dots 20, placed on the blank 1. In one embodiment of the assembly, there are additional heat sealing dots 20' on the blank 1, which are sustaining more reliable the pouch 2 to the blank 1. The pouch 2 is adhered to the blank 1 in all heat sealing dots 20 and 20'.

[0025] The gable top container is formed by the assembly (shown on Fig. 5), according to the present invention, wherein during the construction process of the container, the tab 14 on the first side edge 5 is bonded to the last wall panel 7, the gable panel 10 and base panel 12, respectively to the opposite side edge 6 to form a tube or sleeve (shown on FIG. 6). The apertures 16, 19 forms the dispensing aperture of the constructed container, through which the spout element 17 extends. The spout element 17 is adhered to the inner side of the pouch 2 in any suitable way, known from the state of the art. The opening 18 of the pouch 2 is providing access to an internal volume of the container, through which and liquid, beverage or other goods may be filled and held within the pouch 2 of the container. The pouch 2 is preferably made from a thin sheet of a plastics material, such as polyethylene or ethylene vinyl alcohol (EVOH), or a metal foil material or from a suitable laminate material and is made as known from the state of the art.

[0026] Further the construction of the gable top container from the claimed assembly as illustrated on Fig. 5, 6 and 7, according to the present invention, is executed as known from the state of art, wherein to fully form the gable-top, it is also necessary to bond together:

- the heat sealing layers 21, placed in the top corners of the gable panels 10, along the last base panel 12 and in both ends of the fin panels 15;
- the heat sealing layers 22, placed in bottom corners of base panels 12;
- the heat sealing layer 23, placed along the tab 14.

[0027] The adhesive for all heat sealing dots and layers (20, 20', 21, 22 and 23) may be water based or is one of the following: Vinyl Acetate Ethylene (VAE), Ethylene-

vinyl acetate (EVA), Polyurethane (PU), Polyvinyl alcohol (PVOH) or Polyvinyl acetate (PVA). The most important is the bond strength. The pouch 2 should be glued to the blank 1 in such a way, that it should allow to be easily removed from the blank 1, when the consumer pull it up. The force for unsealing the container must be between 0,1 - 0,9 N per 15 mm strip, if it is used standard for seal strength ASTM F-88. The force of unsealing may be adjusted with different thicknesses of the adhesive of all heat sealing dots 20 and 20'. The way of applying the adhesive in heat sealing dots and layers 20, 20', 21, 22 and 23 additionally helps to ease the separation of the pouch 2 from the blank 1. Once the consumer has finished using the gable top container, the pouch 2 can be separated from the blank 1, so that the pouch 2 and the blank 1 can be fully separated from each other and disposed of or recycled separately as shown on FIG. 8 and 9.

Claims

1. An assembly for use in the manufacture of gable top containers, which consists of blank (1) and pouch (2), wherein the blank (1) has two sides (A and B) and is made from a sheet of paperboard, so that the blank (1) has top edge (3), bottom edge (4) and two side edges (5 and 6) and includes four wall panels (7), each having top edge (8) and bottom edge (9), so that the wall panels (7) are arranged adjacent to each other across the blank (1), furthermore the blank (1) has gable panels (10) and top gusset panels (11), which are extended from the top edges (8) of the wall panels (7) and the blank (1) has also base panels (12) and bottom gusset panels (13), which are extended from the bottom edges (9) of the wall panels (7), wherein the blank (1) has tab (14) and four fin panels (15), which are extended from gable panels (10) and top gusset panels (11), wherein the top edge (3) of the blank (1) is defined from top edges of the fin panels (15), the bottom edge (4) of the blank (1) is defined from bottom edges of the bottom gusset panels (13) and base panels (12), the first side edge (5) is defined from the side edges of first fin panel (15), first wall panel (7) and first bottom gusset panel (13) and the second side edge (6) is defined from the side edges of last fin panel (15), last wall panel (7) and last base panel (12), wherein the blank (1) has an aperture (16) for spout element (17) in the first gable panel (10) and the pouch (2) has an opening (18) with perimeter, which is equal to the distance between opposing side edges (5, 6) of the blank (1), wherein the pouch (2) has an aperture (19) also for the spout element (17) and the pouch (2) is adhered to the first side (A) of the blank (1), around the opening (18), so that both apertures (16) and (19) for the spout element (17) are aligned to each other, **characterized in, that** the tab (14) is extended from the first side edge (5) of the blank (1) and has length, equal to the distance between top edge (3) and bottom edge (4) and the pouch (2) is adhered to the blank (1) in heat sealing dots (20), which are applied in equal intervals on the first side (A) of the blank (1) in such a way, that the heat sealing dots (20) are placed:

- between the tab (14) and the first fin panel (15);
- between every two fin panels (15);
- in the middles of each fin panel (15), so that one of the heat sealing dots (20) is right above the aperture (16) of the blank (1),

and three more heat sealing dots (20) are placed circularly around the aperture (16) of the blank (1), so that each one of them is offset by an angle of 90° from the previous one and the first one of them is offset by an angle of 90° from that heat sealing dot (20), which is placed above the aperture (16), furthermore the blank (1) is coated with adhesive in heat sealing layers (21, 22), wherein the first heat sealing layers (21) are of strip type and are applied:

- in the top corners of the gable panels (10) on the first side (A) of the blank (1);
- along the last base panel (12) on the side of the bottom edge (4) on the first side (A) of the blank (1);
- in the both ends of the fin panels (15) of the top gusset panels (11) on the second side (B) of the blank (1),

and the second heat sealing layers (22) are applied in bottom corners of base panels (12) on the second side (B) of the blank (1) in such a way, that the second heat sealing layers (22) are forming triangle areas, which are defined between top corners, bottom corners and the middles of the bottom edges of bottom gusset panels (13), wherein the both side edges (5, 6) are bonded together, using the tab (14), along which there is additional heat sealing layer (23) on the second side (B) of the blank (1).

2. An assembly for use in the manufacture of gable top containers, according to claim 1, **characterized in, that** on the first side (A) of the blank (1) there are additional heat sealing dots (20'), placed between the tab (14) and first wall panel (7) and between second and third wall panels (7), which are placed next to the bottom edge (9) of the wall panels (7).

3. An assembly for use in the manufacture of gable top containers, according to claims 1 and 2, **characterized in, that** the pouch (2) is made from laminated polymeric or metallic material.

4. An assembly for use in the manufacture of gable top containers, according to claims from 1 to 3, **charac-**

terized in, that the adhesive for all heat sealing dots and layers (20, 20', 21, 22 and 23) is water based or is one of the following: Vinyl Acetate Ethylene (VAE), Ethylene-vinyl acetate (EVA), Polyurethane (PU), Polyvinyl alcohol (PVOH) or Polyvinyl acetate (PVA).

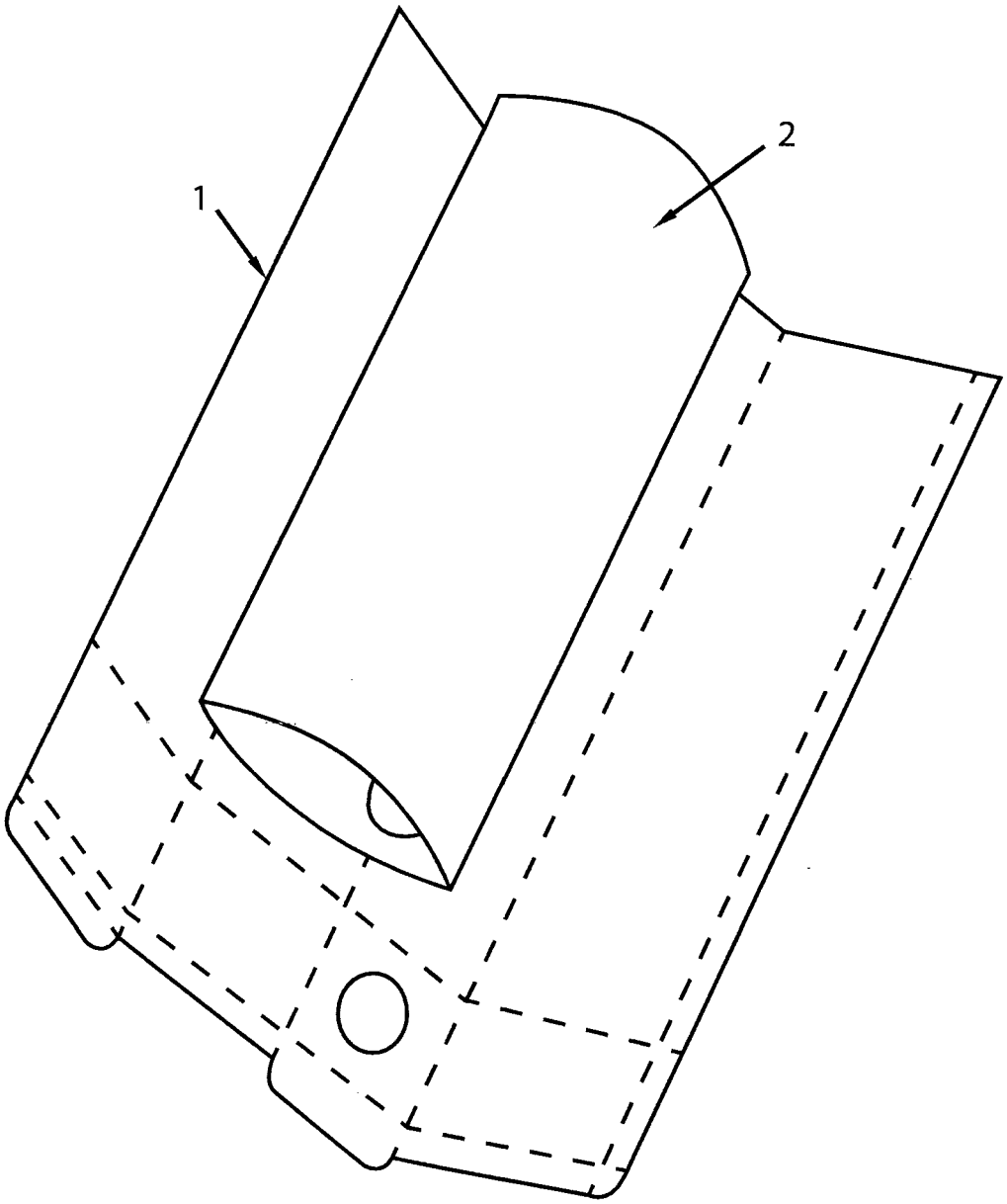

FIG. 1

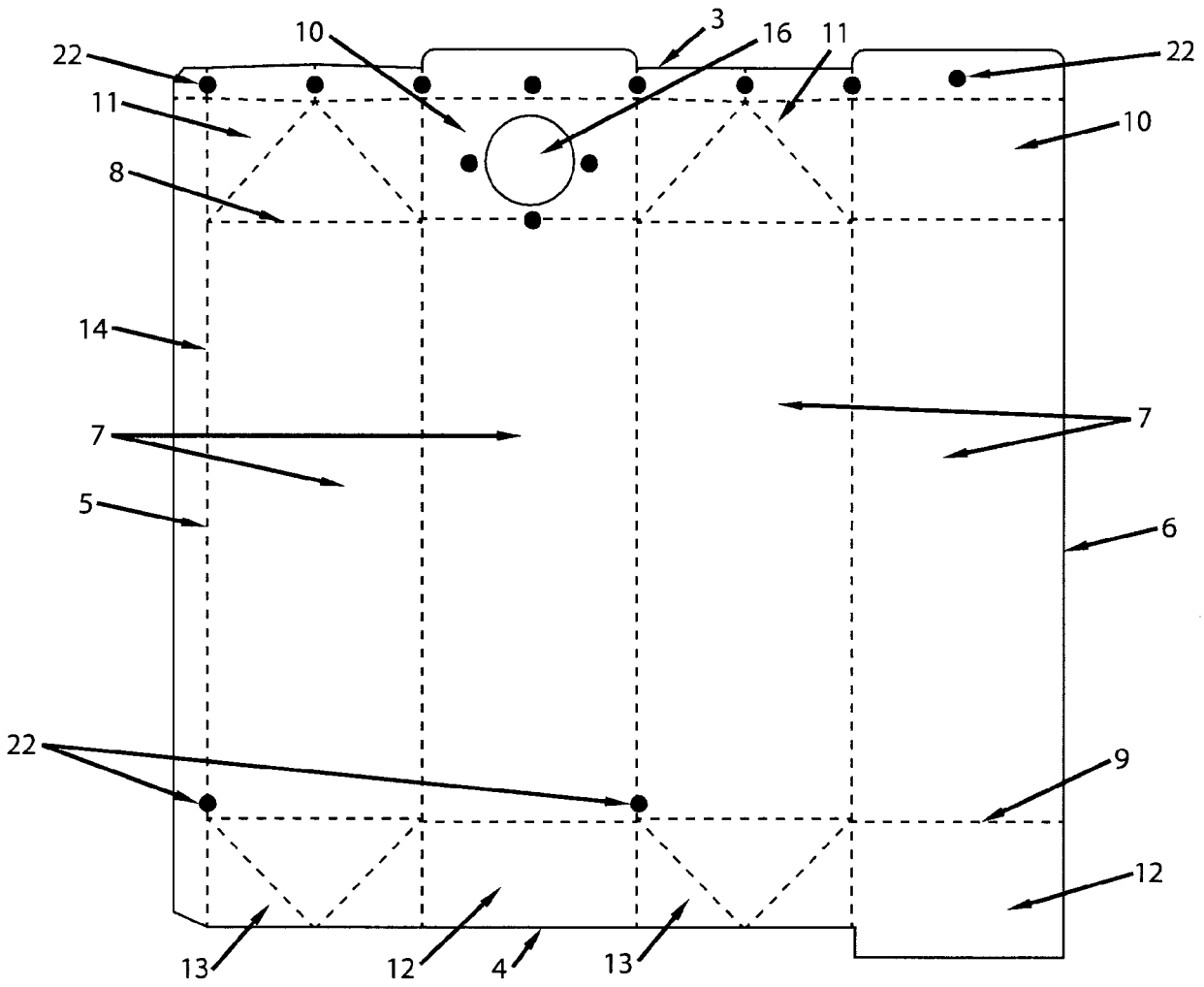

FIG. 2

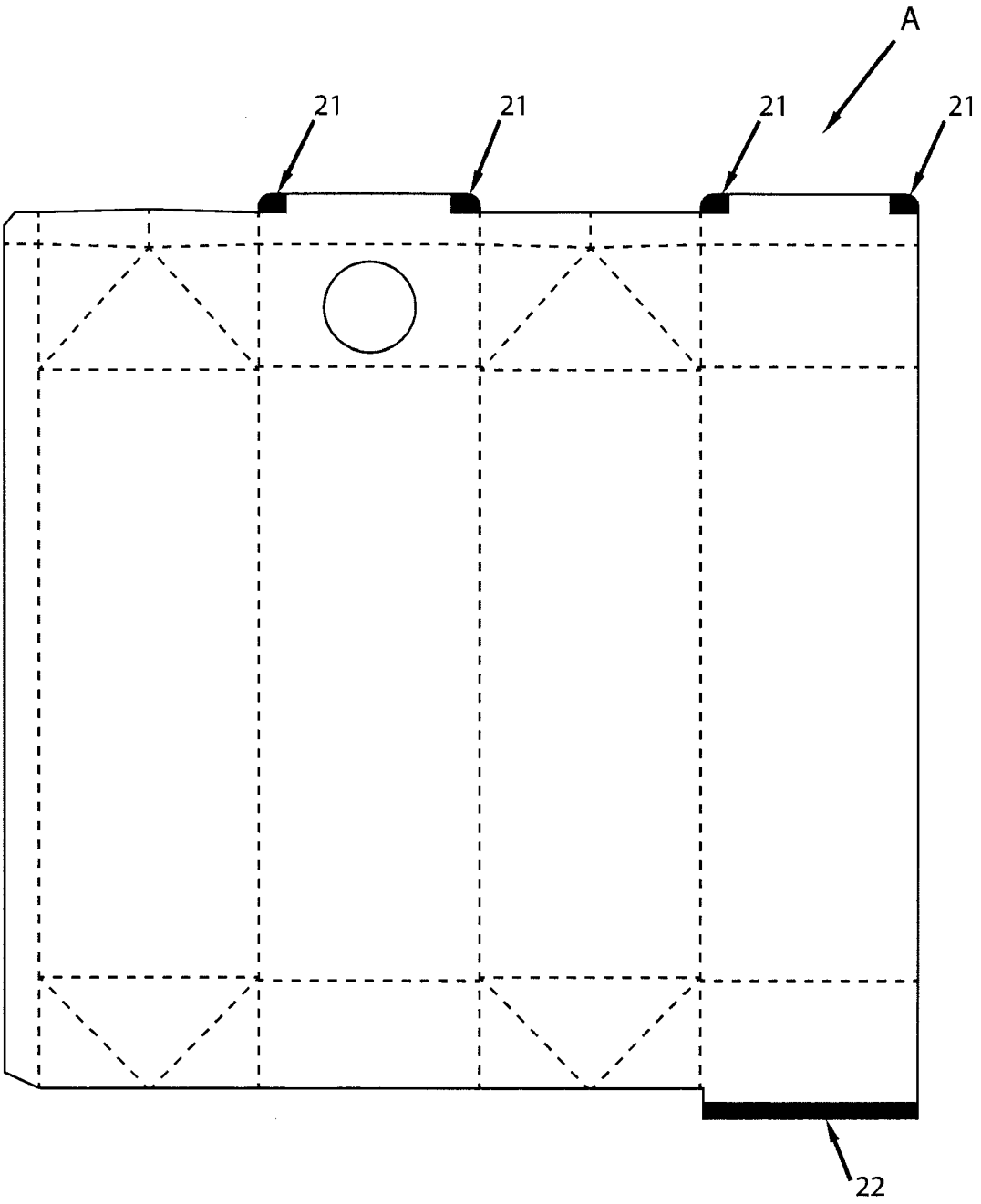

FIG. 3

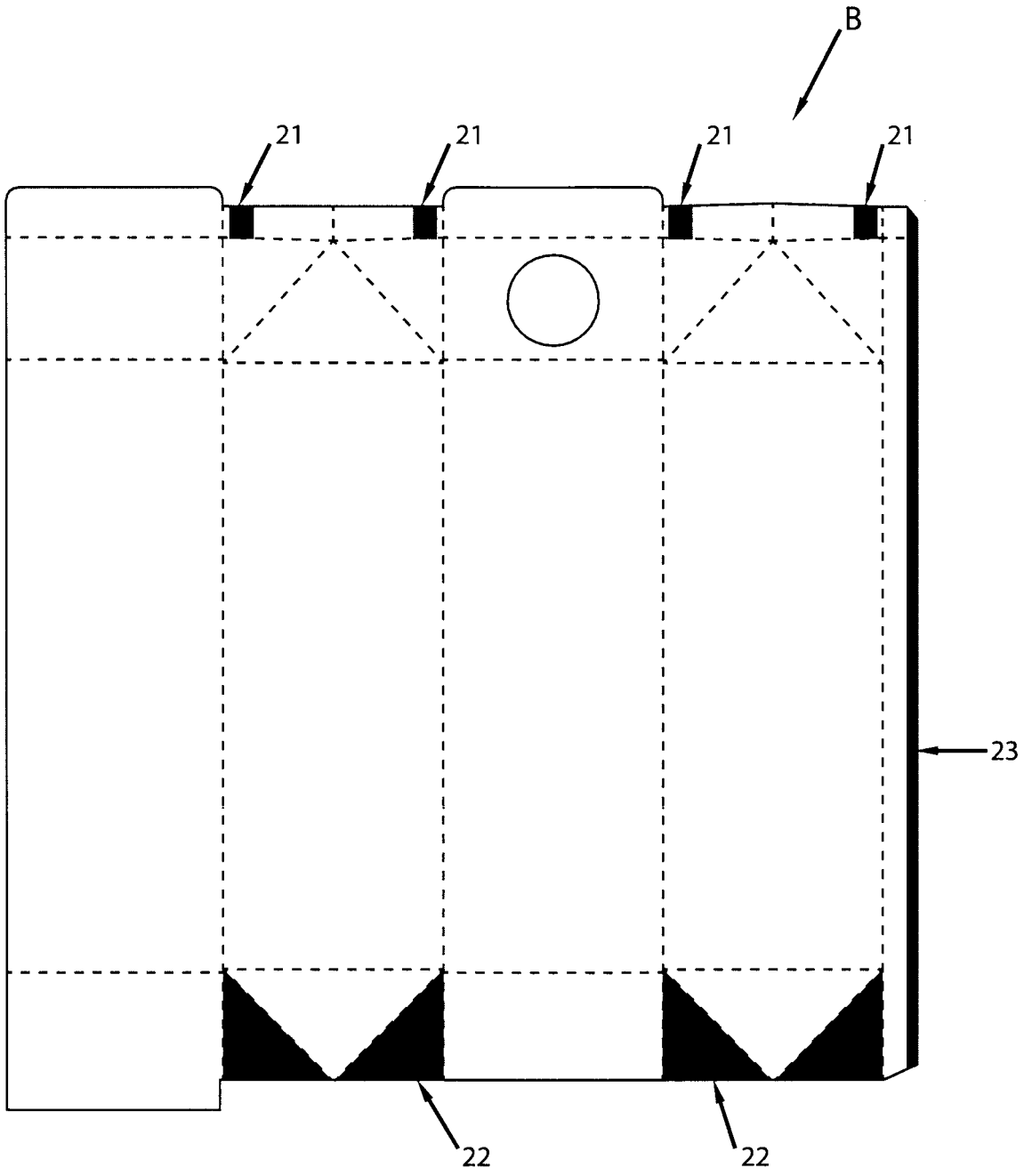

FIG. 4

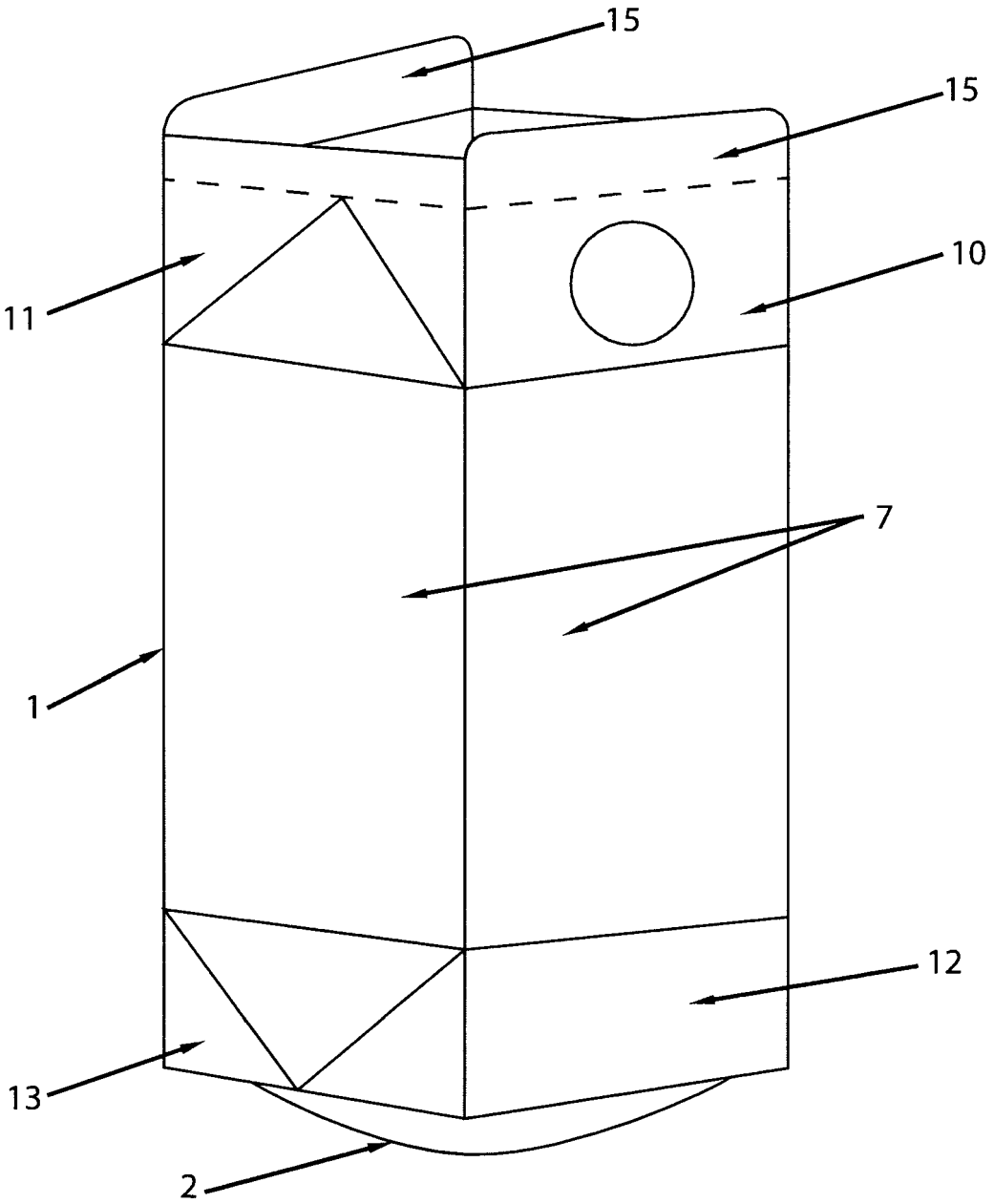

FIG. 5

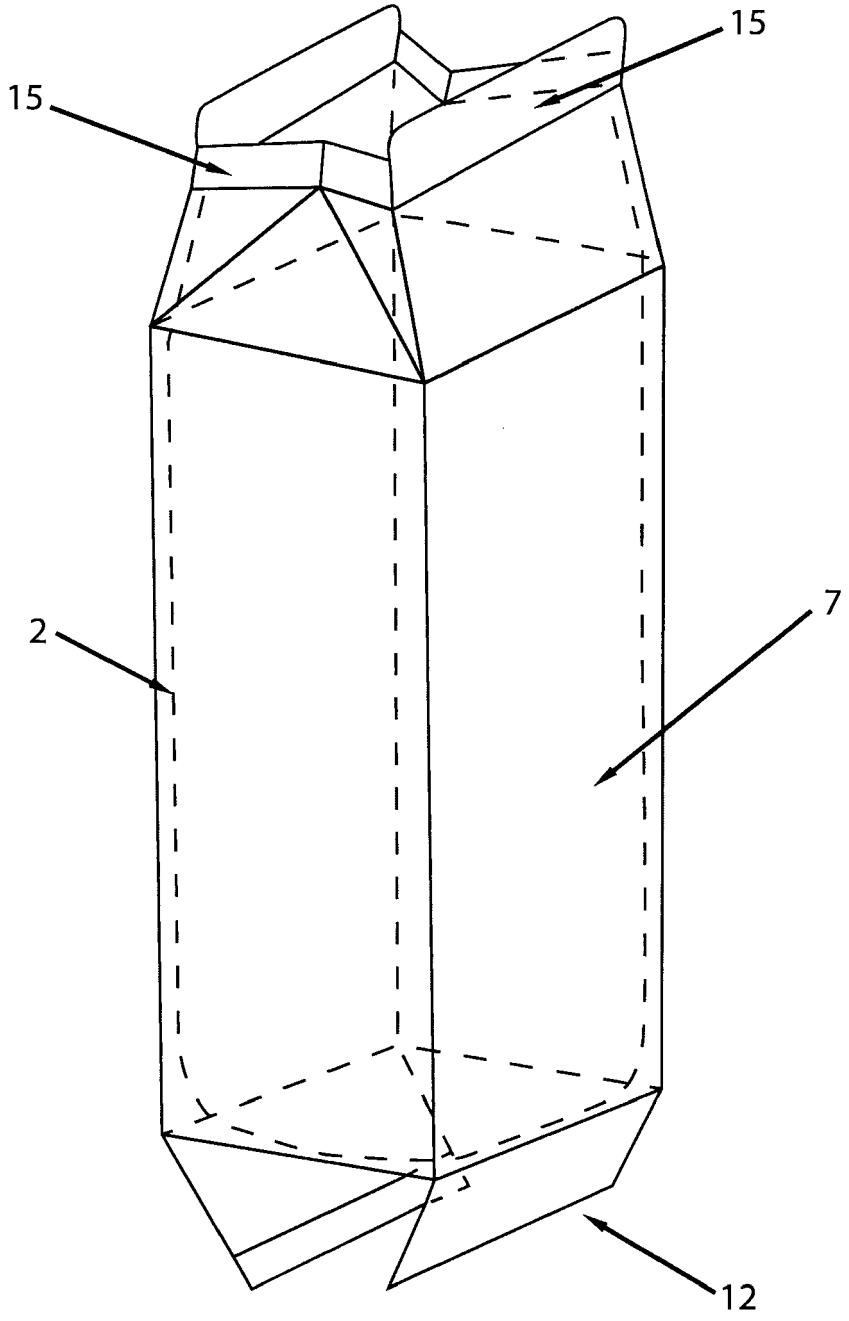

FIG. 6

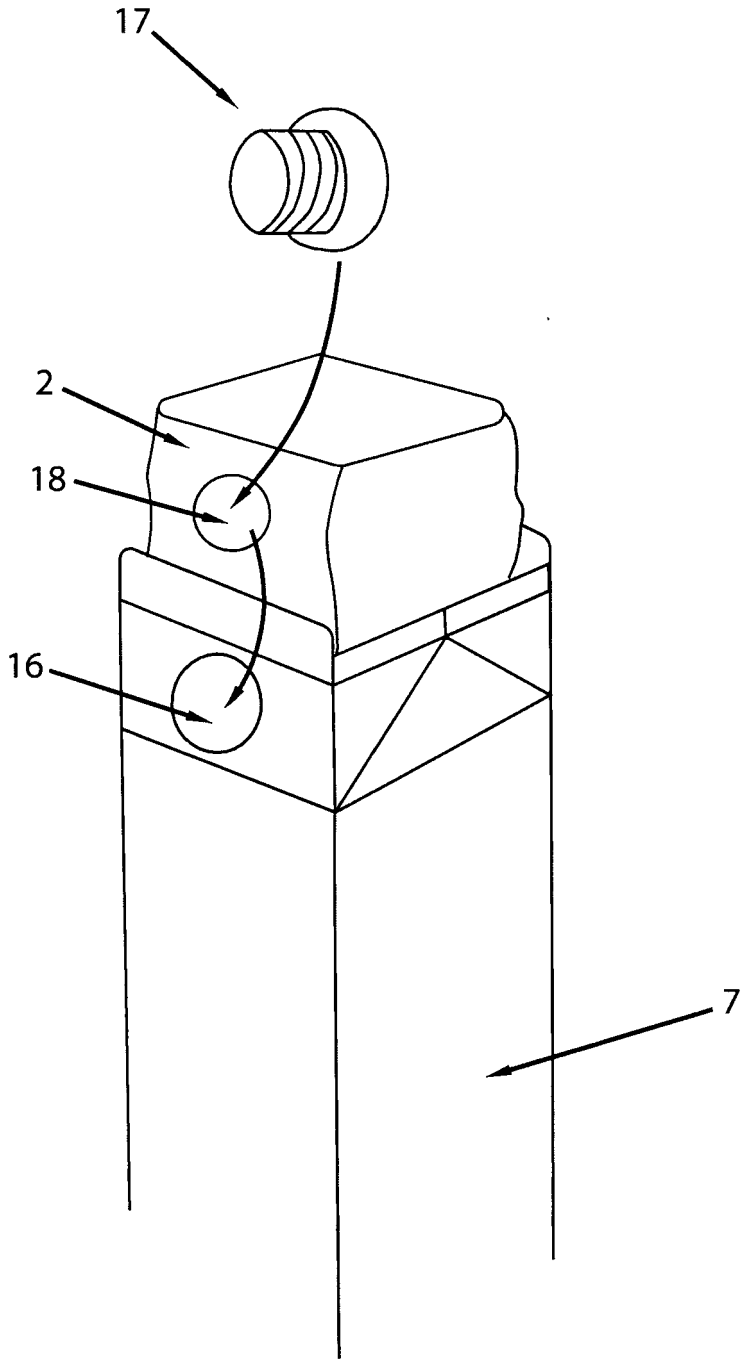

FIG. 7

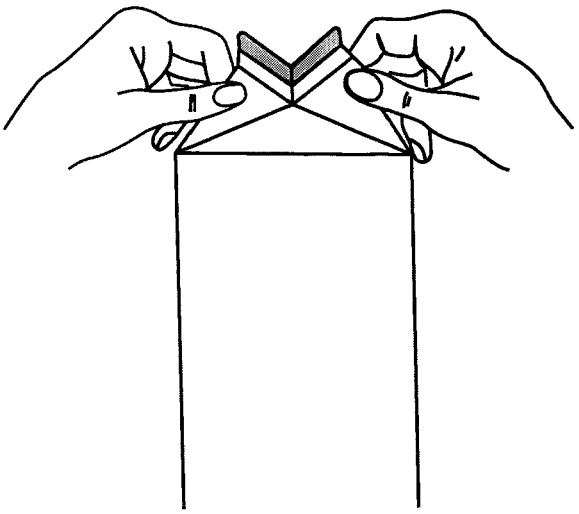

FIG. 8

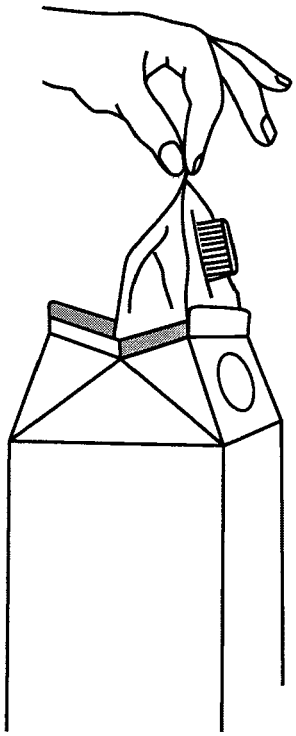

FIG. 9

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 20 47 2009

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X,D	WO 2016/055772 A1 (BOYS LTD 3 [GB]) 14 April 2016 (2016-04-14) * page 8, paragraph 2 - page 16, line 11; figures 4-10 *	1-4	INV. B65D5/06 B65D5/60 B65D5/66 B65D5/74
A	NL 1 038 351 C2 (UENK JOHANNES BERNARDUS [NL]) 3 May 2012 (2012-05-03) * figures 1-3 *	1-4	B65D77/06

TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	3 May 2021	Segerer, Heiko

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 20 47 2009

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

03-05-2021

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2016055772 A1	14-04-2016	AU 2015329770 A1	20-04-2017
		BR 112017007106 A2	16-01-2018
		CA 2963838 A1	14-04-2016
		CN 107124877 A	01-09-2017
		DK 3204313 T3	26-02-2018
		EP 3204313 A1	16-08-2017
		EP 3239068 A1	01-11-2017
		EP 3305686 A1	11-04-2018
		ES 2660338 T3	21-03-2018
		ES 2754798 T3	20-04-2020
		GB 2531013 A	13-04-2016
		GB 2546189 A	12-07-2017
		JP 2017534534 A	24-11-2017
		NO 3204313 T3	05-05-2018
		RU 2017111267 A	12-11-2018
		TR 201802292 T4	21-03-2018
		US 2017240334 A1	24-08-2017
		WO 2016055772 A1	14-04-2016
		ZA 201703106 B	25-07-2018
NL 1038351 C2	03-05-2012	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 3204313 A **[0003] [0004]**