



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
19.08.2009 Bulletin 2009/34

(51) Int Cl.:
B65D 65/10 (2006.01) B65D 75/58 (2006.01)

(21) Application number: **08405038.4**

(22) Date of filing: **13.02.2008**

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

(71) Applicant: **Alcan Technology & Management Ltd.**
8212 Neuhausen am Rheinfall (CH)

(72) Inventors:
• **Torregrosa, Juan-Miguel**
57400 Sarrebourg (FR)
• **Torregrosa, Josefina**
57400 Sarrebourg (FR)
• **Pierron, Eliane**
57400 Imling (FR)
• **Froemer, Frederic**
57400 Sarrebourg (FR)

(54) **Packaging with a block-shaped foodstuff-product**

(57) Packaging (10) with a block-shaped foodstuff-product (12) is such that a blank on a film-shaped packaging material (14) has at least one layer wrapped in a wrapping direction forming an overlapping region around four successive sides (A, B, C, D) of a block-shaped foodstuff-product (12) and is folded over two parallel opposite lying sides (E, F). For the purpose of opening the packaging, the film-shaped packaging material (14) is separable by pulling an opening flap (16) starting from an overlapping region along a tearing strip (30) in a direction

opposite that of the direction of wrapping. The packaging material (14) having at least one layer is made up of a substrate material (18) with at least one polymer film oriented in the direction of wrapping, and the tearing flap (16) is formed by a part of the packaging material (14) in the overlapping region, whereby the tearing flap (16) with side-limiting edges (17) defines the breadth (e) of the tearing strip (30) that can be removed from the packaging material (14) in the direction of orientation of the polymer film.

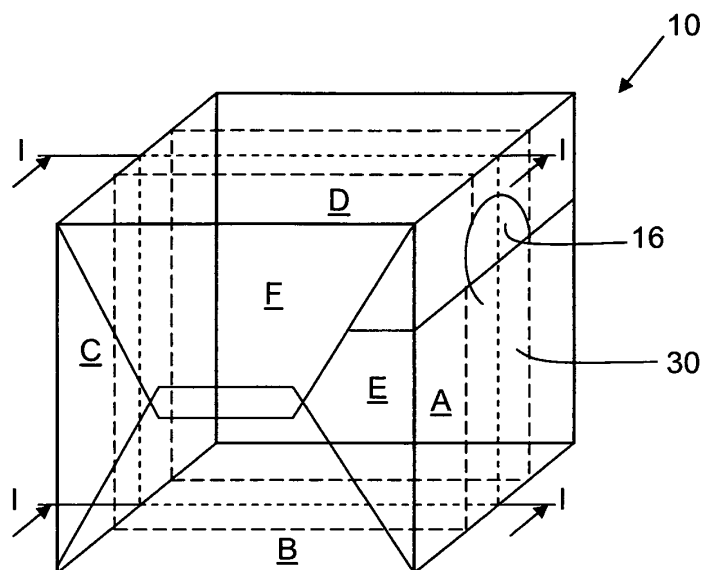


Fig. 1

Description

[0001] The invention relates to packaging with a block-shaped foodstuff-product, in which packaging a blank of a film-shaped packaging material having at least one layer is folded in an wrapping direction forming an overlapping region around four successive side of the block-shaped foodstuff-product and folded over two parallel, opposite lying sides, whereby for the purpose of opening the packaging the film-shaped packaging material can be separated along a tearing strip by pulling on a pull-off flap starting from the overlapping region in a direction opposite that of one of the wrapping directions.

[0002] Conventional packaging of a block or cubic-shaped foodstuff-product such as e.g. stock cubes, has a gold-lacquered or colour-printed aluminium foil as the outside and a paper layer as the inside of the packaging. Between the aluminium foil and the paper layer is a thin layer of wax. Heating the packaged cube results in the wax melting and diffusing through the paper, causing the overlapping parts of the packaging film to stick together.

[0003] Document WO-A-01/25109 makes known a plastic film for packaging cube-shaped products such as soup cubes. The plastic film made of a polyolefin, preferably of oriented polyethylene (OPE) or oriented polypropylene (OPP), is characterised by way of ease of folding. The plastic film may be metallised on one side and may be provided with an adhesive or sealing layer, which e.g. is provided only where it is required. Further, a coloured layer, if desired with an outer lacquer coating, may be provided on the plastic film.

[0004] A packaging film used for stock cubes, known from EP-A-0 870 695, comprises a film that is polyolefin-based, on the outside of which a cold-sealing layer is provided at predetermined places. The inner side of the polyolefin film is provided with an anti-stick coating. If necessary, the polyolefin film may be metallised in order to create a barrier layer against the passage of oxygen.

[0005] A packaging film for cube-shaped products on the basis of a polyolefin film is also known from EP-A-0 990 596.

[0006] In particular in the case of small cubes, it is not always easy for the packaging film which is wrapped tightly around the product and is folded against the sides of the product, to lie properly at its free edge in the overlapping region.

[0007] In DE 20 2004 004 105 U1, in order to solve the problem of opening, a form of packaging made up of a single layer plastic film is disclosed having a tearing strip of tear-proof material that is attached to the plastic film and runs over four successive sides in the direction that the plastic film is wrapped. In order to open the packaging, the tearing strip is gripped at a free tab which is attached to the tearing strip and is pulled in the direction opposite the direction in which the plastic film is wrapped. As a result the plastic film tears along the longitudinal edge of the tearing strip which is attached to the plastic film and divides the packaging in two parts.

[0008] The object of the invention is to provide a form of packaging of the kind described at the start with a simple opening system that is cost favourable to manufacture.

[0009] That objective is achieved by way of the invention in that the - at least one - layer of the film-shaped packaging material is of a support material with at least one polymer film that is oriented in the direction of wrapping and the tearing flap is formed by a part of the packaging material in the overlapping region, whereby the tearing flap with side-limiting edges define the breadth of the tearing strip that can be torn out of the packaging film in the direction of orientation of the polymer film.

[0010] The tearing strip which according to the invention is integrated in the packaging material results, therefore, solely from the appropriate choice of packaging material.

[0011] The oriented polymer film may be monoaxial or biaxial oriented. Essential is the direction of orientation of the polymer film with respect to the spatial orientation of the product to be packaged or the correlation of the orientation with the direction of wrapping, which in packaging machines normally coincides with the direction in which the strip-shaped packaging material runs or perpendicular to this.

[0012] Preferred material for the oriented polymer film is a polyolefin, in particular polypropylene (PP) or high density polyethylene (HDPE), polyethyleneterephthalate (PET), polystyrene (PS), polycarbonate, polyvinylchloride (PVC) or polyacetate (PLA).

[0013] The substrate material may be solely of the monoaxial or biaxial oriented polymer film. The substrate material may also be a multi-layer film of a monoaxial or biaxial oriented polymer film with direction of orientation in the direction of wrapping, and a paper layer, an aluminium foil or another oriented polymer film.

[0014] A hot-sealable coating, arranged if desired on the inner side of the support material, may be e.g. a hot-melt or wax coating, or a polymer which is polyethylene-based.

[0015] A barrier layer against passage of gases, vapours, moisture, flavours, odours and/or substances causing smells, which may if desired be arranged on the support material, may be in the form of a metal foil e.g. made of aluminium. Other suitable materials for barrier layers are e.g. films of plastics such as polyvinylidenechloride (PVDC) or ethylvinylalcohol (EVOH), or a layer of ceramic materials, such as e.g. silicon oxide or aluminium oxide or nitride, which are deposited in vacuum on the substrate material as a thin layer e.g. in the region of 10 - 500 nm. Examples of further barrier layers are metallic layers e.g. of aluminium, which are deposited on the support material by sputtering.

[0016] In the present case metallising is a particularly suitable way of providing the substrate material, and thus the packaging material, with barrier action properties that prevent the passage of fluids, gases, vapours, water vapour, aromas, odours and/or substances causing smells.

Metallising also protects the contents from the harmful effects of light. A preferred form of metallising employs aluminium which is deposited on the plastic film by sputtering or deposition in vacuum to a thickness of approximately 10 nm to around 2 μm .

[0017] A useful protective layer for the metallised coating is a lacquer with a nitrocellulose-based lacquer. At the same time, this first protective lacquer layer serves as substrate for printing. In this case the printing is likewise preferably provided with a nitrocellulose-based lacquer.

[0018] The printing on the plastic film bearing a metallised coating and a first protective lacquer layer may be performed using all known printing methods, e.g. typography, offset-printing, flexoprinting, screen printing, helio-gravure and copper-plate printing, but also by laser printing, inkjet, electrophotographic and magnetographic printing. The choice as to which method of printing is to be used depends on the desired quality of print, on the prevailing technical conditions and the number of copies to be made. The second protective lacquer layer protects the printed image.

[0019] A preferred hot-sealing layer is made up of a lacquer that is based on copolymers of ethylene and vinylacetate or vinylacetate and vinylchloride.

[0020] The packaging material according to the invention is produced in roll form. The packaging material is uncoiled from the roll and cut into individual sheets of film. In a special facility - which in the case of soft cubes may be in the form of a piston - the sheets of film which form the packaging material for each individual block or cube to be packaged, are folded against the sides of the block, whereby the film is pressed against two opposite sides and overlaps on itself. The packaged block or cube is then transported to a hot-sealing facility where the hot-sealing is carried out, fixing the film together in a permanent manner.

[0021] Further advantages, features and details of the invention are revealed in the following description of preferred exemplified embodiments and with the aid of the drawing, which shows schematically in

Fig. 1 a perspective view of a cube-shaped product wrapped in a film-shaped packaging material;

Fig. 2 a vertical section through the packaged, cube-shaped product in Fig. 1 along line I - I;

Fig. 3 - 6 various versions of tearing flaps.

[0022] Cube-shaped packaging 10 shown in Fig. 1 comprises a film-shaped packaging material 14 wrapped over four consecutive sides A, B, C, D of a cube-shaped product 12. The packaging material 14 overlaps on one side - in the drawing side A. In this region of overlap the inner side of the packaging material 14 lying facing the product lies on its outer side. On the overlapping part,

the packaging material is shown in the form of a tearing flap 16. The tearing flap 16 becomes part of the tearing strip 30 which is integrated in the packaging material and runs round the packaging. On the sides E, F of the cube-shaped product (12) which are not wrapped, the packaging material is folded over these sides.

[0023] Shown in Fig. 2 by way of example is the make-up of the packaging material 14 and the shape of the join in the region of overlap. The packaging material 14 comprises a single or multi-layer support material 18 which is provided with a sealable coating 20 on the inside facing the cube-shaped product 12. The outer side of the support material 18 is printed on and/or coated with a layer of lacquer 20. In the region of overlap, instead of printing 22 or a cover layer 24 on the outer side of the packaging 14, there is a region 26 which can be sealed onto the sealable coating 20 on the inside of the overlapping part 26 and an anti-stick layer 28 which cannot be sealed onto the coating 20 on the overlapping part, this in order to form the tearing flap 16.

[0024] The sealable region 26 provided on the outside of the packaging material 14 and the anti-stick layer 28 are deposited there in order to delimit the printing 22 or cover lacquer layer 24 in the case of register printing and, on the one hand, enable tight sealing of the inside of the packaging material to its outside as well as the possibility to grasp the tearing flap 16 in order to open the packaging.

[0025] The support material 18 may e.g. be a monoaxial or biaxial oriented polymer film with a direction of orientation lying in the direction of wrapping the four consecutive sides A, B, C, D. The support material 18 may also be a multi-layer film made up of a monoaxial or biaxial oriented polymer film with direction of orientation in the direction of wrapping and a layer of paper, an aluminium foil or also another oriented polymer film.

[0026] The hot-sealing coating on the inside of the support material 18 may e.g. be a hot-melt or wax coating or a polyethylene-based polymer layer.

[0027] Figures 3 to 6 show various types and arrangements of tearing flaps 16. The broken lines indicate that the tearing strips 16 are not sealed to the underlying packaging material 14, which in that region is provided with an anti-stick layer 28 as in Fig. 2.

[0028] In Fig. 3 the tearing flap 16 is provided in the middle between both sides E, F of the product 12 which is covered by the folded over packaging material 14. Edges 17, delimiting the tearing flap 16 at the sides, define a breadth e of tear-off strip 30 of polymer film employed as packaging material that can be removed from the packaging material in the direction of wrapping. As aids to initiating and propagating the opening tear lines, the side-limiting edges 17 of the tearing flap 16 extend over a short distance opposite that of the direction of wrapping in the form of cut lines 32, in the packaging material in the direction of orientation of the polymer film lying in the direction of wrapping.

[0029] In Fig. 4 the tearing flap 16 is, as in Fig. 3, arranged in the middle between the two sides E, F of the

product 12 enclosed by the folded packaging material 14. Instead of the cut lines 32, tearing-aid notches 34 - in the direction of the polymer film orientation lying in the direction of wrapping - are provided at the transition of the side-limiting edges 17 of the flap 16 to the packaging material 14. Here, as a further aid to tearing for the strip 30, which can be removed from the packaging material 14 in the direction of orientation of the polymer film support material 18, two lines of perforation 36 which correspond to the cut lines 34 in Fig. 3 are arranged parallel to each other at a distance corresponding to the breadth of the tearing strip 30 that can be removed from the packaging material 14.

[0030] The tearing flap 16 shown in Fig. 5 corresponds to the tearing flap 16 in Fig. 4, whereby here the notches 34 to help initiate tearing, at the transition from the side-limiting edges 17 of tearing flap 16 to the packaging material 14 in the orientation direction of the polymer lying in the direction of wrapping, are arranged so far apart that the tearing strip 30 that can be removed from the packaging material 14 in the direction of orientation of the polymer film which lies in the direction of wrapping, extends almost over the whole breadth of the product 12, with the result that on removing the tearing strip 30 from the packaging material, almost the whole of the product is exposed.

[0031] In the version shown in Fig. 6 two tearing flaps 16a, 16b are arranged a distance apart, close to the two sides E, F of the product 12 with the folded packaging material 14. Each of the tearing flaps 16a, 16b exhibits the features of the tearing flap 16 in Fig. 4. As aid to tearing, also here, notches 34a, 34b are provided at the transition of the side-limiting edges 17a, 17b of tearing flaps 16a, 16b to the packaging material 14 are provided, in the direction of orientation of the polymer film lying in the direction of wrapping, these in order to help initiate tearing and lines of perforation 36a, 36b as aids to propagate the tears, viz., for each of the tearing strips 30a, 30b that can be removed from the packaging material 14. The result is, therefore, two independent possibilities for opening the packaging.

[0032] A packaging material 14 may e.g. as in Fig. 2 the following structure, from the outside to the inside:

24 protective lacquer layer of nitrocellulose lacquer, $2.0 \pm 1 \text{ g/m}^2$

22 printing e.g. by helio or flexographic printing

18 monoaxial or biaxial oriented polymer film of

- polypropylene, 25 to 45 μm , with a density of 0.40 - 0.60 gm/m^2 , or
 - high density polyethylene, 25 - 45 μm , or
 - polyacetate, 15 - 40 μm
- hot-sealing lacquer, produced by deposition of $2.0 \pm 1 \text{ g/m}^2$ of a lacquer on the basis of
- copolymers of ethylene and vinylacetate or
 - copolymers of vinylacetate and vinylchloride or
 - acrylic-based lacquer.

[0033] If desired, a 10 nm to 2 μm thick barrier layer of aluminium may be deposited in vacuum on the polymer film 18, or an approx. 6 - 12 μm thick aluminium foil.

Claims

1. Packaging with a block-shaped foodstuff-product (12) in which packaging a blank of a film-shaped packaging material (14) having at least one layer is wrapped in a wrapping facility forming an overlapping region around four successive side areas (A, B, C, D) of the block-shaped foodstuff-product (12) and folded over two parallel, opposite lying sides (E, F), whereby for the purpose of opening the packaging, the film-shaped packaging material (12) can be separated along a tearing strip (30) by pulling on a pull-off flap (16) starting from the overlapping region in a direction opposite that of the wrapping direction, **characterised in that**, the - at least one - layer of the film-shaped packaging material (14) is a support material (18) with at least one polymer film that is oriented in the direction of wrapping and the tearing flap (16) is made from a part of the packaging material (14) in the overlapping region, whereby the tearing flap (16) with edges (17) delimiting the sides defines the breadth (e) of the tearing strip (30) that can be torn out of the packaging film (14) in the direction of orientation of the polymer film.
2. Packaging according to claim 1, **characterised in that** the oriented polymer film is monoaxial oriented.
3. Packaging according to claim 1, **characterised in that** the oriented polymer film is biaxial oriented.
4. Packaging film according to one of the claims 1 to 3, **characterised in that**, as an aid to initiating and propagating tearing, the side-limiting edges (17) of the tearing flap (16) are in the form of cut lines (32) extending into the packaging material (14) running in the direction of orientation of the polymer, which lies in the direction of wrapping, this in the extension of the side-limiting edges (17) in the direction opposite the direction of wrapping.
5. Packaging according to one of the claims 1 to 3, **characterised in that** as aid to initiating tearing at the transition of the side-limiting edges (17) of the tearing flap (16) to the packaging material (14) notches (34) are arranged in the direction of orientation of polymer film lying in the wrapping direction.
6. Packaging according to claim 5 **characterised in that**, as an aid to propagating tearing via the tearing strip (30) which is removable from the packaging material (14) in the direction of orientation of the polymer

film employed as support material (18), two perforation lines (36) are arranged parallel to each other following on from the delimiting edges (17) of the tearing flap (16).

5

7. Packaging according to one of the claims 1 to 6, **characterised in that** the oriented polymer film is a polyolefin, in particular polypropylene (PP) or high density polyethylene (HDPE), polyethyleneterephthalate (PET), polystyrene (PS), polycarbonate, polyvinylchloride (PVC) or polyacetate (PLA). 10
8. Packaging according to one of the claims 1 to 7, **characterised in that** the packaging material may have a barrier layer against the passage of gases, vapours, water vapour, aromas, odours and/or substances causing smells. 15
9. Packaging according to claim 8, **characterised in that** the barrier layer is a metal foil, in particular an aluminium foil. 20
10. Packaging according to claim 8, **characterised in that** the barrier layer is a metallising layer of aluminium. 25
11. Packaging according to claim 8, **characterised in that** the barrier layer is a plastic film of polyvinylidenechloride (PVDC) or an ethyl-vinyl-alcohol-copolymer or a 10 - 500 nm thick layer of ceramic material deposited in vacuum, preferably silicon oxide or aluminium oxide. 30
12. Packaging according to one of the claims 1 to 11, **characterised in that** the packaging material comprises a hot-sealing layer in the form of a lacquer which is based on copolymers of ethylene and vinylacetate or vinylacetate and vinylchloride or is acrylic-based. 35

40

45

50

55

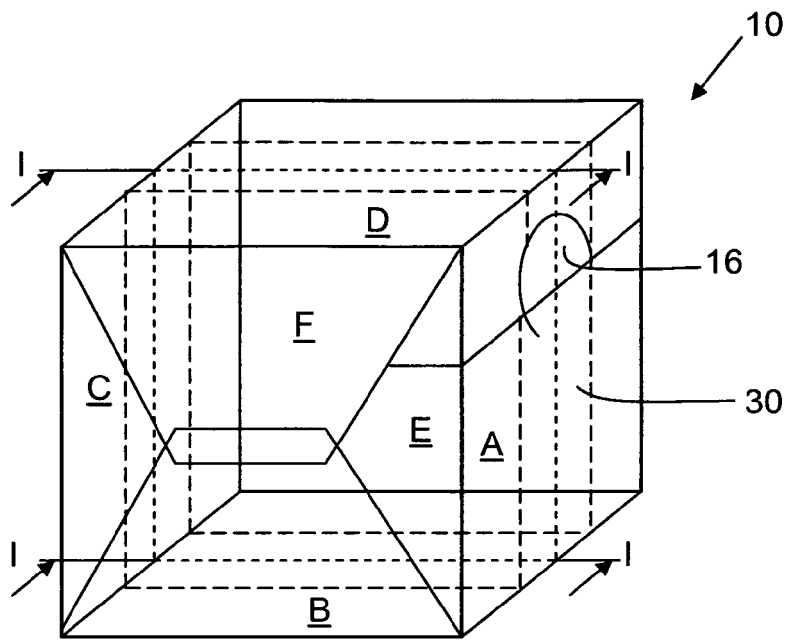


Fig. 1

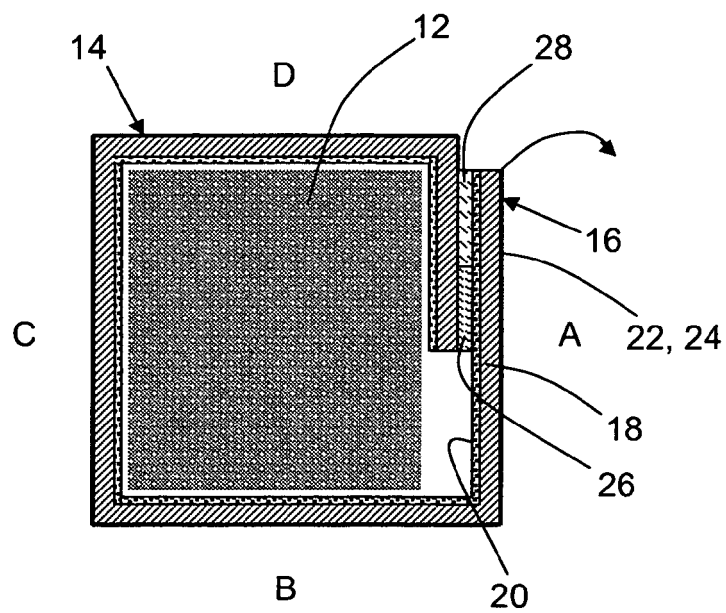


Fig. 2

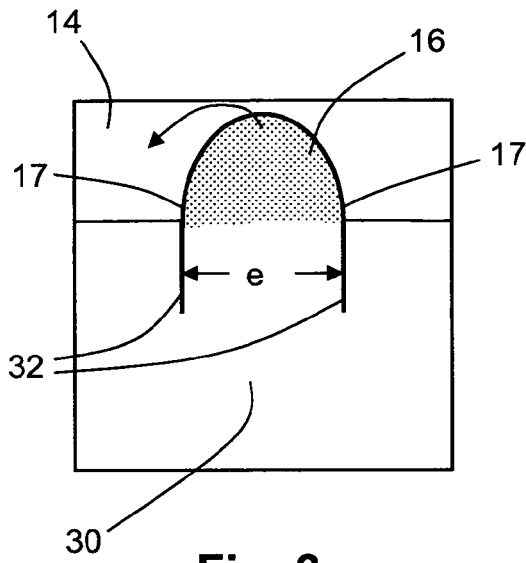


Fig. 3

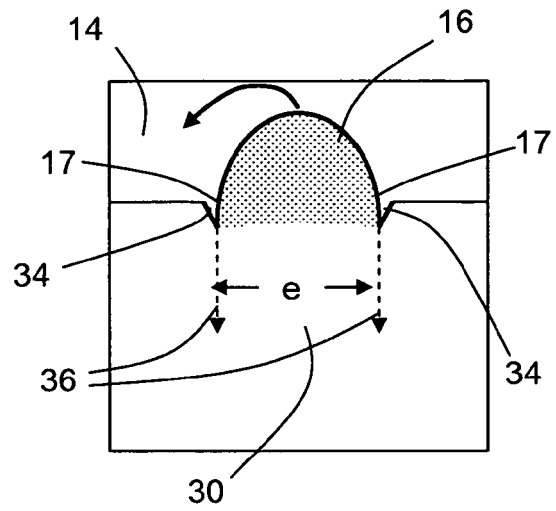


Fig. 4

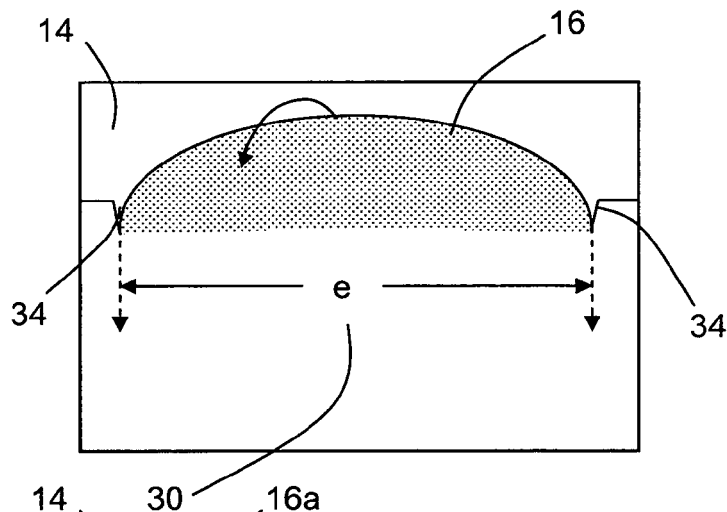


Fig. 5

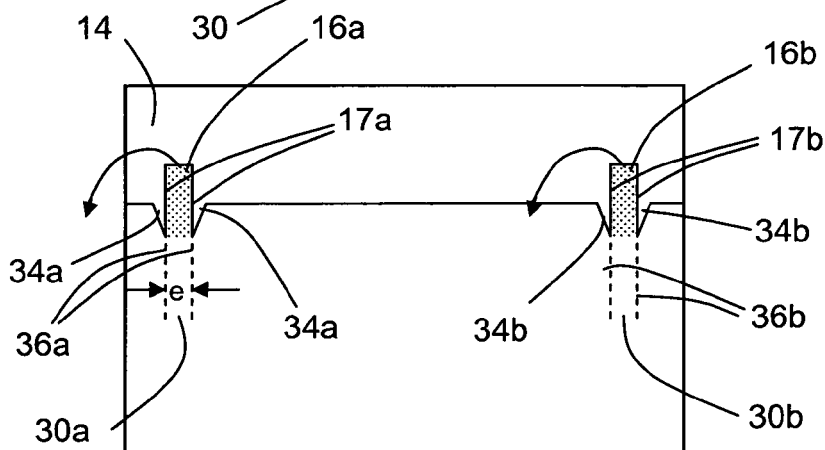


Fig. 6



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 08 40 5038

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	WO 01/25109 A (LEER PACKAGING DEUTSCHLAND GMB [DE]; BATTEGAZZORE RINALDO [IT]) 12 April 2001 (2001-04-12) * figures *	1	INV. B65D65/10 B65D75/58
A	WO 2007/090419 A (SCA HYGIENE PROD GMBH [DE]; ARNDT-JAKOB KERSTIN [DE]; ZOELLER GUENTHER) 16 August 2007 (2007-08-16) * figures 1a,1b *	1	
A	EP 1 350 741 A (UNITED BISCUITS LTD [GB]) 8 October 2003 (2003-10-08) * paragraph [0016]; figures *	1	
A	EP 0 980 834 A (PROCTER & GAMBLE [US]) 23 February 2000 (2000-02-23) * claim 1; figures *	1	
			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
The Hague		8 May 2008	Fournier, Jacques
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			

3
EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 40 5038

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.

08-05-2008

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 0125109	A	12-04-2001	AR	031676 A1	01-10-2003
			AT	317804 T	15-03-2006
			AU	1020701 A	10-05-2001
			BR	0014828 A	27-08-2002
			CN	1390178 A	08-01-2003
			CZ	20021152 A3	18-06-2003
			DK	1233913 T3	06-06-2006
			EP	1233913 A1	28-08-2002
			ES	2257332 T3	01-08-2006
			OA	12057 A	02-05-2006
			PL	353963 A1	15-12-2003
			PT	1233913 T	30-06-2006
			SK	4552002 A3	02-03-2004
			TR	200200940 T2	21-06-2002

WO 2007090419	A	16-08-2007	NONE		

EP 1350741	A	08-10-2003	GB	2388832 A	26-11-2003

EP 0980834	A	23-02-2000	AU	5000799 A	14-02-2000
			BR	9912302 A	17-04-2001
			CA	2336403 A1	03-02-2000
			JP	2003516278 T	13-05-2003
			WO	0005148 A2	03-02-2000

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

- WO 0125109 A [0003]
- EP 0870695 A [0004]
- EP 0990596 A [0005]
- DE 202004004105 U1 [0007]