



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁷ : B65D 75/58</p>	<p>A1</p>	<p>(11) International Publication Number: WO 00/56625</p> <p>(43) International Publication Date: 28 September 2000 (28.09.00)</p>
<p>(21) International Application Number: PCT/EP00/02751</p> <p>(22) International Filing Date: 22 March 2000 (22.03.00)</p> <p>(30) Priority Data: 99200859.9 22 March 1999 (22.03.99) EP</p> <p>(71) Applicant (for all designated States except US): MARS B.V. [NL/NL]; Taylorweg 5, NL-5466 AE Veghel (NL).</p> <p>(72) Inventor; and (75) Inventor/Applicant (for US only): RUTTEN, Mechteld, Geertruida, Maria [NL/NL]; Brugstraat 5, NL-5211 VS 's-Hertogenbosch (NL).</p> <p>(74) Agents: LOUËT FEISSER, Arnold et al.; Arnold & Siedsma, Sweelinckplein 1, NL-2517 GK Den Haag (NL).</p>		<p>(81) Designated States: AU, CA, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>
<p>(54) Title: EASY-OPEN PEEL SEAL FOR FLEXIBLE PACKAGE</p>		
<p>(57) Abstract</p> <p>A package of a flexible material which has been formed into an envelope (1), which package comprises an access opening, which is closed by means of a seal (4) which has been formed by bonding together two or more contacting layers of the material in a particular area. The package can be opened by pulling apart two bonded-together layers of material in said area. To that end the flexible material is provided with an engagement (7) portion and the portion of the seal (4) area that is positioned closest to said engagement portion (7) has a convex edge.</p> <div style="text-align: right;"> </div>		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

EASY-OPEN PEEL SEAL FOR FLEXIBLE PACKAGE

5

The invention relates to a package of a flexible material which has been formed into an envelope, which package comprises an access opening, which is closed by means of a seal which has been formed by bonding together two or
10 more contacting layers of the material in a particular area, which package can be opened by pulling apart two bonded layers of material in said area, to which end the flexible material is provided with an engagement portion. The package usually consists of one or more layers of
15 paper and/or plastic material, which form a container which is sealed at least at one end thereof for the purpose of being opened at that end. The seal has been formed by bonding together areas of the flexible material by heating said areas and/or interpolating an adhesive,
20 so that an airtight seal is obtained. Usually, such a seal forms a straight, elongated strip.

A package of this kind may be used for packaging sweets or candy bars, for example. The package must be easy to
25 open, for example by pulling loose the seal, with the package functioning as a container for the sweets after being opened, from which the sweets can be removed by the user.

30 The drawback of the known package is that a great deal of force must be exerted for pulling apart the bonded layers of material, and that uncontrolled movements resulting from said great exertion of force may lead to the contents falling out of the package, or that the package,
35 once it has been opened, is no longer suitable for use as a container, for example because it is torn.

CONFIRMATION COPY

The objective of the invention is to provide a package which is easy to open with less force, and/or wherein the bonded layers can be pulled apart in a controlled manner.

5 In order to accomplish that objective, the portion of the seal area that is positioned closest to the engagement portion has a convex edge. As a result of this, the layers of material will first be pulled apart in a small part of the seal area when the seal is pulled loose,
10 which requires relatively little force. Once said pulling loose has commenced, it can be continued in a larger part of the aforesaid area. Generally, the engagement portion can be recognized by the shape of and/or the print on the package.

15

In one embodiment, said convex edge comprises two substantially straight edge portions, which include an angle with each other. Preferably, said edge portions bound a V-shaped area. As a result of this arrangement,
20 opening of the seal will commence in the point of the V-shape, using a minimum pulling force, and will then continue in the legs of the V-shape. In another embodiment, the convex edge is substantially curved. The remaining portion of the seal may extend in the form of a
25 straight strip.

In one embodiment, said area has substantially the same width along its length, as a result of which the force required for opening the package will remain constant
30 during said opening, which helps to have said opening take place in a controlled manner. In another embodiment, said area is wider near the edges of the access opening than near the engagement portion. This reduces the risk of the package being torn beyond the edges of the access
35 opening upon being opened.

Preferably, the seal is substantially in the form of a stripe, in particular a V-stripe, also called a chevron.

As a result of this, the access opening extends over a limited area, which makes the package especially suitable for use as a bag-like container after opening.

5 The flexible material may extend beyond said area, seen from the packaged product, and said engagement portion is thereby positioned in said further extending material. This makes for easy opening of the package, since it will be immediately apparent to the user that he must pull at
10 the "flaps" thus formed, which can easily be moved apart. Preferably, the flaps are made up of a continuous strip, which extends beyond the seal, thus reducing the risk of the package being torn beyond the access opening.

15 In another embodiment, said engagement portion is positioned in the part of the package which is intended for enveloping the packaged product. This makes it possible to realise a seal while using a minimum amount of flexible material. Sufficient flexible material must
20 be present at the location of the engagement portion, however, in order to enable the user to take hold of it with his fingers.

Preferably, the package substantially consists of one
25 piece of flexible material. Thus, a package which is easy to produce and which provides a strong container after opening is obtained.

The invention also relates to a method for producing a
30 package of a flexible material, wherein two or more contacting layers of the material are bonded together in a particular area, in such a manner that the package can be opened by pulling apart two bonded layers of material in said area by engaging said flexible material at the
35 location of an engagement portion, wherein the part of the area located closest to said engagement portion is provided with a convex edge.

The invention also relates to a method for packaging a product, wherein the product is enveloped with a flexible material, wherein two or more contacting layers of the material are bonded together in a particular area, in
5 such a manner that the package can be opened by pulling apart two bonded layers of material in said area by engaging said flexible material at the location of an engagement portion, wherein the part of the area located closest to said engagement portion is provided with a
10 convex edge.

Furthermore, the invention relates to a method for opening a package of a flexible material, which package
15 is closed by means of a seal which has been formed by bonding together two or more contacting layers of the material in a particular area, wherein the bonded material is pulled loose, starting at a portion of the area where the edge of said area has a convex shape.

20

Hereafter a number of embodiments of a package will be described by way of illustration, wherein reference is made to the drawing, in which:

25 Figure 1 is a perspective view of a package according to prior art;
Figure 2 is a side view of the package according to Figure 1;
Figure 3 is a perspective view of a package according to
30 the invention;
Figure 4 is a perspective view of an embodiment; and
Figures 5 - 10 are front views of embodiments.

The drawings are essentially schematic representations,
35 wherein like parts are indicated by the same numerals.

Figure 1 is a perspective view of a package which contains sweets or candy bars, which are packaged in an

airtight manner therein. Figure 2 shows the same container in side view. The package consists of container 1 of plastic foil, comprising a bottom 2, four upright walls 3 and a seal 4. Seal 4 is formed by folding 5 the upright walls 3 at their upper ends after the container has been filled with the product to be packaged, in such a manner that the ends will be in contact with each other along a straight strip, and subsequently heating the strip and/or interpolating an 10 adhesive, after which the wall ends are bonded together by compression. Usually, seal 4 consists of four layers of material on the sides as the result of this manner of bonding, whilst it consists of two layers in its central portion.

15

The package can be opened by taking hold of it with the fingers near arrows 5, 6 and pulling in the direction of arrows 5, 6. If said pulling takes place with sufficient force, this seal will tear loose, thus opening the 20 package.

Figure 3 and Figure 4 show in perspective view a package according to the invention. The area of seal 4 thereby has a convex V-shape, seen from the engagement portion, 25 so that if the package is opened in accordance with that which has been discussed with regard to the package according to Figures 1 and 2, seal 4 will come loose whilst only a small force is exerted, starting in the point of the V-shape on the upper side of seal 4, and 30 continuing from there to the bottom of the point. Following that, said opening is continued in a controlled manner towards the ends of seal 4.

In these embodiments, the layers of flexible material 35 extend beyond seal 4, thus forming "flaps" 7. Said "flaps" 7 function as an engagement area for opening the package, which is done by engaging the "flaps" 7 with the fingers and pulling in the direction of arrows 5, 6. It

will be apparent that a relatively large force is required thereby, because a long edge of the seal is pulled loose along its entire length in one go. In the variant shown in Figure 4, said flaps are made up of a continuous strip, which extends beyond the seal.

Figure 5 is a side view of an embodiment comprising a V-shaped seal without "flaps". Figure 6 shows another embodiment of a package, wherein seal 4 is made up of a substantially straight strip, and wherein an arched or curved seal portion is provided in the central part, which functions as a starting point for opening the package.

Figures 7, 8, 9 and 10 show further embodiments of a package, now provided with "flaps". Furthermore, various possible embodiments of a seal are shown by way of illustration, wherein the edges of the seal area comprise arched or curved portions and straight edge portions, which include an angle with each other. As is shown in Figure 10, it is possible to combine straight edge portions and curved edge portions. The seal forms which are shown in Figures 7 - 10 are similar in that they are all convex, as a result of which opening will commence at the point located closest to the engagement portion, after which said opening will continue in a controlled manner towards the ends of the seal area. It is also possible to use these seal forms in the embodiments which do not comprise "flaps", as shown in Figures 5 and 6.

The above-described embodiments are to be considered examples of a package according to the invention.

CLAIMS

1. A package of a flexible material which has been formed into an envelope (1), which package comprises an access opening, which is closed by means of a seal (4) which has been formed by bonding together two or more contacting layers of the material in a particular area, which package can be opened by pulling apart two bonded-together layers of material in said area, to which end the flexible material is provided with an engagement portion (7), characterized in that the portion of the seal (4) area that is positioned closest to said engagement portion (7) has a convex edge.
2. A package according to claim 1, characterised in that said convex edge comprises two substantially straight edge portions, which include an angle with each other.
3. A package according to any one of the preceding claims, characterised in that said convex edge is substantially curved
4. A package according to any one of the preceding claims, characterised in that said area has substantially the same width along its length.
5. A package according to any one of the preceding claims, characterised in that the width of said area near the engagement portion (7) is smaller than near the edges of said access opening.
6. A package according to any one of the preceding claims, characterised in that said seal (4) is substantially in the form of a stripe.

7. A package according to claim 6, characterised in that said seal (4) is substantially in the form of a V-stripe.
- 5 8. A package according to anyone of the preceding claims, characterised in that said flexible material extends beyond said area, seen from the packaged product, and said engagement portion (7) is thereby positioned in said further extending material.
- 10 9. A package in according to anyone of the claims 1 - 7, characterised in that said engagement portion is positioned in the part of the package which is intended for enveloping the packaged product.
- 15 10. A package according to anyone of the preceding claims, characterised in that said package substantially consists of one piece of flexible material.
- 20 11. A method for producing a package of a flexible material, wherein two or more contacting layers of the material are bonded together in a particular area, in such a manner that the package can be
25 opened by pulling apart two bonded layers of material in said area by engaging said flexible material at the location of an engagement portion (7), wherein the part of the area located closest to said engagement portion (7) is provided with a
30 convex edge.
12. A method for packaging a product, wherein the product is enveloped with a flexible material, wherein two or more contacting layers of the
35 material are bonded together in a particular area, in such a manner that the package can be opened by pulling apart two bonded layers of material in said area by engaging said flexible material at the

location of an engagement portion (7), wherein the part of the area located closest to said engagement portion (7) is provided with a convex edge.

- 5 13. A method for opening a package of a flexible material, which package is closed by means of a seal (4) which has been formed by bonding together two or more contacting layers of the material in a particular area, wherein the bonded material is
10 pulled loose, starting at a portion of the area where the edge of said area has a convex shape.

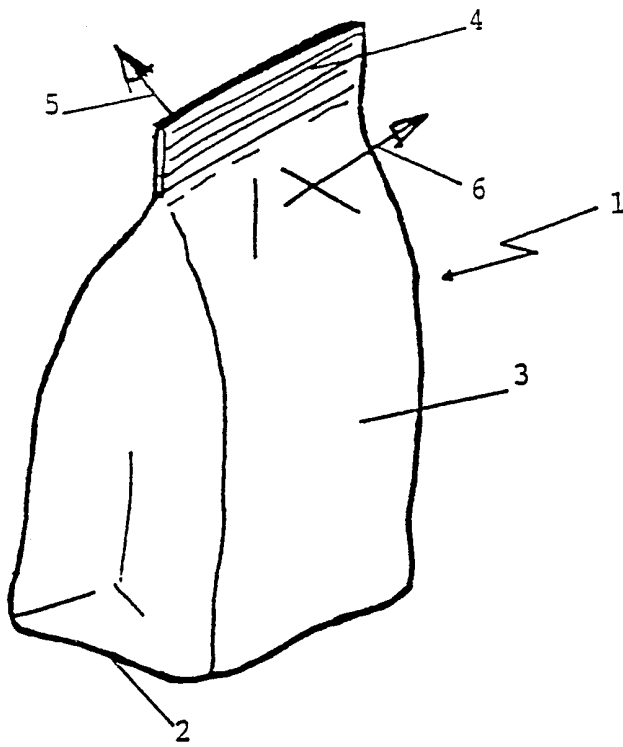


FIG. 1

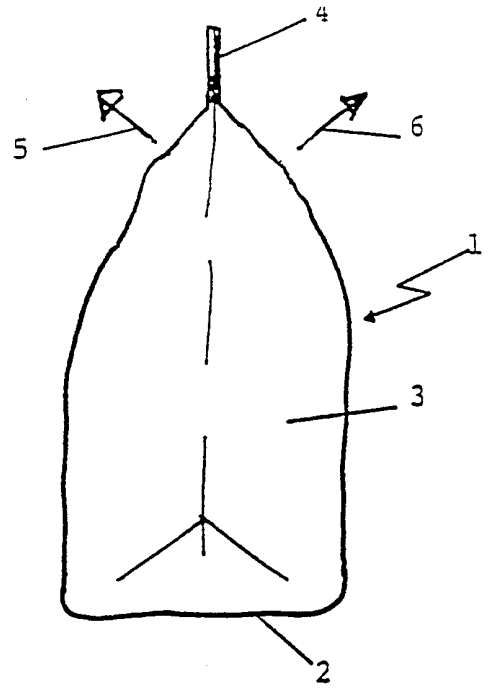


FIG. 2

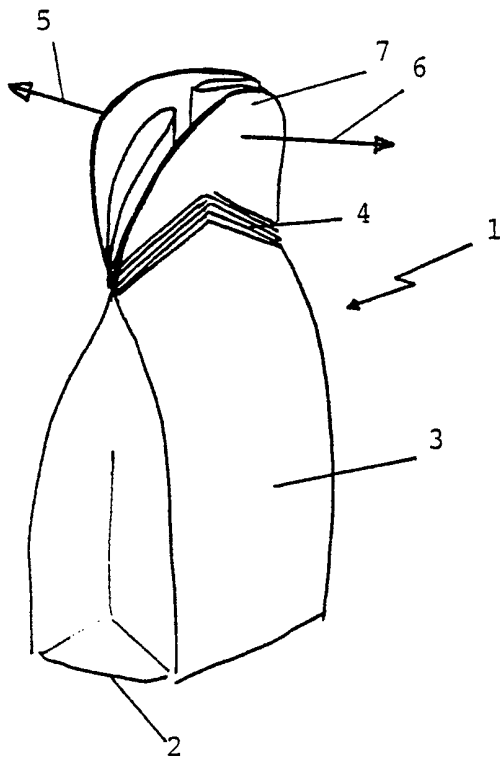


FIG. 3

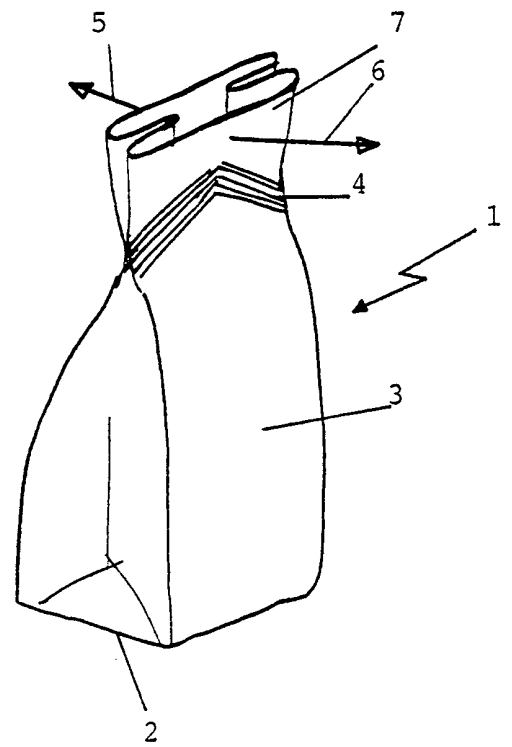


FIG. 4

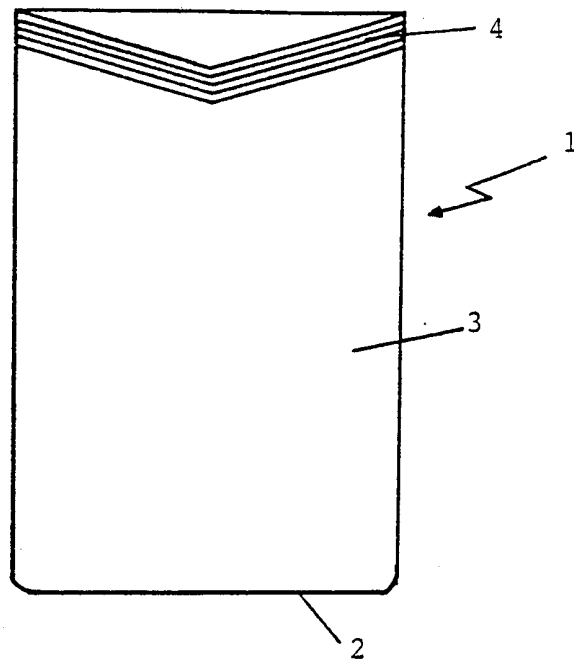


FIG. 5

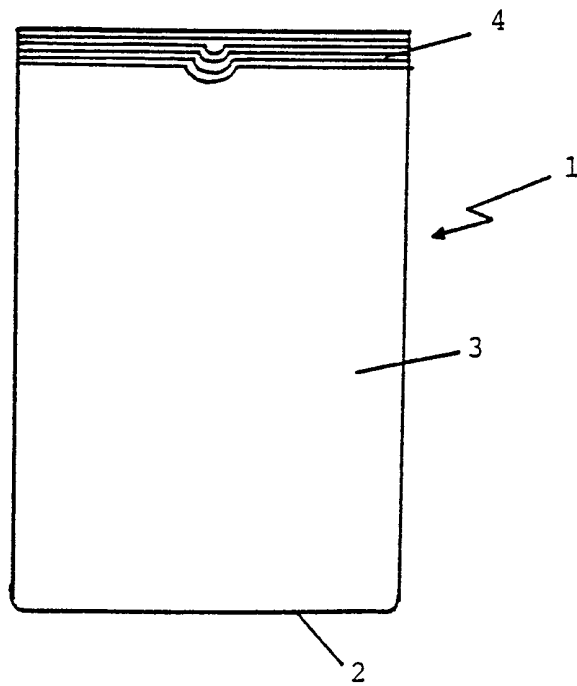


FIG. 6

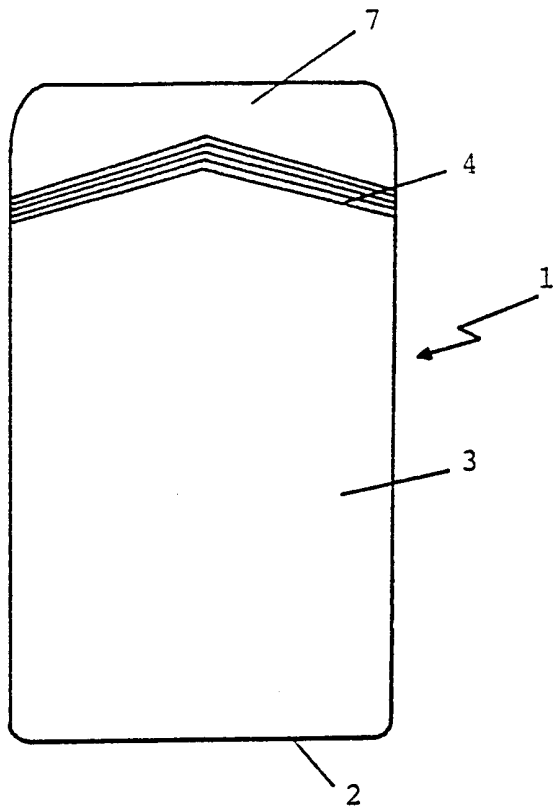


FIG. 7

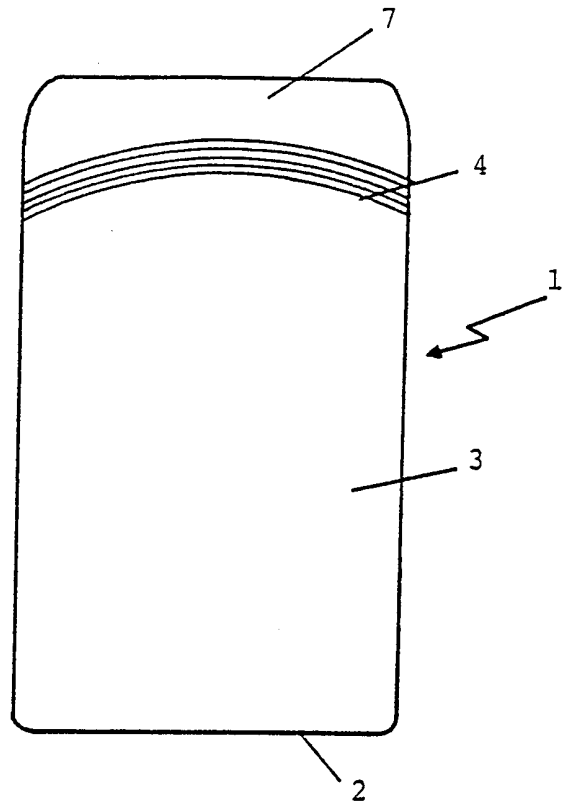


FIG. 8

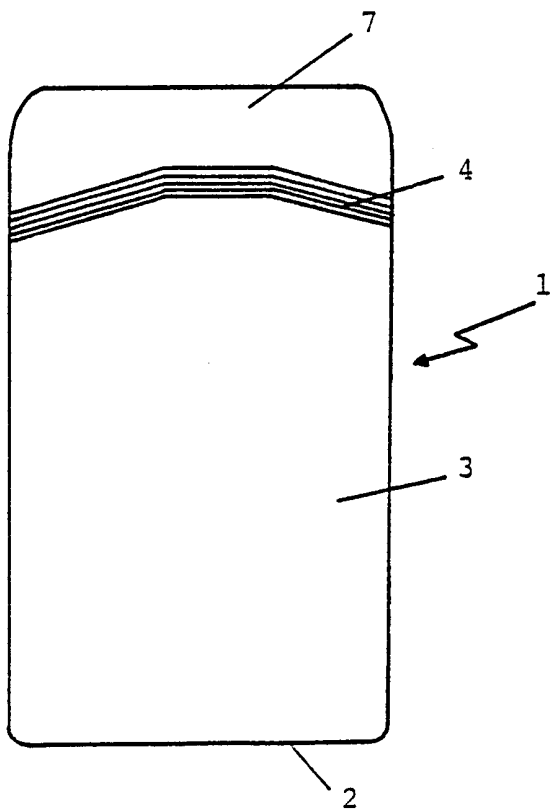


FIG. 9

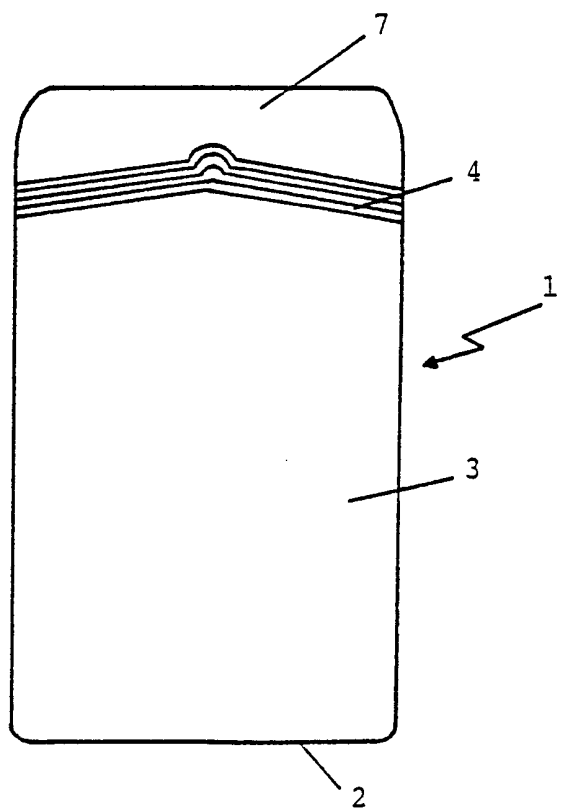


FIG. 10

INTERNATIONAL SEARCH REPORT

Int'l Application No

PCT/EP 00/02751

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65D75/58

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

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 343 629 A (HAG GF) 29 November 1989 (1989-11-29) column 3, line 50 -column 4, line 41; figures	1-4, 6-13
X	GB 620 354 A (SALFISBERG) page 3, line 8 - line 55; figures 1,5	1-8, 11-13
X	US 4 176 746 A (KOOI) 4 December 1979 (1979-12-04) column 5, line 7 - line 36; figures 3,4	1

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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

12 July 2000

Date of mailing of the international search report

21/07/2000

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

Newell, P

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/EP 00/02751

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 343629 A	29-11-1989	DE 3818111 A DE 8816810 U DK 257289 A FI 892145 A NO 892135 A	30-11-1989 16-08-1990 28-11-1989 28-11-1989 28-11-1989
GB 620354 A		NONE	
US 4176746 A	04-12-1979	NONE	