

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 December 2001 (20.12.2001)

PCT

(10) International Publication Number
WO 01/96194 A1

(51) International Patent Classification⁷: B65D 33/25, 27/38

(21) International Application Number: PCT/IL01/00542

(22) International Filing Date: 13 June 2001 (13.06.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/593,660 14 June 2000 (14.06.2000) US

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, 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, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

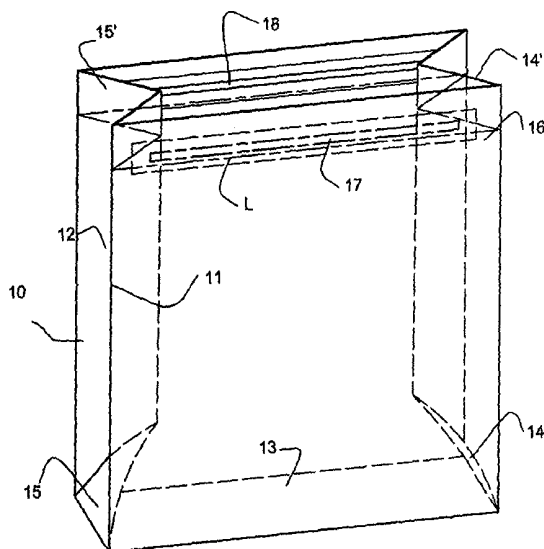
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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.

(54) Title: PLASTIC FILM POUCH HAVING A CLOSABLE ZIPPER



(57) Abstract: A pouch (10) for packaging a load of pieces, the pouch (10) being fabricated of sheets (11, 12) of plastic film interconnected by gussets (14, 15) whereby the pouch (10) is expandable to accommodate the load. A tear line (L) defines a strip (16) functioning as a tear-off seal (16) in which the sheets (11, 12) are bonded together to seal the pouch (10). Attached to the inner surfaces of the sheets (11, 12) at corresponding positions adjacent the tear line (L) are male (17) and female (18) tape components of a reclosable plastic zipper which becomes accessible to a user only after the seal (16) has been torn off the pouch (10). Thus, when the seal (16) is torn off and the user takes from the opened pouch (10) a serving of edible pieces, then in order to retain the remaining pieces in the pouch (10) for future servings, the user has only to operate the zipper to close the pouch (10).



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PLASTIC FILM POUCH HAVING A CLOSABLE ZIPPER

FIELD OF THE INVENTION

This invention relates generally to plastic film pouches for packaging a load of items such as edible pieces, and in particular to a gusseted pouch of this type having a tear-off seal permitting a user to take a serving of edible pieces out of the unsealed pouch which includes a plastic zipper making it possible for the user to thereafter close the pouch to retain therein the remaining pieces.

BACKGROUND OF THE INVENTION

It is now common practice to package a load of edible food pieces such as dried fruits, nuts, hard candies and corn chips in a pouch fabricated of thermoplastic film material, such as polyethylene or polypropylene sheeting. Such plastic films are thermally weldable so that the sheets from which the pouch is made can be thermally seamed and the resultant pouch permanently sealed (heat welding), thereby preventing spoilage and spillage of its contents.

Inasmuch as a preferred form of plastic-film pouch in accordance with the invention is provided with expandable gussets to accommodate a relatively large load of edible pieces, of prior art interest in the US patent 5,772,392 (1998) to Geller. The patent describes a pouch for food and other products formed of thermoplastic film material in which the front and rear sheets of the pouch are interconnected by gussets.

Plastic pouches for packaging edible products come in a range of sizes, the smallest of which provides a single serving of edible pieces. Thus if one purchases a small pouch of corn chips, after the pouch is torn open and its contents consumed, the pouch is then discarded. However, in the case of unitary

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items the pouch may be reused and thus it is desirable to provide the pouch with sealing means.

However, many commercially available pouches have a load capacity capable of providing several servings of the edible pieces packaged therein. This presents a problem, for once the pouch is torn open and the user has extracted
5 therefrom the pieces he wishes to then consume, he cannot reseal or close the pouch to retain the remainder of the load, even though he has no intention of wasting the remaining contents of the pouch.

In order therefore to close the now partially-loaded pouch so that it can be
10 stored for future consumption of its contents, it becomes necessary for the user to in some way improvise a closure for the torn-open pouch. Thus the user may use adhesive tape to close the torn-open pouch (some pouches are fitted with adhesive tape for that purpose), or he may simply fold in the torn off portion of the pouch in the hope that it will stay folded. But plastic film does not behave
15 like paper, for it resists folding. Hence the contents of the pouch may spill out of the inadequate closure.

Inasmuch as a pouch in accordance with the invention is provided with a closure system which by one particular embodiment is a plastic zipper having co-operating male and female tape components, of prior interest is US
20 Patent 4,947,525 to Van Erden which discloses a plastic zipper of this type. Such plastic zippers in the U.S. market are known under the trademark ZIP-LOK. However, other closure systems may be used such as a hook and pile closure (known under the trademark VELCROTM, opposite layers of adhesive tape material etc.

25

SUMMARY OF THE INVENTION

In view of the foregoing, the main object of the invention is to provide an initially sealed gusseted plastic film pouch adapted to package a load of items, the pouch incorporating in its structure a reclosable closure system which after the
30 pouch has been unsealed in order to take therefrom some of the items, the pouch

can then be reclosed by the closure system to retain therein the remaining items. Typically, but not necessarily, the items concerned are edible pieces.

By one preferred embodiment of the invention, the closure system is a plastic zipper.

5 A significant advantage of a pouch in accordance with the invention over a conventional pouch for packaging edible food pieces is that initially it is tightly sealed to retain the condition of the pieces as packed and after unsealing the pouch is reclosed by the plastic zipper to further retain freshness of the remaining pieces, and they are securely locked therein and will not spill out even if the pouch is
10 roughly handled.

Another advantage of the pouch is that after being torn open and all of its contents discharged, what remains is an empty pouch provided with a plastic zipper closure. Since this empty pouch is a usable plastic bag, it need not be discarded but can be put to a further use.

15 More particularly, an object of this invention is to provide a pouch of the above type in which the plastic zipper incorporated therein is concealed within the pouch and becomes accessible to the user after he has torn off the seal of the pouch.

Briefly stated, these objects are accomplished in a pouch for packaging a load of edible pieces, the pouch being fabricated of sheets of plastic film
20 interconnected by gussets whereby the pouch is expandable to accommodate the load.

Initially, the top edges of the sheets forming the pouch are sealingly welded to one another, there being formed a tear line parallel to the bottom or top edges of the pouch, defining a strip functioning as a tear-off seal. Attached to the inner
25 surfaces of the sheets at corresponding positions adjacent the tear line are the male and female tape components of a reclosable plastic zipper which becomes accessible to a user only after the seal has been torn off. Thus, when the seal is torn off and the user takes from the closed pouch a serving of edible pieces, then in order to retain the remaining pieces in the pouch for future servings, the user has
30 only to operate the zipper to close the pouch.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the invention as well as other objects and features thereof, reference is made to the attached drawings wherein

Fig. 1 is a perspective view of a pouch in accordance with the invention in its open state before being loaded with edible pieces;

Fig. 2 is a side view of the pair of plastic film sheets forming the pouch, to which are bonded the male and female tape components of a plastic zipper;

Fig. 3 shows the pouch in its sealed state after being loaded with the edible pieces;

Fig. 4 separately shows the tear-off seal of the pouch;

Fig. 5 shows the pouch in its open state after its seal has been torn off, the plastic zipper now being exposed; and

Fig. 6 shows the pouch in its locked state.

DETAILED DESCRIPTION OF AN EMBODIMENT

Referring now to Figs. 1 to 3, shown therein is a pouch **10** in accordance with the invention which is loadable with a supply of edible food pieces (not shown), such as dried fruits or nuts. To provide a pouch that is expandable to package a relatively large load of pieces, pouch **10** is of gusseted construction, which in the present example is a pouch having a rectangular base.

It is to be understood however that the invention is also applicable to non-expandable plastic pouches and that pouch **10** can also be used to package non-edible pieces.

Pouch **10** is fabricated of heat weldable thermoplastic films, such as polyethylene or polypropylene sheeting. It includes a rectangular front sheet **11** and a like rear sheet **12** whose bottom ends are interconnected through a base sheet member forming together a rectangular base portion **13**, and whose opposite sides are interconnected by a pair of overlapping triangular portions **14** and **15** from each one of which extends a triangular gusset **14'** and **15'**, respectively. The gussets are thermally seamed to the sheets. A more detailed description of the structure of a

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gusseted plastic film pouch and how it is manufactured is contained in the above-identified Geller patent.

When pouch **10** is in a flat, collapsed state, base **13** and gussets **14'** and **15'** then fold in to bring the front and rear sheets **11** and **12** together. When the pouch
5 is expanded, the gussets fold out to dilate the pouch and enlarge its capacity.

A tear line **L** which runs parallel to the upper ends of sheets **11** and **12** and runs through side gussets **14'** and **15'** defines a rectangular strip **16** in which the sheets **11** and **12** and the side gussets **14'** and **15'** are welded together to hermetically seal the pouch. Strip **16** therefore functions as a tear-off seal **16** which
10 when torn off the pouch opens its mouth so that one can now take out edible pieces contained in the pouch.

However, it should be appreciated that at least as far as the first embodiment, the tear line **L** may run in a different pattern rather than parallel to the top or bottom edges of the pouch.

15 Tear line **L** is created by weakening the plastic film sheeting along which this line runs. Thus when the sheeting is formed by bi-axially oriented plastic film, tear line **L** can be drawn on the film by a laser beam pencil which impinges on and softens the thermoplastic and destroys its orientation. Or the tear line can be produced by scoring the sheeting. However, one must be careful not to perforate
20 the sheeting, for to do so would impair the hermetic sealing of the pouch which is necessary to avoid spoilage of its contents.

By a different embodiment, the tear off seal may be provided with a tear ribbon so as to facilitate tearing of the strip **16**. Such a ribbon, made of a relatively tear resistant material, is adhered or embedded in the sheets, leaving an exposed
25 end thereof. Pulling the exposed end brings about tearing along the tear line.

Thermally welded or otherwise bonded (e.g. by adhering) to the inner surface of sheets **11** and **12** at corresponding positions adjacent tear line **L**, are the male tape component **17** and the female tape component **18** of a standard reclosable plastic zipper of a rib and groove construction (best seen in Fig. 2). In this zipper
30 the arrowhead-shaped rib **R** of the male tape **17** is engaged by the locking jaws **J** of

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the groove in female tape **18**. The invention is not limited to this particular form of plastic zipper, for use may be made of any plastic zipper having complementary components which when pressed together lock the zipper, such as a VELCROTM plastic zipper having male hook and female loop components.

5 The placement of the male and female tape components, as best seen in Fig. 2, on sheets **11** and **12** relative to tear line **L** is such that when seal **16** is torn off the pouch whereby tear line is now the lip of an open mouth, the male and female tapes then extend above the tear line. The male and female components can now be seen and manipulated by the user of the pouch. The placement of each tape
10 is such that the portion thereof which extends above the tear line and includes the locking element (the rib or the groove) is unbonded, whereas the portion below the tear line is bonded to a sheet of the pouch.

 However, by an alternative design, the tear line **L** extends below the male and female tape components of the closure, where a top edge of said tapes
15 constitutes the mouth of pouch. It is further to be understood that the tear line may be formed either above or below the closure means.

 Hence when a user wishes to take a serving of edible pieces from the sealed and loaded pouch, he must first tear off seal **16**. This acts to open the mouth of the pouch so that the user can now take edible pieces out of the pouch. But if the user
20 does not exhaust the contents of the pouch and wishes to close it to retain the pieces remaining in the partially loaded pouch, the user has only to press together and interlock the male and female components of the plastic zipper to lock the pouch as shown in Fig. 6.

 Because the plastic pouch after its seal has been torn off is reclosable, once
25 the pouch has served its original purpose and the supply of packaged pieces has been exhausted, there is no reason to discard the pouch, for it still has utility. Thus the now empty pouch which is provided with a plastic zipper can be used to package other items.

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While there has been shown a preferred embodiment of a plastic pouch in accordance with the invention, it is to be understood that many changes may be made therein without departing from the spirit of the invention.

CLAIMS:

1. A pouch fabricated of plastic film sheeting for packaging a load of pieces, said pouch comprising:
 - 5 A. Front and rear rectangular sheets interconnected at their bottom ends and sides to form a bag to accommodate the pieces;
 - B. A tear line formed on the sheets adjacent to their upper ends to define a strip in which the sheets are bonded together to seal the bag, whereby the strip constitutes a tear off seal; and
 - 10 C. A reclosable closure system having complementary tape components which are attached to the inner surfaces of the sheets at corresponding positions adjacent the tear line, whereby when the seal is torn off the pouch, the components of the closure system then extend adjacent the tear line so that they can be manipulated to close the pouch.
- 15 2. A pouch as set forth in Claim 1, in which the closure system is a reclosable plastic zipper.
3. A pouch as set forth in Claim 1, wherein the tear line is parallel at least to bottom edges of the pouch.
4. A pouch as set forth in Claim 1, wherein a tear-ribbon is provided integral with the sheets, with an end thereof accessible to facilitate tearing of said tear off
20 seal.
5. A pouch, as set forth in Claim 1 in which the plastic films are formed of thermoplastic, heat-weldable material, whereby the sheets are thermally welded to seal the pouch.
6. A pouch, as set forth in Claim 3, in which the plastic films are formed of
25 polyethylene.
7. A pouch as set forth in Claim 1, in which the front and rear faces interconnect at their bottom edge through a rectangular base portion made of a separate sheet member.
8. A pouch as set forth in Claim 7, wherein side walls of the pouch are
30 constituted by respective portions of the front and rear sheets which interconnect at

their bottom edges with a triangular portion overlapping with a portion of the base sheet.

9. A pouch, as set forth in Claim 7, in which said sheets are interconnected at their bottom ends by a triangular gusset.

5 10. A pouch, as set forth in Claim 2, in which said plastic zipper has a male tape component and a female tape component.

11. A pouch, as set forth in Claim 10, in which the male tape component is provided with a rib and the female tape component is provided with a groove to receive the rib.

10 12. A pouch, as set forth in Claim 1 in which the pieces of the load are edible food pieces, whereby a user after tearing off the seal and taking from the pouch some of the pieces, can then by operating the zipper close the pouch to retain the remaining pieces therein.

15 13. A pouch, as set forth in Claim 1 in which the plastic sheets are formed of bi-axially oriented film material and the tear line is created by drawing it with a larger beam pencil.

14. A pouch as set forth in Claim 1, wherein the tear line extends below the tape components of the closure system whereby top edges of the tape components constitute a mouth of the pouch after tearing off the strip.

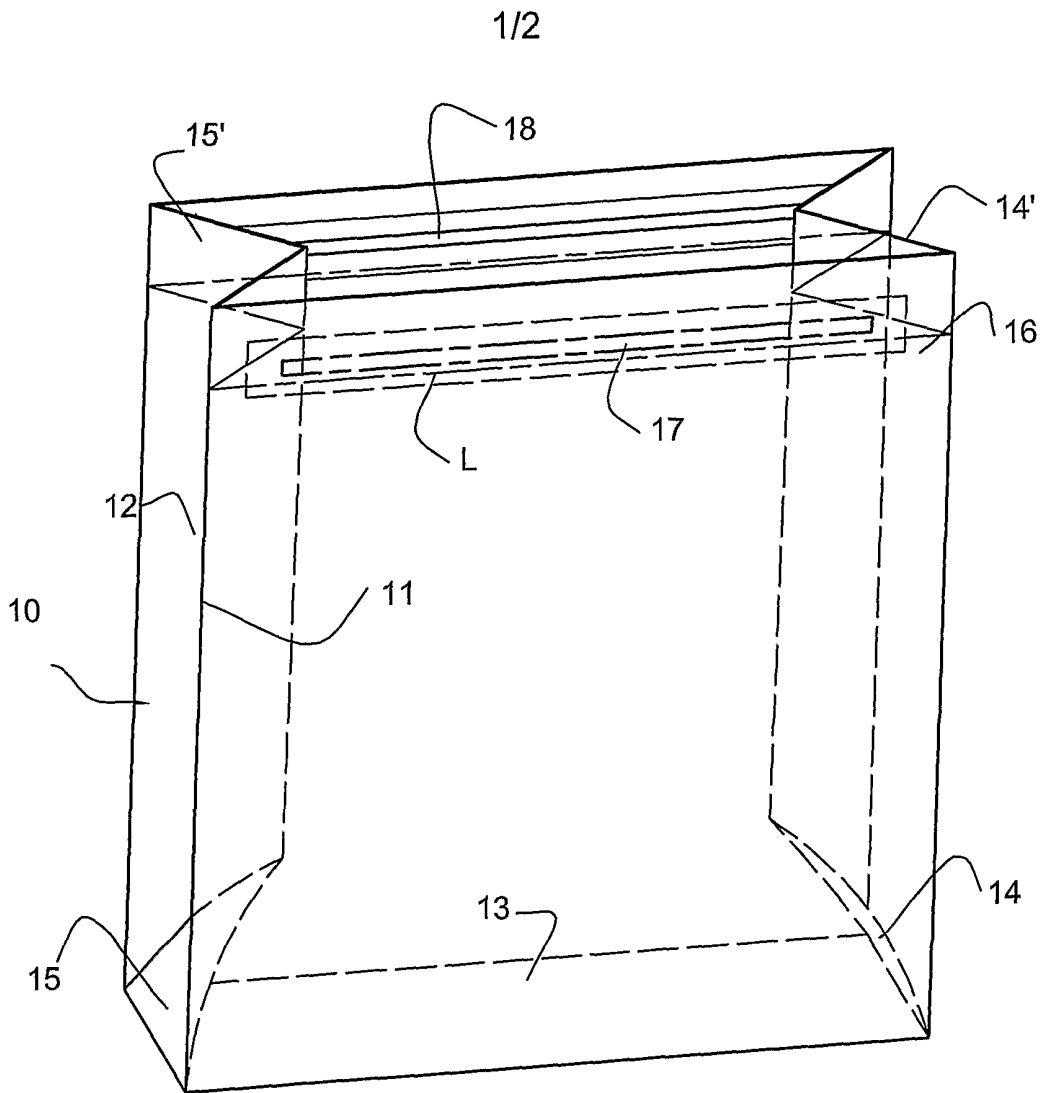


FIG. 1

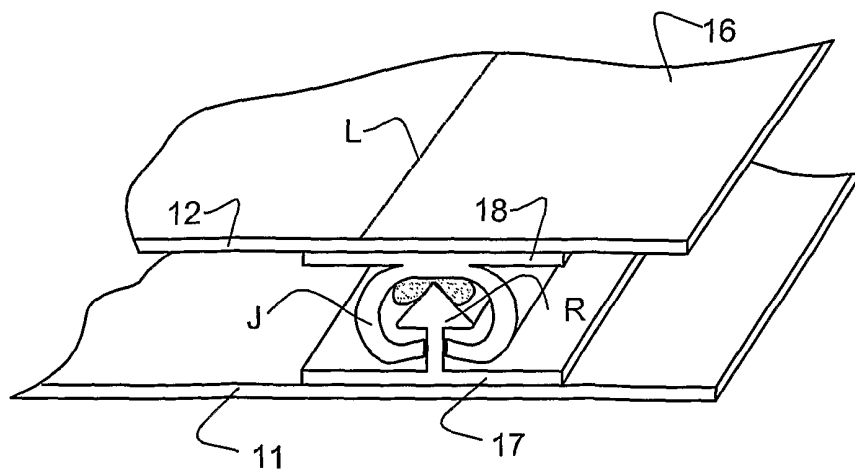


FIG. 2

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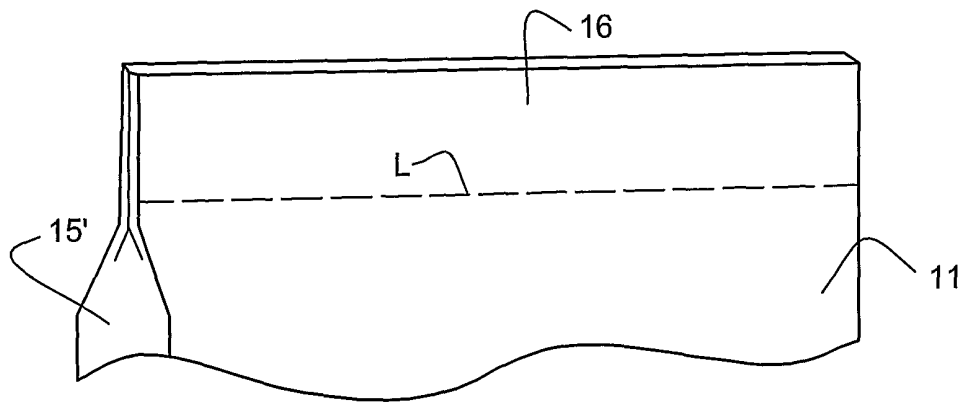


FIG. 3

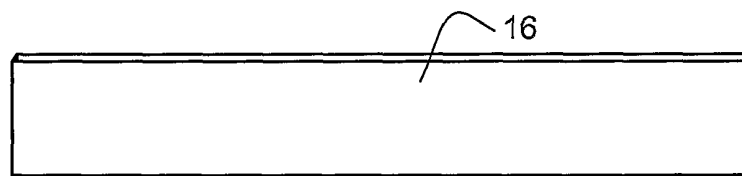


FIG. 4

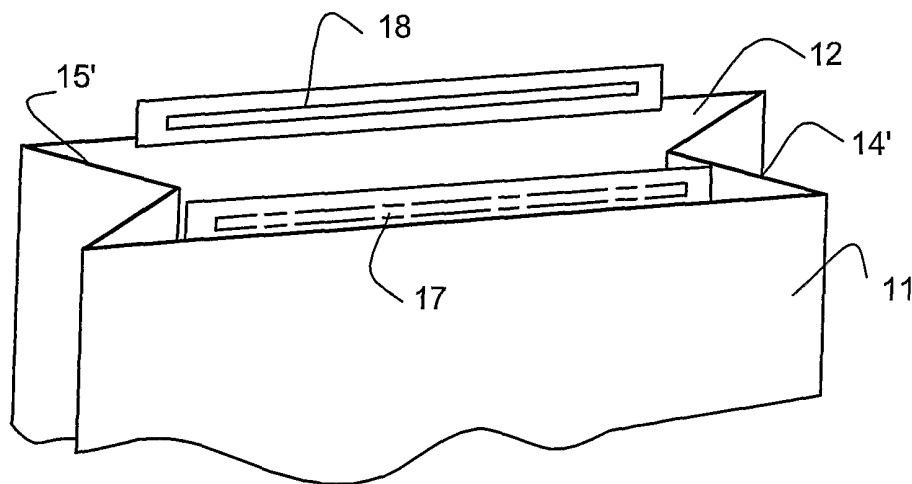


FIG. 5

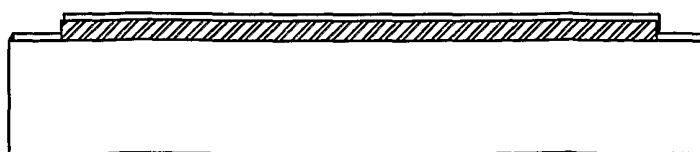


FIG. 6

INTERNATIONAL SEARCH REPORT

Inte	Application No
PCT71L	01/00542

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 B65D33/25 B65D27/38

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 A44B

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.
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Y	column 1-11; figures 1-12 ---	3,7-9
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A	column 3-8; figures 1-14 ---	14
A	US 2 746 502 A (CAMPRUBI GRAELL ALBERTO) 22 May 1956 (1956-05-22) figure 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	*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
E earlier document but published on or after the international filing date	*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
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)	*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.
O document referring to an oral disclosure, use, exhibition or other means	*&* document member of the same patent family
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 15 October 2001	Date of mailing of the international search report 26/10/2001
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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Vollering, J
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INTERNATIONAL SEARCH REPORT

Int'l Application No
PC171L 01/00542

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Information on patent family members

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