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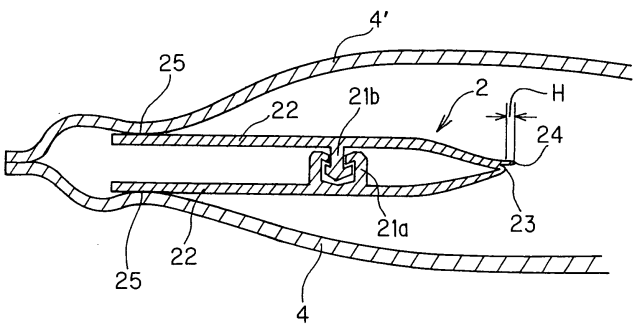
(54) ZIPPER POUCH WITH A SPOUT

(57) It is an object of the present invention to provide a pouch comprising a plurality of plastic sheets sealed on periphery, the pouch having a contents spout and a plastic zipper arranged in a fused state between the sheets whose outer periphery is sealed, and the pouch being heat-sterilized after being filled with contents. The aforedescribed aspect of the present invention is **characterized in that** a barrier portion is formed in a portion of the pouch interior set further toward the contents and away from the plastic zipper, the barrier portion formed in a state in which a film base material has been folded over. As a result, even if any damage is imparted during the step for manufacturing the plastic zipper or the step for mounting the zipper in the pouch, there will be no incidence of the contents leaking from the barrier portion and reaching the zipper portion due to heat and pressure encountered when retort sterilization, boiling, or another type of heat sterilization is performed after the pouch has been filled with foodstuffs or other material. The customer can thus be provided with a product that is stable in terms of hygiene and quality control.

Fig. 2



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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a pouch having a function for resealing foodstuffs or other contents, and more specifically relates to a pouch that is subjected to retort sterilization after, e.g., an enteral nutrient, liquid food, or the like has been stored in the pouch. The present invention particularly relates to a zippered pouch with a spout having a plastic zipper therein in order to facilitate removal, dilution, or re-moistening of the contents; washing of the content-dispensing tube; or resealing after contents have been removed. The zippered pouch with a spout also has a barrier portion in which an extended portion of a plastic film used as the zipper base material that is folded back further inward from the zipper; i.e., towards the contents, forms a low-strength portion. As a result, defects are less likely to arise in the barrier portion of the zipper in the manufacturing step, and the barrier portion does not rupture due to heat or pressure during retort sterilization or due to internal pressure from loading or the like during transportation, after the zippered pouch has been fashioned into an end product.

2. Description of the Related Art

[0002] Japanese Laid-open Patent Publication No. 2005-206162 is an invention related to a zippered pouch with a spout developed by the present applicants, wherein a plastic linear fastener (zipper) 2 is disposed inside a pouch A in the upper portion of the pouch, and moisture or the like can be readily replenished by opening and closing the linear fastener 2, which is shown in FIG. 6. The zipper 2 in the pouch described in Japanese Laid-open Patent Publication No. 2005-206162 has a linear convexity formed on one surface of a film base material 22, and a concavity that fits the convexity and is formed on the surface facing the convexity. The zipper 2 is configured to be opened and closed by the interlocking 21 of the convexity and the concavity. A barrier portion 23 is formed in which the side facing inward from the mating portion; i.e., the portion in which the film base material extending to the contents is folded back, forms a low-strength portion, and the barrier portion 23 can be ruptured after the zipper portion has been unzipped.

[0003] With such a configuration, a zipper-fitted portion is provided in an upper part of a sealed opening portion 15 of the pouch, and a barrier portion 23 is formed further inward from the zipper portion on the portion in which a film used as a zipper base material is extended and folded back; therefore, the enteral nutrients, liquid foodstuffs, retort foodstuffs or other contents stored in the pouch do not pass beyond the zipper-fitted portion and leak out to the sealed opening portion 15, even during retorting. Accordingly, when the sealed opening portion 15 is opened, the contents do not spill out and foul the fingers of the user when used.

[0004] There are various methods for manufacturing a plastic zipper, but ordinarily, a convexity and a concavity (zipper mating portion) that fits onto the convexity are melt-extruded onto a film base material composed of polypropylene. The assembly is water-cooled and dried, drawn through nip rollers, folded about the barrier portion, and rolled up in a mated state, after which the product is shipped. However, the folded portion of the film (the barrier portion constituting a low-strength portion) sometimes comes into contact with a guide roll or the like of the production machine during the manufacturing step, which is liable to cause unobservable damage to the low-strength portion and produce pinholes.

SUMMARY OF THE INVENTION

[0005] The barrier portion constituting the low-strength portion shields the contents in the zippered retort pouch A in the manner described in Japanese Laid-open Patent Publication No. 2005-206162, and the contents are prevented from passing beyond the surface on which the mating convexity and concavity portions of the zipper portion 2 are formed. However, when the pouch undergoes retort sterilization in a state in which the barrier portion 23 is damaged or has pinholes, problems are presented in that the contents can leak out to the surface on which mating convexity and concavity portions of the zipper are formed because the damaged portion of the barrier portion 23 constituting the low-strength portion may rupture or otherwise become porous, the utility as a pouch for storing foodstuffs is compromised because the contents spill out [onto the fingers of the user] when the pouch is opened, leaky pouches cannot be provided to customers as a product, and the discard rate increases.

[0006] In view of the above, an object of the present invention is to provide a zippered pouch with a spout in which the plastic zipper provided to the zipper-pouch with a spout is reinforced so that the low-strength portion constituting the barrier portion is not damaged when contact is made with a guide roll or the like in the manufacturing step, and so that heat treatment can be withstood during retort sterilization.

[0007] The present invention was contrived in order to achieve the object described above, and is configured as follows.

[0008] According to the present invention, there is provided a pouch comprising a plurality of plastic sheets sealed on periphery, the pouch having a contents spout and a plastic zipper arranged in a fused state between the sheets whose outer periphery is sealed, and the pouch being heat-sterilized after being filled with contents and sealed, wherein

the plastic zipper has

a linear convexity formed on one surface of a film base material;

a concavity into which the convexity fits, the concavity

formed on a surface of a film base material facing the convexity;
a barrier portion formed on a portion set further toward the contents and away from the convexity and the concavity, the barrier portion being formed in a state in which the film base material has been folded over; and
a tongue piece providing a fluid-tight barrier between the side of the pouch interior on which the contents spout is disposed and the other side, the tongue piece extending from the barrier portion towards the contents on at least one of the film base materials of the barrier portion.

[0009] According to the present invention, furthermore, there is provided the zippered pouch with a spout, wherein the rupture strength of the barrier portion is 10 to 150 N/50 mm width.

[0010] According to the present invention, furthermore, there is provided the zippered pouch with a spout, wherein the contents spout is set apart from the zipper on the pouch outer periphery and comprises an outlet member that is different from the plastic sheet.

[0011] According to the present invention, furthermore, there is provided the zippered pouch with a spout described above, wherein the pouch is a bottomed pouch.

[0012] According to the first aspect of the present invention, in the zippered pouch provided with a contents spout, the tongue piece covers the end surface of the folded portion (barrier portion) of the film connected to the zipper arranged inside the pouch, whereby the end surface of the barrier portion is prevented from being damaged in the step for manufacturing the zipper or in the step for mounting the zipper on the pouch. As a result, there is no incidence of the contents leaking from the barrier portion and reaching the zipper portion due to heat and pressure even when a step is provided for carrying out retort sterilization, boiling, or another type of heat sterilization after the pouch has been filled with foodstuffs and the pouch has been sealed. Therefore, a product that is stable in terms of hygiene and quality control can be provided to the customer.

[0013] In accordance with the second aspect of the present invention, the barrier portion is formed to have a rupture strength of 10 to 150 N/50 mm width, whereby the barrier portion can be manually opened in a simple manner after the zipper has been opened, and there is no instance of excessive force being required and contents spillage on opening.

[0014] In accordance with the third aspect of the present invention, the pouch may have a separate, rigid outlet member used as the spout shown in FIG. 1. In this case, a tube may be connected to the outlet to deliver the contents, which is advantageous for liquid food or the like because moisture can be replenished via the zipper portion and the pouch can be resealed.

[0015] In accordance with the fourth aspect of the present invention, the zippered pouch with a spout may be a bottomed pouch in which the opening portion is formed only in the upper part of the pouch, as shown in FIG. 4, and the range of use can be increased.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016]

FIG. 1 is a front view of an example of the zippered pouch with a spout of the present invention;
FIG. 2 is a transverse cross-sectional view of the zipper used in the zippered pouch with a spout of the present invention;
FIG. 3 is a foldout view of the zipper shown in FIG. 2;
FIG. 4 is a perspective view of a bottomed pouch provided with a zipper;
FIG. 5 is a front view of a zippered pouch with a grip portion; and
FIG. 6 is a front view of conventional liquid-food pouch described in Japanese Laid-open Patent Publication No. 2005-206162.

KEY TO SYMBOLS

[0017]

1,A:	Pouch
11:	Pouch periphery (sealed portion)
12:	Pouch contents
14:	Grip portion
15:	Sealed opening portion
16:	Bottom of bottomed pouch
2:	Zipper
21:	Zipper mating portion
21a:	Zipper concavity portion
21b:	Zipper convexity portion
22:	Zipper film base material
22a:	End portion in the lengthwise direction of the zipper
23:	Barrier portion (weakened portion)
24:	Tongue piece
25:	Zipper-fusing portion
26:	Hanging hole
3:	Spout
31:	Outlet (content dispenser)
4,4':	Plastic sheet of pouch body

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0018] Preferred embodiments of the present invention are described below with reference to the drawings.

[0019] FIG. 1 is a front view of the zippered pouch 1 with a spout of the present invention. The main part of the pouch 1 is composed of a plurality of plastic sheets (the pouch in FIG. 1 has two sheets 4, 4', front and back.) with a sealed periphery 11. An outlet 31 made of a rigid synthetic plastic material is fused to the lower periphery of the pouch to form a contents spout 3. The plastic zipper 2 (hereinafter referred to merely as "zipper") in the upper

portion inside the pouch is arranged in a state in which the two end portions in the lengthwise direction of the zipper and the end portion of the upper side thereof are fused to the pouch body.

[0020] In other words, the zippered pouch with a spout of the present invention is sealed in a state in which the end portion 22a (relative to the lengthwise direction of the zipper) of the film base material 22 of the zipper is sandwiched between the front and back sheets on the periphery of the two end portions of the pouch. The film base material 22 is sealed to the inner surfaces of the front and back sheets of the pouch body in which the surface on which the concavity and convexity portions are formed and the surface opposite thereto face each other in a location above the mating portion 21 along the lengthwise direction of the zipper to form a zipper-fusing portion 25. The upper-end edge portion of the pouch body is sealed so that the portion above the zipper-fusing portion 25 constitutes the sealed opening portion 15 below the seal portion 11.

[0021] FIG. 2 is a transverse-sectional view of the zipper 2 of the present invention.

[0022] The zipper 2 has a convexity portion 21b formed on one surface of the film base material 22; a concavity portion 21a for engaging the convexity portion 21b, and formed on the other surface; and a barrier portion 23 formed from the portion that is folded over from a location set apart from the zipper portions 21a, 21b. The barrier portion 23 is a low-strength portion that is ordinarily thinly formed so that the barrier portion can be manually ruptured after the zipper portion has been opened.

[0023] The barrier portion 23 must be strong enough so as not to rupture or suffer pinholing during retort sterilization, boiling, or other types of heat treatment performed after the pouch has been filled, but must be thin enough so that when the zipper is opened, the barrier portion will rupture after being opened manually without requiring excessive force. The level in terms of rupture strength is 10 to 150 N/mm width, and about 10 to 100 μm in terms the thickness of the barrier portion.

[0024] An important aspect of the present invention is that, as shown in FIG. 2, one of the films constituting the barrier portion 23 extends further beyond the folded portion, and the tongue piece 24 is formed on the surface opposite the surface on which the convexity portion 21b and the concavity portion 21a are formed, whereby the end surface of the barrier portion 23 is positioned inward from the tongue piece. It is therefore possible to avoid instances where the end surface makes contact with a guide roll or the like and gets damaged during the step for manufacturing the zipper. Accordingly, since the end surface of the barrier portion 23 is sealed inside the pouch in an undamaged state, the barrier portion 23 does not suffer damage nor are pinholes formed even when retort sterilization or other heat treatment is carried out after the pouch is filled, and [the pouch] can be manufactured in a state in which the contents and the surface on which the convexity portion 21b and the concavity portion 21a of the zipper portion are formed are completely separate.

[0025] The extended state of the tongue piece 24 (indicated by H in FIG. 2) is not particularly limited as long as the end surface of the barrier portion is not the leading edge and is protected by the tongue piece. However, according to experiments performed by the present inventors, the length may be at least 0.1 mm or more, and is most preferably 0.4 to 0.5 mm in terms of handling, material costs, and other considerations. The shape of the tongue piece 24 is most preferably a shape that covers in parallel the front surface of the end surface of the barrier portion 23 in the lengthwise direction of the zipper, but there is no drawback in terms of performance if the tongue piece 24 is partially missing as long as the end surface of the barrier portion 23 does not make contact with the guide roll or the like in the manufacturing step. Considering its purpose, the tongue piece 24 may be present along the barrier portion 23, on the right end thereof.

[0026] Having the portions of the film base material 22 extending beyond the zipper 2 and into the pouch connected as the barrier portion 23 prevent the pouch contents from making direct contact with the surface of the film base material 22 on the pouch-opening side of the zipper 2. Therefore, the pouch contents, which reach a high temperature due to heat and pressure during retort sterilization, do not make contact with surface of the zipper 2 on the opposite side of the contents. Accordingly, the pouch contents do not get deposited on or near the interlocking portions 21a, 21b of the zipper 2, and it is possible to prevent in advance any instances of the contents being deposited on the zipper portion when the sealed opening portion 15 of the pouch periphery is opened and the zipper 2 portion comes into contact with outside air.

[0027] The plastic film constituting the pouch must be capable of being heat-sealed, and is preferably heat-resistant. A single-layer film may be used as the film material, but ordinarily, the material is provided with heat-sealing properties and barrier properties. Therefore, it is preferable to use a laminate film composed of an inner layer (heat-sealing layer), an intermediate layer (barrier layer), and an outer layer (surface layer); or an inner layer (heat-sealing layer), an intermediate layer (base material layer), an intermediate layer (barrier layer), and an outer layer (surface layer). It is particularly preferred to use a laminate film in which the inner layer is composed of polypropylene, the intermediate layer is composed of nylon, and the outer layer is composed of polyethylene terephthalate, the inner layer side having a vapor-deposited thin film composed of aluminum oxide, inorganic silicon, or the like as a barrier layer. Other than the vapor deposition layer, an ethylene-vinyl alcohol copolymer resin (EVOH), aluminum foil, or the like may be used as a barrier layer in addition to the vapor deposition layer. Other than polypropylene, polyethylene may be used as the inner layer, and other than polyethylene terephthalate, nylon or the like may be used as the outer layer.

[0028] The spout 3 in the zippered pouch 1 with a spout of the present invention may be a contents dispenser 31 known as an outlet and ordinarily molded using polypropylene resin or another retort-resistant hard plastic material, or the known dispenser as such described in Japanese Laid-open Patent Publication No. 2005-206162 described above. Since the dispenser is mounted in a state of being fused between the inner layers of the plastic film in the outer periphery 11 of the plastic film constituting the body of a liquid-food pouch, the material of the dispenser must be capable of being fused with the film inner layer constituting the pouch. The shape of the distal end of the dispenser may be tapered so as to facilitate insertion into a pipe, or may be suitably fashioned with a concavoconvex shape at the distal end portion external periphery in order to reduce the possibility of the pipe becoming dislodged. The spout 3 of the zippered pouch with a spout of the present invention is formed by mounting the content dispenser (outlet) 31 as a separate member provided with a dispensing nozzle, such a configuration being preferred in that the mounting of a duct or other the dispensing work is facilitated. However, it is also possible to use a configuration in which the pouch body is formed in the shape of a nozzle to constitute a spout rather than mounting a content dispenser as a separate member.

[0029] A hole 26 for hanging the pouch is provided to the zippered pouch with a spout in the sealed portion of the upper part of the pouch away from the spout 3, such a pouch being advantageous in that it is suspended from a hook in a hospital or the like in order to deliver liquid food to a patient. In this case, the zipper portion 2 can be used as a moisture replenishment port after the contents have been administered, and the zipper with the extended tongue piece used to protect the barrier portion of the present invention has excellent hygiene and hermetic-sealing properties and can be used in an advantageous manner.

[0030] The seal of the pouch peripheral portion is preferably a heat seal, but ultrasonic sealing may also be used. An important aspect of the present invention is the extended tongue piece for protecting the end surface of the barrier portion of the zipper, the shape of the pouch not being particularly limited as long as it is zippered and has a spout.

[0031] When moisture replenishment, dilution, content removal, or the like is carried out via the zipper portion, the sealed opening portion 15 in the upper area of the pouch is cut or otherwise opened, the zipper arranged in a fitted state therebelow is laterally opened and disengaged, and the low-strength portion of the barrier portion 23 then ruptures. Moisture can then be replenished or contents removed.

[0032] The sealed opening portion 15 is designed to be cut or opened to thereby open the zipper portion 2. A line may be printed or otherwise provided to the sealed opening portion in the case that the portion is to be opened with a pair of scissors or another cutting tool, and a low-strength line may be formed by laser processing or another technique to allow the portion to be manually torn.

[0033] The zippered pouch with a spout of the present invention may have a bottom, as shown in FIG. 4. This bottomed pouch may have a film constituting a bottom portion 16 disposed between the two films that constitute the front and back, and the peripheral portion sealed as to have a bottomed shape.

[0034] Since the pouch can be stood upright on its bottom, a liquid-food pouch, for example, can be loaded into wagon or the like and stably transported or moved; and a hose, pot, pitcher, or the like can be used to stably and reliably add water or the like when an opening is formed for replenishing water or the like.

[0035] In the pouch of the present invention, a grip portion 14 may be formed on, e.g., at least one side of the upper end portion in order to allow a user to readily carry the pouch, as shown in FIG. 5. In such a situation, the sealed opening portion 15 of the pouch is formed inside the grip portion 14, thereby allowing a user to insert their finger into a grip portion 14a after the pouch has been opened and thereafter to perform work while griping the open portion with the pouch in a readily portable, nonslip state.

INDUSTRIAL APPLICABILITY

[0036] According to the zippered pouch with a spout of the present invention, a barrier portion formed using a film base material constituting a plastic zipper provided in a fused state in the pouch has an end surface that is covered by a tongue piece so that the end surface is not positioned beyond the distal end of the tongue piece. Therefore, the end surface of the barrier portion will not suffer damage in the zipper manufacturing step; the barrier portion will neither rupture nor suffer pinholing due to heat and pressure encountered when the zippered pouch undergoes retort sterilization, is loaded during transportation, or is subjected to other processes after being loaded with contents; the pouch contents can be completely prevented from deteriorating or decomposing; the customer can be provided with a highly reliable product; and the stable quality will yield excellent industrial applicability.

Claims

1. A zippered pouch with a spout comprising a plurality of plastic sheets sealed on periphery, the pouch having a contents spout and a plastic zipper arranged in a fused state between the sheets whose outer periphery is sealed, and the pouch being heat-sterilized after being filled with contents and sealed, wherein:

   the plastic zipper has

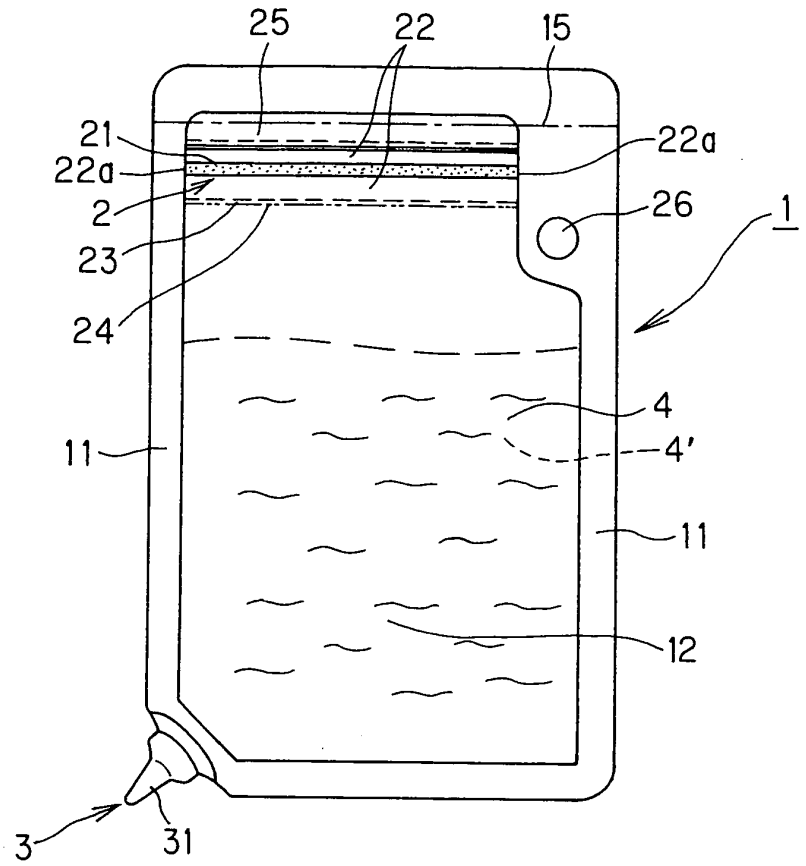
a linear convexity formed on one surface of a film base material;
a concavity into which the convexity fits, the concavity formed on a surface of a film base material facing the convexity;
a barrier portion formed on a portion set further toward the contents and away from the convexity and the concavity, the barrier portion being formed in a state in which the film base material has been folded over; and
a tongue piece providing a fluid-tight barrier between the side of the pouch interior on which the contents spout is disposed and the other side, the tongue piece extending from the barrier portion towards the contents on at least one of the film base materials of the barrier portion.

2. The zippered pouch with a spout of claim 1, wherein the rupture strength of the barrier portion is 10 to 150 N/50 mm width.

3. The zippered pouch with a spout of claim 1 or 2, wherein the contents spout is set apart from the zipper on the pouch outer periphery and comprises an outlet member that is different from the plastic sheet.

4. The zippered pouch with a spout of any of claims 1 through 3, wherein the pouch is a bottomed pouch.

Fig. 1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22
15
21
22a
22a
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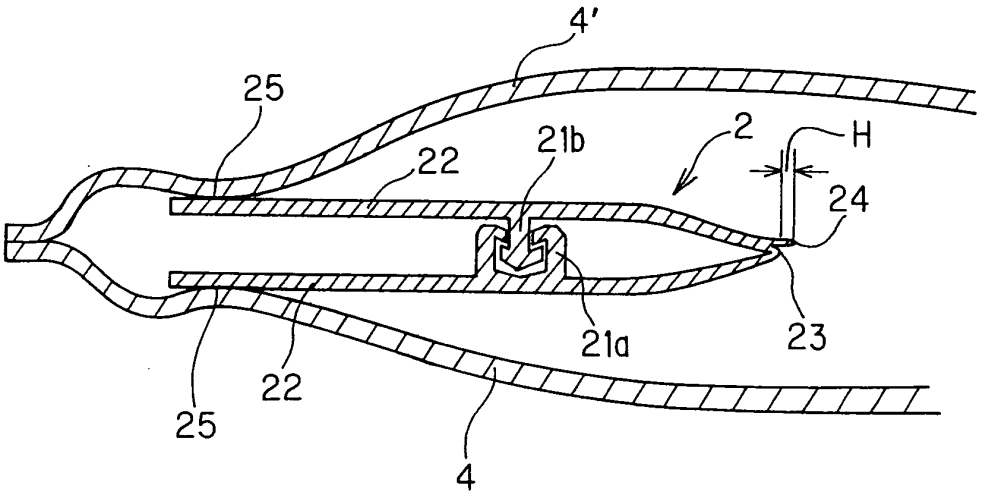
Fig. 2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21b
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H
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Fig. 3

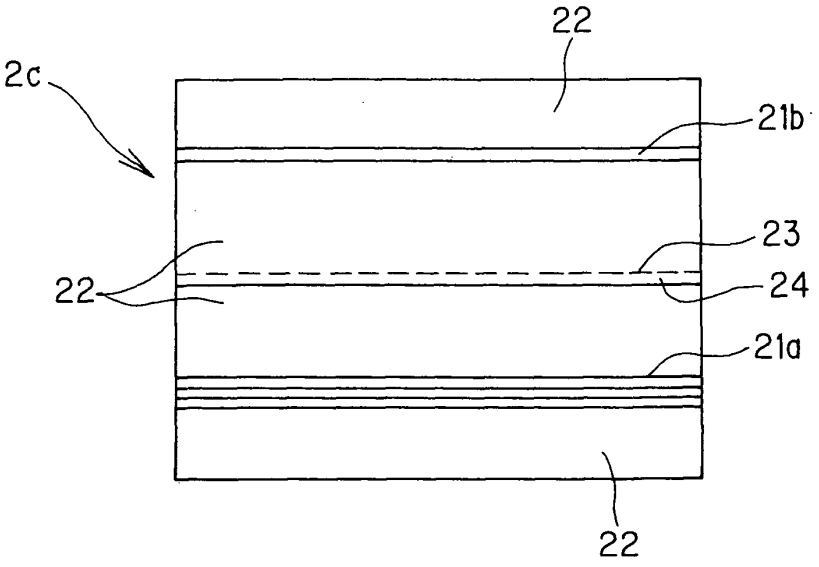


Fig. 4

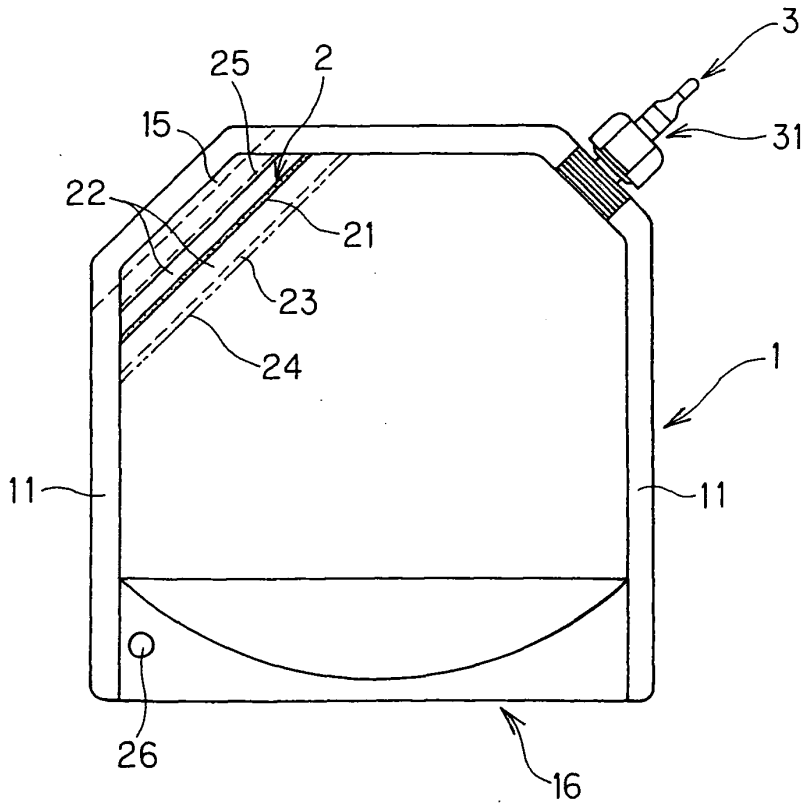


Fig. 5

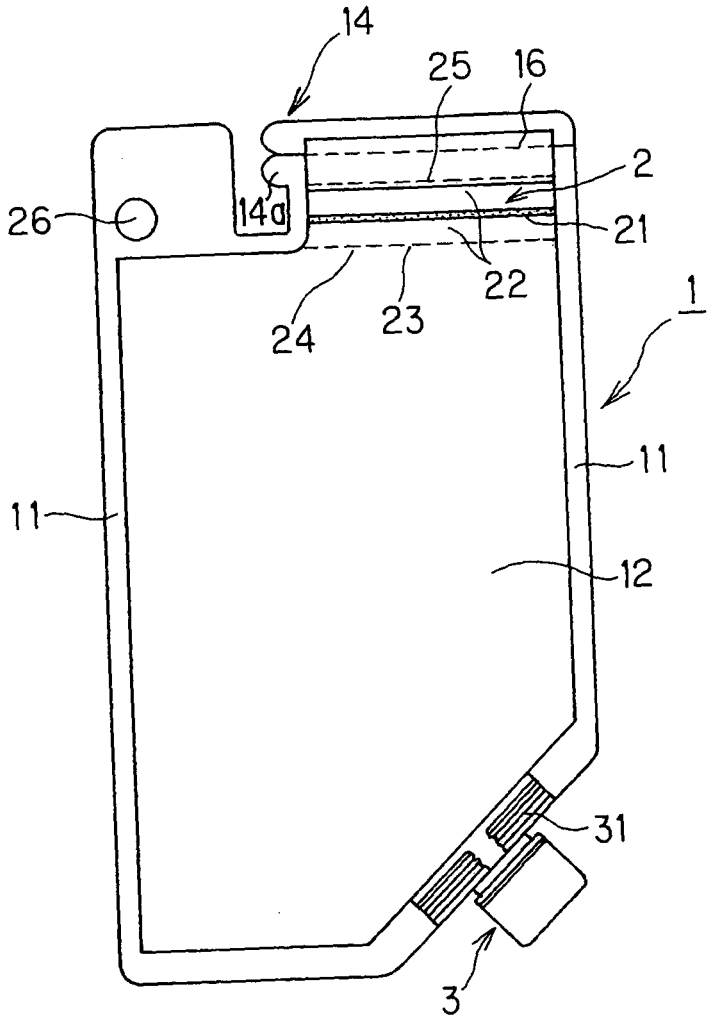
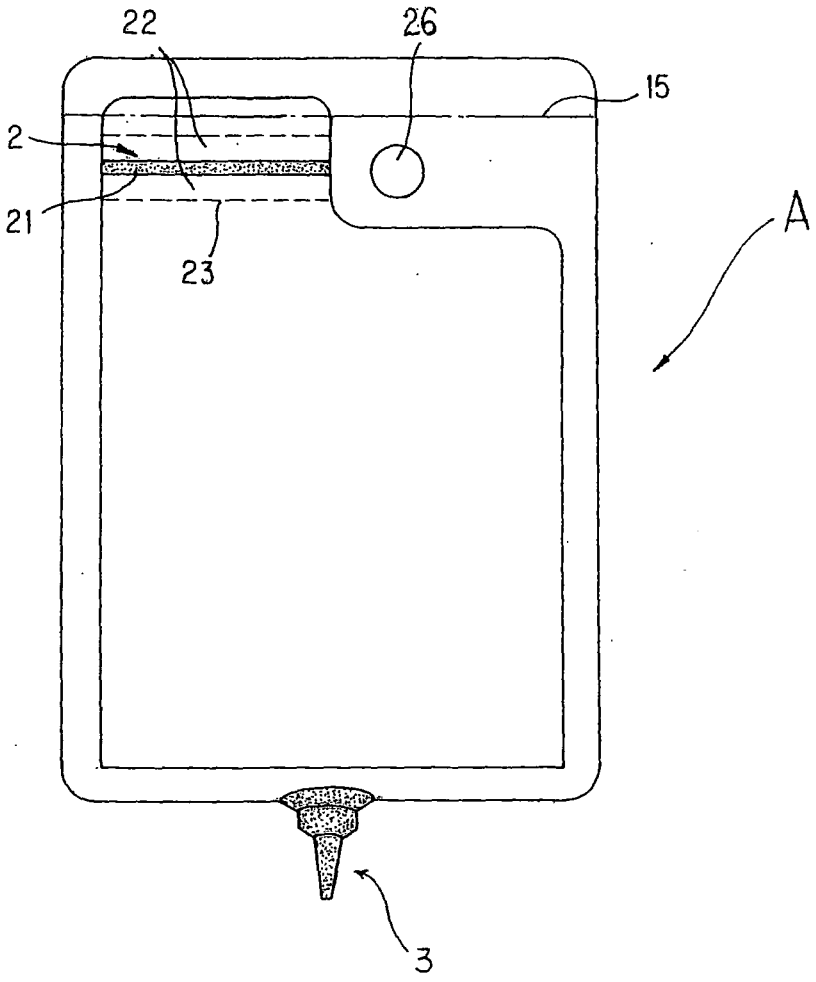


Fig. 6



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2008/065059

A. CLASSIFICATION OF SUBJECT MATTER
B65D33/25(2006.01)i, *B65D33/38*(2006.01)i

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)
B65D33/25, B65D33/38

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2008
Kokai Jitsuyo Shinan Koho	1971-2008	Toroku Jitsuyo Shinan Koho	1994-2008

Electronic data base consulted during the international search (name of data base and, where practicable, 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.
Y	JP 2005-206162 A (Toyo Seikan Kaisha, Ltd.), 04 August, 2005 (04.08.05), Par. Nos. [0018] to [0035]; Figs. 1 to 12 (Family: none)	1-4
Y	JP 2004-501840 A (PACTIV CORP.), 22 January, 2004 (22.01.04), Par. Nos. [0018] to [0019]; Figs. 6 to 9 & US 6378177 B1 & WO 2002/000520 A1	1-4
A	US 4925316 A (MINIGRIP, INC.), 15 May, 1990 (15.05.90), Column 3, lines 9 to 33; Fig. 3 & JP 63-044452 A & EP 0456277 A2	1-4

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
10 November, 2008 (10.11.08)	18 November, 2008 (18.11.08)
Name and mailing address of the ISA/ Japanese Patent Office Facsimile No.	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2008/065059

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2002/038459 A1 (Showa Highpolymer Co., Ltd.), 16 May, 2002 (16.05.02), Description, page 2, lines 3 to 9; Figs. 11 to 12 & US 2004/0025308 A1	1-4

Form PCT/ISA/210 (continuation of second sheet) (April 2007)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2005206162 A **[0002] [0005] [0016] [0028]**