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European Patent Office
Office européen des brevets



(11)

EP 1 669 303 A1

(12)

EUROPEAN PATENT APPLICATION
published in accordance with Art. 158(3) EPC

(43) Date of publication:

14.06.2006 Bulletin 2006/24

(51) Int Cl.:

B65D 33/38 (1968.09)

(21) Application number: **04788360.8**

(86) International application number:

PCT/JP2004/014332

(22) Date of filing: **30.09.2004**

(87) International publication number:

WO 2005/030601 (07.04.2005 Gazette 2005/14)

(84) Designated Contracting States:

**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PL PT RO SE SI SK TR**

Designated Extension States:

AL HR LT LV MK

• **SAGAE, Miho,**

c/o AJINOMOTO CO., INC.

Kawasaki-shi, Kanagawa 2108681 (JP)

• **MATSUMOTO, Shinichi,**

c/o AJINOMOTO CO., INC.

Kawasaki-shi, Kanagawa 2108681 (JP)

• **OMORI, Mayumi,**

c/o AJINOMOTO CO., INC.

Kawasaki-shi, Kanagawa 2108681 (JP)

(30) Priority: **30.09.2003 JP 2003339847**

(71) Applicant: **Ajinomoto Co., Inc.**

Tokyo 104-8315 (JP)

(74) Representative: **Nicholls, Kathryn Margaret et al**

Mewburn Ellis LLP

York House

23 Kingsway

London WC2B 6HP (GB)

(72) Inventors:

• **HARANO, Shigenobu,**

c/o AJINOMOTO CO., INC.

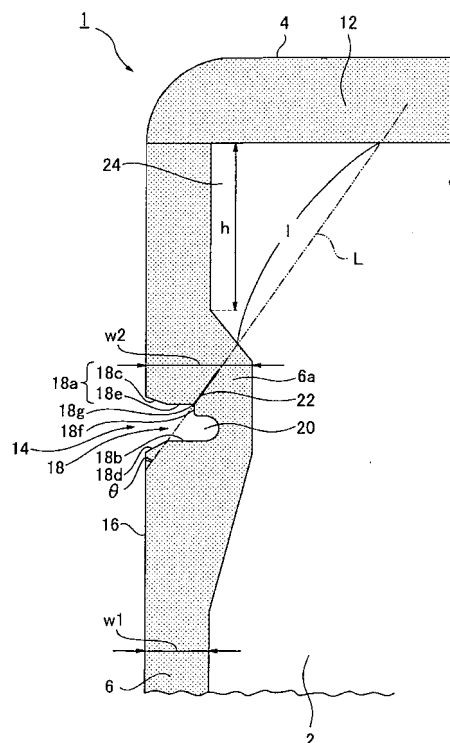
Kawasaki-shi, Kanagawa 2108681 (JP)

(54) POUCH FOR RETORT FOOD

(57) The present invention relates to a retort food pouch which, when constituted of materials provided with characteristics demanded of retort food pouches, is capable of opening appropriately, and of appropriately affixing to another container as a pour spout when contents are transferred.

The retort food pouch of the present invention is closed by an upper heat seal portion, a lower heat seal portion, and a side heat seal portion, and includes a notch portion formed to open toward a side edge on a top portion of the side heat seal portion so as to form a content pour spout at a cutting section where a corner portion between said notch portion and the upper heat seal portion is cut, and said notch portion comprises an approximately rectangular main body, opening toward the side edge, and an extended portion continuously extending from a lower side section of said main body portion; said extended portion is constituted to receive an upper edge portion of a wall forming the mouth of another container into which the retort food is to be transferred, and extends along its axial line in a direction approximately perpendicular to the side edge; and a precut is formed to extend from the main body portion toward the upper edge at an angle of 20-80 degrees with respect to the side edge, with said cutting performed along said precut.

FIG.2



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Description

Technical Field of the Invention

[0001] The present invention relates to a retort food pouch, and more particularly to a retort food pouch capable of easily transferring fluid products such as liquids, powders, and grains, and especially retort foods including liquid foods and the like, into a cup.

Background of the Invention

[0002] Pouches made by methods such as sealing the edge portions of one or a plurality of films are widely used as packaging materials for various contents, particularly fluid contents. A means is sought whereby an opening portion (a pour spout) capable of reliably pouring out contents to a predetermined position without spillage can be formed on an upper corner portion of a pouch, without requiring the use of scissors.

[0003] As a solution to such problems, a refillable pouch is known (see, for example, JP H7-300146) in which a notch portion including a groove portion is formed in a seal portion in which a pour spout is formed, thus enabling the pouch pour spout to be affixed to the opening portion of another container to which contents are to be transferred.

[0004] Such pouches of the prior art hold liquids and powders such as liquid detergent and shampoos, and are constituted of relatively soft materials. In pouches constituted of relatively soft materials, notch portion having the shapes disclosed in the prior art enable easy and reliable formation of pour spouts, as well as reliable affixing of a pour spout onto the opening portion of another container to which shampoo or other contents is to be transferred.

[0005] It has become evident, however, that a similar effect cannot be obtained using retort food pouches made of materials having the characteristics sought in pouches for retort foods, such as strength, retort resistance, oxygen impermeability, and the ease of tearing required for easy opening.

Disclosure of the Invention

[0006] The present invention was undertaken to resolve such issues, and seeks to provide a retort food pouch which, when constituted of materials having the characteristics sought in pouches for retort foods, enables easy and reliable forming of an appropriate pour spout, and also enables the appropriate affixing of the formed pour spout to the opening portion of another container to which contents are to be transferred.

[0007] According to the present invention, a retort food pouch is closed by an upper heat seal portion, a lower heat seal portion, and a side heat seal portion, and includes a notch portion formed to open toward a side edge on a top portion of the side heat seal portion so as to form

a content pour spout at a cutting section where a corner portion between said notch portion and the upper heat seal portion is cut; said notch portion comprises an approximately rectangular main body, opening toward the side edge, and an extended portion continuously extending from a lower side section of said main body portion; and said extended portion is constituted to receive an upper edge portion of a wall forming the mouth of another container into which the retort food is to be transferred, extending along its axial line in a direction approximately perpendicular to the side edge; and a precut is formed to extend from the main body portion toward the upper edge at an angle of 20-80 degrees with respect to the side edge, with said cutting performed along said precut.

[0008] In another preferred embodiment of the present invention, the main body portion upper edge comprises a horizontal portion extending at a right angle to the side edge and a vertical portion extending approximately perpendicularly downward from the end of the horizontal portion; the precut extends from the connecting portion between the horizontal portion and the vertical portion.

[0009] In another preferred embodiment of the present invention, the side edge-side portions at the upper and lower edge of the main body portion are respectively inclined upward and downward.

[0010] In another preferred embodiment of the present invention, the notch portion and the precut are established such that the length of the pour spout formed by the cutting is 15-60 mm.

[0011] In another preferred embodiment of the present invention, the lateral heat seal portion on which the notch portion is formed is a widened portion of wider width than the heat seal portion on the side on which the notch portion is not formed.

[0012] In another preferred embodiment of the present invention, the widened portion is formed 10-25 mm away from the upper edge heat seal portion.

[0013] In another preferred embodiment of the present invention, the pouch is constituted by a metal laminate film with a multi-layer structure comprising a crystalline polypropylene resin film/adhesive resin layer including modified polypropylene/metal foil/adhesive layer/oriented nylon film/adhesive layer/polyester film.

[0014] According to the present invention of the above-described constitution, a retort food pouch is provided which, when constituted of materials having characteristics required for retort food pouches, permits easy and reliable formation of an appropriate pour spout and, further, permits appropriate affixing of the formed pour spout to the opening portion of another container into which contents are to be transferred.

Brief Description of the Drawings

[0015]

Fig. 1 is a side elevation depicting a retort food pouch in a preferred embodiment of the present invention.

Fig. 2 is an expanded diagram of the portion of Fig. 1 in which a notch in the pouch is formed.

Best Mode for Carrying out the Invention

[0016] A retort food pouch according to a preferred embodiment of the present invention is described in detail below using figures. Fig. 1 is a side view depicting a retort food pouch according to a preferred embodiment of the present invention; Fig. 2 is an expanded view depicting the portion of pouch 1 in which a notch is formed.

[0017] A retort food pouch according to the present preferred embodiment is manufactured by heat seal bonding the perimeter portions of two laminate films (only one is here depicted) having a height of approximately 185 mm and a width of approximately 130 mm. When the bag is fabricated, only a top edge 4 is open; the two side edges and the bottom edge are respectively closed by side heat seal portions 6 and 8 and a lower heat seal portion 10. In the retort food pouch 1 of the present invention, contents such as food or the like are filled into the open upper end, whereupon the open upper end is closed by the upper heat seal portion 12 and the contents are sealed.

[0018] The retort food pouch 1 takes the form of a "standing pouch," in which a third laminate film (not depicted) is disposed between the bottom edge portions of two metal laminate films 2 (only one is here depicted), and the two laminate films 2 and the third laminate film are bonded so as to form an approximately circular gusset.

[0019] The retort food pouch 1 of the present embodiment is constituted so as to be easily opened by cutting off an upper corner portion thereof, such that an opening is formed in the cut portion which serves as a pour spout for contents. In the retort food pouch 1 of the present invention, as depicted in Fig. 1, a notch portion 14 forming a start-of-cut portion is formed in the upper portion of one of the side heat seal portions 6. The notch portion 14 is formed by notching so as to open the side heat seal portion 6 at an upper position separated by a predetermined distance from the top end 4 of the retort food pouch 1 in the direction of the side edge 16 (the outward direction).

[0020] The notch portion 14 comprises an approximately rectangular main body portion 18 opening toward the side edge 16 and an extended portion 20 which extends inward as a continuation of the lower portion of the main body portion 18. The extended portion 20 is dimensioned and shaped so that when transferring a retort food as pouch contents to another container, the extended portion 20 can engage the upper edge portion of a wall which constitutes the opening portion of the other container. In the present embodiment, the extended portion 20 has a rectangular shape with a semicircular shape at the tip, extending horizontally (in the pouch breadth direction). Also, the extended portion 20 is disposed such that the axial line x in the lateral direction (depth direction) thereof extends in a direction approximately perpendicular

ular to the side edge 16.

[0021] As depicted in Fig. 2, portions of the top side edge (top edge) 18a and bottom side edge (bottom edge) 18b of the main body portion 18 are designed on the side edge 16 side, as top side inclined portion 18c and bottom side inclined portion 18d, and respectively slope upward and downward. Moreover, the top edge 18a is furnished with a horizontal portion 18e extending from the inside edge of the top side inclined portion 18c in a direction approximately perpendicular to the side edge 6.

[0022] The main body portion 18 is provided with a vertical portion 18f extending approximately perpendicularly downward from the inside edge of the horizontal portion 18e. Therefore the main body portion 18 is provided with an approximately right angle corner portion 18g, constituted by the mutually perpendicularly extending horizontal portion 18e and vertical portion 18f.

[0023] In the retort food pouch 1 of the present embodiment, a precut (I-shaped notch) 22 is formed, extending from the main body portion 18 corner portion 18g of the notch portion 14 toward the top edge 6. This precut 22 is the portion at which cutting starts when opening the retort food pouch 1; the precut 22 extension line L becomes the cutting line, which is to say the pour spout, when opening the retort food pouch 1. The precut 22 is disposed so that its angle with respect to the side edge 6 is 20-80 degrees, and preferably 40-60 degrees.

[0024] As depicted in Fig. 1, the portion of the side heat seal portion 6 in which the notch portion 14 is formed is a widened portion 6a, in order that space to form the notch portion 14 can be secured, and that a heat seal portion can be secured with sufficient strength that the bag will not break even when subjected to shock such as dropping or the like on the inner side of the notch portion 14. In the present embodiment, the width w1 of the side heat seal portion 6 in portions other than the widened portion 6a is approximately 6 mm, but the width w2 of the widened portion 6a is set at approximately 10 mm, thus securing a width of approximately 3 mm on the inner side of the notch portion 14 for the heat seal portion. A width range for w1 of 4-12 mm is preferable, as this range prevents bag breakage and assures an appropriate pouch fill quantity. It is preferable that the width of the notch portion 14 inner side heat seal portion be 2 mm or greater, as bag breakage is unlikely to occur when that width is wider than 2 mm. The value for w2-w1 can be 4-12 mm, and is preferably 4-8 mm.

[0025] As described above, a widened portion 6a is formed in the upper portion of the side heat seal portion 6; therefore a region 24 extending outward, in which contents are movable, is formed between the widened portion 6a and the upper heat seal portion 12. When a shock is imparted to the pouch 1 through dropping or the like, pouch contents suddenly flow into the region 24 and stress is concentrated at the edge of region 24, resulting in potential bag breakage in this portion. It is therefore preferable to adopt a large height (length in the vertical direction) for the region 24 and to use a long perimeter

for the region 24 to prevent bag breakage caused by stress concentration. In the present invention, this height h is 16 mm. The height h should preferably be in a range of 10-25 mm. In that range, bags will be unlikely to break, the notch position is not too far below the upper edge of the pouch, and dimensions are appropriate.

[0026] In the retort food pouch 1 of the present embodiment, the laminate film 2 is broken along a line extending from the precut 22, using the precut 22 as a start-of-cut portion, thus forming an opening in the upper portion of the pouch. To move fluid contents quickly and without spillage to another container however, it is desirable for the opening length 1, which is to say the length of the portion positioned between the side heat seal portion 6 and the upper heat seal portion 12 of the precut 22 extended line L, to be approximately 15-60 mm. Therefore in the retort food pouch 1 of the present embodiment, the notch portion 14 position, the precut 22 position, and the angle, etc. are set so that the opening length 1 is approximately 15-60 mm. A range of 2-10 mm is preferable for the distance between the precut 22 and the seal edge portion (the starting point for the opening length). Using this range, the bag will not break starting from the precut portion during distribution, and users will be able to easily open the bag.

[0027] Adoption of the above structure not only enables prevention of bag breakage and improved opening characteristics, but also results in improved pouring characteristics, whereby the unique seal shape of the present embodiment prevents disturbance of content flow and liquid spillage when transferring contents to a cup or the like.

[0028] A material having the characteristics required for a retort food pouch, such as strength, retort resistance, oxygen impermeability, and the ease of tearing which forms the basis for ease of opening, for example a metal laminate film with a multi-layer structure comprising crystalline polypropylene resin film/adhesive resin layer including denatured polypropylene/metal foil/adhesive layer/oriented nylon film/adhesive layer/polyester film, is used as a metal laminate film for the pouch of the present embodiment.

[0029] Examples of the crystalline polypropylene resin films used in the present invention includes a homopolymer type wherein the films are obtained by polymerizing polypropylenes only, a copolymer type wherein they are obtained by copolymerizing ethylenes and the like with propylenes, and a terpolymer type wherein they are obtained by copolymerizing three kinds of propylenes, ethylenes, and butylenes. For example, they include copolymers which can be produced in accordance with the production methods described in Japanese Patent Publication (JP Kokoku) Nos. Sho 44-16668 or Sho 55-8011, such as ethylene propylene block copolymers of which ethylene concentration is 3 to 40 weight% and preferably 5 to 30 weight%, melt flow index (MFI) is 0.1 to 40g/10mm (ASTM-D-1238) and preferably 20g/10mm or less, and absorbance ratio between 720cm⁻¹ and 731cm⁻¹ is 0.5

or larger; and blended compounds with other polyolefin resins containing 50 weight% or more of the above copolymers. The thickness of the crystalline polypropylene resin films can be optional, and it is preferably 30 to 80 μ m.

[0030] Metal foils used in the present invention are whatever can be easily torn by hands, including forms of metal sheets and metal films. As for metals, aluminum is preferable, that is, an aluminum foil is more preferable. The thickness of the metal foils can be optional as far as they can be easily torn by hands, and it is preferably about 3 to 10 μ m.

[0031] As for modified polypropylenes in the adhesive resin layer including a modified polypropylene used in the present invention, a carboxylic acid modified polypropylene is preferable and a maleic anhydride modified polypropylene is particularly preferable. In this connection, the adhesive resin layer including a modified polypropylene is preferably in the form of a single layer of a modified polypropylene resin or in the form of a double layer having a modified polypropylene resin layer and an unmodified polypropylene resin layer. Such adhesive resin layer is used so that the modified polypropylene resin layer adheres to the metal foil. The unmodified polypropylene resin includes ordinary polypropylene resins.

[0032] In the present invention, it is particularly preferable to use the adhesive resin layer in the form of the double layer having the modified polypropylene resin and the unmodified polypropylene resin layer because it is easy to manufacture and excellent in adhesion to both of a crystalline polypropylene film and a metal foil, and a metal laminated film is obtained having the thickness enough to maintain the strength.

[0033] The thickness of the adhesive resin layer can be optional as far as it can tightly bond a crystalline polypropylene resin film to a metal foil, and it is preferably about 3 to 30 μ m. When using the layer in the form of the double layer having the modified polypropylene resin and the unmodified polypropylene resin layer, it is preferable that the modified polypropylene resin is about 1 to 10 μ m and the unmodified polypropylene resin layer is about 9 to 20 μ m. Further, corresponding to the production methods, the adhesive resin layer can be added as a film and then welded.

[0034] As for polyester films, polyethylene terephthalate and polybutylene terephthalate are preferable. Polyethylene terephthalate is more preferable among them, and it is preferable to use a film thereof having the thickness of about 9 to 20 μ m. As for oriented nylon films, it is preferable to stretch 6 nylon or 66 nylon films and to use those having the thickness of about 10 to 30 μ m. Thus, when setting a oriented nylon film layer between a polyester film and a metal foil, the strength in forming a standing pouch and its independence are improved. Especially, it is preferable in terms of the easiness in transferring contents into other containers because the opening of a pouch does not easily lose its shape. Further, benefits are obtained such as that holes are not easily made on the side of a container because a standing

pouch is not easily torn or damaged on the parts other than a cutout (e.g. notch) for opening the pouch. Such material makes pouch resistant to a loss of shape of the opening.

[0035] As for adhesives used for bonding a metal foil and a oriented nylon film, and a polyester film and a oriented nylon film, it is preferable to use UV cure adhesives such as acrylic adhesives and methacrylic adhesives; and heat-hardening (cure) adhesives such as urethane adhesives (isocyanate adhesives) and epoxy adhesives. Among them, heat-hardening adhesives are more preferable as adhesives forming an adhesive layer which exists on at least one side (preferably both sides) of the oriented nylon film. In addition, an ink layer may be set on the adhesive coating surface of a polyester film in order to indicate the ingredients or the trade name.

[0036] As for adhesives used for bonding a nylon film to a metal foil or a metal film, those described as the adhesives used for bonding a polyester film and a oriented nylon film can be used.

[0037] The methods for producing a metal laminated film used for a retort pouch of the present invention are not particularly limited, and such film can be produced by ordinary laminating methods used for producing a retort pouch, such as dry-laminating, by laminating constituent films in any order. The following production method is particularly preferable.

[0038] As the first multilayer film, three film layers are produced in accordance with the method described in Japanese Patent Publication (JP Kokoku) No. Hei 1-54191, consisting of a crystalline polypropylene resin film, an adhesive resin layer including a modified polypropylene, and a metal foil.

[0039] As the second multilayer film, the film is produced by dry-laminating, consisting the step of bonding the polyester film to a oriented nylon film through an adhesive layer. Then, the nylon film of the second multilayer film are bonded to the metal foil of the first multilayer film by using an adhesive(s) in accordance with dry-laminating.

[0040] In the present embodiment retort food pouch 1 having the configuration described above, the corner portion of the pouch 1 can be easily parted to form an opening by cutting the two metal laminate films 2 along the notch portion 14 precut 22 and the extension line L thereof. Moreover, by engaging the extended portion 20 of the notch portion 14 to another container to which the contents of pouch 1 are to be transferred, the pouch 1 can be reliably affixed with respect to the other container while pouring out its contents, thereby enabling the contents to be transferred quickly and reliably to the other container without spillage.

[0041] Moreover, the laminate film which forms the pouch 1 in the present embodiment is comparatively hard, making it resistant to a loss of shape of the opening formed by cutting when pouring out the contents, and thus enabling rapid pouring out.

Claims

1. In a retort food pouch closed by an upper heat seal portion, a lower heat seal portion, and a side heat seal portion, and including a notch portion formed to open toward a side edge on a top portion of the side heat seal portion so as to form a content pour spout at a cutting section where a corner portion between said notch portion and the upper heat seal portion is cut, said notch portion comprises an approximately rectangular main body, opening toward the side edge, and an extended portion continuously extending from a lower side section of said main body portion; said extended portion is constituted to receive an upper edge portion of a wall forming the mouth of another container into which the retort food is to be transferred, and extending along its axial line in a direction approximately perpendicular to the side edge; and a precut is formed to extend from the main body portion toward the upper edge at an angle of 20-80 degrees with respect to the side edge, with said cutting performed along said precut.
2. The retort food pouch according to Claim 1, comprising a horizontal section in which the upper edge of the main body portion extends at a right angle with respect to the side edge, and a vertical section extending approximately perpendicularly downward from the tip of the horizontal section, whereby the notch extends from a connecting portion which connects the horizontal section and the vertical section.
3. The retort food pouch according to Claims 1 or 2, wherein the upper edge and the lower edge side edge sections of the main body portion are respectively inclined upward and downward.
4. The retort food pouch according to any one of Claims 1 through 3, wherein the notch portion and the precut portion are formed in such a way that the length of the pour spout formed by cutting is 15-60 mm.
5. The retort food pouch according to any one of Claims 1 through 4, wherein the side heat seal portion in which the notch portion is formed is a widened portion having a width which is wider than the side heat seal portion where no notch portion is formed.
6. The retort food pouch according to Claim 5, wherein the widened portion is formed 10-25 mm apart from the upper heat seal portion.
7. The retort food pouch set forth in any one of Claims 1 through 6, comprising a metal laminate film having a multilayer structure of crystalline polypropylene resin film/adhesive resin layer including modified

polypropylene/metal foil/adhesive layer/oriented nylon film/adhesive layer/polyester film.

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FIG.1

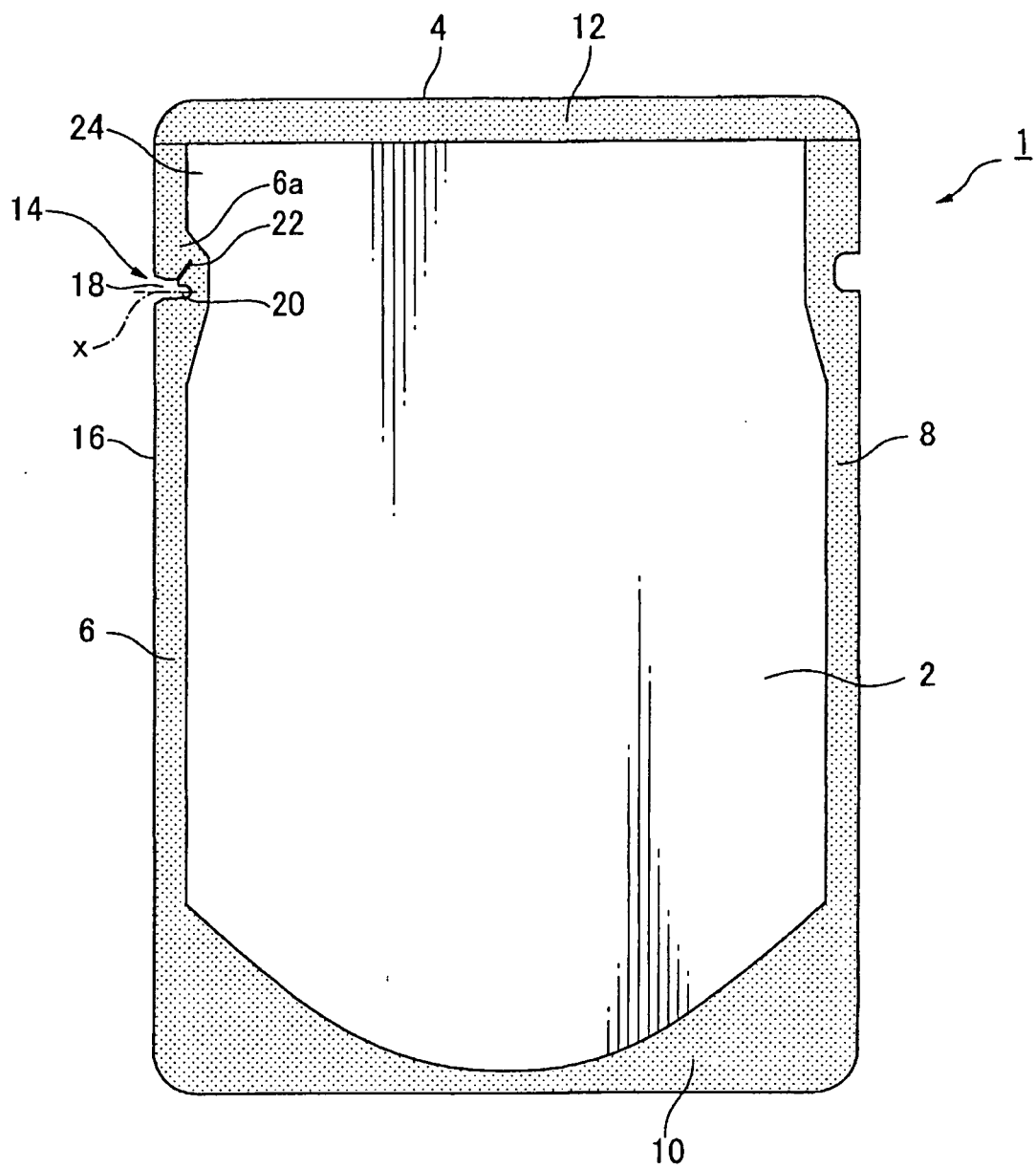
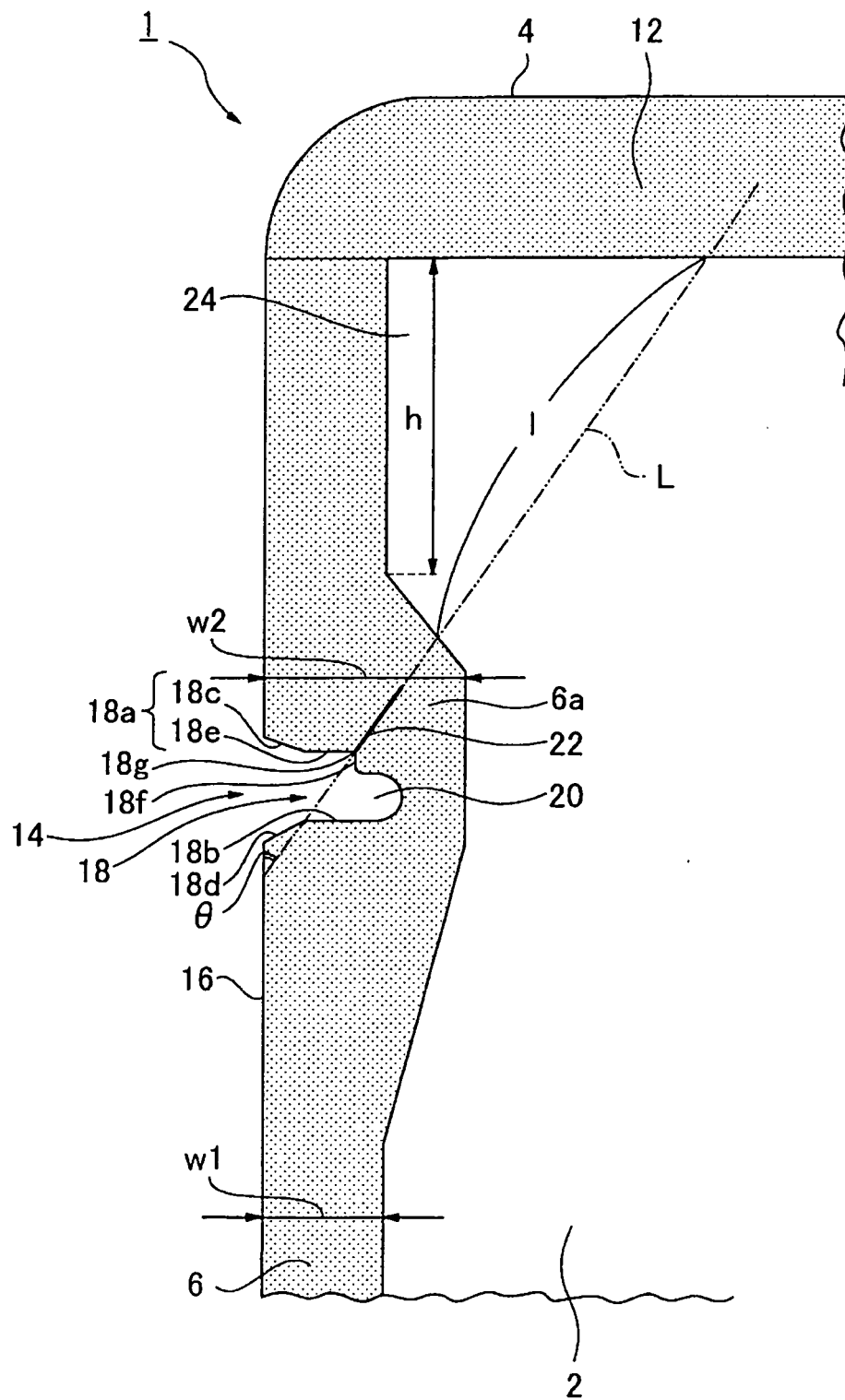


FIG.2



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/014332

A. CLASSIFICATION OF SUBJECT MATTER Int.Cl ⁷ B65D33/38		
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) Int.Cl ⁷ 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 1996-2004 Kokai Jitsuyo Shinan Koho 1971-2004 Toroku Jitsuyo Shinan Koho 1994-2004		
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 3006944 U (Ajinomoto Co., Inc., Kabushiki Kaisha Esupakkeji), 31 January, 1995 (31.01.95), Full text; Figs. 1 to 12 (Family: none)	1-7
Y	JP 07-300146 A (The Procter & Gamble Co.), 14 November, 1995 (14.11.95), Full text; Figs. 1 to 7 (Family: none)	1-7
Y	JP 2001-058655 A (Fujimori Kogyo Co., Ltd.), 06 March, 2001 (06.03.01), Full text; Figs. 1 to 3 (Family: none)	3
☒ Further documents are listed in the continuation of Box C. ☐ See patent family 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 application or patent 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 "&" document member of the same patent family		
Date of the actual completion of the international search 17 December, 2004 (17.12.04)		Date of mailing of the international search report 11 January, 2005 (11.01.05)
Name and mailing address of the ISA/ Japanese Patent Office		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/014332

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 11-321885 A (Dainippon Printing Co., Ltd.), 24 November, 1999 (24.11.99), Full text; Figs. 1 to 11 (Family: none)	4, 7
Y	JP 05-254551 A (Dainippon Printing Co., Ltd.), 05 October, 1993 (05.10.93), Full text; Figs. 1 to 4 (Family: none)	6
A	JP 2002-019795 A (Toppan Printing Co., Ltd.), 23 January, 2002 (23.01.02), Full text; Figs. 1 to 3 (Family: none)	1-7
A	JP 2003-104400 A (Kaupakku Kabushiki Kaisha), 09 April, 2003 (09.04.03), Full text; Figs. 1 to 19 (Family: none)	6
A	JP 2002-046754 A (Toyo Seikan Kaisha, Ltd.), 12 February, 2002 (12.02.02), Full text; Figs. 1 to 4 (Family: none)	7
A	JP 2000-318091 A (Mitsubishi Gas Chemical Co., Inc.), 21 November, 2000 (21.11.00), Full text; Fig. 1 (Family: none)	7

Form PCT/ISA/210 (continuation of second sheet) (January 2004)