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(54) FOLDABLE CUP

(57) The present invention relates to a foldable cup, includes a front side having at least one supporting axis, broken in a circumference direction of a cup, for vertically sustaining load; a back side having at least one supporting axis, connected with both side ends thereof to be faced with the front side and broken in the circumference direction of the cup, for vertically sustaining the load; and a foldable bottom surface having 6 variable structures connecting each of ends to lower ends of the front side and back side, wherein the bottom surface includes a foldable line for two dividing it to be folded between the front side and back side; a main axis, crossing the foldable line diagonally, bent toward the inside and outside, and for sustaining the load of the bottom; and a plurality of sustaining lines, disposed at both ends of the bottom surface, respectively, connected between two apexes meeting with the foldable line and another apexes adjacent to them wherein the main axis is connected to at least one of the sustaining lines of each apex meeting with the foldable line to disperse the load, thereby to maintain the original form of the cup more longer by easily dispersing load of the contents.

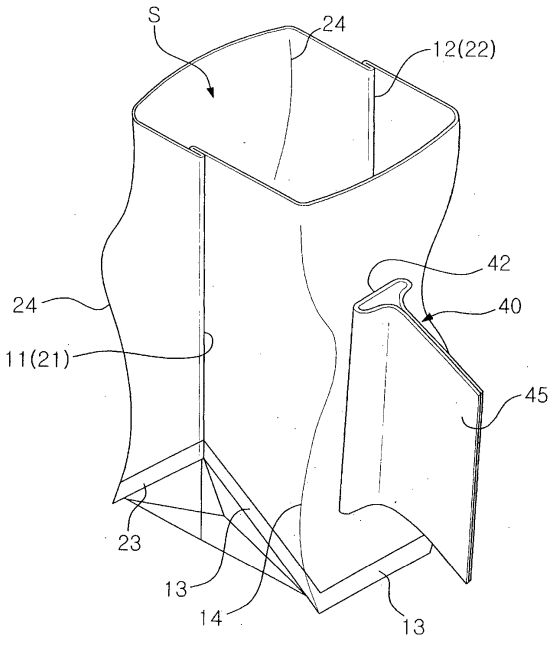

Fig. 9

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Description

BACKGROUND OF THE INVENTION

1. Technical Field

[0001] The present invention relates to a cup, and more particularly, to a foldable cup that may eat tea or food after putting water only into it by dispersing load and sealing solid powder after putting the solid powder such as the tea or grain powder inside the cup.

2. Description of the Related Art

[0002] In general, a glass cup or mug cup may be used to drink water or coffee and a variety of soft drinks, but a disposable cup that is more conveniently used is used in recent.

[0003] A circle cup putting into a table or bottom is used as the disposable cup of a general type. However, when the circle cup made of paper is filled with the contents such as water or coffee, other drinks for many hours, liquid component of the contents penetrates a paper cup and therefore the paper cup becomes mushy, and therefore, there is a disadvantage capable of not using the paper cup safely due to spilling or shedding of the contents.

[0004] Large load at the top thereof is downwardly concentrated into the bottom of the cup in the circle cup having a wide top and narrow bottom, thereby to quickly deteriorate the state of the cup. Further, the circle cup fixing volume as above has disadvantages in respect of storage, transport, and transportability.

[0005] In view of this point, a disposable mineral water cup, disposed at a water purifier, etc. and for drinking water after taking out one by one from it, has been used in the related art.

[0006] However, the disposable mineral water cup generally used is configured with a simple envelope type so that the volume is small and the storage is easy. There are inconveniences in that it is not spread on using it and therefore it is insanitary because the user puts fingers in an opening of the cup and spreads it, and that may not elect the cup on a desk or bottom at a state of water. In order to solve these problems, the disposable paper cup shown in FIG. 1 has been developed.

[0007] The cup shown in FIG. 1 is configured with the foldable structure so that the folded state is maintained on storing and carrying it and it is possible to return it to the type of the cup by simple manipulation on using it. The cup includes an outer cup 10 in which an upper part and lower part thereof are opened, the foldable lines 12, 12' in the vertical direction are formed to be corresponded from each other on an outer peripheral surface thereof, and each of the bent lines 14, 14' of a semicircle type to be symmetrical from each other in both directions by the foldable lines 12, 12' are disposed, and an inner cup 30, supporting at an edge 18 of the top end of the outer cup, inserting onto an space 16 inside it, and interlocking with the outer cup 10.

[0008] However, a prior disposable cup shown in FIG. 1 is configured with a double structure having the inner cup and outer cup and therefore the cup has an advantage having some durableness during long time at the state of the contents such as water or drink, etc. but it has an disadvantage in that the consumption of material thereof, that is, the paper is large.

[0009] Further, the upper part of the prior disposable paper cup is opened and therefore there are disadvantages in that the drink may be shed on moving it at the state of the drink and foreign material may be introduced into the opened upper part.

SUMMARY OF THE INVENTION

[0010] An advantage of some aspects of the invention is that it provides a paper cup capable of reducing consumption of paper due to single-ply structure, using several times, and maintaining durableness on using it during long time in a state of contents such as water or drink, etc.

[0011] According to an aspect of the invention, there is provided a foldable cup including a front side having at least one supporting axis, broken in a circumference direction of a cup, for vertically sustaining load; a back side having at least one supporting axis, connected with both side ends thereof to be faced with the front side and broken in the circumference direction of the cup, for vertically sustaining the load; and a foldable bottom surface having 6 variable structures connecting each of ends to lower ends of the front side and back side, wherein the bottom surface includes a foldable line for two dividing it to be folded between the front side and back side; a main axis, crossing the foldable line diagonally, bent toward the inside and outside, and for sustaining the load of the bottom; and a plurality of sustaining lines, disposed at both ends of the bottom surface, respectively, connected between two apexes meeting with the foldable line and another apexes adjacent to them wherein the main axis is connected to at least one of the sustaining lines of each apex meeting with the foldable line to disperse the load.

[0012] It is preferable that the bottom surface further includes a plurality of reinforcing axes connecting the adjacent apexes to the foldable line, and the main line passes the reinforcing axis at each of the end.

[0013] It is preferable that the both side ends of the front side and back side are configured with a foldable adhering part, and the lower ends of the front side and back side are configured with the foldable adhering part corresponding to a circumference side of the bottom surface.

[0014] It is preferable that the supporting axes are formed to be corresponded from each other more than two onto each of the front side and back side, respectively.

[0015] It is preferable that the upper ends of the front

side and back side are configured with a perforable sealing adhering part.

[0016] It is preferable that the sealing adhering part includes a pair of the foldable lines of the sealing adhering part spaced from each other and formed in parallel along the circumference of the cup, and the lower foldable line of the sealing adhering part is folded in the outer direction of the cup and the upper foldable line of the sealing adhering part is folded in the inner direction of the cup.

[0017] It is preferable that the sealing adhering part is adhered by thermocompression bonding.

[0018] It is preferable that the sealing adhering part is adhered after putting the tea bag, solid powder food, and seeds of plants inside the cup.

[0019] It is preferable that the foldable line is formed between top ends of the front side and back side and the upper foldable line of the sealing adhering part.

[0020] It is preferable that coining is performed along with the perforable line.

[0021] It is preferable that the front side, the back side, and the bottom surface are made of paper or synthetic resin.

[0022] It is preferable that a handle of the foldable cup is attached onto the front side or back side of the foldable cup.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023]

FIG. 1 shows an example for a prior disposable cup.

FIG. 2 is a developing view showing a structure of the foldable cup according to a first embodiment of the present invention.

FIG. 3 is a assembling perspective view for the foldable cup according to FIG. 2.

FIG. 4 is a constitutional view that attaches the handle of a cup to be developed to the foldable cup shown in FIG. 3.

FIG. 5 is a left side view for the foldable cup according to FIG. 3.

FIG. 6 is a right side view for the foldable cup according to FIG. 3.

FIG. 7 is a perspective view showing a spreading process for the use of the foldable cup according to FIG. 3.

FIG. 8 is a perspective view showing the using state for the foldable cup according to FIG. 3.

FIG. 9 is a perspective view that attaches the handle of the cup to the foldable cup shown in FIG. 8.

FIG. 10 is a developing view showing the structure of the foldable cup according to a second embodiment of the present invention.

FIG. 11 and FIG. 12 are assembling views for the foldable cup according to FIG. 10.

FIG. 13 is a side-sectional view for the foldable cup taken by line A-A of FIG. 12.

FIG. 14 shows a using example of the foldable cup according to the second embodiment of the present invention.

FIG. 15 is a constitutional view that attaches the handle of the cup to be developed to the foldable cup shown in FIG. 14.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0024] Hereinafter, embodiments of the invention will be described with reference to the attached drawings.

Embodiment 1

[0025] FIG. 2 is a developing view showing a structure of the foldable cup according to a first embodiment of the present invention, FIG. 3 is a assembling view for the foldable cup according to FIG. 2, and FIG. 5 and FIG. 6 are left and right side views for the foldable cup according to FIG. 3.

[0026] According to FIG.2, the foldable cup of the present invention includes a front side 10 and a back side 20 facing from each other, and a bottom surface 30 connecting lower ends of the front side 10 and back side 20 and forming a bottom.

[0027] The bottom surface 30 has 6 variable structures and therefore each of the ends of the front side 10 and back side 20 are connected at those lower ends, and a foldable line 33 is formed across the bottom surface 30 so that the bottom surface 30 may be folded between the front side 10 and back side 20.

[0028] Both side ends of the front side 10 and back side 20 are configured with foldable adhering parts 11, 12 and 21, 22, and the front side 10 and back side 20 are interconnected while being adhered between the adhering parts 11, 21 and 12, 22 to be corresponded as shown in FIG. 3. Further, the lower ends of the front side 10 and back side 20 are configured with foldable adhering parts 13, 23 corresponding to circumference sides 31, 32 of the bottom surface 30, and are interconnected while being adhered between the adhering parts 31, 13 and 32, 23 to be corresponded as shown in FIG. 2.

[0029] The front side 10 is formed with at least one supporting axis 14, broken in a circumference direction of the cup, for vertically sustaining load. Further, the back side 20 is formed with at least one supporting axis 24, broken in the circumference direction of the cup, for vertically sustaining load. The supporting axes 14, 24 provides fixed bearing power to maintain the shape of the cup on spreading the cup for use, and may sustain the load of the contents to be applied downwardly in a state filled with the contents such as water or beverage in the cup.

[0030] The bottom surface 30 further includes the foldable line 33 for two dividing it to be folded between the front side 10 and back side 20, a main axis 37 crossing the foldable line 33 diagonally, bent toward the inside and outside, and therefore for sustaining the load of the bottom as shown in FIG. 2, and a plurality of sustaining

axes 34a, 35a, 36a, disposed at both ends of the bottom surface 30, connected between two apexes 34 meeting with the foldable line 33 and another apexes 35, 36 adjacent to them.

[0031] It is desirable that the main axis 37 is connected to any one of the sustaining axes 34a, 35a, 36a of each apex 34 to disperse the load as shown in FIG. 2.

[0032] The bottom surface 30 further includes a plurality of reinforcing axes 35b,35c, 36b for connecting another apexes 35, 36 adjacent to each apexes 34 of the foldable line 33 to the foldable line 33. The main axis 37 is connected to any one of the supporting axes 34a, 35a, 36a through the reinforcing axes 35b, 36b of each apex 34.

[0033] It is fine to make the foldable cup of the present invention using paper, but it is desirable to make it using synthetic resin such as PP, PE, etc. for durability and heat resistance.

[0034] FIG. 7 shows a spreading process for the use of the foldable cup according to FIG. 3, and FIG. 8 shows the using state for the foldable cup according to FIG. 3.

[0035] In order to use the foldable cup of the present invention assembled from FIG. 2 to FIG. 3, the adhering parts 11, 21 and 12, 22 at both ends are pressed and the gap between the front side 10 and the back side 20 is broadened. At this time, the supporting axes 14, 24 at the front side and back side are bent and therefore the cup having a square column type largely is formed as shown in FIG. 8. The cup sustains the load of the contents in the state filled with the contents such as water or beverage, etc. and the outline of the cup is maintained for a long time.

[0036] The bottom surface 30 folded between the front side 10 and back side 20 is also spread around the same time as bending of the supporting axes 14, and 24, and at this time, the main axis 37 and each of the sustaining axes 34a, 35a, 36a and reinforcing axes 35b, 35c, 36b are spread.

[0037] The main axis 37, each of the sustaing axes 34a, 35a, 36a, and reinforcing axes 35b, 35c, 36b spread as above sustain the load of the contents concentrated into the bottom while maintaining the state bent at the lower part of the bottom surface 30.

[0038] Further, it is possible to add the handle 40 of the cup to one side of the foldable cup, for example, the front side 10 or the back side 20 in the present embodiment.

[0039] FIG. 4 is a constitutional view that attaches the handle of the cup to be developed to the foldable cup shown in FIG. 3, and FIG. 9 is a perspective view that attaches the handle of the cup to the foldable cup shown in FIG. 8. As shown in above drawings, the handle 40 of the cup attached to one side of the foldable cup has advantages that are convenient for storage and use by a foldable type.

[0040] As shown in FIG. 4, the center of the handle 40 of the cup, that is, the adhering part 42 of the cup is attached to one side of the foldable cup, and left and right parts based on the adhering part 42 of the cup are folded along with the foldable lines 41,43. A gripping part 45 for gripping by hand in the handle 40 of the cup having folding state as shown in FIG. 9 is protruded by constant length.

[0041] The adhering part 42 of the cup is attached to the front side 10 or back side 20 of the foldable cup using adhesive such as paste, etc.

[0042] On the other hand, a tea bag such as green tea, etc. is attached to the inside of the cup, that is, the inside of the front side 10 and the back side 20 although not shown in the drawing and therefore the foldable cup is manufactured according to the first embodiment of the present invent. At this time, when a user spreads the cup, it is possible to drink the green tea, etc. after conveniently pouring water only into the cup without preparing the tea bag separately.

Embodiment 2

[0043] Descriptions for the same portion as the first embodiment on describing a second embodiment below will be omitted for clear description of the present invention.

[0044] FIG. 10 is a developing view showing the structure of the foldable cup according to a second embodiment of the present invention, FIG. 11 and FIG. 12 are a assembling view for the foldable cup according to FIG. 10, and FIG. 13 is a side-sectional view for the foldable cup taken by line A-A of FIG. 12.

[0045] As shown in the drawings, the foldable cup in the second embodiment of the present invention includes a perforable sealing adhering part 25 at some of the top ends of the front side 10 and the back side 20, and therefore the inside of the cup may be sealed after completing the assembling of the cup.

[0046] The perforable sealing adhering part 25 includes a pair of foldable line 25a, 25b spaced from each other and formed in parallel along the circumference of the cup at the top end of the cup, as shown in FIG. 10. In addition, as shown in FIG. 11, the lower foldable line 25b of the pair of the foldable line 25a, 25b is folded in the outer direction of the cup and the upper foldable line 25a is folded in the inner direction of the cup, and then the front side 10 is folded with the back side 20 and it performs adhesion between the adhering part 11, 21 and 12, 22, as shown in FIG. 12.

[0047] Finally, facing ends of the front side 10 and back side 20 are adhered to complete the cup.

[0048] Wherein, it is desirable to adhere the sealing adhering part 25 by thermocompression bonding.

[0049] Food and drink such as raw food, etc. is put and hermetically stored into the inside of the cup by the sealing adhering part 25, and the sealing adhering part 25 is folded by hands to open the cup on using the cup.

[0050] FIG. 14 is a view showing a using example of the foldable cup according to the second embodiment of the present invention, and a separate perforable line 26 is formed between bp ends of the front side 10 and back

side 20 and the upper foldable line 25a to simply perforate the sealing adhering part 25.

[0051] The perforable line 26 is formed above the foldable part of the front side 10 and back side 20, and it is possible to easily perforate the perforable line 26 on using the cup by performing a plurality of perforation at regular intervals along with the perforable line 26.

[0052] Further, it is possible to easily perforate the perforable line 26 on using the cup by performing coining along with the perforable line 26.

[0053] In addition, the cup that puts food and is capable of simply eating by pouring water only, like the tea bag such as the green tea, etc. or solid powder (for example, raw food, sunsik, etc.) such as grain powder, etc. into the inside of the cup before adhering the perforable sealing adhering part 25 is manufactured. Food in the cup is hermetically stored during long term and it is possible to conveniently enjoy tea or food without separately preparing the cup and food.

[0054] Further, it is possible to add the handle 40 of the cup to one side of the foldable cup in the present embodiment as shown in FIG. 15, like the first embodiment.

[0055] FIG. 15 is a constitutional view that attaches the handle of the cup to be developed to the foldable cup shown in FIG. 14.

[0056] On the other hand, although the cup capable of receiving the food is described in the embodiment of the present invention, the foldable cup of the present invention may be used as a container capable of different articles except for the food. For example, the foldable cup is spread into the cup type on using it after putting and sealing seeds of plants into it and may be used as a small pot.

[0057] Further, since the foldable cup of the present invention is used as the cup of a square column type, the concentration degree for the load is low as compared with a prior paper cup having a cone or trapezoid type and therefore it is possible to maintain the original form of the cup more longer even on filling the contents such as water, etc into the cup.

[0058] Further, the foldable cup of the present invention may easily disperse the load of the contents by a bendable supporting axis on the front and back side of the cup, a main axis at the bottom surface and each sustaining axis, and a reinforcing axis, thereby to maintain the original form of the cup more longer.

[0059] Further, the foldable cup of the present invention puts the food inside the cup and may hermetically storage it, and may resolve inconvenience that must prepare the cup and food separately by a user.

[0060] Since the foldable cup of the present invention is used as the cup of a square column type, the concentration degree for the load is low as compared with a prior paper cup having a cone or trapezoid type and therefore it is possible to maintain the original form of the cup more longer even on filling the contents such as water, etc into the cup.

[0061] Further, the foldable cup of the present invention may easily disperse the load of the contents by a bendable supporting axis on the front and back side of the cup, a main axis at the bottom surface and each sustaining axis, and a reinforcing axis, thereby to maintain the original form of the cup more longer.

[0062] Further, the foldable cup of the present invention puts the food inside the cup and may hermetically storage it, and may resolve inconvenience that must prepare the cup and food separately by a user.

[0063] Exemplary embodiments of the present invention have been described as above. However, the present invention is not limited to the aforementioned exemplary embodiment and an application range is various and it is apparent that various modifications can be made to those skilled in the art without departing from the spirit of the present invention described in the appended claims.

Claims

1. A foldable cup including a front side having at least one supporting axis, broken in a circumference direction of a cup, for vertically sustaining load; a back side having at least one supporting axis, connected with both side ends thereof to be faced with the front side and broken in the circumference direction of the cup, for vertically sustaining the load; and a foldable bottom surface having 6 variable structures connecting each of ends to lower ends of the front side and back side,
   wherein the bottom surface includes a foldable line for two dividing it to be folded between the front side and back side;
   a main axis, crossing the foldable line diagonally, bent toward the inside and outside, and for sustaining the load of the bottom; and
   a plurality of sustaining lines, disposed at both ends of the bottom surface, respectively, connected between two apexes meeting with the foldable line and another apexes adjacent to them,
   wherein the main axis is connected to at least one of the sustaining lines of each apex meeting with the foldable line to disperse the load.

2. The foldable cup according to claim 1, wherein the bottom surface further includes a plurality of reinforcing axes connecting the adjacent apexes to the foldable line, and the main line passes the reinforcing axis at each of the end.

3. The foldable cup according to claim 1 or claim 2, wherein both side ends of the front side and back side are configured with a foldable adhering part, and the lower ends of the front side and back side are configured with the foldable adhering part corresponding to a circumference side of the bottom sur-

face.

4. The foldable cup according to claim 1 or claim 2, wherein the supporting axes are formed to be corresponded from each other more than two onto each of the front side and back side, respectively.

5. The foldable cup according to claim 1 or claim 2, wherein the upper ends of the front side and back side are configured with a perforable sealing adhering part.

6. The foldable cup according to claim 5, wherein the sealing adhering part includes a pair of the foldable lines of the sealing adhering part spaced from each other and formed in parallel along the circumference of the cup, and the lower foldable line of the sealing adhering part is folded in the outer direction of the cup and the upper foldable line of the sealing adhering part is folded in the inner direction of the cup.

7. The foldable cup according to claim 6, wherein the sealing adhering part is adhered by thermocompression bonding.

8. The foldable cup according to claim 7, wherein the sealing adhering part is adhered after putting a tea bag, solid powder food, and seeds of plants inside the cup.

9. The foldable cup according to claim 6, wherein the foldable line is formed between top ends of the front side and back side and the upper foldable line of the sealing adhering part.

10. The foldable cup according to claim 9, wherein coining is performed along with the perforable line.

11. The foldable cup according to claim 1 or claim 2, wherein the front side, the back side, and the bottom surface are made of paper or synthetic resin.

12. The foldable cup according to claim 1 or claim 2, wherein a handle of the foldable cup is attached onto the front side or back side of the foldable cup.

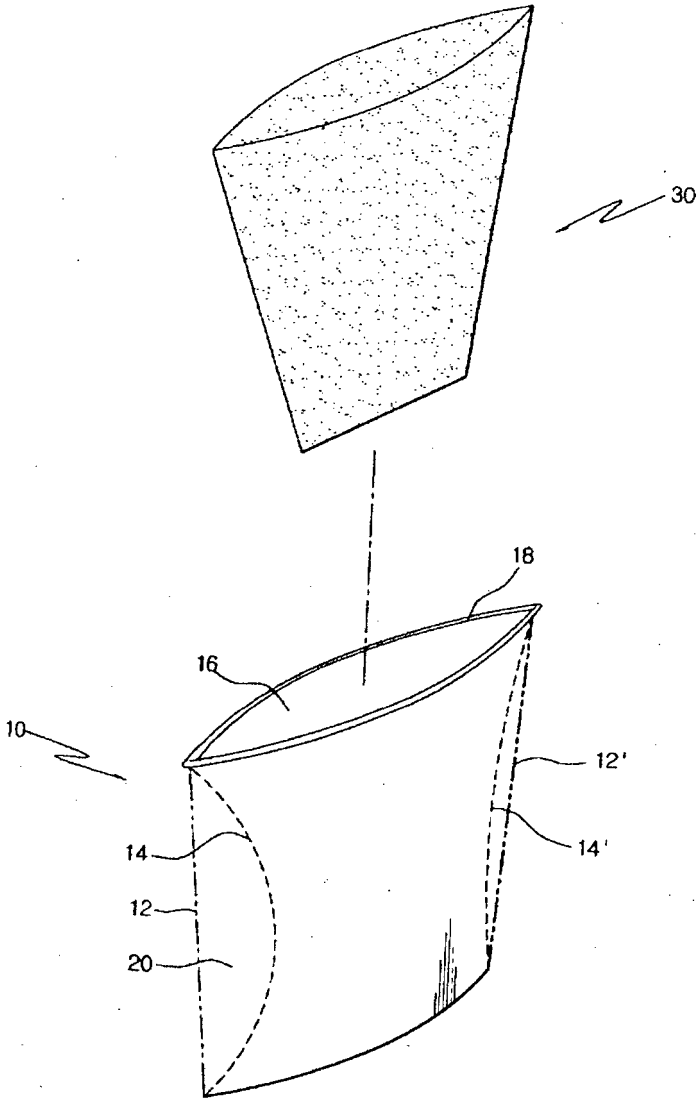

Fig. 1

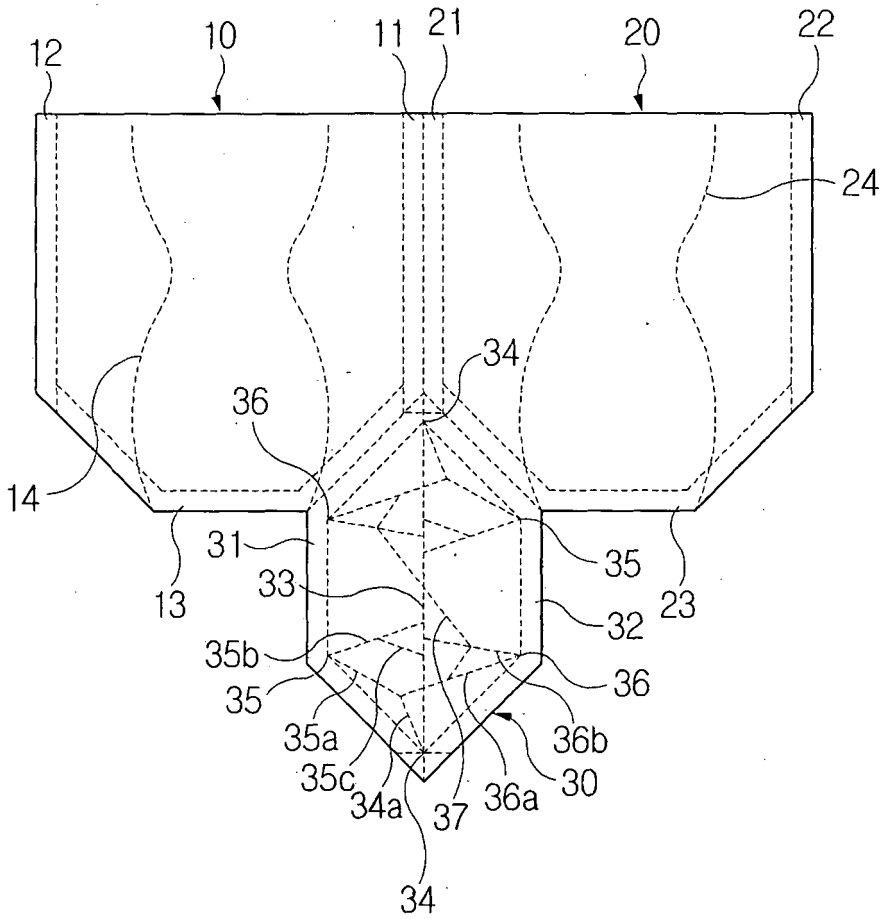
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Fig. 2

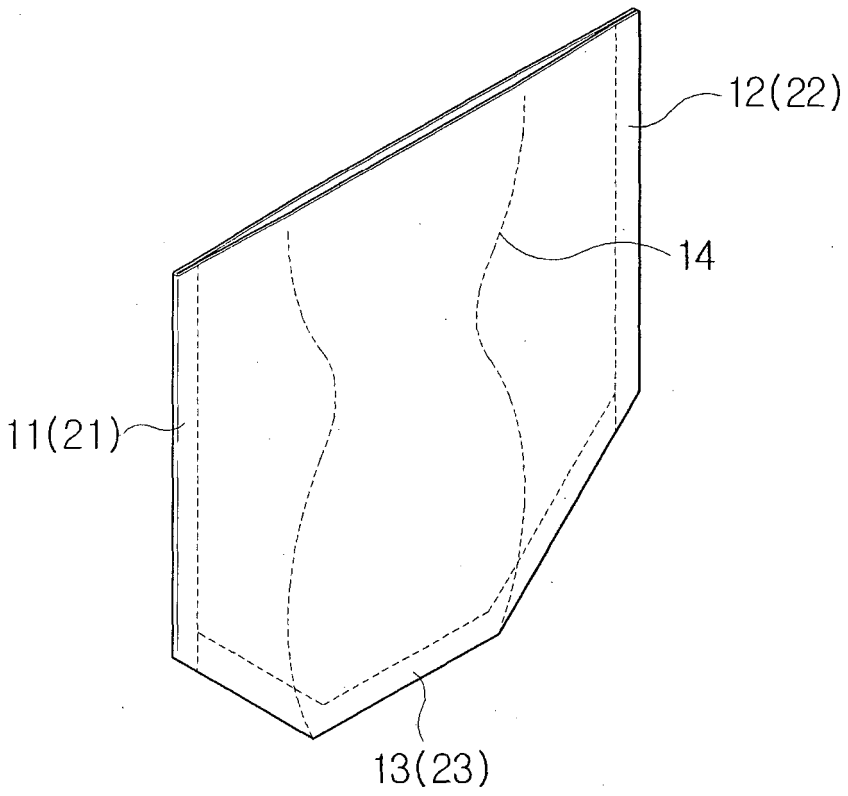

Fig. 3

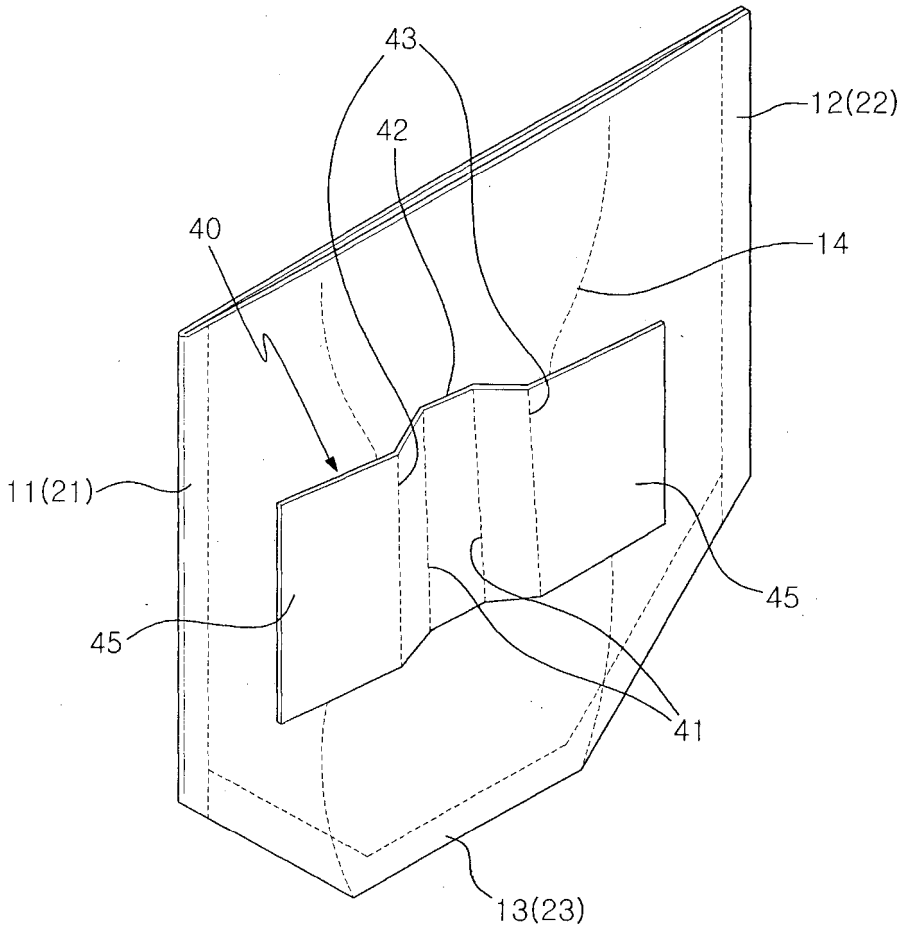

Fig. 4

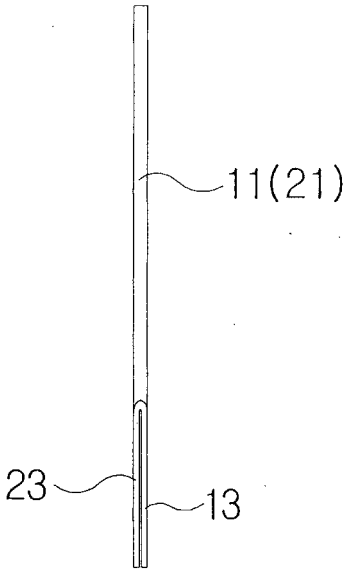

Fig. 5

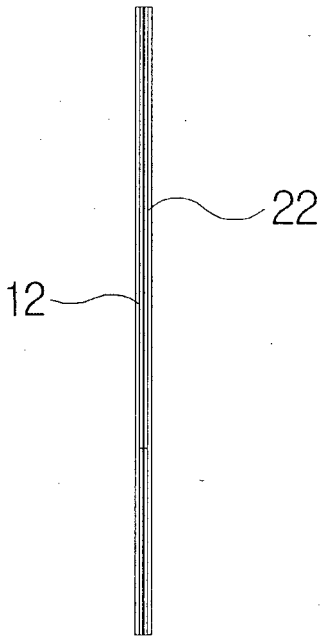

Fig. 6

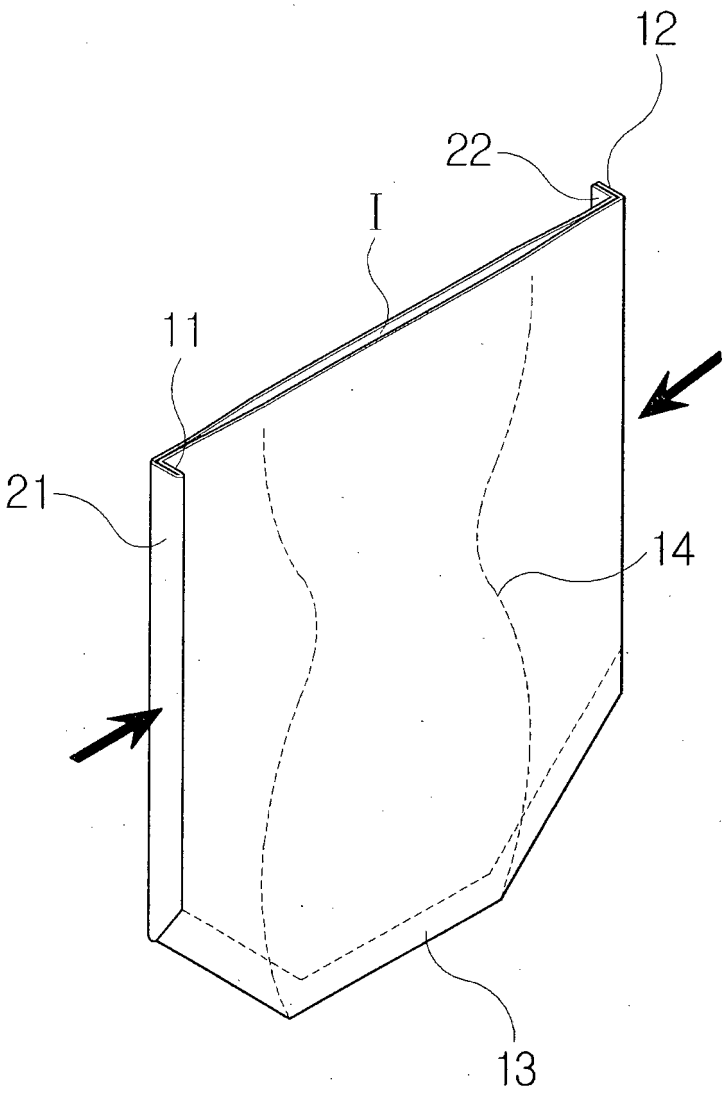

Fig. 7

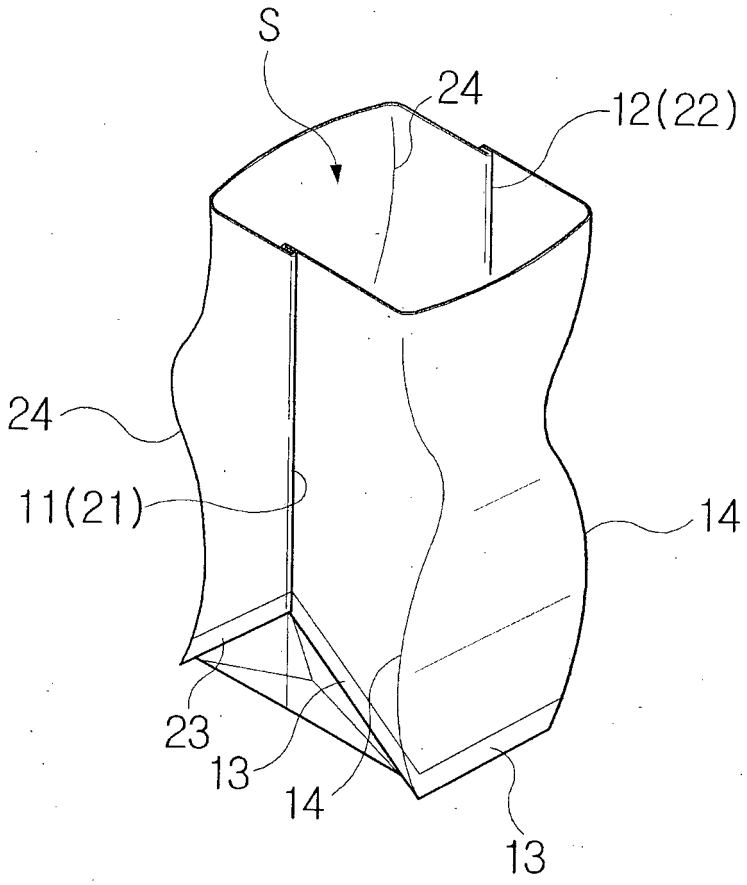

Fig. 8

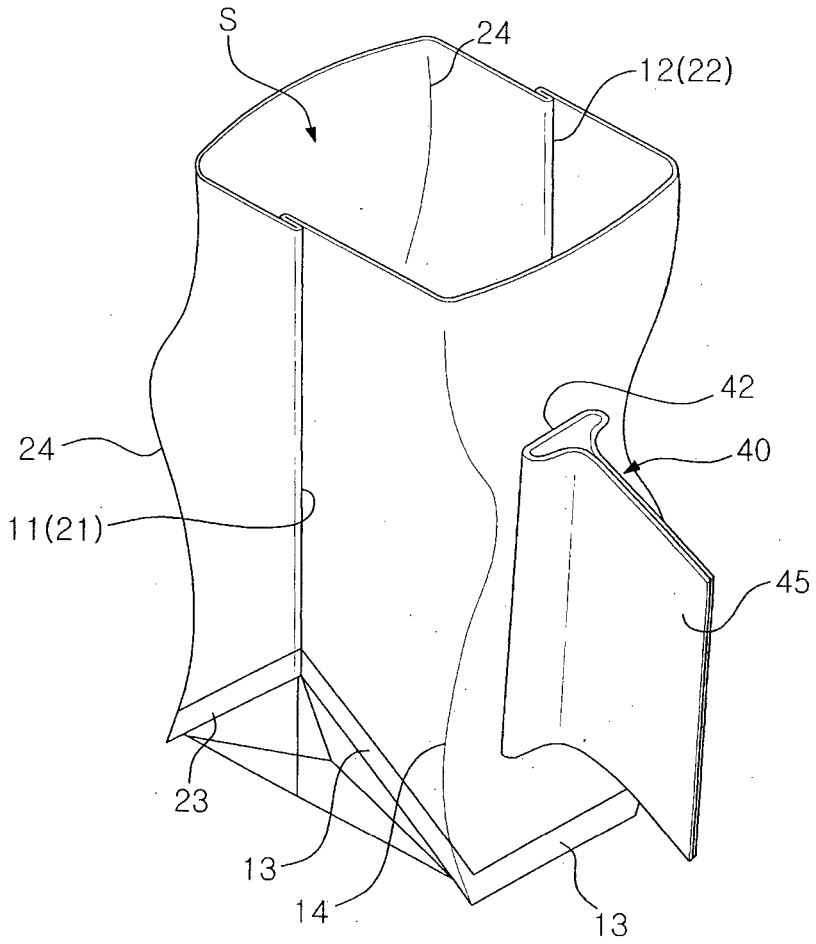

Fig. 9

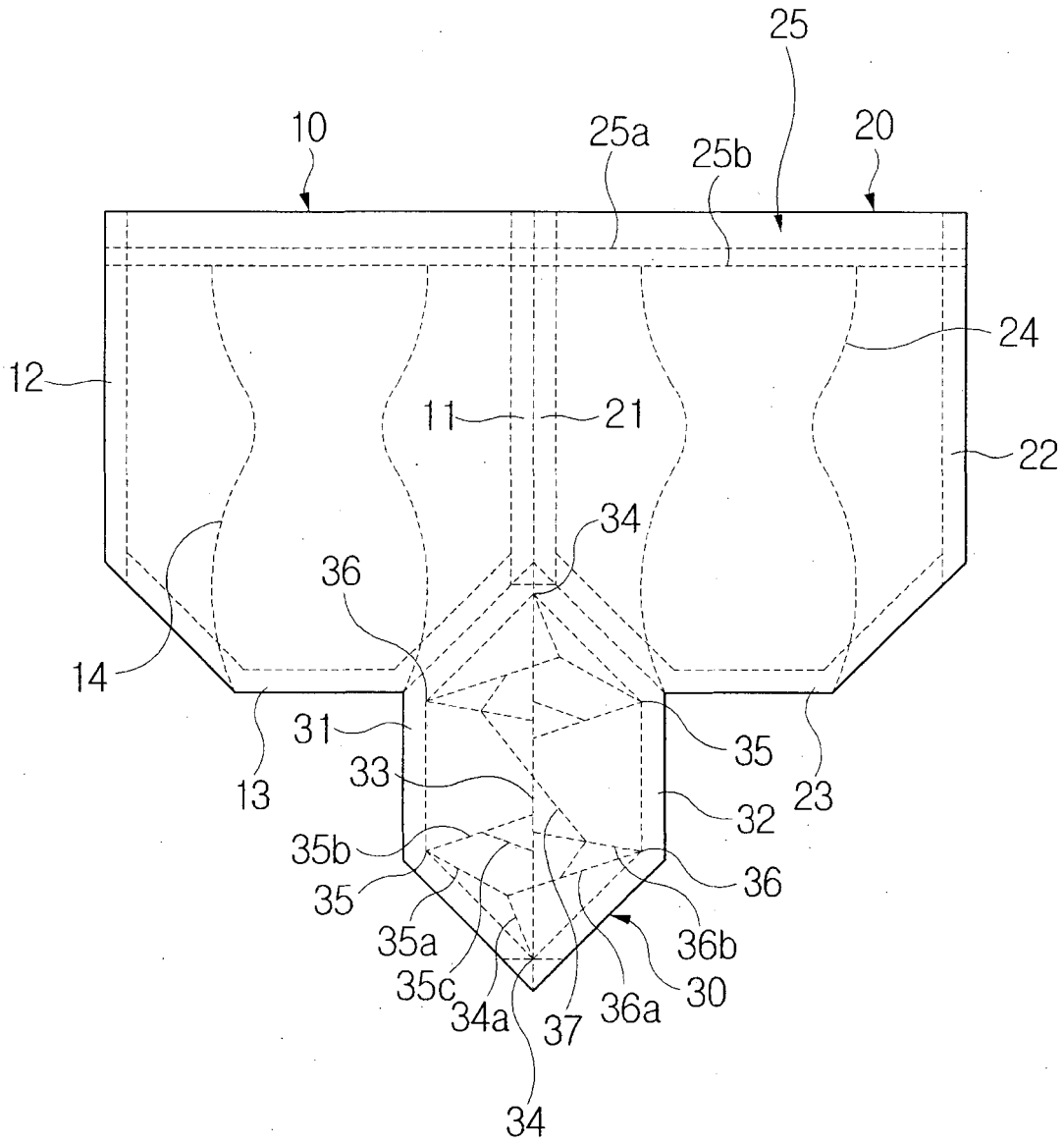
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Fig. 10

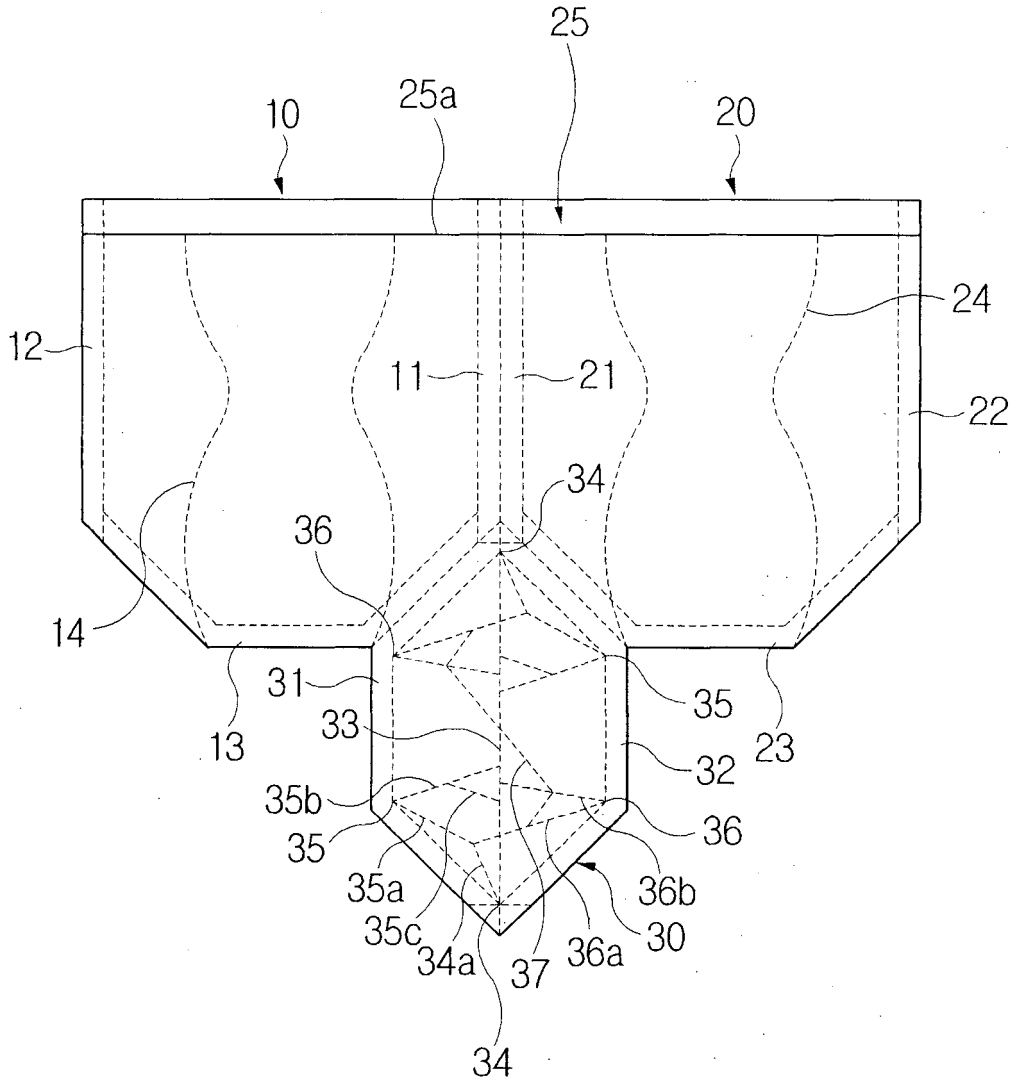
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Fig. 11

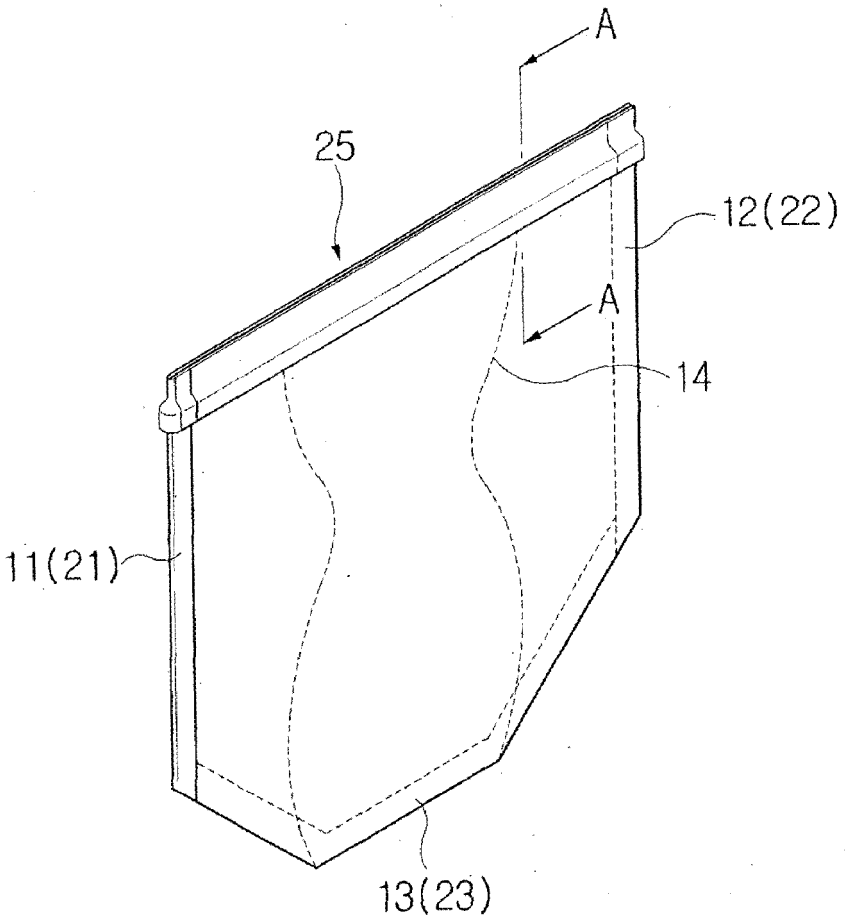

Fig. 12

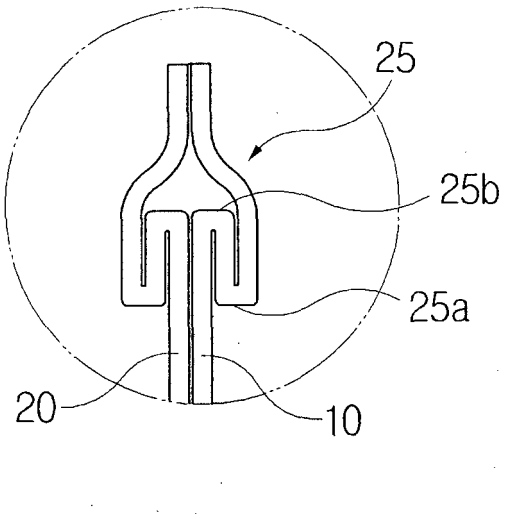

Fig. 13

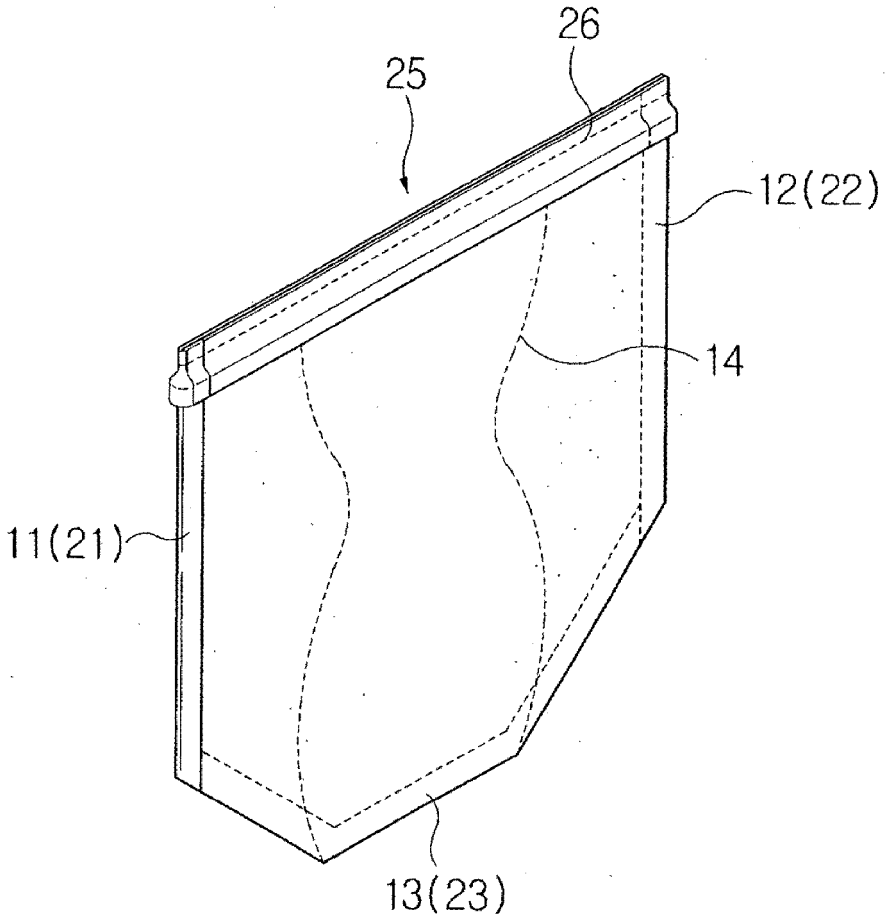

Fig. 14

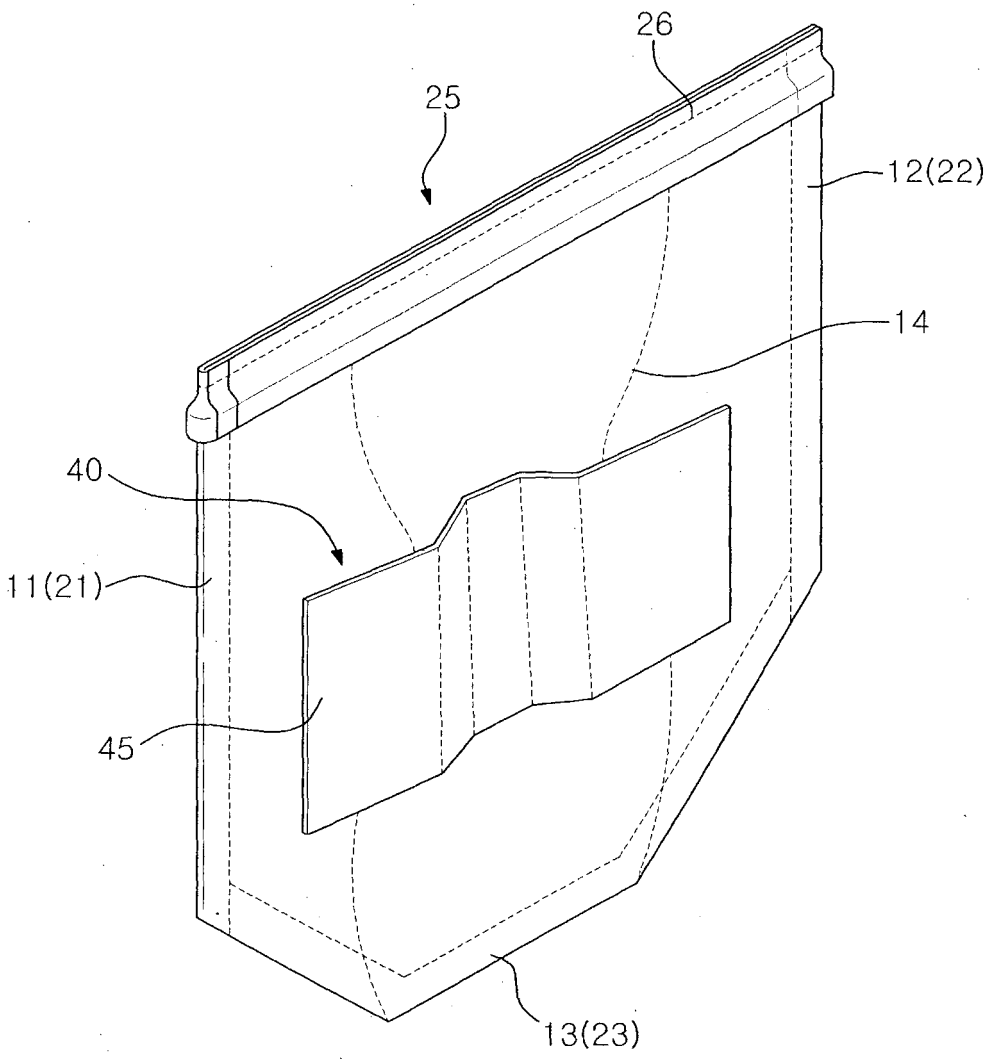

Fig. 15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2014/001772

A. CLASSIFICATION OF SUBJECT MATTER

A47G 19/22(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)
A47G 19/22; A47G 19/03

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Utility models and applications for Utility models: IPC as above
Japanese Utility models and applications for Utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS (KIPO internal) & Keywords: folding, paper, folding, disposable

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 10-1114236 B1 (CHO, Hyun Jun) 05 March 2012 See figure 6, claim 1.	1-12
A	KR 10-2002-0036034 A (HYUN JIN JE EUP COMPANY) 16 May 2002 See figure 3, claim 1.	1-12
A	KR 20-1998-0059445 U (PARK, Suck - Kyu) 26 October 1998 See figure 3, claim 1.	1-12
A	KR 10-2006-0086075 A (AH-U CORPORATION LIMITED) 31 July 2006 See figure 1, claim 1.	1-12

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

* Special categories of cited documents:
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"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	Date of mailing of the international search report
19 NOVEMBER 2014 (19.11.2014)	**19 NOVEMBER 2014 (19.11.2014)**
Name and mailing address of the ISA/**KR** Korean Intellectual Property Office Government Complex-Daejeon, 189 Seonsa-ro, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2014/001772

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-1114236 B1	05/03/2012	WO 2012-161425 A1	29/11/2012
KR 10-2002-0036034 A	16/05/2002	KR 10-0367631 B1	10/01/2003
KR 20-1998-0059445 U	26/10/1998	NONE	
KR 10-2006-0086075 A	31/07/2006	NONE	

Form PCT/ISA/210 (patent family annex) (July 2009)