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(54) **SYNTHETIC RESIN FILM BAG SUITABLE FOR TRANSPORTING AND STORING WATER POURED THEREIN**

(57) A water bag having a capacity of about 10 liters, which is constituted by a flat rectangular bag, is realized, where water does not leak from an inlet provided on one short edge thereof even if the bag such as a cushion in a state filled with water is laid on its side. A right inward taper line 5, a right reinforcing longitudinal line 6, and a right reinforcing lateral line 10 form a closed area C in a shape of a triangle having a base of 41.5 mm and a height of 80 mm, water or air does not enter into or exit from between two plies of two-ply film in the triangular area C, and the two-ply film is maintained in intimate contact with each other. Being made in a line symmetrical pattern, a similar triangular area D is formed on the left side. A space portion between outward taper lines 4, 7 and inward taper lines 5, 8 serves as a water flow path, and when the bag space expands with water introduced therein, the a water flow path portion is pressed from the left and right, and the two-ply film in the water flow path portion is curved in a ridge-like manner in an intimate contact state, thereby avoiding water leakage.

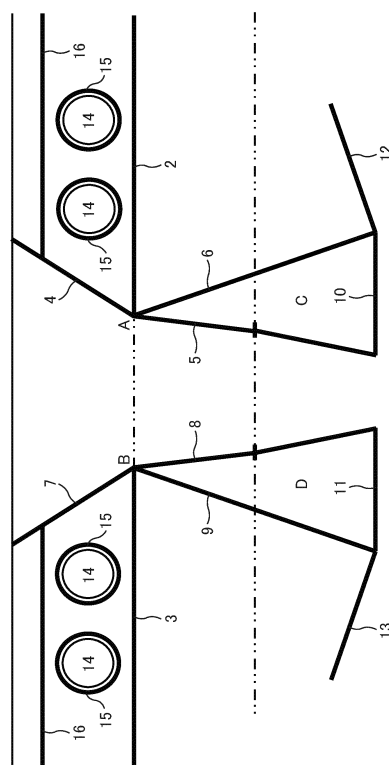


FIG. 2

Description

[Technical Field]

[0001] The present invention relates to a bag capable of being manufactured at low cost simply by welding and sealing the perimeters of two-ply plastic film, without using any other components. In particular, the present invention provides a plastic film bag that has been developed focusing on the purpose of being carried and/or stored, holding drinking water therein.

[Technical Field]

[0002] For example, assuming a situation where drinking water supplied from a water supply truck or the like is carried by an individual at the time of disaster, various types of plastic film bags, which are suitable for being carried and/or stored holding water therein, have been commercialized. The specific structures of such bags are described in detail in the following references.

[0003]

[PTL 1] Japanese Patent Application Laid-open Publication No. 2005-289452 "Bag for Liquid"

[PTL 2] Japanese Patent Application Laid-open Publication No. 2001-315801 "Inlet Accessory Plate"

[PTL 3] Utility Model Registration Publication No. 3179010 "Disaster Emergency Water Receiving Bag"

[PTL 4] Utility Model Registration Publication No. 3021516 "Drinking water bag"

[Disclosure of Invention]

[0004] All conventional plastic film bags (also referred to as "water bag") suitable for the aforementioned purpose employs a structure using a lid or a valve for closing the water inlet after water is poured therein. Thus, troublesome manufacturing process is inevitable, which results in high manufacturing costs in addition to component costs such as the costs of the lid, the valve, and/or the like.

[0005] Japanese patent Laid-open Publication No. 4885315 discloses in detail a "Plastic film balloon body having an air passage having a function of a check valve formed therein" which has been previously developed by the applicant. This is a balloon-like bag, which can be manufactured at low cost simply by welding and sealing the surroundings of the two-ply plastic film without using such a valve component as can be seen in many other similar products, and can be inflated by supplying air therein and be flattened by discharging air therefrom. This bag is made into a product such as a cushion to be used by a spectator at a baseball stadium.

[0006] The inventor of the present invention considered that if a water bag suitable for practical use could be realized with the principle similar to that of the afore-

mentioned patented product, the cost could be significantly reduced compared to conventional ones, and the inventor had repeated prototype experiments while making fine adjustments to the aforementioned patented technology, but failed to achieve practical water tightness / sealing performance, with a water bag having a large capacity of about 5 to 10 liters.

[0007] The goal of the inventor is to achieve a water bag that is formed from a flat rectangular bag and has a capacity of about 10 liters, where water does not leak from the inlet provided on one short edge thereof even when the cushion-like bag in a state filled with water is laid on its side, and no water leakage or breakage occurs even if the bag filled with water is under a load of about several tens of kilograms.

[0008] In order to achieve the aforementioned goal, more than 100 types of patterns have been newly prototyped and experiments have been repeated departing from the patterns of the welding seal lines of the aforementioned patent technology, resulting in the present invention, which will be described in the following.

[0009] A typical embodiment of the present invention is illustrated in Figs. 1 to 4, and a technical idea embodied in this embodiment, which is to be the core of the present invention, is a plastic film bag specified by following matters (1)-(12).

[0010]

- (1) surroundings of two-ply plastic film are sealed and a bag space in a quadrangular shape is defined;
- (2) a welding seal line defining an upper-edge side of a bag space is disconnected at a center thereof, and is divided into a right upper-edge seal line and a left upper-edge seal line, with a tip end A of the right upper-edge seal line and a tip end B of the left upper-edge seal line distanced by a measurement L;
- (3) each one end of a right outward taper line, a right inward taper line, and a right reinforcing longitudinal line is connected to the tip end A of the right upper-edge seal line, the right outward taper, the right inward taper, and the right reinforcing longitudinal lines being formed by welding seal lines;
- (4) each one end of a left outward taper line, a left inward taper line, and a left reinforcing longitudinal line is connected to the tip end B of the left upper-edge seal line, the left outward taper, the left inward taper, and the left reinforcing longitudinal lines being formed by welding seal lines;
- (5) an arrangement of the right upper-edge seal line, the right outward taper line, the right inward taper line, and the right reinforcing longitudinal line and an arrangement of the left upper-edge seal line, the left outward taper line, the left inward taper line, and the left reinforcing longitudinal line are symmetrical with each other;
- (6) the right outward taper line connected to the tip end A and the left outward taper line connected to the tip end B extend to a top-border part of the film,

and a distance between the left and right outward taper lines is set to the measurement L at a lowermost position and gradually increases upward;

(7) the right inward taper line connected to the tip end A and the left inward taper line connected to the tip end B respectively extend downward a distance of a measurement M from the right upper-edge seal line and the left upper-edge seal line, and a distance between the left and right inward taper lines is set to the measurement L at an uppermost position, gradually decreases downward, and reaches a measurement N at a lowermost position;

(8) the right reinforcing longitudinal line connected to the tip end A and the left reinforcing longitudinal line connected to the tip end B respectively extend downward a distance of substantially the measurement M from the right upper-edge seal line and the left upper-edge seal line, a distance between the right inward taper line and the right reinforcing longitudinal line gradually increases downward, and similarly, a distance between the left inward taper line and the left reinforcing longitudinal line gradually increases downward;

(9) a lower end of the right inward taper line and a lower end of the right reinforcing longitudinal line are connected to two ends of a right reinforcing lateral line formed by a welding seal line, and a lower end of the left inward taper line and a lower end of the left reinforcing longitudinal line are connected to two ends of a left reinforcing lateral line formed by a welding seal line;

(10) a base end of a right jetty line formed by a welding seal line is connected to a connection point to which the right reinforcing longitudinal line and the right reinforcing lateral line connect, and a tip-end side of the right jetty line extends substantially in an extending direction of the right reinforcing lateral line;

(11) a base end of a left jetty line formed by a welding seal line is connected to a connection point to which the left reinforcing longitudinal line and the left reinforcing lateral line connect, and a tip-end side of the left jetty line extends substantially in an extending direction of the left reinforcing lateral line; and

(12) a gap portion between the left and right outward taper lines and inward taper lines serves as a water flow path, and when the bag space is expanded with water introduced therein, the water flow path portion is pressed from left and right, the two-ply film at the water flow path portion is folded in a ridge-like manner in an intimate contact state, and water leakage is avoided.

[Brief Description of Drawings]

[0011]

[Fig. 1] Fig. 1 is a plan view illustrating a bag without water filled therein.

[Fig. 2] Fig. 2 is an enlarged view illustrating a water flow path portion in an upper edge portion of the above bag.

[Fig. 3] Fig. 3 is a photograph of the above bag holding water.

[Fig. 4] Fig. 4 is a close-up view of a water flow path portion of the above bag filled with water.

[Embodiments]

[0012] Fig. 1 illustrates a bag (water bag) having a capacity of about 10 liters according to the present invention, with supplementary notes of the actual measurements. Fig. 2 is an enlarged view of an upper-edge portion forming the core of this bag. This bag is made of polyethylene film having a thickness of 200 μm . A two-ply film in a rectangular shape is a tubular blown product, and a right edge and a left edge of the two-ply film are originally connected in an integral manner. A lower edge part of the two-ply film is joined in a watertight manner by a lower edge seal line 1 depicted in Fig. 1 which has been formed by welding. Welding seal lines in special patterns, which form the core of the present invention, are formed in the upper-edge portion of the two-ply film. Hereinafter, these patterns will be described in detail.

===Patterns of Welding Seal Lines in Upper-Edge Portion===

[0013] A welding seal line defining an upper-edge side of a bag space is disconnected at the center thereof, thereby being divided into a right upper-edge seal line 2 and a left upper-edge seal line 3, and a space with a measurement of $L = 50 \text{ mm}$ is left between a tip end A of the right upper-edge seal line 2 and a tip end B of the left upper-edge seal line 3.

[0014] Each one end of a right outward taper line 4, a right inward taper line 5, and a right reinforcing longitudinal line 6, which are formed by welding seal lines, is connected to the tip end A of the right upper-edge seal line 2. Further, each one end of a left outward taper line 7, a left inward taper line 8, and a left reinforcing longitudinal line 9, which are formed by welding seal lines, is connected to the tip end B of the left upper-edge seal line 3.

[0015] As is clear from Figs. 1 and 2, a pattern on the right side including the right upper-edge seal line 2, the right outward taper line 4, the right inward taper line 5, and the right reinforcing longitudinal line 6 and a pattern on the left side including the left upper-edge seal line 3, the left outward taper line 7, the left inward taper line 8, and the left reinforcing longitudinal line 9 are symmetrical with each other.

[0016] The right outward taper line 4 connected to the tip end A and the left outward taper line 7 connected to the tip end B extend to the top border part of the film. The width between the left and right outward taper lines 4 and 7 is set to a measurement L at the lowermost position

and gradually increases upward.

[0017] The right inward taper line 5 connected to the tip end A and the left inward taper line 8 connected to the tip end B extend downward the height of a measurement $M = 80$ mm from the right upper-edge seal line 2 and the left upper-edge seal line 3, respectively. The width between the left and right inward taper lines 5 and 8 at the uppermost position is set to the measurement L , is gradually narrowed downward, and is set to a measurement of $N = 23$ mm at the lowermost position.

[0018] The right reinforcing longitudinal line 6 connected to the tip end A and the left reinforcing longitudinal line 9 connected to the tip end B respectively extend downward the height of the measurement M from the right upper-edge seal line 2 and the left upper-edge seal line 3. The width between the right inward taper line 5 and the right reinforcing longitudinal line 6 gradually increases downward (the width between the two at the lower ends is set to 41.5 mm). Similarly, the width between the left inward taper line 8 and the left reinforcing longitudinal line 9 gradually increases downward (the width between the two at the lower ends is set to 41.5 mm).

[0019] The lower end of the right inward taper line 5 and the lower end of the right reinforcing longitudinal line 6 are respectively connected to two ends of a right reinforcing lateral line 10 formed by a welding seal line. The lower end of the left inward taper line 8 and the lower end of the left reinforcing longitudinal line 9 are connected to the two ends of a left reinforcing lateral line 11 formed by a welding seal line.

[0020] The left and right inward taper lines 5 and 8 are slightly bent at the center parts thereof in a dogleg shape. The space between the left and right inward taper lines 5 and 8 is increased by such bends, to be larger than the space therebetween when these lines are straight, and the space between the left and right lines at the bent points, which are exactly midpoints thereof, is set to 40 mm.

[0021] If the aforementioned bends are ignored, the inward taper line 5, the reinforcing longitudinal line 6, and the reinforcing lateral line 10, on the right side, form a closed area C in a shape of a triangle having a base of 41.5 mm and a height of 80 mm, and water or air does not enter into or exit from the two-ply film in this triangular area C since the two-ply film is maintained in intimate contact. The patterns being made line symmetrical, a similar closed triangular area D is formed on the left side (the left inward taper line 8, the left reinforcing longitudinal line 9, and the left reinforcing lateral line 11).

[0022] A base end of a right jetty line 12, having a length of about 45 mm, formed by a welding seal line is connected to the connection point to which the right reinforcing longitudinal line 6 and the right reinforcing lateral line 10 connect. The tip end side of the right jetty line 12 extends in such a manner as to be inclined slightly upward substantially in the extending direction of the right reinforcing lateral line 10. The distance between the tip end of the right jetty line 12 and the right upper-edge seal line

2 is set to 65 mm. Being made in a line symmetrical pattern, a left jetty line 13 is formed similarly on the left side.

[0023] Further, a total of four round holes 14, two each on the left and right sides, which serve as a handle, are formed to the two-ply film in parts above the left and right upper-edge seal lines 2, 3 and on outer sides of the left and right outward taper lines 4, 7. Reinforcing circular welding seal lines 15 are formed around the round holes 14. Further, reinforcing welding seal lines 16 are formed immediately below the top border in the outer parts of the left and right outward taper lines 4, 7, in the two-ply film. Operation and effect of these four round holes 14 will be described later. Note that the above welding seal lines have a line width of about 3 mm.

===Introducing Water into Bag===

[0024] As is clear from the above description, the bag space, which is formed by the two-ply film, is configured to be connected to the outside air only through the space portion between the left and right outward taper lines 4 and 7 and the space portion between the inward taper lines 5 and 8. These space portions are referred to as a water flow path.

[0025] A water supply hose connected to a faucet of a water supply or a water supply truck is used to introduce water into the bag. The diameter of the water supply hose is preferably set to the dimension matching that of the circular shape formed by the two-ply film of the lower end portion of the left and right inward taper lines 5 and 8. The two plies of the two-ply film on the top border of the water flow path are separated from each other using an individual's fingers, and the water supply hose is inserted therethrough to reach the lower end part of the inward taper lines 5 and 8.

[0026] When water is sent through the water supply hose in such a state, water is introduced into the interior of the bag space, the two plies of the two-ply film forming the bag space are separated from each other to increase the space therebetween, and the bag space being filled with water expands. The bag according to the present embodiment holds about ten liters of water. When the bag space is substantially filled with water, the water supply hose is taken out from the water flow path. Then, as will be described in detail in the following, the water flow path portion is pressed from the left and right so that the two-ply film in the water flow path portion is curved in a ridge-like manner in an intimate contact state, thereby avoiding water leakage.

===No Water Leaking===

[0027] The photograph of Fig. 3 is taken, capturing a state of the water bag filled with water, holding about ten liters of water supplied into the bag of Fig. 1, and laid on its side on a horizontal platform. The photograph of Fig. 4 shows a close-up of an area surrounding the water flow path of the bag filled with water in the state of Fig. 3.

[0028] As is understood from the two photographs, the water flow path portion is pressed from left and right by the left and right triangular areas C and D where the two-ply film is in intimate contact, and the areas outside the triangular areas which are expanded with water. Especially, in the water flow path portion, a large local pressure force is applied by point A and point B which are vertices of the triangular areas C, D and the tip ends of the upper-edge seal lines 2, 3, respectively as well, and also a state is produced where the pressure force gradually decreases in the depth direction of the water flow path.

[0029] Due to the pressure force generated as described above, the two-ply film of the water flow path is folded in a ridge-like manner in an intimate contact state. Such a fold has a natural and smooth curved surface, but forms a shape with an arc surface which can be appropriately expressed as a knife edge ridge with steep slopes on both sides thereof (another appropriate wording for the shape is a U-shaped valley when seen from the opposite side).

[0030] No water had leaked even when the bag filled with water was laid on its side as seen in the photographs in a state where the water flow path is folded as described above. In addition, no water had leaked even when the bag, having a volume of 10 liters, was left filled with water and laid on its side under a load equal to or greater than 200 kilograms for several days. Bags with welding seal line patterns of 100 types or more had been manufactured and demonstration tests thereof had been performed, spending more than a dozen months until such performance was realized to accomplish the present invention in the end.

===Function of the Left and Right Jetty Lines 12, 13===

[0031] One of the goals in developing the water bag according to the present invention is a bag that does not break even if the bag filled with water carried by one's hand has dropped on the floor. Quite a few prototypes of the bags without the jetty lines 12, 13 that were filled with water broke because the seal line in the vicinity of the point A and/or the point B broke due to the impact of the drop. The jetty lines 12, 13 are considered to be useful for alleviating the impulsive water pressure exerted on point A and/or point B from the lower part of the bag when the bag has dropped, and thereby breakage of a dropped bag had been significantly decreased.

===Round Holes 14 to Be a Handle===

[0032] As illustrated in Fig. 1, the space between the left and right inner round holes 14 is set to 120 mm when the bag is empty of water, whereas when the bag is brought into a state filled with water, the water flow path portion between the round holes is folded as described above and the space between the round holes is reduced to about 30mm, and thus the space becomes just right for the four fingers of a hand excluding the thumb to be

inserted through the four round holes 14 to carry the bag filled with water. Note that the welding seal lines 16 in the uppermost part of the bag functions as the reinforcement when carrying the bag with the fingers inserted through the round holes 14.

===Taking Water Out from Bag===

[0033] For example, a bag filled with water is laid on its side and placed on a table as illustrated in Fig. 3 and after the two plies of the two-ply film of the water flow path on the outer border folded as described above are separated with an individual's fingers, a hose similar to that used for supplying water is inserted between the two films allowing the water to be discharged from the bag through a hose when the tip end thereof reaches the depth of the water flow path.

===Other Embodiments===

[0034]

(1) If the bag is not considered to be used for carrying, the round holes 14 and the welding seal lines 16 in the uppermost part need not be provided.

(2) The reason for slightly bending the center parts of the inward taper lines 5, 8 in a dogleg shape in the embodiment is for a fine adjustment to produce a natural and smooth fold without creases or the like in the water flow path portion, but may be omitted.

(3) Embodiments of the outward taper lines 4, 7, the inward taper lines 5, 8, the reinforcing longitudinal lines 6, 9, the reinforcing lateral lines 10, 11, and the jetty lines 12, 13 may differ from the embodiment shown in the figures without departing from the scope of the present invention.

(4) One or both of the left and right edges of the two-ply film forming the bag space may be integrated by the welding seal lines. The lower edges of the two-ply film forming the bag space may be integrated when the film is produced. The lower edge part and the side-edge part of the bag may employ a gusset structure.

[Reference Signs List]

[0035] 2 and 3 upper-edge seal line, 4 and 7 outward taper line, 5 and 8 inward taper line, 6 and 9 reinforcing longitudinal line, 10 and 11 reinforcing lateral line, 12 and 13 jetty line, 14 round hole

Claims

1. A plastic film bag specified by following matters (1) to (12) :

(1) surroundings of two-ply plastic film are

sealed and a bag space in a quadrangular shape is defined;

(2) a welding seal line defining an upper-edge side of a bag space is disconnected at a center thereof, and is divided into a right upper-edge seal line and a left upper-edge seal line, with a tip end A of the right upper-edge seal line and a tip end B of the left upper-edge seal line distanced by a measurement L;

(3) each one end of a right outward taper line, a right inward taper line, and a right reinforcing longitudinal line is connected to the tip end A of the right upper-edge seal line, the right outward taper, the right inward taper, and the right reinforcing longitudinal lines being formed by welding seal lines;

(4) each one end of a left outward taper line, a left inward taper line, and a left reinforcing longitudinal line is connected to the tip end B of the left upper-edge seal line, the left outward taper, the left inward taper, and the left reinforcing longitudinal lines being formed by welding seal lines;

(5) an arrangement of the right upper-edge seal line, the right outward taper line, the right inward taper line, and the right reinforcing longitudinal line and an arrangement of the left upper-edge seal line, the left outward taper line, the left inward taper line, and the left reinforcing longitudinal line are symmetrical with each other;

(6) the right outward taper line connected to the tip end A and the left outward taper line connected to the tip end B extend to a top-border part of the film, and a distance between the left and right outward taper lines is set to the measurement L at a lowermost position and gradually increases upward;

(7) the right inward taper line connected to the tip end A and the left inward taper line connected to the tip end B respectively extend downward a distance of a measurement M from the right upper-edge seal line and the left upper-edge seal line, and a distance between the left and right inward taper lines is set to the measurement L at an uppermost position, gradually decreases downward, and reaches a measurement N at a lowermost position;

(8) the right reinforcing longitudinal line connected to the tip end A and the left reinforcing longitudinal line connected to the tip end B respectively extend downward a distance of substantially the measurement M from the right upper-edge seal line and the left upper-edge seal line, a distance between the right inward taper line and the right reinforcing longitudinal line gradually increases downward, and similarly, a distance between the left inward taper line and the left reinforcing longitudinal line gradually in-

creases downward;

(9) a lower end of the right inward taper line and a lower end of the right reinforcing longitudinal line are connected to two ends of a right reinforcing lateral line formed by a welding seal line, and a lower end of the left inward taper line and a lower end of the left reinforcing longitudinal line are connected to two ends of a left reinforcing lateral line formed by a welding seal line;

(10) a base end of a right jetty line formed by a welding seal line is connected to a connection point to which the right reinforcing longitudinal line and the right reinforcing lateral line connect, and a tip-end side of the right jetty line extends substantially in an extending direction of the right reinforcing lateral line;

(11) a base end of a left jetty line formed by a welding seal line is connected to a connection point to which the left reinforcing longitudinal line and the left reinforcing lateral line connect, and a tip-end side of the left jetty line extends substantially in an extending direction of the left reinforcing lateral line; and

(12) a gap portion between the left and right outward taper lines and inward taper lines serves as a water flow path, and when the bag space is expanded with water introduced therein, the water flow path portion is pressed from left and right the two-ply film at the water flow path portion is folded in a ridge-like manner in an intimate contact state, and water leakage is avoided.

2. The bag according to claim 1, wherein the left and right inward taper lines are slightly bent at center parts thereof in a dogleg shape, and a space between the left and right inward taper lines is increased, by such bends, to be larger than a space therebetween when the lines are straight.
3. The bag according to one of claims 1 and 2, wherein the measurement L is approximately twice the measurement N.
4. The bag according to claim 3, wherein the measurement M is 1.2 times to twice the measurement L.
5. The bag according to claim 4, wherein a measurement of a length of the left and right reinforcing lateral lines is set between the measurement L and the measurement N.
6. The bag according to claim 5, wherein the left and right jetty lines are inclined such that tip ends thereof are positioned on an upper-edge side with respect to the base ends thereof.
7. The bag according to any one of claims 1 to 6, where-

in

holes that serve as a handle are formed to the two-ply film at a part that is above the left upper-edge seal line and on an outer side of the left outward taper line, and a part that is above the right upper-edge seal line and on an outer side of the right outward taper line.

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8. The bag according to claim 7, wherein reinforcing welding seal lines are formed to the two-ply film at parts immediately below a top border and on outsides of the left and right outward taper lines as well.

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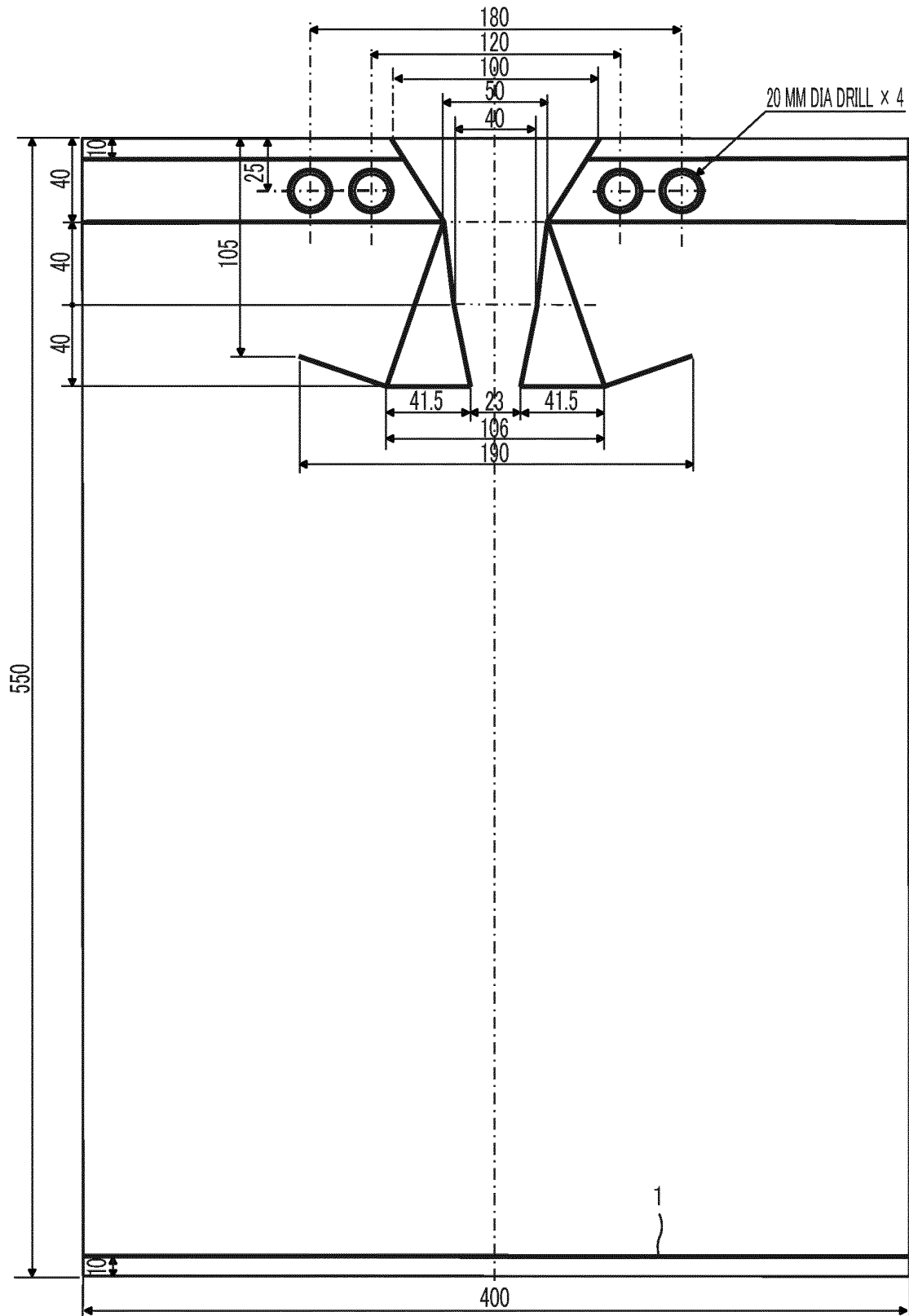


FIG. 1

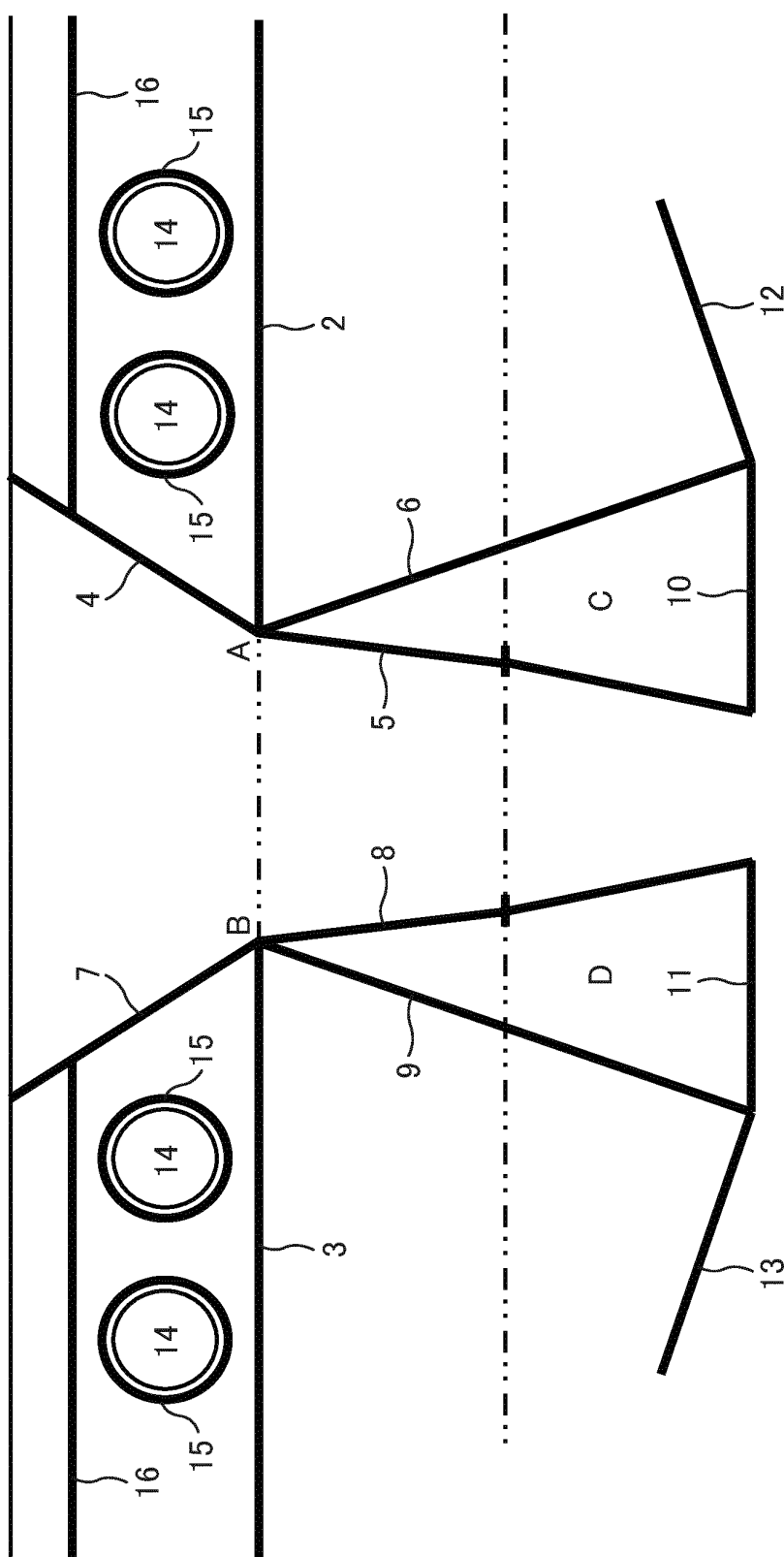


FIG. 2



FIG. 3

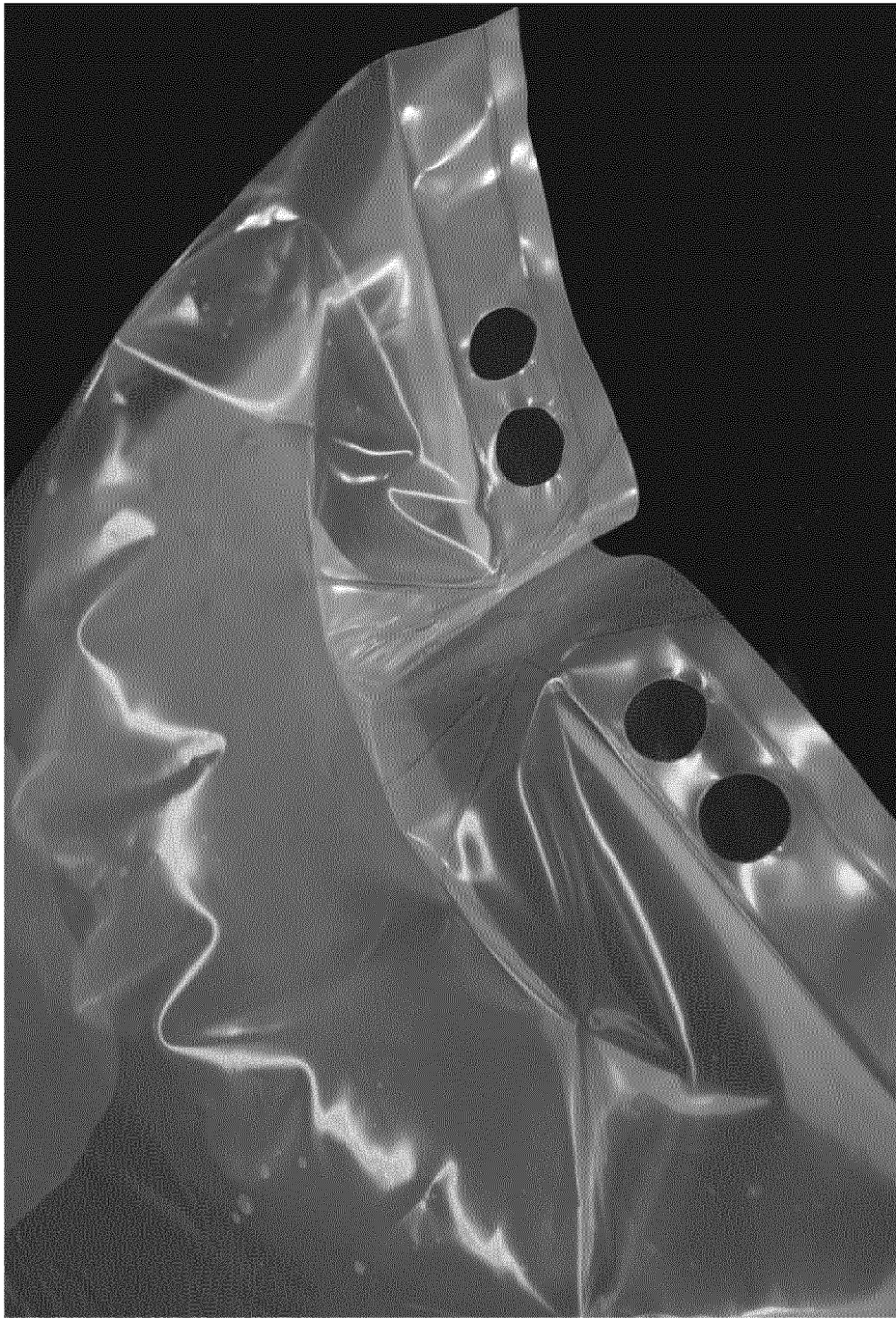


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2014/067320

A. CLASSIFICATION OF SUBJECT MATTER

B65D30/24(2006.01)i, B65D30/10(2006.01)i, B65D33/08(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)

B65D30/24, B65D30/10, B65D33/08

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 1996-2014

Kokai Jitsuyo Shinan Koho 1971-2014 Toroku Jitsuyo Shinan Koho 1994-2014

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.
A	JP 63-503135 A (Lindknud Plast A/S), 17 November 1988 (17.11.1988), entire text; all drawings & US 4822180 A & EP 264407 A1 & WO 1987/006558 A1 & DK 185786 A & NO 875248 A & AU 7351187 A & FI 875600 A & AT 62196 T & CA 1302971 C & ES 2006737 A6 & IN 169297 A1 & GR 870625 A1 & CN 87103090 A	1-8
A	JP 2005-206241 A (Star Plastic Kogyo Kabushiki Kaisha), 04 August 2005 (04.08.2005), entire text; all drawings (Family: none)	1-8

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

* Special categories of cited documents:

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Date of the actual completion of the international search
10 September, 2014 (10.09.14)Date of mailing of the international search report
22 September, 2014 (22.09.14)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2014/067320

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 11-301709 A (Kabushiki Kaisha Ise), 02 November 1999 (02.11.1999), entire text; all drawings (Family: none)	1-8
A	JP 2006-521974 A (Pakerman S.A.), 28 September 2006 (28.09.2006), entire text; all drawings & US 2006/182370 A1 & EP 1615843 A1 & WO 2004/087526 A1 & CH 696968 A5 & NO 20055106 A & CA 2520841 A1 & MA 27672 A1 & KR 10-2005-0116837 A & CN 1767986 A & UA 80189 C2 & EG 23849 A & CL 6892004 A1 & ZA 200508832 A & AP 1937 A	1-8

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REFERENCES CITED IN THE DESCRIPTION

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