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(54) Envelope bag

(57) The present invention relates to an envelope bag, comprising a front bag layer and a rear bag layer, which front and rear bag layers define an opening in a spread-apart position of the envelope bag, and with a continuous passage through the front and rear bag layers to be acted upon by a spreader device for the purpose of spreading the front and rear bag layers in order to open up the opening, wherein the passage is substantially aligned through the front and rear bag layers and the passage in the front bag layer has at least one feature from the group at least comprising: dimensions and design which differs from the passage in the rear bag layer. The present invention also relates to a set of envelope bags and to the use of at least one envelope bag in a sleever machine.

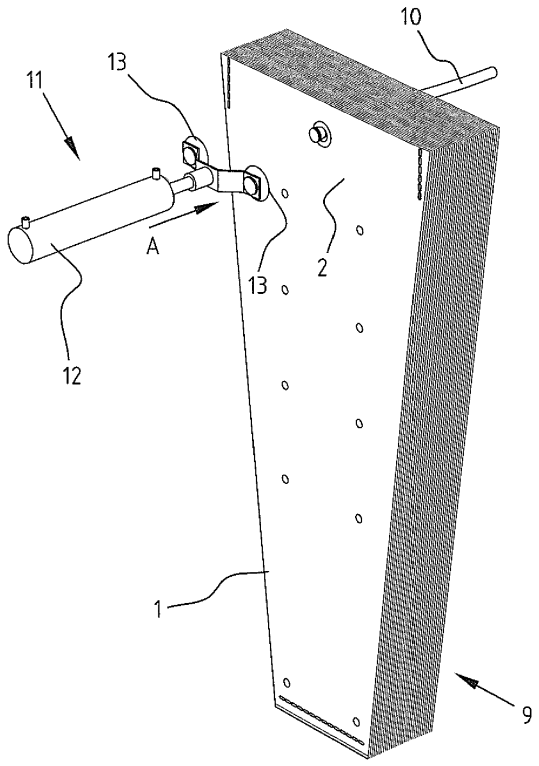

FIG. 2

EP 2 402 260 A1

Description

[0001] The present invention relates to an envelope bag. According to the known art such an envelope bag can be assembled or designed in diverse ways. Separate front and rear bag layers of for instance a transparent foil or any other material can thus be attached to each other along the outer peripheral edges of a thus formed envelope bag. Such a known envelope bag further comprises an opening into which a product can be placed so that the envelope bag can be used as a protective sleeve round the product. Such a product can for instance be a plant. In order to enable placing of the plant or any other product in a protective sleeve, the opening of the envelope bag has to be opened up. A packaging device can be equipped for this purpose with a spreader device for spreading the front and rear bag layers in order to open up the opening. It may be the case during operation of such a spreader device that, for instance as a result of static electricity or other cause such as moisture, the front and rear bag layers adhere to each other. This impairs the effectiveness of the spreader device.

When an automated installation anticipates that the envelope bag has been opened and access can be gained to the opening in the envelope bag, it may occur that a product such as a plant is released at the expected location of the opening with the intention that it is released into the envelope bag. However, if the envelope bag has not been opened as expected, such a product, in particular a plant, falls to the ground adjacently of the envelope bag. This results in disruption of the packaging device with the spreader device, which is then idle until the remnants of the product, in particular the plant, have been cleared away. Only after the envelope bag which has not opened as expected and the dropped product, in particular the plant, have been removed and cleared away can the packaging device with the spreader device for envelope bags be set into operation again.

[0002] The present invention is intended to obviate or at least alleviate this problem to the extent it is caused by the opening of envelope bags not being opened up in the desired manner using for instance a spreader device.

[0003] In many cases a spreader device comprises a suspension element such as a rod having at the free outer end thereof a diverging or conical tip which widens in the takeoff direction of the envelope bag. The front envelope bag can for instance thus be engaged with a spreader device in the hope and expectation that the rear bag layer is pulled away from the front bag layer when the pulling force on the front bag layer is greater than the retaining force of the conical outer end of the suspension rod.

[0004] In many cases however static charge or moisture will bring about an adhering force between the front and rear bag layers such that the rear bag layer is also pulled over the conical head of the suspension rod with the spreader device without this having resulted in an opening of the envelope bag being opened up. In such a situation the above stated problem will occur.

[0005] According to the present invention an envelope bag is now provided which is distinguished from the known envelope bags by the measure that the passage is substantially aligned through the front and rear bag layers and the passage in the front bag layer has at least one feature from the group at least comprising: dimension and design which differs from the passage in the rear bag layer. The holding force on the rear bag layer can thus be selected, while it is possible to achieve with more certainty that the front bag layer does indeed come loose of the suspension rod and is released over the conical outer end thereof. The form or dimension of the passage in the rear bag layer can simultaneously be selected such that an improved retention of the rear bag layer can be achieved in the spreader device, and the opening up of the opening as such can take place with much more certainty than in the known art.

[0006] The present invention has diverse preferred embodiments, such as defined for instance in the dependent claims, examples of which are also shown in the accompanying drawings. The drawings will also be further described hereinbelow.

[0007] An envelope bag can thus have the feature that the passage in the front bag layer is larger than that in the rear bag layer. This is an obvious feature whereby the front bag layer can move more easily over the conical head of the suspension rod in the spreader device. It is noted that such a conical outer end of the suspension rod can also be a spherical form and so on. In such embodiments of the outer end of a suspension rod for the envelope bags the passage will usually be substantially round, although other designs of the head of the suspension rod and the passage in the envelope bag are possible. A square or rectangular passage and head of the suspension rod can thus be envisaged within the scope of the present invention.

[0008] In the case of a round shape the dimension in the present preferred embodiment will be precisely the diameter of the round passage. The front bag layer will then have a round hole with a larger diameter than the passage in the rear bag layer.

[0009] In another preferred embodiment an envelope bag can have the feature that at least one of the front and rear bag layers comprises an indication of respectively the front and rear side of the envelope bag. In such an embodiment a user can be given an indication of the front side and rear side of the envelope bag (or a set of envelope bags). When a set of envelope bags is placed in a packaging device with a spreader device, it may be difficult to determine on the basis of visual observation of the envelope bags which should be the front side and which the rear side. It is precisely if such a set of envelope bags were to be placed the wrong way round in the packaging device with spreader device that operation would then deteriorate. In order to avoid this an indication of at least the front side and/or the rear side of a single envelope bag, or of more than one envelope bag in a set thereof, is an extremely favorable embodiment.

[0010] In yet another preferred embodiment at least one of the front and rear bag layers is manufactured from transparent foil. It is precisely when both the front and rear bag layers are manufactured from transparent foil that it may be difficult to distinguish the front and rear sides on the basis of visual observation. In the case of an embodiment where only one of the front and rear bag layers is manufactured from transparent foil, the indication of a front and a rear side can on the contrary be inferred from material differences between the front and rear bag layers. This is therefore also the case with materials other than foil, although it is noted that this is a preferred embodiment.

[0011] In a further preferred embodiment an envelope bag according to the invention can have the feature of a strip arranged along a tear line, for instance a suspension strip. In such an embodiment an envelope bag can be torn loose from the strip. Such a strip can for instance comprise passages for suspension rods so that the rod of the spreader device which protrudes through the passage of the actual envelope bags only fulfils the function of spreading the opening of the envelope bags. The effectiveness of the invention can be increased still further if there is no suspending force acting on this rod. Conversely, a suspending force on the rod of the spreader device can also have a favorable effect depending on chosen materials and configurations in an actual situation of use.

[0012] In yet another preferred embodiment the envelope bag according to the invention can have the feature that strengthening strips are arranged which connect the front and the rear bag layers at a distance from the outer peripheral edge of the envelope bag. Such strengthening strips can form tear inhibitors and in the case of transparent foil can for instance take the form of heat welds. Such heat welds can also be utilized as reinforcement and the position of the passage or at least a safeguard against tearing of the material of the envelope bag at the position of the passage, even when such strengthening strips are arranged a distance from the passage. The envelope bags according to the present invention can thus be applied in a packaging device which, as a result of the thus intended use according to the invention, will have less malfunction and products will need to be discarded less often if they have for instance fallen adjacently of an opening in an envelope bag.

[0013] As already apparent from the foregoing, the present invention also relates to a set of envelope bags with at least one of the features of preferred or essential embodiments, and to the use of such an envelope bag with features according to invention in a sleever machine which can be designated a packaging device. The sleever machine thus comprises a suspension for the envelope bag and a spreader device for spreading the front and rear bag layers so as to open up and spread the openings for the purpose of releasing a product for packaging into it. As already noted above, the use of envelope bags according to the present invention in a per se conventional packaging or sleever machine will have favorable outcomes in respect of operation, continuity, reliability and effectiveness of such a per se conventional sleever machine.

[0014] An embodiment of the present invention will be described hereinbelow with reference to the accompanying drawings, in which the same or similar parts, components and aspects are designated with the same reference numerals, and wherein it is noted that the shown and described embodiments are provided only by way of example and not by way of limitation, and in which:

Fig. 1 is a front view of an envelope bag according to the present invention;
Fig. 2 is a perspective view of a set of envelope bags according to the present invention in use in a packaging device with a spreader device (not shown);
Fig. 3 shows a situation following on from fig. 2;
Fig. 4 shows in more detail the method of spreading the opening of the envelope bag; and
Fig. 5 shows an auxiliary means as component of a spreader device as also utilized in fig. 4.

[0015] Fig. 1 shows an envelope bag 1 according to the present invention. The envelope bag comprises, as shown in fig. 3, a front bag layer 2 and a rear bag layer 3. Both bag layers 2, 3 can be manufactured from transparent foil or any other material. The front and rear bag layers 2, 3 are mutually connected round an outer peripheral edge 4 of envelope bag 5. The outer peripheral edge can have diverse designs. The outer peripheral edge 4 can be a fold line or, conversely, a fixing edge where the front and rear bag layers 2, 3 are attached to each other, for instance using a heat weld.

[0016] It is noted here that envelope bag 1 further comprises strengthening strips 5 close to the top side thereof shown in fig. 1. These strengthening strips 5 can provide for an increased strength of envelope bag 1 and can also form a safeguard or protection against tearing.

[0017] In the case a plant has to be packaged in envelope bag 1, it may be favorable to arrange venting holes 6. These can for instance be formed as perforations or holes formed in other manner.

[0018] Envelope bag 1 comprises a hole 7 in the front bag layer 2. Hole 7 is round and has a predetermined diameter. A corresponding hole 8 with a smaller diameter is arranged in the rear bag layer 3. Hole 8 in the rear bag layer 3 is smaller than hole 7 in front bag layer 2.

[0019] Fig. 2 shows a set 9 of envelope bags 1. Set 9 is in fact a stack of envelope bags 1. The stack of envelope bags 1 hangs from a rod 10 which forms part of a spreader device together with a gripper 11 oriented toward the front bag layer 2. Rod 10 protrudes through the holes 7, 8 of envelope bags 1.

[0020] The gripper comprises a cylinder 12 with a system of suction cups 13 on the piston rod. During a movement of the piston rod of cylinder 12 in the direction of arrow A the suction cups 13 are placed on the front bag

layer 2. Use can be made of suction cups 13 particularly in the case of an envelope bag of transparent foil in order to enable effective engaging of the front bag layer 2. Other engaging means can be chosen in accordance with other materials of the envelope bags within the scope of the general professional knowledge of the skilled person.

[0021] When the piston rod with the system of suction cups 13 at the free outer end thereof has been moved forward sufficiently in the direction of arrow A, suction cups 13 engage on the front bag layer 2. If desired, a vacuum source can be connected to suction cups 13 in order to improve engagement on the front bag layer 2. The situation of fig. 3 is then reached when the piston rod of cylinder 12 is retracted into the cylinder in the direction of arrow A'.

[0022] The smaller hole 8 in rear bag layer 3 then remains hooked on a marginally larger head 14 of rod 10. The front bag layer 2 is simultaneously moved forward so as to open up an opening between the front and rear bag layers 2, 3. The opening is designated with reference numeral 15. Once opening 15 has been opened up, a product (not shown) can be released into envelope bag 1 in the direction of arrow B. This can take place relatively carefully or the product can simply be allowed to drop into envelope bag 1. In the latter case the smaller hole 8 in the rear bag layer 3 will, due to the shock occurring here, be released from the marginally larger head 14 of rod 10. The additional weight of the product which has been released into envelope bag 1 in the direction of arrow B will however in any case ensure that the smaller hole 8 can be pulled more easily over the head 14 of rod 10, for instance with further movement of suction cups 13 in the direction of arrow A'.

[0023] Fig. 4 shows a detail of fig. 3 along arrow IV. Shown clearly here is that the head 14 of rod 10 has a diameter which is sufficiently large to retain the smaller hole 8 in the rear bag layer. Fig. 5 shows a further improvement which can be realized in head 14 of rod 10, this being a groove 16 around head 14 on rod 10. The smaller of the holes 8 in the rear bag layer 3 is effectively engaged in this groove 16 for an improved retention of the rear bag layer 3. Because a hole 7 with a larger diameter is arranged in front bag layer 2, it will be possible to pull this hole 7 of larger diameter without any problem over the head 14 on rod 10, over which envelope bag 1 is arranged, in order to open up the opening 15 for the purpose of releasing a product into it in the direction of arrow B.

[0024] After examination of the foregoing many alternative and additional embodiments will occur to the skilled person, all of which lie within the scope of protection of the present invention in accordance with the letter or spirit of the appended claims. It is thus possible for round holes 7, 8 to be applied in combination with a substantially round or conical or spherical head on rod 10, although use could equally well be made of a form of head 14 on rod 10 which in front view is triangular, square, rectangular, elliptical and so on. Reference is made in the figures to envelope bags 1 with transparent foil for both front bag layer 2 and rear bag layer 3. In such situations it may be difficult to determine and distinguish the side of the envelope bags with the larger hole 7 from the rear bag layer 3. In order to solve this problem a front side indicator can be arranged to nevertheless enable this distinction to be made. This creates a small problem. When the letter A, used in some languages as abbreviation for rear side, is printed on the rear side of an envelope bag, it also appears as a letter A on the front side of envelope bag 1. Worse still, the letter V for front side has the same drawback. It is therefore important to select some indicator or designation for the front and/or rear side such that an effective indicator can also be provided of the way in which envelope bag 1 has to be placed on or over rod 10. Such an indicator is therefore shown in fig. 1 as the letter 'F' 17 as abbreviation of the word "front", wherein it should be noted that this letter can only be seen in mirror image when viewed from the rear of envelope bag 1, this therefore being an indication that when a user is looking at the rear side of envelope bag 1, the letter 'F' 17 will make it clear that this is not the front side. The user can then suitably reverse the bag in order to obtain the correct position of use.

[0025] It will thus be apparent, after examination of the foregoing, that many additional and alternative embodiments are possible and will also occur to the skilled person. All these additional and alternative embodiments must be deemed as falling within the scope of protection of the present invention according to the appended claims. It is for instance possible to provide more than one passage in envelope bag 1, particularly when the envelope bag according to the invention is relatively wide, and the effectiveness of spreading open of the opening of the envelope bag can thus also be improved for wider bags.

Claims

1. Envelope bag, comprising a front bag layer and a rear bag layer, which front and rear bag layers define an opening in a spread-apart position of the envelope bag, and with a continuous passage through the front and rear bag layers to be acted upon by a spreader device for the purpose of spreading the front and rear bag layers in order to open up the opening, wherein the passage is substantially aligned through the front and rear bag layers and the passage in the front bag layer has at least one feature from the group at least comprising: dimensions and design which differs from the passage in the rear bag layer.

2. Envelope bag as claimed in claim 1, wherein the passage in the front bag layer is larger than that in the rear bag layer.

3. Envelope bag as claimed in claim 1 or 2, wherein at

least one of the front and rear bag layers comprises an indication of respectively the front and rear side of the envelope bag.

4. Envelope bag as claimed in claim 1, 2 or 3, wherein at least one of the front and rear bag layers is manufactured from transparent foil.

5. Envelope bag as claimed in at least one of the foregoing claims, further comprising a strip arranged along a tear line, for instance a suspension strip.

6. Envelope bag as claimed in at least one of the foregoing claims, wherein strengthening strips are arranged which connect the front and the rear bag layers at a distance from the outer peripheral edge of the envelope bag.

7. Envelope bag as claimed in claim 6, wherein the strengthening strip forms a boundary of the opening and is arranged at the passage and forms a tear inhibitor.

8. Envelope bag as claimed in at least one of the foregoing claims, further comprising at least one additional passage.

9. Set of envelope bags, wherein at least one of the envelope bags is formed as according to at least one of the foregoing claims.

10. Use of at least one envelope bag as claimed in at least one of the foregoing claims in a sleever machine, which sleever machine comprises:

- a suspension for the envelope bag; and
- a spreader device for spreading the front and rear bag layers so as to open up and spread the opening.

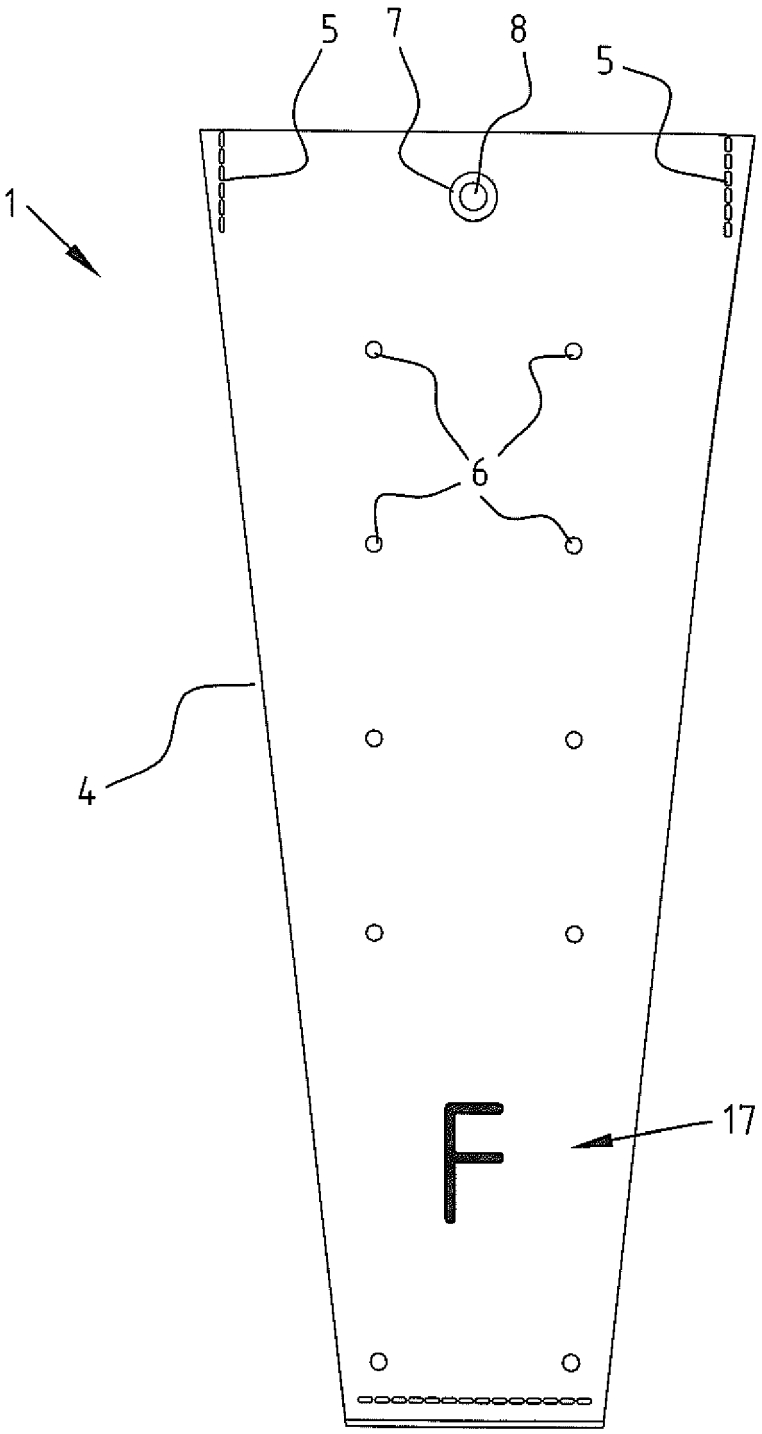

FIG. 1

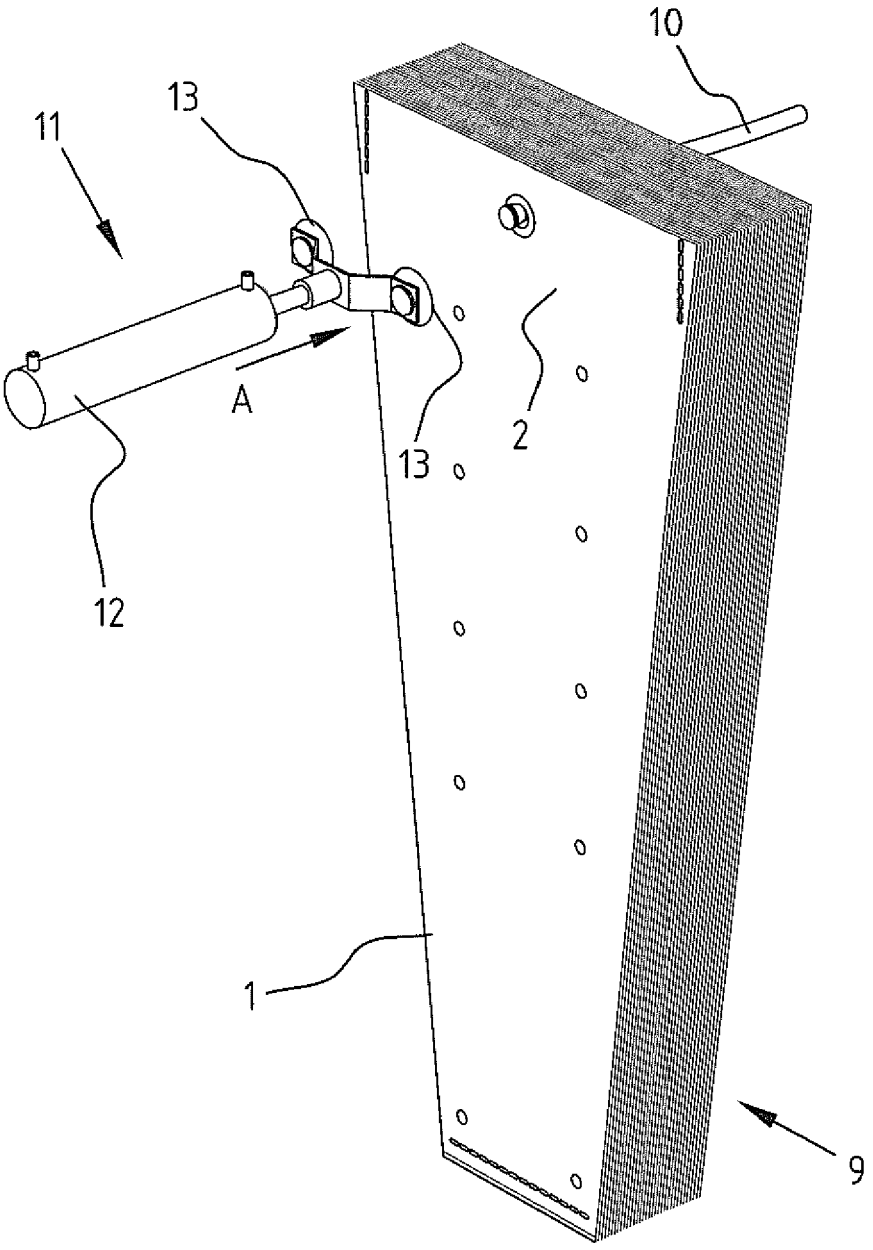

FIG. 2

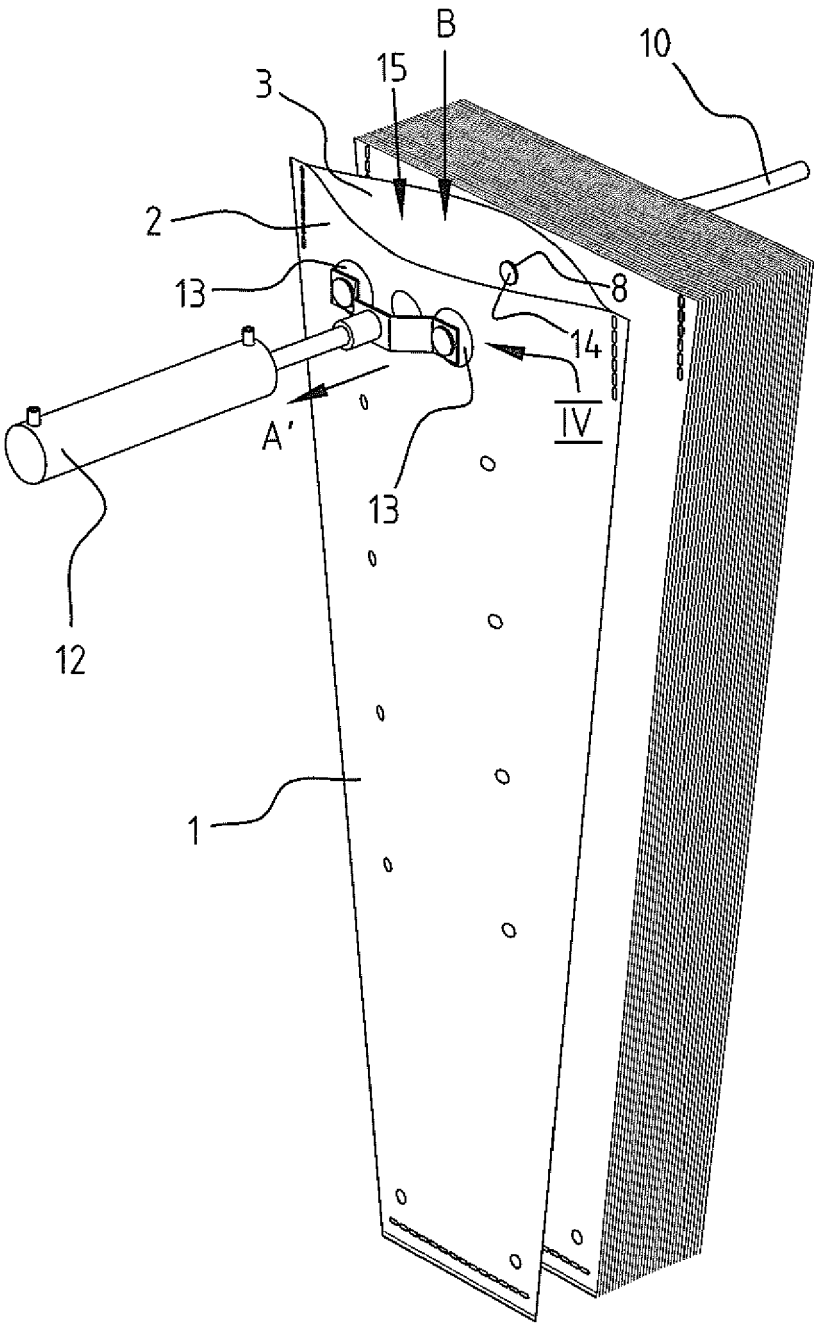

FIG. 3

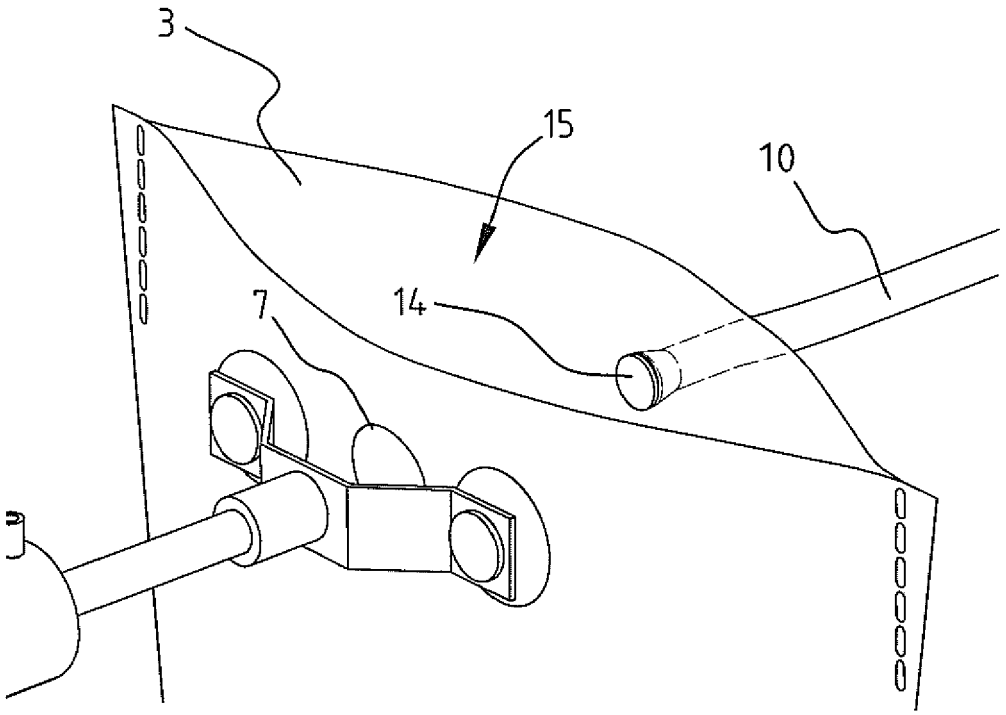

FIG. 4

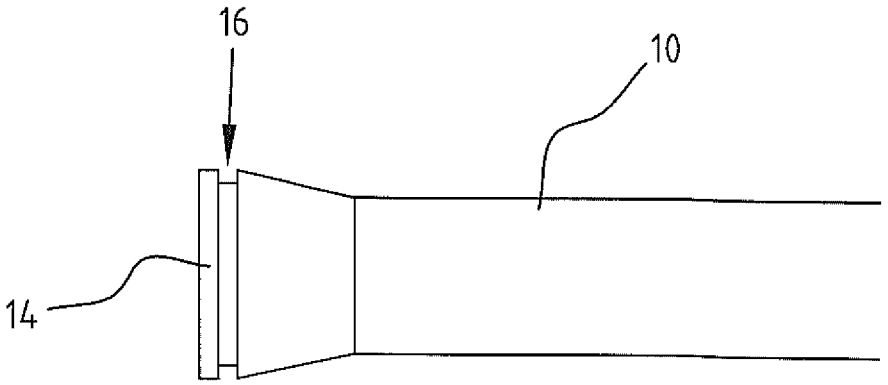

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 11 17 1679

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 4 044 890 A (KRAMMING ERIK) 30 August 1977 (1977-08-30) * column 1, lines 35-48; figures 1,2 * -----	1-10	INV. B65D33/00
A	EP 1 174 357 A1 (JODL VERPACKUNGEN GES M B H [AT]) 23 January 2002 (2002-01-23) * paragraphs [0010], [0011], [0012]; figures 1,2 * -----	1-10	
A	BE 487 740 A (SAELS) 8 March 1949 (1949-03-08) * page 4, lines 18-34 - page 5, lines 1-7; figure 6 * -----	1-10	
			TECHNICAL FIELDS SEARCHED (IPC) B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	7 September 2011	Visentin, Mauro

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 17 1679

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4044890 A	30-08-1977	NONE	
EP 1174357 A1	23-01-2002	NONE	
BE 487740 A		NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82