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(54) AIRBAG HAVING PROTECTIVE BASE

AUFBLASBARER BEUTEL MIT SCHUTZAUFLAGE

COUSSIN DE SÉCURITÉ GONFLABLE DOTÉ D'UNE BASE DE PROTECTION

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to the field of inflatable cushion bags, and in particular to an inflatable bag with a protective base.

BACKGROUND

[0002] With the development of transportation and the prosperity of logistics industry, a wide range of objects can be transported. Today's society requires not only rapid delivery of items, but also protection capability of the packaging materials thereof. During the transportation of items, it is important to be able to prevent shock and fall as well as preventing the items from being directly damaged by external forces.

[0003] Therefore, for large or thin objects, special attention should be paid to cushioning and shockproof capabilities of their packaging materials, especially for the edges and corners of the items where the external forces directly hit. If these capabilities are not good enough, the transportation objects will be significantly damaged. Publication US 2005 / 0 263 425 A1 discloses an air-packing device inflatable by compressed air having several air cells connected to each other by a heat seal point. WO 2016 / 202 313 A2 describes an air-filling packaging apparatus produced by multiple 2D sealing, folding and subsequent multiple 3D sealing.

SUMMARY

[0004] In view of the above, the present disclosure provides an inflatable bag with a protective base, which is formed by stacking two outer films and two inner films located inside the outer films and by means of heat sealing and inflating. The inflatable bag includes two opposite side walls and a bottom wall.

[0005] Each of the opposite side walls includes a plurality of side wall air columns; the bottom wall is located between the side walls and connected to bottom portions therof, the bottom wall includes a plurality of bottom air columns, a first bottom air column section, a protective air column section and a second bottom air column section are delimited in sequence in each of the bottom air columns, the first bottom air column sections are connected to the second bottom air column sections by forming first heat sealing nodes to bond the outer films and the inner films together, and at least one second heat sealing node is formed on each of the protective air columns to bond the outer films and the inner films together, so that the protective air column sections are folded to form a protective base.

[0006] In one embodiment of the inflatable bag with a protective base as described above, each of the protective air column sections has two second heat sealing nodes and sequentially delimits a first support section, a connecting section, and a second support section to enclose a cushion space which has an inverted triangular cross-section.

[0007] In one embodiment of the inflatable bag with a protective base as described above, each of the protective air column sections has three second heat sealing nodes and sequentially delimits four support sections to enclose a cushion space which has a square cross-section.

[0008] According to the invention the inflatable bag with a protective base as described above further includes a connecting member located above the protective base to connect the side walls.

[0009] In one embodiment of the inflatable bag with a protective base as described above, the outer films and the inner films are further bonded together by means of heat sealing to connect the side walls.

[0010] In one embodiment of the inflatable bag with a protective base as described above, the inflatable bag further includes a cushion film located above the protective base, opposite ends of the cushion film are connected to the side walls, respectively.

[0011] In one embodiment of the inflatable bag with a protective base as described above, the inflatable bag further includes a spacing air bag arranged in a space formed by the side walls with the bottom wall, located above the protective base and opposite ends thereof are connected to the side walls, respectively; the spacing air bag includes a plurality of spacing air columns and a flat portion, at least one thermal node is formed on each of the spacing air columns by which the flat portion is folded to form a spacing space.

[0012] In one embodiment of the inflatable bag with a protective base as described above, the spacing air columns are located at opposite sides of the flat portion.

[0013] In one embodiment of the inflatable bag with a protective base as described above, the spacing air columns are folded, and after which at least two of the opposing spacing air columns are connected with each other.

[0014] In one embodiment of the inflatable bag with a protective base as described above, the inflatable bag further includes a spacing air bag arranged inside a space formed by the side walls with the bottom wall, located above the protective base and opposite ends thereof are connected to the side walls, respectively; the spacing air bag includes a plurality of spacing air columns, which are folded to form a spacing space by forming a plurality of thermal nodes thereon.

[0015] The above solutions of the present disclosure have the following advantageous effects.

[0016] If an object packaged with the inflatable bag with a protective base according to one or more embodiments of the present disclosure falls accidentally in transport, the inflatable bag can provide at least two kinds of cushioning and shockproof effects on the edges and corners of the object, i.e., the cushioning and shockproof effects provided by the protective base and the side walls. Fur-

thermore, in one embodiment, the inflatable bag with a protective base includes a cushion film or a spacing air bag, which abuts the transportation object to provide another kind of cushioning and shockproof effect. That is to say, at least a three-stage cushioning and shockproof effect is provided in this embodiment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017]

Fig. 1 is a schematic view showing an appearance of a first embodiment of an inflatable bag with a protective base according to the present disclosure.
Fig. 2 is a schematic view showing an appearance of a second embodiment of an inflatable bag with a protective base according to the present disclosure.
Fig. 3 is a schematic view showing an appearance of a third embodiment of an inflatable bag with a protective base according to the present disclosure.

List of reference signs:

[0018]

1	inflatable bag with a protective base;
11	side wall;
111	side wall air column;
12	bottom wall;
121	bottom air column;
1211	first bottom air column section;
1212	protective air column;
1212a	first support section;
1212b	connecting section;
1212c	second support section;
1213	second bottom air column section;
122	first heat sealing node;
123	second heat sealing node;
13	protective base;
14	cushion film;
15	spacing air bag;
151	spacing air column;
1511	thermal node;
152	flat portion;
S1	cushion space;
S2	spacing space

DETAILED DESCRIPTION

[0019] The embodiments of the present disclosure will be described hereinafter in further detail with reference to the accompanying drawings and references signs thereof, so that it can be practiced by those skilled in the art upon reading this specification.

[0020] Referring now to Figs. 1 to 3, which are schematic views showing the appearances of first, second, and third embodiments of an inflatable bag with a protective base 1 according to the present disclosure, respectively.

[0021] The inflatable bag with a protective base 1 is formed by stacking two outer films and two inner films located inside the outer films and by means of heat sealing and inflating, as shown in Fig. 1, the inflatable bag includes two opposite side walls 11 and a bottom wall 12.

[0022] Each of the opposite side walls 11 includes a plurality of side wall air columns 111. The bottom wall 12 is located between the side walls 11 and connected to bottom portions therof, the bottom wall 12 includes a plurality of bottom air columns 121, a first bottom air column section 1211, a protective air column section 1212 and a second bottom air column section 1213 are delimited in sequence in each of the bottom air columns 121, the first bottom air column section 1211 is connected to the second bottom air column section 1212 by forming a first heat sealing node 122 to bond the outer films and the inner films together, and at least one second heat sealing node 123 is formed on each of the protective air columns 1212 to bond the outer films and the inner films together, so that the protective air column sections 1212 are folded to form a protective base 13. In comparison with the prior art in which a protective base is formed by bonding two inner films together which has low strength and production of which is time-consuming and complex, , the inflatable bag with a protective base 1 having the mentioned configuration has advantages of high strength, good supporting effect and easy to produce.

[0023] In the embodiments shown in Figs. 1 to 3, when each of the protective air column sections 1212 has two second heat sealing nodes 123, they sequentially delimits a first support section 1212a, a connecting section 1212b, and a second support section 1212c to enclose a cushion space S1 which has an inverted triangular cross-section. The connecting section 1212b can abut and hold a transportation object to provide cushioning and shockproof effects by the protective base 13. However, the present disclosure is not limited to these embodiments, and in some embodiments, each of the protective air column sections 1212 has three second heat sealing nodes 123 and sequentially delimits four support sections to enclose a cushion space S1 which has a square cross-section in this case, which can also provide cushioning and shockproof effects by the protective base 13.

[0024] Referring again to Fig. 1, in the first embodiment, the inflatable bag with a protective base 1 further includes a connecting member located above the protective base 13 to connect the side walls 11. In this way, the inflatable bag 1 can cover and fit around edges and corners of a transportation object so as to protect these areas. The transportation object in this case may be a large-area panel, for example, and the connecting member may be a glue or adhesive tape. In some embodiments, the outer films and the inner films are bonded by heat sealing means to connect the side walls 11.

[0025] In the second embodiment shown in Fig. 2, the inflatable bag with a protective base 1 further includes a

cushion film 14 located above the protective base 13, opposite ends of the cushion film 14 are connected to the side walls 11, respectively, and the cushion film 14 can cover and fit around a transportation object to provide a first stage protection effect. In some embodiments, opposite portions on one side of the cushion film 14 are bonded to each other such that the inflatable bag with a protective base 1 can also cover and fit around edges and corners of the transportation objects.

[0026] In the third embodiment shown in Fig. 3, the inflatable bag with a protective base 1 further includes a spacing air bag 15 arranged in a space formed by the side walls 11 with the bottom wall 12, located above the protective base 13 and opposite ends thereof are connected to the side walls 11, respectively. The spacing air bag 15 includes a plurality of spacing air columns 151 and a flat portion 152, and at least one thermal node 1511is formed on each of the spacing air columns 151 by which the flat portion 152 is folded to form a spacing space S2. In the embodiment shown in Fig. 3, the spacing air columns 151 are located at opposite sides of the flat portion 152.

[0027] That is to say, the flat portion 152 can cover and fit around a transportation object, and the spacing air columns 151 can limit the object inside the spacing space S2 because they are protruded further than the flat portion 152. In some embodiments, at least two of the opposing spacing air columns 151 are connected with each other, and in this way, the transportation object will be limited within the spacing space S2 to provide further protection to the object.

[0028] In addition, in some embodiments, the spacing air bag 15 is formed by a plurality of spacing air columns 151, which are folded to form the spacing space S2 by forming a plurality of thermal nodes 1511 thereon (not depicted).

[0029] If an object packaged with the inflatable bag with a protective base according to one or more embodiments of the present disclosure falls accidentally in transport, the inflatable bag can provide at least two kinds of cushioning and shockproof effects on the edges and corners of the object, i.e., the cushioning and shockproof effects provided by the protective base and the side walls. Furthermore, in one embodiment, the inflatable bag with a protective base includes a cushion film or a spacing air bag, which abuts the transportation object to provide another kind of cushioning and shockproof effect. That is to say, at least a three-stage cushioning and shockproof effect is provided in this embodiment.

[0030] Furthermore, in comparison with the prior art in which a protective base is formed by bonding two inner films together, which has low strength and production of which is time-consuming and complex, the inflatable bag with a protective base according to an embodiment of the present disclosure has advantages of high strength, good supporting effect and easy to produce, so as to solve the above-mentioned problems.

Claims

1. An inflatable bag with a protective base (1), which is formed by stacking two outer films and two inner films located inside the outer films and by means of heat sealing and inflating, which includes:

   two opposite side walls (11), each of which comprises a plurality of side wall air columns (111); and

   a bottom wall (12), which is located between the side walls (11) and connected to bottom portions thereof, the bottom wall (12) includes a plurality of bottom air columns (121), wherein a first bottom air column section (1211), a protective air column section (1212) and a second bottom air column section (1213) are delimited in sequence in each of the bottom air columns (121), the first bottom air column section (1211) is connected to the second bottom air column section (1213) by forming a first heat sealing node (122) to bond the outer films and the inner films together, and at least one second heat sealing node (123) is formed on each of the protective air column sections (1212) to bond the outer films and the inner films together, so that the protective air column sections (1212) are folded to form a protective base (13),

   characterized in that the bag further comprises a connecting member located above the protective base (13) to connect the side walls (11).

2. The inflatable bag with a protective base (1) according to claim 1, wherein each of the protective air column sections (1212) has two second heat sealing nodes (123) and sequentially delimits a first support section (1212a), a connecting section (1212b), and a second support section (1212c) to enclose a cushion space (S1) which has an inverted triangular cross-section.

3. The inflatable bag with a protective base (1) according to claim 1, wherein each of the protective air column sections (1212) has three second heat sealing nodes (122) and sequentially delimits four support sections to enclose a cushion space (SI) which has a square cross-section.

4. The inflatable bag with a protective base (1) according to claim 1, wherein the outer films and the inner films are further bonded together by means of heat sealing to connect the side walls (11).

5. The inflatable bag with a protective base (1) according to claim 1, further comprising a cushion film (14) located above the protective base (13), opposite ends of the cushion film (14) are connected to the side walls (11), respectively.

6. The inflatable bag with a protective base (1) according to claim 1, further comprising a spacing air bag (15) arranged in a space formed by the side walls (11) with the bottom wall (12), located above the protective base (13) and opposite ends thereof are connected to the side walls (11), respectively; the spacing air bag (15) includes a plurality of spacing air columns (151) and a flat portion (152), at least one thermal node (1511) is formed on each of the spacing air columns (151) by which the flat portion (152) is folded to form a spacing space (S2).

7. The inflatable bag with a protective base (1) according to claim 6, wherein the spacing air columns (151) are located at opposite sides of the flat portion (152).

8. The inflatable bag with a protective base (1) according to claim 6, wherein the spacing air columns (151) are folded, and after which at least two of the opposing spacing air columns (151) are connected with each other.

9. The inflatable bag with a protective base (1) according to claim 1, further comprising a spacing air bag (15) arranged inside a space formed by the side walls (11) with the bottom wall (12), located above the protective base (13) and opposite ends thereof are connected to the side walls (11), respectively; the spacing air bag (15) includes a plurality of spacing air columns (151), which are folded to form a spacing space (S2) by forming a plurality of thermal nodes (1511) thereon.

Patentansprüche

1. Ein aufblasbarer Beutel mit einem Schutzboden (1), der durch Stapeln von zwei Außenfolien und zwei sich innerhalb der Außenfolien befindenden Innenfolien und durch Heißsiegeln und Aufblasen gebildet wird, der enthält

   zwei gegenüberliegende Seitenwände (11), die jeweils eine Vielzahl von Seitenwandluftsäulen (111) umfassen; und
   eine Bodenwand (12), die zwischen den Seitenwänden (11) angeordnet und mit deren unteren Abschnitten verbunden ist, wobei die Bodenwand (12) eine Vielzahl von Bodenluftsäulen (121) enthält, wobei ein erster Bodenluftsäulenabschnitt (1211), ein Schutzluftsäulenabschnitt (1212) und ein zweiter Bodenluftsäulenabschnitt (1213) nacheinander in jeder der Bodenluftsäulen (121) abgegrenzt sind, wobei der erste Bodenluftsäulenabschnitt (1211) mit dem zweiten Bodenluftsäulenabschnitt (1213) durch Bilden eines ersten heißgesiegelten Knotens (122) verbunden ist, um die Außenfolien und die Innenfolien miteinander zu verbinden, und mindestens ein zweiter heißgesiegelter Knoten (123) auf jedem der Schutzluftsäulenabschnitte (1212) gebildet ist, um die Außenfolien und die Innenfolien miteinander zu verbinden, so dass die Schutzluftsäulenabschnitte (1212) gefaltet sind, um einen Schutzboden (13) zu bilden,
   dadurch gekennzeichnet, dass der Beutel ferner ein Verbindungselement umfasst, das oberhalb des Schutzbodens (13) angeordnet ist, um die Seitenwände (11) zu verbinden.

2. Der aufblasbare Beutel mit einem Schutzboden (1) gemäß Anspruch 1, wobei jeder der Schutzluftsäulenabschnitte (1212) zwei zweite heißgesiegelte Knoten (123) aufweist und nacheinander einen ersten Stützabschnitt (1212a), einen Verbindungsabschnitt (1212b) und einen zweiten Stützabschnitt (1212c) abgrenzt, um einen Polsterraum (S1) zu umschließen, der einen umgekehrten dreieckigen Querschnitt aufweist.

3. Der aufblasbare Beutel mit einem Schutzboden (1) gemäß Anspruch 1, wobei jeder der Schutzluftsäulenabschnitte (1212) drei zweite heißgesiegelte Knoten (122) aufweist und nacheinander vier Stützabschnitte begrenzt, um einen Polsterraum (S1) zu umschließen, der einen quadratischen Querschnitt aufweist.

4. Der aufblasbare Beutel mit einem Schutzboden (1) gemäß Anspruch 1, wobei die Außenfolien und die Innenfolien ferner durch Heißsiegeln miteinander verbunden sind, um die Seitenwände (11) zu verbinden.

5. Der aufblasbare Beutel mit einem Schutzboden (1) gemäß Anspruch 1, ferner umfassend eine Polsterfolie (14), die sich oberhalb des Schutzbodens (13) befindet, wobei gegenüberliegende Enden der Polsterfolie (14) jeweils mit den Seitenwänden (11) verbunden sind.

6. Der aufblasbare Beutel mit einem Schutzboden (1) gemäß Anspruch 1, ferner umfassend einen Abstandsluftbeutel (15), der in einem von den Seitenwänden (11) mit der Bodenwand (12) gebildeten Raum angeordnet ist, der sich oberhalb des Schutzbodens (13) befindet und dessen gegenüberliegende Enden jeweils mit den Seitenwänden (11) verbunden sind; der Abstandsluftbeutel (15) enthält eine Vielzahl von Abstandsluftsäulen (151) und einen flachen Abschnitt (152), wobei an jeder der Abstandsluftsäulen (151) mindestens ein thermischer Knoten (1511) ausgebildet ist, durch den der flache Abschnitt (152) zur Bildung eines Abstandsraums (S2) gefaltet ist.

7. Der aufblasbare Beutel mit einem Schutzboden (1) gemäß Anspruch 6, wobei die Abstandsluftsäulen (151) an gegenüberliegenden Seiten des flachen Abschnitts (152) angeordnet sind.

8. Der aufblasbare Beutel mit einem Schutzboden (1) gemäß Anspruch 6, wobei die Abstandsluftsäulen (151) gefaltet werden, und danach mindestens zwei der gegenüberliegenden Abstandsluftsäulen (151) miteinander verbunden werden.

9. Der aufblasbare Beutel mit einem Schutzboden (1) gemäß Anspruch 1, ferner umfassend einen Abstandsluftbeutel (15), der innerhalb eines Raums angeordnet ist, der von den Seitenwänden (11) mit der Bodenwand (12) gebildet wird, der oberhalb des Schutzbodens (13) angeordnet ist und dessen gegenüberliegende Enden jeweils mit den Seitenwänden (11) verbunden sind; wobei der Abstandsluftbeutel (15) eine Vielzahl von Abstandsluftsäulen (151) enthält, die gefaltet sind, um einen Abstandsraum (S2) zu bilden, indem sie eine Vielzahl von thermischen Knoten (1511) darauf bilden.

Revendications

1. Un sac gonflable avec une base de protection (1), formé par l'empilement de deux films extérieurs et de deux films intérieurs situés à l'intérieur des films extérieurs, au moyen de scellage à chaud et gonflage, qui comprend :

   deux parois latérales opposées (11), dont chacune comprend une pluralité de colonnes d'air de paroi latérale (111) ; et
   une paroi de fond (12), située entre les parois latérales (11) et reliée à des parties inférieures de celles-ci, la paroi de fond (12) comprend une pluralité de colonnes d'air de fond (121), dans lequel une première section de colonne d'air inférieure (1211), une section de colonne d'air de protection (1212) et une deuxième section de colonne d'air de fond (1213) sont délimitées séquentiellement dans chacune des colonnes d'air de fond (121), la première section de colonne d'air de fond (1212) est reliée à la deuxième section de colonne d'air de fond (1213) en formant un premier noeud de scellage à chaud (122) pour lier les films extérieurs et les films intérieurs ensemble, et au moins un deuxième noeud de scellage à chaud (123) est formé sur chacune des sections de colonne d'air de protection (1212) pour lier les films extérieurs et les films intérieurs ensemble, de sorte que les sections de colonne d'air de protection (1212) sont pliées pour former une base de protection (13),
   caractérisé en ce que le sac comprend en outre un membre de connexion situé au-dessus de la base de protection (13) pour relier les parois latérales (11).

2. Sac gonflable avec une base de protection (1) selon la revendication 1, dans lequel chacune des sections de colonne d'air de protection (1212) comporte deux seconds noeuds de scellage à chaud (123) et délimite séquentiellement une première section de support (1212a), une section de connexion (1212b) et une seconde section de support (1212c) pour enfermer un espace de coussin (S1) qui a une section transversale triangulaire inversée.

3. Sac gonflable avec une base de protection (1) selon la revendication 1, dans lequel chacune des sections de colonne d'air de protection (1212) comporte trois seconds noeuds de scellage à chaud (122) et délimite séquentiellement quatre sections de support pour enfermer un espace de coussin (S1) qui a une section transversale carrée.

4. Sac gonflable avec une base de protection (1) selon la revendication 1, dans lequel les films extérieurs et les films intérieurs sont en outre collés ensemble par scellage à chaud pour relier les parois latérales (11).

5. Le sac gonflable avec une base de protection (1) selon la revendication 1, comprenant en outre un film de coussin (14) situé au-dessus de la base de protection (13), des extrémités opposées du film de coussin (14) sont reliées aux parois latérales (11), respectivement.

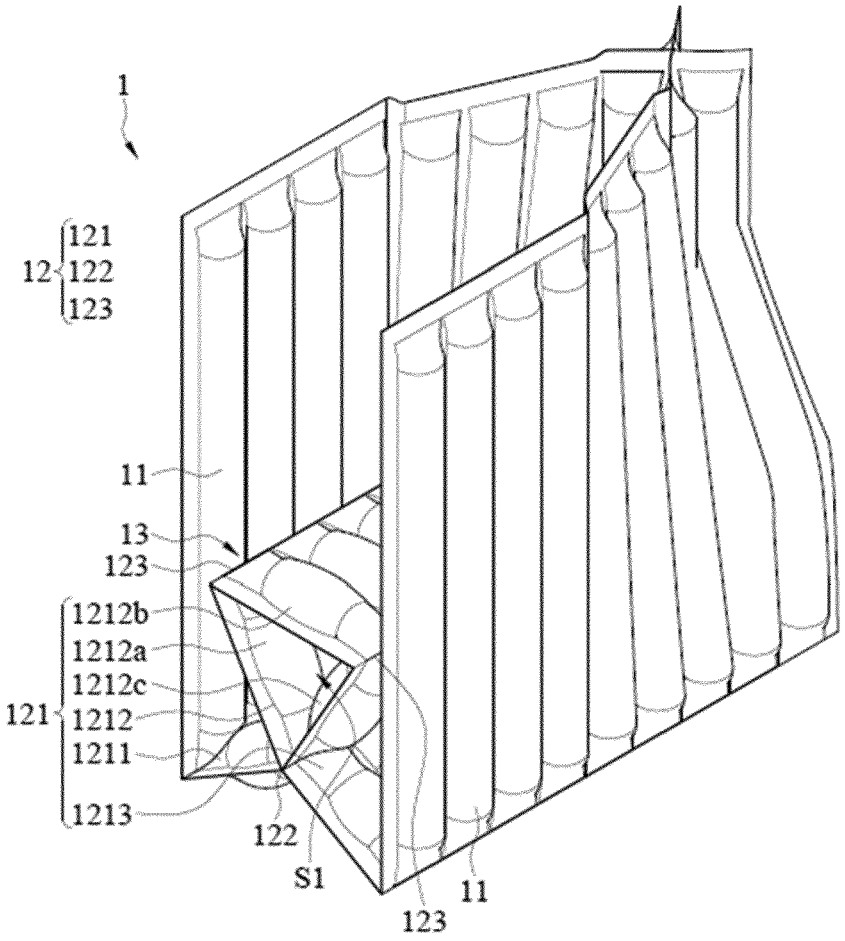
6. Le sac gonflable avec une base de protection (1) selon la revendication 1, comprenant en outre un coussin d'air d'espacement (15) disposé dans un espace formé par les parois latérales (11) avec la paroi de fond (12), situé au-dessus de la base de protection (13) et des extrémités opposées de celui-ci sont reliées aux parois latérales (11), respectivement ; le coussin d'air d'espacement (15) comprend plusieurs colonnes d'air d'espacement (151) et une partie plate (152), au moins un noeud thermique (1511) est formé sur chacune des colonnes d'air d'espacement (151) par lesquelles la partie plate (152) est pliée pour former un espace d'espacement (S2).

7. Sac gonflable avec une base de protection (1) selon la revendication 6, dans lequel les colonnes d'air d'espacement (151) sont situées aux côtés opposés de la partie plate (152).

8. Sac gonflable avec une base de protection (1) selon la revendication 6, dans lequel les colonnes d'air d'espacement (151) sont pliées, et après quoi au moins deux des colonnes d'air d'espacement oppo-

sées (151) sont reliées l'une à l'autre.

9. Le sac gonflable avec une base de protection (1) selon la revendication 1, comprenant en outre un sac d'air d'espacement (15) disposé à l'intérieur d'un espace formé par les parois latérales (11) avec la paroi de fond (12), situé au-dessus de la base de protection (13) et les extrémités opposées de celui-ci sont reliées aux parois latérales (11), respectivement ; le sac d'air d'espacement (15) comprend une pluralité de colonnes d'air d'espacement (151), qui sont pliées pour former un espace d'espacement (S2) en formant une pluralité de noeuds thermiques (1511) sur celui-ci.


1
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121
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1212a
1212c
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S1
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11

Fig. 1

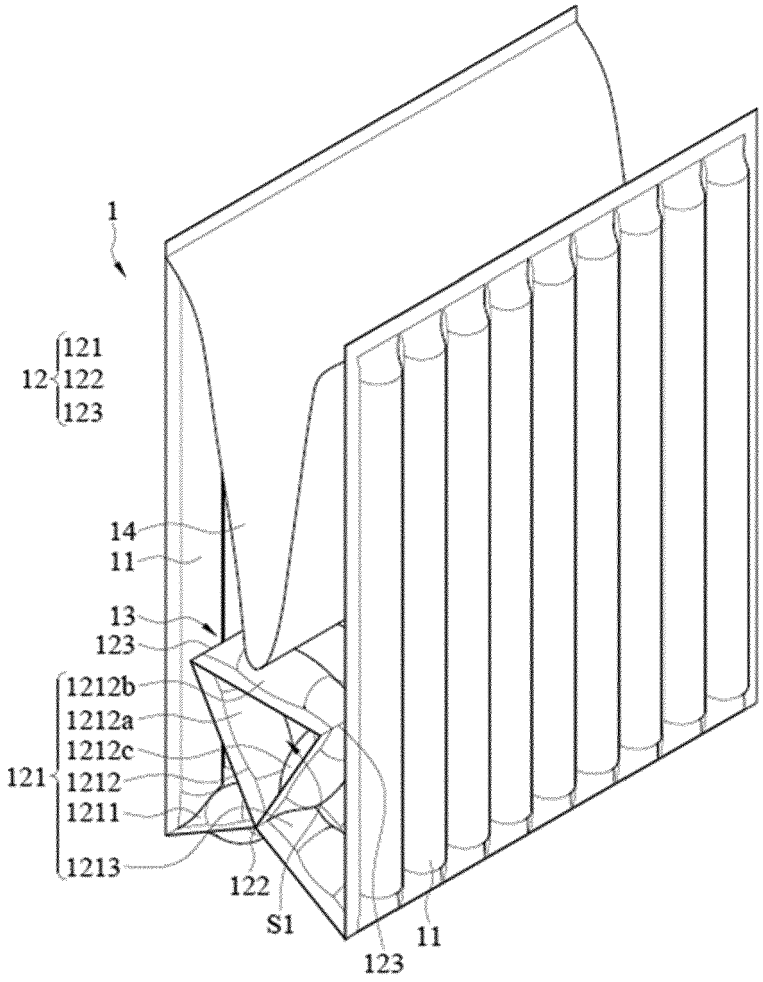
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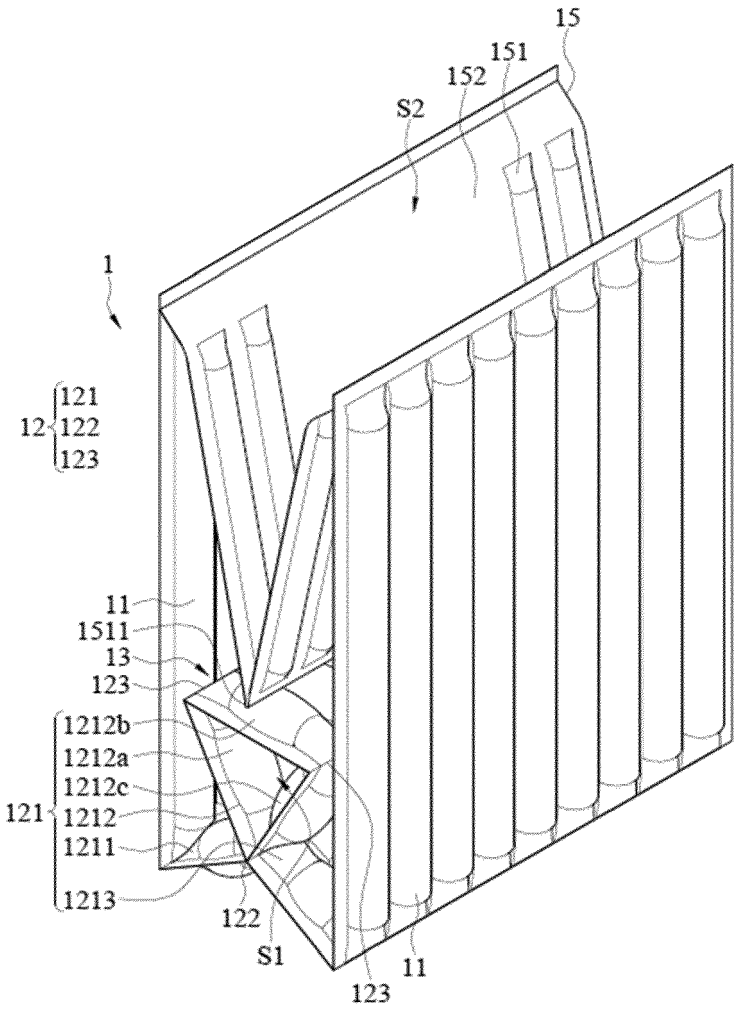
Fig. 2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1211
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S1
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123

Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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