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**(54) BAG AND RELATED PROCESS OF PRODUCTION**

BEUTEL UND ZUGEHÖRIGES VERFAHREN ZUR HERSTELLUNG

SAC ET PROCÉDÉ DE PRODUCTION ASSOCIÉ

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(73) Proprietor: **Basiliotti S.r.l.**

**06062 Città della Pieve (PG) (IT)**

(72) Inventor: **BASILIOTTI, Simona**

**06062 Città della Pieve (PG) (IT)**

(74) Representative: **Brunacci, Marco**

**BRUNACCI & PARTNERS S.r.l.**

**Via Scaglia Est, 19-31**

**41126 Modena (IT)**

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## Description

### Technical Field

**[0001]** The present invention relates to a bag and relevant production process.

### Background Art

**[0002]** The bags typically used to carry purchased products and goods, in particular plastic bags, must now be subjected to specific technical regulations and limitations of use to cope with the ever increasing requirements concerning the safeguard of the environment.

**[0003]** For example, plastic bags to date on the market must comply with specific thickness limits depending on the type of final use (carrying of food or non-food products) and depending on the selected technical characteristics (position of the handles, sealing and the like).

**[0004]** Another limit imposed by the regulations concerns the reuse of the plastic bag once the main function of carrying the purchased goods is fulfilled.

**[0005]** In order for a plastic bag to be put on the market, it must be "re-usable", i.e. it must ensure resistance and durability so as to allow it to be re-used for a certain period of time, both with the aim of fulfilling the same functions for which it has been made, and with the aim of fulfilling other functions.

**[0006]** For these reasons, the need is well known to make bags capable of being reused several times and for various purposes, as well as the need to develop processes capable of producing such bags in an efficient and cost-effective way.

**[0007]** Known techniques for making bags involve the sealing of two sheets, e.g. two plastic sheets, to form a double layer to process, in particular to die cut.

**[0008]** Following the die-cutting process a "recess" is created that defines the bag opening edges and creates the bag gripping handles.

**[0009]** Such handles are formed by sheet flaps that are extensions of the sheets themselves and each flap of a sheet is associated with the corresponding flap of the opposite sheet.

**[0010]** The gripping cavities defined by the handles, this way, are orthogonal to the laying plane of the sheets.

**[0011]** Such a characteristic entails a drawback linked to the inconvenience of use, since the bag thus obtained will be uncomfortable to carry.

**[0012]** Others bags are known from FR2529529 and GB1238497, which discloses a bag according to the preamble of claim 1 and a process according to the preamble of claim 7.

### Description of the Invention

**[0013]** The main aim of the present invention is to provide a bag that can be reused after its first use, the production process of which being simple to implement. One

object of the present invention is to provide a bag that can be reused also for purposes other than the initial one.

**[0014]** Another object of the present invention is to provide a bag production process that can easily be integrated into existing production lines.

**[0015]** Another object of the present invention is to provide a bag and a relevant production process, which allows to overcome the aforementioned drawbacks of the prior art within the ambit of a simple, rational, easy, efficient to use and cost-effective solution.

**[0016]** The aforementioned objects are achieved by the present bag having the characteristics of claim 1 and by this production process having the characteristics of claim 7.

### Brief Description of the Drawings

**[0017]** Other characteristics and advantages of the present invention will become more evident from the description of a preferred, but not exclusive, embodiment of a bag and relevant production process, illustrated by way of an indicative, but non-limiting example, in the attached drawings in which:

Figure 1 is an axonometric view of the bag according to the invention;

Figure 2 is a sectional view of the bag according to the invention;

Figure 3 is a schematic view of a use of the bag according to the invention;

Figure 4 is a schematic view of the bag production process according to the invention.

### Embodiments of the Invention

**[0018]** With particular reference to these figures, reference numeral 1 globally indicates a bag.

**[0019]** The bag 1 comprises at least a first wall 2 and at least a second wall 3 mutually joined to one another at at least a lateral edge 4 and at at least a bottom edge 5 to define a containment space 6.

**[0020]** In this embodiment, the bag 1 is made of plastic, with the first wall 2 and the second wall 3 which are both made of plastic material.

**[0021]** The walls 2, 3 come from two plastic sheets sealed to one another at two lateral edges 4 and at the bottom edge 5.

**[0022]** The embodiment cannot be ruled out in which the two walls 2, 3 come from the same sheet of plastic folded on itself to form a first lateral edge and having an opposite lateral edge which is sealed, that is, with the extremal sides of the folded sheet sealed to define the lateral edge itself.

**[0023]** The alternative solution cannot also be ruled out in which the walls 2, 3 are made of textile material, e.g. fabric, jeans, microfiber, cotton, carbon fibers, technical materials in general or other textile materials.

**[0024]** The walls 2, 3 are provided with respective first

and second upper edges 7, 8 spaced apart from one another to define an access opening to the containment space 6.

**[0025]** In the present discussion, the words "upper" and "lower" and the like are referred to the conditions of normal use of the bag 1, that is, when the bag 1 is carried by the user to transport purchased products and goods.

**[0026]** The bag 1 also comprises a first and a second flap 9, 10 spaced apart from one another, which extend from the first wall 2 beyond the first upper edge 7. Similarly, the bag 1 comprises a third and a fourth flap 11, 12 spaced apart from one another, which extend from the second wall 3 beyond the second upper edge 8.

**[0027]** Embodiments cannot be ruled out which have a greater number of flaps than that described above.

**[0028]** According to the invention, the first flap 9 is associated with the second flap 10 to form a first gripping handle 13 and the third flap 11 is associated with the fourth flap 12 to form a second gripping handle 13.

**[0029]** The first handle 13 and the second handle 13 enclose respective gripping cavities 15 having the lying planes substantially parallel to the first wall 2 and to the second wall 3.

**[0030]** The walls 2, 3, in fact, roughly identify a main lying plane defined by a first axis 16 orthogonal to the plane itself.

**[0031]** The gripping cavities 15 enclosed by the handles 13 of the bag 1 also lie on planes substantially parallel to that of the walls 2, 3, i.e. defined by a second orthogonal axis 17 parallel to the first axis 16.

**[0032]** The handles 13 formed by joining the first flap 9 with the second flap 10 and the third flap 11 with the fourth flap 12, and thus having gripping cavities 15 oriented parallel to the walls 2, 3, have the technical effect that bag 1 can be worn.

**[0033]** As shown in Figure 3, the handles 13 can be easily carried over the shoulders, with the walls 2, 3 which remain oriented so as not to cause discomfort or hindrance to the user.

**[0034]** Advantageously, the first flap 9 and the second flap 10 are continuous extensions of the first wall 2 beyond the first upper edge 7.

**[0035]** Similarly, the third flap 11 and the fourth flap 12 are continuous extensions of the second wall 3 beyond the second upper edge 8.

**[0036]** As illustrated in the figures, the flaps 9, 10, 11, 12 are plastic strips which extend as continuous extensions of the respective walls.

**[0037]** Different embodiments cannot be ruled in which the flaps are sealed, sewn, or bonded to the respective walls.

**[0038]** Conveniently, the bag 1 comprises first conjunction means adapted to fasten the first flap 9 and the second flap 10 at the respective free ending parts of the flaps 9, 10.

**[0039]** Similarly, the bag 1 comprises second conjunction means adapted to fasten the third flap 11 and the fourth flap 12 at the respective free ending parts of the

flaps 11, 12.

**[0040]** The first conjunction means and the second conjunction means are advantageously pressure sealing operations, but alternative solutions cannot be ruled out such as e.g. adhesive substances, clips, seams, or combinations thereof.

**[0041]** A bag production process is described below.

**[0042]** The process comprises a coupling phase A of a first wall 2 and of a second wall 3 to form a double layer 18 fillable e.g. with goods and products.

**[0043]** In the present embodiment, the first wall 2 and the second wall 3 are made of plastic material.

**[0044]** In particular, the walls 2, 3 are two plastic sheets obtained from traditional processes. By way of example, the traditional process is described comprising a melting and extrusion phase of polymeric material, and a subsequent cooling and flattening phase of the extruded material to form plastic strips to roll into coils and to be processed to obtain plastic sheets usable in the production of bags.

**[0045]** Embodiments cannot be ruled out in which the first wall 2 and the second wall 3 are made of textile material, e.g. fabric, jeans, microfiber, cotton, carbon fibers, technical materials in general or other textile materials.

**[0046]** In this case, the walls 2, 3 will be made from coils of textile material to be cut automatically, e.g. by laser cutting by creating sheets of fabric or other material. In the embodiment illustrated in Figure 4, two separate sheets are used to make the walls 2, 3, but the solution cannot be ruled out in which there is a single sheet, suitably folded, to obtain the two walls 2, 3.

**[0047]** In any case, the process comprises a joining phase Ra of the first wall 2 and of the second wall 3 at at least one of a bottom edge 5 and a lateral edge 4.

**[0048]** With reference to the figures, during the process the joining phase occurs both at the bottom edge 5 and at the lateral edges 4.

**[0049]** Advantageously, the joining phase Ra comprises sealing the first wall 2 and the second wall 3 to obtain the bottom edge 5 and the lateral edge 4.

**[0050]** The sides of the walls 2, 3 which are joined are therefore sealed together, e.g. by pressure.

**[0051]** Different techniques for the joining phase Ra cannot be ruled out, such as bonding or heat sealing.

**[0052]** The process then comprises a processing phase L of the double layer 18 for the definition on the first wall 2 of a first upper edge 7 and of a first flap 9 and of a second flap 10, these two extending beyond the first upper edge 7, and for the definition on the second wall 3 of a second upper edge 8 and of a third flap 11 and of a fourth flap 12, these two extending beyond the second upper edge 8. Preferably, the processing phase L comprises a die cutting sub-phase F of the double layer 18 for the definition of the upper edges 7, 8 and for obtaining the flaps 9, 10, 11, 12 as continuous extensions of the first wall 2 and of the second wall 3.

**[0053]** This way, in just one phase, the flaps 9, 10, 11, 12 and the upper edges 7, 8 can be obtained directly

from the walls 2, 3.

**[0054]** In fact, by pushing a specially shaped die on the double layer 18, the latter is shaped by removing a portion of plastic material congruent with the die itself.

**[0055]** Die-cutting allows to create a deepening in the laying plane of the double layer 18, a recess the perimeter of which is defined by the flaps 9, 10, or by the flaps 11, 12 on the respective first wall 2 and second wall 3, and the upper edges 7, 8. Solutions cannot be ruled out in which the processing phase L comprises further sub-phases, in addition to die-cutting, useful to work the double layer 18 for the conformation of the bag 1.

**[0056]** The process finally comprises an implementation phase Re of the gripping handles 13.

**[0057]** According to the invention, the implementation phase Re is subsequent to the processing phase L and comprises:

- a first conjunction phase C1 of the first flap 9 with the second flap 10 for the formation of a first handle 13 associated with the first wall 2; and
- a second conjunction phase C2 of the third flap 11 with the fourth flap 12 for the formation of a second handle 13 associated with the second wall 3.

**[0058]** Conveniently, the first conjunction phase C1 and the second conjunction phase C2 comprises sealing the first flap 9 to the second flap 10, as far as the formation of the first handle 13 is concerned, and sealing the third flap 11 to the fourth flap 12 as far as the formation of the second handle is concerned.

**[0059]** Solutions cannot be ruled out in which only the first conjunction phase C1 or only the second conjunction phase C2 comprises sealing the respective flaps.

**[0060]** In any case, sealing is preferably of the pressure type, but other alternative solutions cannot be ruled out.

**[0061]** For example, the solution cannot be ruled out in which sealing the respective flaps comprises heat sealing, in particular, heat sealing made manually.

**[0062]** The solution cannot also be ruled out in which sealing the respective flaps comprises electro-welding, in particular automatic electro-welding.

**[0063]** Usefully, the process may also comprise a decoration phase, not shown in the figures, adapted to add decorative and aesthetic elements to the bag 1.

**[0064]** In particular, the decoration comprises decorating with drawings, symbols, and letterings the bag 1, so as to make it recognizable and distinguishable, thus giving the product an original feature.

**[0065]** Decoration also comprises associating said bag with additional decorative elements adapted to increase the aesthetic value of the bag such as, e.g., accessories, sequins, decorative prints and other similar elements.

**[0066]** In a second alternative embodiment, not shown in the figures, the first conjunction phase C1 and the second conjunction phase C2 comprise the sewing of the first flap 9 to the second flap 10 and the sewing of the third flap 11 to the fourth flap 12, respectively.

**[0067]** Flaps can be sewn using different materials such as e.g. threads made of cotton, wool, plastic, paper, non-woven fabric and other types of material that can hold the seam firmly.

**[0068]** The alternative solution cannot be ruled out in which only the first conjunction phase C1 or only the second conjunction phase C2 comprises the sewing of respective flaps.

**[0069]** Different solutions cannot be ruled out which provide for a first conjunction phase C1 and a second conjunction phase C2 that comprise a different union of the respective flaps, e.g. bonding by adhesive means or the application of clips and other conjunction means.

**[0070]** In particular, solutions cannot be ruled out which provide for the closure of the flaps 9 and 10 and of the flaps 11, 12 with buttons, reinforced handles, and zip-pers.

**[0071]** It has in practice been found that the disclosed invention achieves the intended objects and in particular the fact is emphasized that the devised bag can be reused after its first use and its production process is simple to implement.

**[0072]** The devised bag, in fact, can be worn by a user thanks to the particular orientation of the gripping handles obtained with the new process.

**[0073]** The devised bag can therefore be reused also for purposes other than the original one.

**[0074]** An example is the case of a user who is given the bag coming out of a store after shopping.

**[0075]** The user, thanks to the new features of the product, could reuse the bag as an apparel accessory, especially if the bag itself comes with special aesthetic features.

**[0076]** The process used to produce this bag is also particularly simple and easy to integrate in production lines already designed to make traditional bags.

**[0077]** Indeed, the main difference with traditional processes, even if substantial and with a surprising effect, is such as not to require any particular changes to the existing production lines, having a minimal impact on production costs.

## Claims

### 1. Bag (1) comprising:

- at least a first wall (2) and at least a second wall (3) mutually joined at at least a lateral edge (4) and at least a bottom edge (5) to define a containment space (6) and having respective first and second upper edges (7, 8) spaced apart from one another to define an access opening to said containment space (6);
- at least a first and a second flap (9, 10) spaced apart from one another, which extend from said first wall (2) beyond said first upper edge (7);
- at least a third and a fourth flap (11, 12) spaced

apart from one another, which extend from said second wall (3) beyond said second upper edge (8);

wherein said first flap (9) is associated with said second flap (10) to form a first gripping handle (13) and that said third flap (11) is associated with said fourth flap (12) to form a second gripping handle (13); **characterized by** the fact that said first gripping handle (13) and said second gripping handle (13) enclosing respective gripping cavities (15) having the lying planes substantially parallel to said first lateral wall (2) and said second lateral wall (3).

2. Bag (1) according to claim 1, **characterized by** the fact that said first flap (9) and said second flap (10) are continuous extensions of said first wall (2) beyond said first upper edge (7).
3. Bag (1) according to one or more of the preceding claims, **characterized by** the fact that said third flap (11) and said fourth flap (12) are continuous extensions of said second wall (3) beyond said second upper edge (8).
4. Bag (1) according to one or more of the preceding claims, **characterized by** the fact that it comprises first conjunction means adapted to fasten said first flap (9) and said second flap (10) at respective free ending parts.
5. Bag (1) according to one or more of the preceding claims, **characterized by** the fact that it comprises second conjunction means adapted to fasten said third flap (11) and said fourth flap (12) at respective free ending parts.
6. Bag (1) according to one or more of the preceding claims, **characterized by** the fact that it is made of a plastic material.
7. Process for the production of plastic bags, comprising
  - a coupling phase (A) of a first wall (2) and of a second wall (3), to form a fillable double layer (18);
  - a joining phase (Ra) of said first wall (2) and said second wall (3) at at least one of a bottom edge (5) and a lateral edge (4);
  - a processing phase (L) of said double layer (18) for the definition on said first wall (2) of a first upper edge (7) and of a first flap (9) and of a second flap (10) that extend beyond said first upper edge (7), and for the definition on said second wall (3) of a second upper edge (8) and of a third flap (11) and of a fourth flap (12) which extend beyond said second upper edge (8); and

- an implementation phase (Re) of gripping handles (13); **characterized by** the fact that said implementation phase (Re) is subsequent to said processing phase (L) and comprises:

- a first conjunction phase (C1) of said first flap (9) with said second flap (10) for the formation of a first handle (13) associated with said first wall (2); and
- a second conjunction phase (C2) of said third flap (11) with said fourth flap (12) for the formation of a second handle (13) associated with said second wall (3).

8. Process according to claim 7, **characterized by** the fact that said first wall (2) and said second wall (3) are made of a plastic material.
9. Process according to one or more of claims 7 and 8, **characterized by** the fact that said joining phase (Ra) comprises sealing at least partially said first wall (2) and said second wall (3) to obtain at least one of said bottom edge (5) and said lateral edge (4).
10. Process according to one or more of claims 7 to 9, **characterized by** the fact that said processing phase (L) comprises a die cutting phase (F) of said double layer (18) for the definition of said upper edges (7, 8) and the obtaining of said flaps (9, 10, 11, 12) as continuous extensions of said first wall (2) and of said second wall (3).
11. Process according to one or more of claims 7 to 10, **characterized by** the fact that at least one of said first and second conjunction phases (C1, C2) comprises the sealing of said first flap (9) to said second flap (10) and/or the sealing of said third flap (11) to said fourth flap (12) respectively.
12. Process according to one or more of claims 7 to 11, **characterized by** the fact that at least one of said first and second conjunction phases (C1, C2) comprises the sewing of said first flap (9) to said second flap (10) and/or the sewing of said third flap (11) to said fourth flap (12) respectively.

#### Patentansprüche

1. Beutel (1) umfassend:

- mindestens eine erste Wand (2) und mindestens eine zweite Wand (3), die an mindestens einer Seitenkante (4) und mindestens einer Unterkante (5) miteinander verbunden sind, um einen Einschließungsraum (6) zu definieren, und die erste beziehungsweise zweite Oberkanten (7, 8) aufweisen, die voneinander beabstandet sind, um eine Zugangsöffnung zu dem Ein-

- schließungsraum (6) zu definieren;  
 - mindestens eine erste und eine zweite Klappe (9, 10), die voneinander beabstandet sind und sich von der ersten Wand (2) über die erste Oberkante (7) hinaus erstrecken;  
 - mindestens eine dritte und eine vierte Klappe (11, 12), die voneinander beabstandet sind und sich von der zweiten Wand (3) über die zweite Oberkante (8) hinaus erstrecken;
- wobei die erste Klappe (9) mit der zweiten Klappe (10) verbunden ist, um einen ersten Handgriff (13) zu bilden, und die dritte Klappe (11) mit der vierten Klappe (12) verbunden ist, um einen zweiten Handgriff (13) zu bilden, **dadurch gekennzeichnet, dass** der erste Handgriff (13) und der zweite Handgriff (13) entsprechende Greifkavitäten (15) umschließen, deren liegende Ebenen im Wesentlichen parallel zu der ersten Seitenwand (2) und der zweiten Seitenwand (3) liegen.
2. Beutel (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die erste Klappe (9) und die zweite Klappe (10) kontinuierliche Verlängerungen der ersten Wand (2) über die erste Oberkante (7) hinaus sind.
3. Beutel (1) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die dritte Klappe (11) und die vierte Klappe (12) kontinuierliche Verlängerungen der zweiten Wand (3) über die zweite Oberkante (8) hinaus sind.
4. Beutel (1) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** er erste Verbindungsmittel umfasst, die geeignet sind, die erste Klappe (9) und die zweite Klappe (10) an jeweiligen freien Endteilen zu befestigen.
5. Beutel (1) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** er zweite Verbindungsmittel umfasst, die geeignet sind, die dritte Klappe (11) und die vierte Klappe (12) an jeweiligen freien Endteilen zu befestigen.
6. Beutel (1) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** er aus einem Kunststoffmaterial hergestellt ist.
7. Verfahren zur Herstellung von Kunststoffbeuteln, umfassend:
- eine Kopplungsphase (A) einer ersten Wand (2) und einer zweiten Wand (3), um eine füllbare Doppelschicht (18) zu bilden;
  - eine Verbindungsphase (Ra) der ersten Wand (2) und der zweiten Wand (3) an mindestens einer von einer Unterkante (5) und einer Seitenkante (4);
  - eine Verarbeitungsphase (L) der Doppelschicht (18) zur Festlegung einer ersten Oberkante (7) und einer ersten Klappe (9) und einer zweiten Klappe (10), die sich über die erste Oberkante (7) hinaus erstrecken, an der ersten Wand (2) und zur Festlegung einer zweiten Oberkante (8) und einer dritten Klappe (11) und einer vierten Klappe (12), die sich über die zweite Oberkante (8) hinaus erstrecken, an der zweiten Wand (3); und
  - eine Implementierungsphase (Re) von Handgriffen (13);
- dadurch gekennzeichnet, dass** die Implementierungsphase (Re) auf die Verarbeitungsphase (L) folgt und umfasst:
- eine erste Verbindungsphase (C1) der ersten Klappe (9) mit der zweiten Klappe (10) zur Bildung eines ersten Handgriffs (13), der mit der ersten Wand (2) verbunden ist; und
  - eine zweite Verbindungsphase (C2) der dritten Klappe (11) mit der vierten Klappe (12) zur Bildung eines zweiten Handgriffs (13), der mit der zweiten Wand (3) verbunden ist.
8. Verfahren nach Anspruch 7, **dadurch gekennzeichnet, dass** die erste Wand (2) und die zweite Wand (3) aus einem Kunststoffmaterial hergestellt sind.
9. Verfahren nach einem oder mehreren der Ansprüche 7 und 8, **dadurch gekennzeichnet, dass** die Verbindungsphase (Ra) das zumindest teilweise Abdichten der ersten Wand (2) und der zweiten Wand (3) umfasst, um zumindest eine der Unterkante (5) und/oder der Seitenkante (4) zu erhalten.
10. Verfahren nach einem oder mehreren der Ansprüche 7 bis 9, **dadurch gekennzeichnet, dass** die Verarbeitungsphase (L) eine Schneidphase (F) der Doppelschicht (18) zur Festlegung der Oberkanten (7, 8) und zum Erhalten der Klappen (9, 10, 11, 12) als kontinuierliche Verlängerungen der ersten Wand (2) und der zweiten Wand (3) umfasst.
11. Verfahren nach einem oder mehreren der Ansprüche 7 bis 10, **dadurch gekennzeichnet, dass** mindestens eine der ersten und zweiten Verbindungsphasen (C1, C2) das Abdichten der ersten Klappe (9) mit der zweiten Klappe (10) und/oder das Abdichten der dritten Klappe (11) mit der vierten Klappe (12) umfasst.
12. Verfahren nach einem oder mehreren der Ansprüche 7 bis 11, **dadurch gekennzeichnet, dass** mindestens eine der ersten und zweiten Verbindungsphasen (C1, C2) das Nähen der ersten Klappe (9)

an die zweite Klappe (10) und/oder das Nähen der dritten Klappe (11) an die vierte Klappe (12) umfasst.

## Revendications

### 1. Sac (1) comprenant :

- au moins une première paroi (2) et au moins une seconde paroi (3) réunies mutuellement au niveau d'au moins un bord latéral (4) et d'au moins un bord inférieur (5) pour définir un espace de contenant (6) et ayant des premier et second bords supérieurs (7, 8) respectifs espacés l'un de l'autre pour définir une ouverture d'accès audit espace de contenant (6) ;
- au moins un premier et un deuxième rabat (9, 10) espacés l'un de l'autre, qui s'étendent depuis ladite première paroi (2) au-delà dudit premier bord supérieur (7) ;
- au moins un troisième et un quatrième rabat (11, 12) espacés l'un de l'autre, qui s'étendent depuis ladite deuxième paroi (3) au-delà dudit second bord supérieur (8) ; dans lequel ledit premier rabat (9) est associé audit deuxième rabat (10) pour former une première poignée de préhension (13) et ledit troisième rabat (11) est associé audit quatrième rabat (12) pour former une seconde poignée de préhension (13) ;

**caractérisé par le fait que** ladite première poignée de préhension (13) et ladite seconde poignée de préhension (13) renferment des cavités de préhension (15) respectives ayant les plans d'allongement sensiblement parallèles à ladite première paroi latérale (2) et à ladite seconde paroi latérale (3).

### 2. Sac (1) selon la revendication 1, **caractérisé par le fait que** ledit premier rabat (9) et ledit deuxième rabat (10) sont des extensions continues de ladite première paroi (2) au-delà dudit premier bord supérieur (7).

### 3. Sac (1) selon une ou plusieurs des revendications précédentes, **caractérisé par le fait que** ledit troisième rabat (11) et ledit quatrième rabat (12) sont des extensions continues de ladite seconde paroi (3) au-delà dudit second bord supérieur (8).

### 4. Sac (1) selon une ou plusieurs des revendications précédentes, **caractérisé par le fait qu'il** comprend des premiers moyens de connexion adaptés pour fixer ledit premier rabat (9) et ledit deuxième rabat (10) au niveau de parties terminales libres respectives.

### 5. Sac (1) selon une ou plusieurs des revendications précédentes, **caractérisé par le fait qu'il** comprend des seconds moyens de connexion adaptés pour

fixer ledit troisième rabat (11) et ledit quatrième rabat (12) au niveau de parties terminales libres respectives.

### 6. Sac (1) selon une ou plusieurs des revendications précédentes, **caractérisé par le fait qu'il** est fait de matière plastique.

### 7. Procédé pour la production de sacs plastiques, comprenant :

- une phase d'accouplement (A) d'une première paroi (2) et d'une seconde paroi (3), pour former une double couche remplissable (18) ;
- une phase de réunion (Ra) de ladite première paroi (2) et de ladite seconde paroi (3) au niveau d'au moins un parmi un bord inférieur (5) et un bord latéral (4) ;
- une phase de traitement (L) de ladite double couche (18) pour la définition sur ladite première paroi (2) d'un premier bord supérieur (7) et d'un premier rabat (9) et d'un deuxième rabat (10) qui s'étendent au-delà dudit bord supérieur (7), et pour la définition sur ladite seconde paroi (3) d'un second bord supérieur (8) et d'un troisième rabat (11) et d'un quatrième rabat (12) qui s'étendent au-delà dudit second bord supérieur (8) ; et
- une phase de mise en œuvre (Re) de poignées de préhension (13) ;

**caractérisé par le fait que** ladite phase de mise en œuvre (Re) est ultérieure à ladite phase de traitement (L) et comprend :

- une première phase de connexion (C1) dudit premier rabat (9) avec ledit deuxième rabat (10) pour la formation d'une première poignée (13) associée à ladite première paroi (2) ; et
- une seconde phase de connexion (C2) dudit troisième rabat (11) avec ledit quatrième rabat (12) pour la formation d'une seconde poignée (13) associée à ladite seconde paroi (3).

### 8. Procédé selon la revendication 7, **caractérisé par le fait que** ladite première paroi (2) et ladite seconde paroi (3) sont faites d'une matière plastique.

### 9. Procédé selon une ou plusieurs des revendications 7 et 8, **caractérisé par le fait que** ladite étape de réunion (Ra) comprend le scellement au moins en partie de ladite première paroi (2) et de ladite seconde paroi (3) pour obtenir au moins un parmi ledit bord inférieur (5) et ledit bord latéral (4).

### 10. Procédé selon une ou plusieurs des revendications 7 à 9, **caractérisé par le fait que** ladite phase de traitement (L) comprend une phase de découpage

à l'emporte-pièce (F) de ladite double couche (18) pour la définition desdits bords supérieurs (7, 8) et l'obtention desdits rabats (9, 10, 11, 12) en tant qu'extensions continues de ladite première paroi (2) et de ladite seconde paroi (3).

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11. Procédé selon une ou plusieurs des revendications 7 à 10, **caractérisé par le fait qu'**au moins une desdites première et seconde phases de connexion (C1, C2) comprend le scellement dudit premier rabat (9) audit deuxième rabat (10) et/ou le scellement dudit troisième rabat (11) audit quatrième rabat (12) respectivement.

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12. Procédé selon une ou plusieurs des revendications 7 à 11, **caractérisé par le fait qu'**au moins une desdites première et seconde phases de connexion (C1, C2) comprend la couture dudit premier rabat (9) audit deuxième rabat (10) et/ou la couture dudit troisième rabat (11) audit quatrième rabat (12) respectivement.

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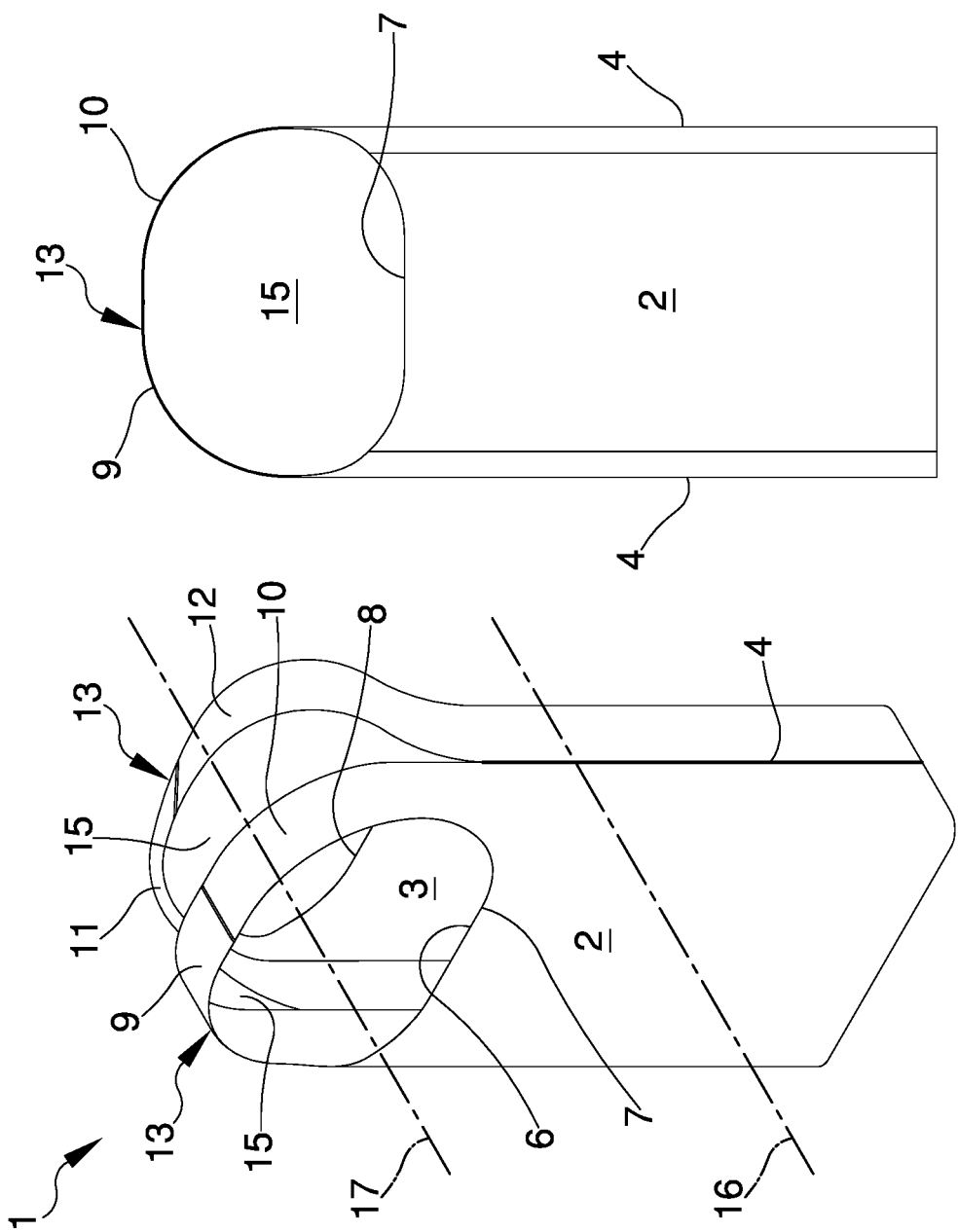


Fig. 1

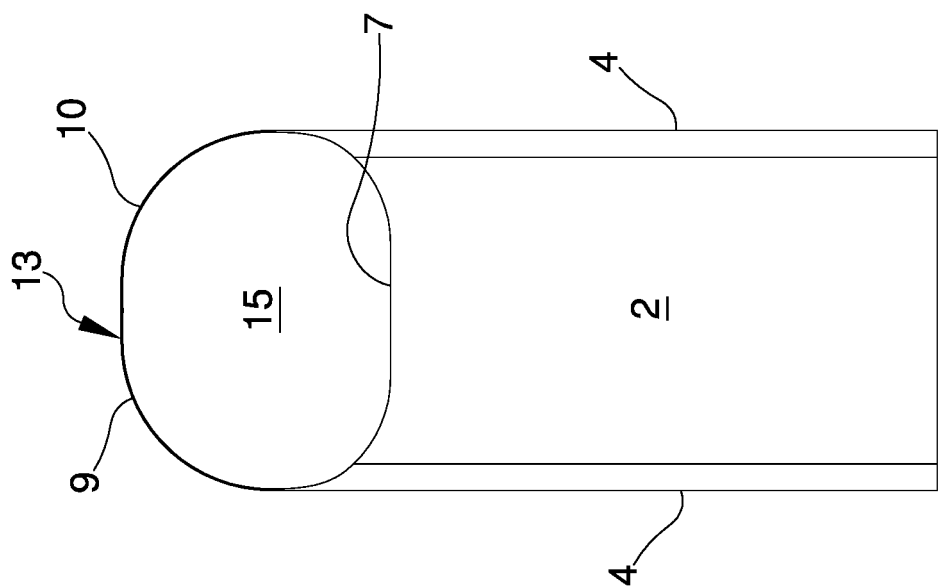


Fig. 2

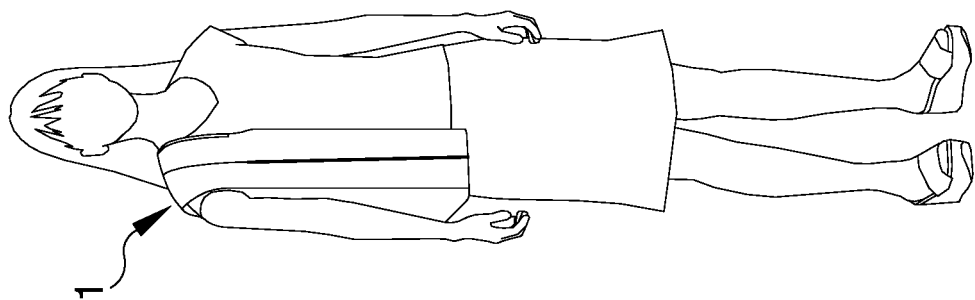
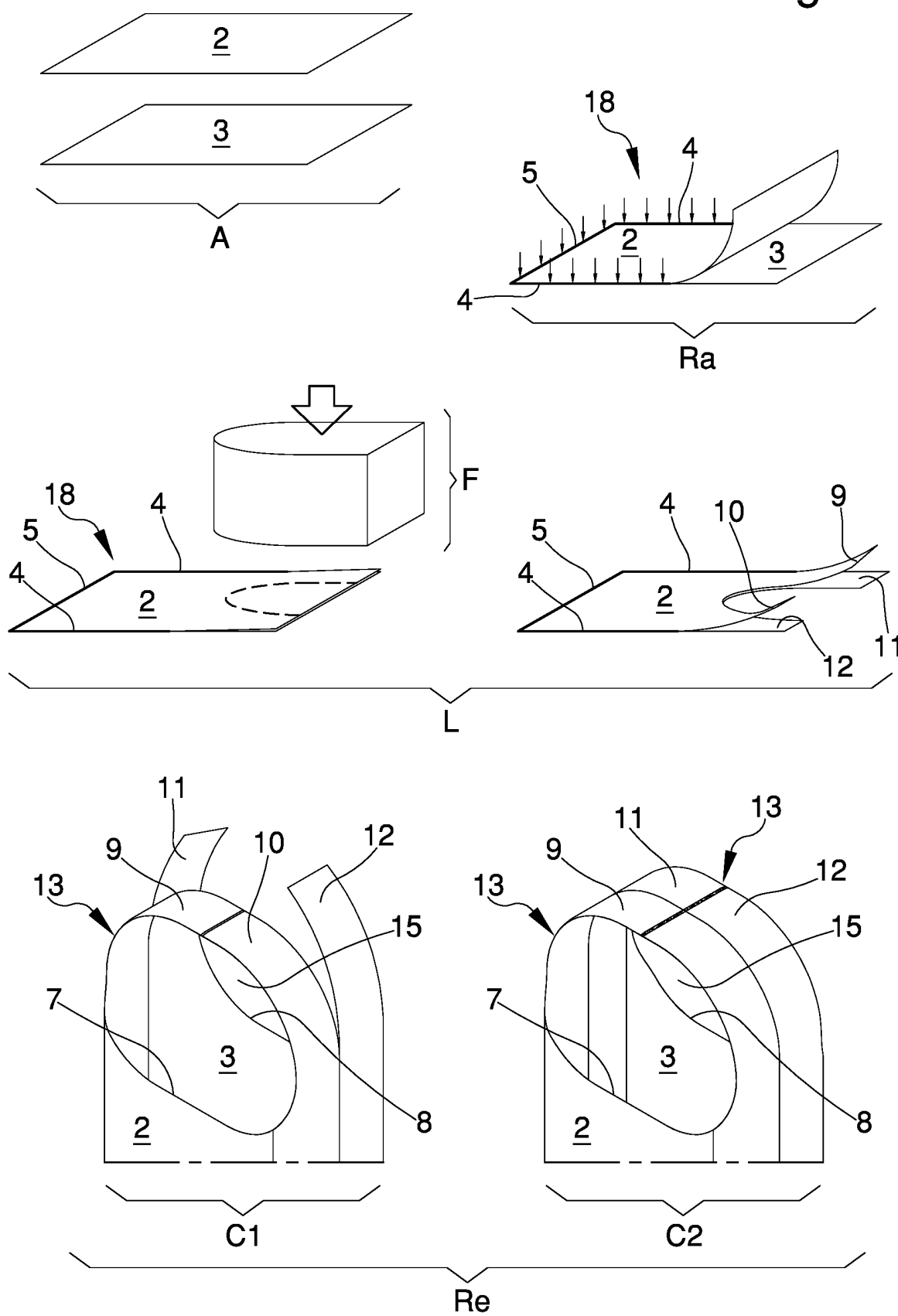


Fig. 3

Fig.4



**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

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