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(54) **CONTINUOUS MIXED TUBE FOR FORMING BAGS, AND BAG FOR HORTICULTURAL OR SIMILAR PRODUCTS OBTAINED THEREFROM**

(57) A continuous mixed tube for forming bags comprised of a front band (2) and a back band (3) made of paper, joined laterally by lateral bands (4, 5) made of plastic. The lateral bands (4, 5) are made up of folding sections (4a, 5a) from which joining sections (4b, 5b) joined to the front band (2) and joining sections (4c, 5c) joined to the back band (3) extend. The first and the third

joining section (4b, 5b) extend respectively from a first front end area (2A) and a second front end area (2B) of the front band (2) to a central front area (2C). The second and the fourth joining section (4c, 5c) extend respectively from a first back end area (3A) and a second back end area (3B) of the back band (3) to a central back area (3C).

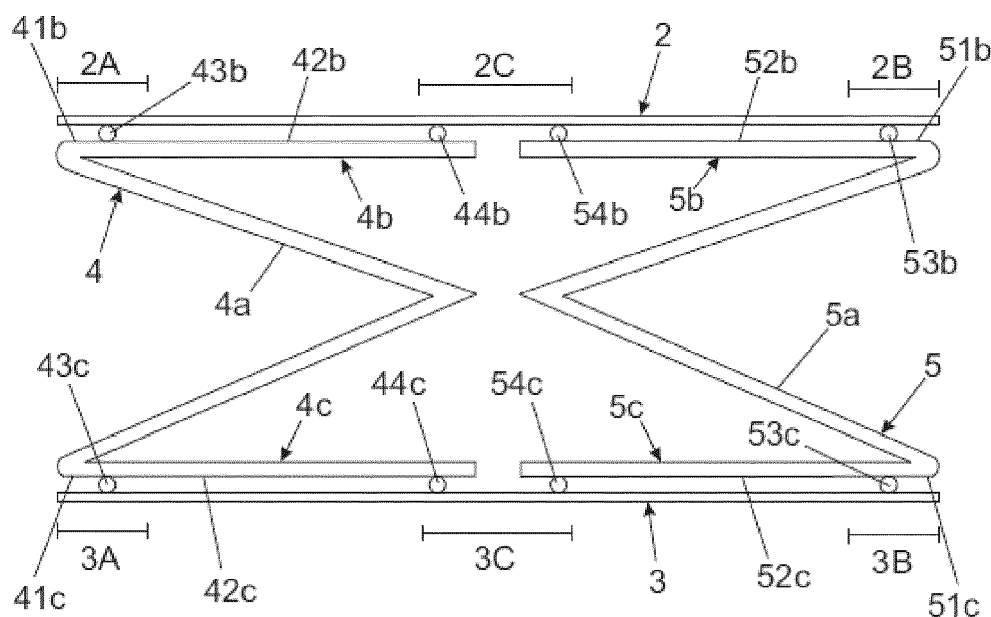


Fig. 2

Description

Field of the invention

[0001] The present invention relates to a continuous mixed tube for forming bags especially intended for containing horticultural or similar products, the structural configuration of which facilitates the manufacturing and winding process thereof, in addition to improving the presentation features of the final product to the public.

[0002] The present invention also relates to a bag for horticultural or similar products obtained from said continuous mixed tube.

Background of the invention

[0003] Continuous tubes for forming bags, also known as preformed tubes, have resulted in a major advance in the food packaging industry in general, and especially in that of horticultural and similar products. These tubes are supplied wound onto reels for their subsequent loading into the packaging machines. During the packaging process, the machine is fed from the preformed tube in order to carry it continuously and automatically to the filling station, in which the bag is formed and filled with the product in subsequent stations. The bag forming process usually involves heat sealing two transversal strips of the continuous tube, which end up forming the base and the mouth of the bag. In turn, the mouth can be completed with other transportation elements, such as handles, added during the sealing of the mouth, or formed by means of the die-cutting thereof. In documents ES2192962A1 and ES2282019A1 a few examples of these continuous tubes can be seen, as well as the manufacturing process thereof.

[0004] Meanwhile, the demands of final consumers regarding the presentation of the packaged product and the availability of more information thereon (origin, distributor, etc.) have been increasing recently. To this effect, one of the current trends consists of packaging certain horticultural products, such as potatoes, in bags with a rustic appearance that generate greater interest in consumers. These bags are usually opaque, generally made with paper-based or paper-like materials, and often containing residues from gathering the product, such as dirt, so the consumer thinks the product is more ecological.

[0005] Document ES1143035U shows a continuous tube for forming bags, especially designed for the production of bags with a rustic appearance. Said tube is comprised of a front band and a back band, laterally joined by two V-shaped lateral bands, each of which in turn is formed by two separable portions joined to each other by means of glue or adhesive. Said lateral bands are joined to the front and back bands by their longitudinal ends, leaving the entire central portion thereof free to form the base and the mouth of the bag by means of heat sealing. To this end the front and back bands have a sheet configuration, made up of an outer sheet and an

inner sheet of different material, the melting temperature of the outer sheet being greater than the melting temperature of the inner sheet material. Thus, by applying heat on the outer sheets, the melting of the inner sheets is achieved. One of the materials that meets these requirements is laminated paper.

[0006] This type of paper has the disadvantage of being fairly complex and expensive. Likewise, it is the paper itself that must resist the weight of the packaged product in order to avoid tearing, such that the strength of the bag can only be enhanced by increasing the thickness or weight of the paper. For example, a paper weight of 90 gr/m² and a plastic film weight of 15 gr/m² enable having 500 meters of continuous tube in a reel with a diameter of 55 cm, from which about 1,100 bags can be obtained.

[0007] Furthermore, given that the lateral bands are joined to the front and back band only by the longitudinal ends thereof, it is necessary to increase the joint width between these elements in order to guarantee the strength of these joints. This causes a decrease in the bellows of the bag and, consequently, lowers the capacity thereof at a given length. Likewise, each of the longitudinal joints between the different elements that make up this tube (specifically, the joints between the lateral bands and the front and back bands, as well as the joints between the separable portions that form each of the lateral bands) are made through a single strand or strip of glue having a width of about 5 to 6 mm. Therefore, they are all Y-joints (four in the corners and two between the separable portions of the lateral bands) that offer little resistance to cutting or shearing stress, favoring the tearing thereof and reducing the resistance of the bag.

[0008] The present invention resolves the previously described problems by means of a continuous mixed tube for forming bags, the configuration of which enables:

- reducing the weight of the laminated paper (for example; using a paper weight of 50 gr/m² and a plastic film weight of 3 gr/m²), and even enabling to avoid the use of laminated paper for some applications;
- increasing the capacity of the reel (for example; a reel with a diameter of 55 centimeters to make 3 kilogram bags of potatoes can contain 1,000 meters of continuous tube with the above indicated weight, from which 2,200 bags can be obtained);
- increasing the resistance of the bag without increasing the thickness thereof, by using wider joints (for example, 25 mm) or multiple strands of glue (for example, 5.6 mm), which better withstand cutting or shearing stresses.
- increasing the capacity of the bag at a given length, increasing the bellows of the lateral bands;
- facilitating the manufacturing method of the tube, making it simpler, faster and more efficient;
- obtaining a consumable compatible with the existing machines;
- facilitating the packaging process of the product, enabling it to be carried out continuously in an auto-

- matic way, and with a smaller number of processes, which increase the speed or work; and
- facilitating the adaptability of the tube to the requirements of the final product, counting on a longitudinal symmetry that enables making bags of greater or lesser capacity.

Description of the invention

[0009] According to a first object of protection, the present invention relates to a continuous mixed tube for forming bags, especially with a rustic appearance. Said tube is comprised of a front band and a back band made of paper, joined laterally by a first lateral band and a second lateral band made of plastic.

[0010] The term "paper" extends to any simple or composite material, such as paper, laminated paper, cardboard, etc. The term "plastic" extends to any simple or composite material, such as polyethylene, polypropylene, etc. Likewise, the bands that make up the tube can also contain windows or openings for displaying the product, spaced along said tube, and covered by translucent or transparent bands of mesh or plastic sheets.

[0011] The first lateral band is made up of a first folding section from which a first joining section joined to the front band and a second joining section joined to the back band extend. In turn, the second lateral band is made up of a second folding section from which a third joining section joined to the front band and a fourth joining section joined to the back band extend.

[0012] The first and the third joining section extend respectively from a first front end area and a second front end area of the front band (close to the longitudinal ends of the front band), to a central front area thereof (close to the central shaft of said band). In turn, the second and the fourth joining section extend respectively from a first back end area and a second back end area of the back band (close to the longitudinal ends of the back band), to a central back area thereof (close to the central shaft of said band). Thus, the front band and the back band are reinforced by an additional layer or sheet of plastic that practically extends throughout the central portion of said bands. This reinforcement carried out by the joints of the lateral bands allows reducing the weight of the paper, and at the same time, avoids the tearing thereof. In turn, it also ensures that the clamps that open the mouth of the tube during product packaging do not damage the front and back bands.

[0013] Also, as commented above, the present invention makes it possible to avoid the use of laminated paper, by replacing it with plain paper. During the manufacturing process of the tube, said plain paper is coated on the inner face thereof by the joining sections of the lateral bands, which can be made of high-density polyethylene (HDPE). Thus, it is as if a lamination of simple paper occurred during the creation process of the tube, with the difference that said lamination is not carried out by means of vulcanizing a low-density polyethylene (LDPE), as with

conventional laminated paper. The advantage of being able to use high-density polyethylene (HDPE) is that it maintains the orientation of the carbon and oxygen chains, gaining in resistance. In contrast, low-density polyethylene (LDPE) weakens and loses resistance in vulcanization processes.

[0014] The lateral bands can make up a single element or independent elements. Preferably, the lateral bands are two independent elements that are provided separately during the manufacturing process of the tube for the subsequent joining thereof to the back and front bands. Nevertheless, according to a first particular embodiment, said lateral bands make up a single body, longitudinally open or closed. The lateral bands can be supplied pre-printed with the characteristics of the product, the information of the manufacturer and other commercial information, etc.

[0015] The lateral bands are joined to the front and back bands in order to longitudinally close the tube, but at the same time they also provide the folding means that enable said tube to be wound onto a reel, optimizing the capacity thereof (meters of tube/reel), and favoring the subsequent unwinding thereof during the formation of the bag. To this end, each of the lateral bands preferably has an M-shaped (or W-shaped) configuration that facilitates said folding, while increasing the resistance of the resulting bag. Thus, the lateral bands are arranged facing each other, making up two opposing M's with high resistance to cutting or shearing stresses. In turn, each of the folding sections has a V-shaped configuration with the vertex thereof oriented towards the inside of the tube, in order to make a flat-bottom bag. Alternatively, said folding sections can also be arranged towards the outside of the tube in order to facilitate a method for printing the lateral bands, performed during the formation of the tube.

[0016] Preferably, the joining sections are joined to the front band and to the back band by means of gluing or heat sealing. Each of the joining sections has a free section extending from the folding section to a first strand or strip of glue that joins the joining section to the end area. Likewise, each of the joining sections has a fixed section extending from the first strand or strip of glue to a second strand or strip of glue that joins the joining section to the central area. The strands of glue may be a few millimeters wide (for example, 5.6 mm), while the strips of glue may be several centimeters wide (for example, 2.5 cm). According to a particular embodiment, the strip of glue may extend from the end area to the central area of the front and/or back band, thus making up one same strip of glue or adhesive, instead of two.

[0017] For those food products requiring some airing, the folding sections can be provided with macro or micro perforations.

[0018] According to a second object of protection, the present invention relates to a bag for horticultural or similar products, made up of a front band and a back band made of paper, joined laterally by a first lateral band and a second lateral band made of plastic, and joined trans-

versally in order to make up a base and a mouth of said bag.

[0019] The first lateral band is made up of a first folding section from which a first joining section joined to the front band and a second joining section joined to the back band extend. In turn, the second lateral band is made up of a second folding section from which a third joining section joined to the front band and a fourth joining section joined to the back band extend.

[0020] The first and the third joining section extend respectively from a first front end area and a second front end area of the front band to a central front area thereof. In turn, the second and the fourth joining section extend respectively from a first back end area and a second back end area of the back band to a central back area thereof. Thus, the front band and the back band are reinforced by an additional layer or sheet of plastic that extends practically throughout the central portion of said bands. Likewise, when the bags are stacked after the packaging process, the product contained in them presses on said joints making them more resistant.

[0021] The lateral bands may make up a single element or independent elements, and be printed with the characteristics of the product, the information of the manufacturer and other commercial information, etc.

[0022] The lateral bands preferably have an M-shaped (or W-shaped) configuration that facilitates folding, while increasing the resistance of the bag. Thus, the lateral bands are arranged facing each other making up two opposing M's with high resistance to cutting or shearing stresses. In turn, each of the folding sections has a V-shaped configuration with the vertex thereof oriented towards the inside of the tube in order to form a flat-bottom bag. Alternatively, said folding sections can also be arranged towards the outside of the tube in order to facilitate a method for printing the lateral bands, performed during the formation of the tube.

[0023] Preferably, the joining sections are joined to the front band and to the back band by means of gluing or heat sealing. Each of the joining sections has a free section extending from the folding section to a first strand or strip of glue that joins the joining section to the end area. Likewise, each of the joining sections has a fixed section extending from the first strand or strip of glue to a second strand or strip of glue that joins the joining section to the central area. The strands of glue may be a few millimeters wide (for example, 5.6 mm), while the strips of glue may be several centimeters wide (for example, 2.5 cm). According to a particular embodiment, the strip of glue may extend from the end area to the central area of the front and/or back band, thus making up one same strip of glue or adhesive, instead of two.

[0024] For those food products requiring some airing, the folding sections can be provided with macro or micro perforations.

Brief description of the drawings

[0025] The following is a very brief description of a series of drawings, which help to better understand the invention, and which are expressly related to six embodiments of said invention that are presented by way of non-limiting examples of the same.

Figure 1 shows a perspective view of the continuous mixed tube for forming bags of the present invention wound around a reel.

Figure 2 shows a schematic transverse cross section of the tube of Figure 1, according to a first embodiment and in folded position.

Figure 3 shows a schematic transverse cross section of the tube of Figure 1, according to a first embodiment and in unfolded position.

Figure 4 shows a schematic transverse cross section of the tube for forming bags of the present invention, according to a second embodiment.

Figure 5 shows a schematic transverse cross section of the tube for forming bags of the present invention, according to a third embodiment.

Figure 6 shows a schematic transverse cross section of the tube for forming bags of the present invention, according to a fourth embodiment.

Figure 7 shows a perspective view of a bag for horticultural products formed by means of the tube of the present invention.

Figure 8A shows a partial schematic view of the tube for forming bags of the present invention, according to a fifth embodiment.

Figure 8B shows a bag for horticultural products formed by means of the tube of Figure 8A.

Figure 9A shows a partial schematic view of the tube for forming bags of the present invention, according to a sixth embodiment.

Figure 9B shows a bag for horticultural products formed by means of the tube of Figure 9A.

Detailed description of the invention

[0026] Figure 1 shows a perspective view of the continuous mixed tube (1) for forming bags (100) of the present invention wound around a reel. As can be seen, said tube (1) is comprised of a front band (2) and a back band (3) made of paper, joined laterally by a first lateral band (4) and a second lateral band (5) made of plastic.

[0027] Figure 2 shows a schematic transverse cross section of the tube of Figure 1, in which the structural configuration thereof is more clearly seen. As can be seen, the first lateral band (4) is made up of a first folding section (4a) from which a first joining section (4b) joined to the front band (2) and a second joining section (4c) joined to the back band (3) extend. In turn, the second lateral band (5) is made up of a second folding section (5a) from which a third joining section (5b) joined to the front band (2) and a fourth joining section (5c) joined to

the back band (3) extend.

[0028] The first and the third joining section (4b, 5b) extend respectively from a first front end area (2A) and a second front end area (2B) of the front band (2) to a central front area (2C) thereof. In turn, the second and the fourth joining section (4c, 5c) respectively extend from a first back end area (3A) and a second back end area (3B) of the back band (3) to a central back area (3C) thereof. Thus, the front band (2) and the back band (3) are reinforced by an additional layer or sheet of plastic that extends practically throughout the central portion of said bands (2, 3).

[0029] According to the present example, the lateral bands (4, 5) are separated from each other, making up two independent elements that are provided separately during the manufacturing process of the tube (1) for the subsequent joining thereof to the front (2) and back (3) bands. Each of the lateral bands (4, 5) has an M-shaped configuration that facilitates the folding of the tube (1), while increasing the resistance of the resulting bag (100). Thus, the lateral bands (4, 5) are arranged facing each other making up two opposing M's with high resistance to cutting or shearing stresses. In turn, each of the folding sections (4a, 5a) has a V-shaped configuration with the vertex thereof oriented towards the inside of the tube (1), in order to form a flat-bottom bag.

[0030] Figure 3 shows a schematic transverse cross section of the tube of Figure 1, in unfolded position, before carrying out filling of the product. As can be seen, the joining sections (4b, 4c, 5b, 5c) are joined to the front band (2) and to the back band (3) by means of glue. Each of the joining sections (4b, 4c, 5b, 5c) has a free section (41 b, 41 c, 51 b, 51 c) extending from the folding section (4a, 5a) to a first strand or strip of glue (43b, 43c, 53b, 53c) that joins the joining section (4b, 4c, 5b, 5c) to the end area (2A, 2B, 3A, 3B). Likewise, each of the joining sections (4b, 4c, 5b, 5c) has a fixed section (42b, 42c, 52b, 52c) extending from the first strand or strip of glue (43b, 43c, 53b, 53c) to a second strand or strip of glue (44b, 44c, 54b, 54c) that joins the joining section (4b, 4c, 5b, 5c) to the central area (2C, 3C).

[0031] The bellows of the tube (1), or the opening capacity thereof, can be easily adjusted by varying the distance of the first strands or strips of glue (43b, 43c, 53b, 53c) with respect to the respective longitudinal ends of the front (2) and back (3) bands. Thus, the maximum deployment of the first lateral band (4) corresponds to the total length that sections 41 b, 4a and 41c make up, while the maximum deployment of the second lateral band (5) corresponds to the total length that sections 51 b, 5a and 51c make up. Therefore, by increasing the length of the free sections (41 b, 41 c, 51 b, 51 c) the bellows of the tube (1) and/or of the bag (100) are increased. Conversely, by reducing the length of the free sections (41 b, 41 c, 51 b, 51 c) the bellows of the tube (1) and/or of the bag (100) are reduced. These aspects may be especially useful for using the tube (1) in existing machines with width limitations in the opening of the

mouth of the tube (1).

[0032] The folding sections (4a, 5a) are provided with micro-perforations (8) for airing the product.

[0033] Figure 4 shows a schematic transverse cross section of the tube of Figure 1, according to a second embodiment. In this case, the first lateral band (4) and the second lateral band (5) are joined together, making up a single longitudinally closed element.

[0034] Figure 5 shows a schematic transverse cross section of the tube from Figure 1, according to a third embodiment. In this case, the first lateral band (4) and the second lateral band (5) are joined together, making up a single longitudinally open element, given that the ends of the resulting lateral band do not join together.

[0035] Figure 6 shows a schematic transverse cross section of the tube (1) for forming bags of the present invention, according to a fourth embodiment. In this case, the first lateral band (4) and the second lateral band (5) are arranged towards the outside of the tube (1), in order to facilitate a printing method of the lateral bands performed during the formation of the tube (1).

[0036] Figure 7 shows a perspective view of a bag (100) for horticultural products formed by means of the tube (1) of the present invention according to the first embodiment thereof. Said bag (100) is comprised of a front band (2) and a back band (3) made of paper, laterally joined by a first lateral band (4) and a second lateral band (5) made of plastic, and transversally joined to make up a base (101) and a mouth (102) of said bag (100).

[0037] The rest of the characteristics of this bag (100) coincide with those shown in Figures 1 to 4. Specifically, the first lateral band (4) is made up of a first folding section (4a) from which a first joining section (4b) joined to a front band (2) and a second joining section (4c) joined to a back band (3) extend. In turn, the second lateral band (5) is made up of a second folding section (5a) from which a third joining section (5b) joined to the front band (2) and a fourth joining section (5c) joined to the back band (3) extend.

[0038] The first and the third joining section (4b, 5b) extend respectively from a first front end area (2A) and a second front end area (2B) of the front band (2) to a central front area (2C) thereof. In turn, the second and the fourth joining section (4c, 5c) extend respectively from a first back end area (3A) and a second back end area (3B) of the back band (3) to a central back area (3C) thereof. Thus, the front band (2) and the back band (3) are reinforced by an additional layer or sheet of plastic that extends practically throughout the central portion of said bands (2, 3).

[0039] The lateral bands (4, 5) preferably have an M-shaped configuration that facilitates the folding and increases the resistance of the bag. Thus, the lateral bands (4, 5) are arranged facing each other making up two opposing M's with high resistance to cutting or shearing stresses. In turn, each of the folding sections (4a, 5a) has a V-shaped configuration with the vertex thereof oriented towards the inside of the tube, in order to form a

flat-bottom bag.

[0040] The joining sections (4b, 4c, 5b, 5c) are joined to the front band (2) and to the back band (3) by means of gluing. Each of the joining sections (4b, 4c, 5b, 5c) has a free section (41 b, 41 c, 51 b, 51 c) extending from the folding section (4a, 5a) to a first strand or strip of glue (43b, 43c, 53b, 53c) that joins the joining section (4b, 4c, 5b, 5c) to the end area (2A, 2B, 3A, 3B). Likewise, each of the joining sections (4b, 4c, 5b, 5c) has a fixed section (42b, 42c, 52b, 52c) extending from the first strand or strip of glue (43b, 43c, 53b, 53c) to a second strand or strip of glue (44b, 44c, 54b, 54c) that joins the joining section (4b, 4c, 5b, 5c) to the central area (2C, 3C).

[0041] The folding sections (4a, 5a) are provided with micro-perforations (8) for airing the product.

[0042] Figure 8A shows a partial schematic view of the tube (1) for forming bags of the present invention, according to a fifth embodiment. In this case, the front band (2) of the tube (1) comprises a plurality of windows or openings (9) for displaying of the product, spaced along said tube (1). The windows (9) are made by die cutting the front band (2) made of paper. In turn, translucent or transparent joining sections (4b, 5b) are used, which enable displaying the product therethrough. When the joining sections (4b, 5b) make up a portion of the independent lateral bands (4, 5), the longitudinal ends thereof are closely joined or superimposed with one another, but at the same time they let air pass through. This allows ventilating the product without having to pierce the bag (100).

[0043] Figure 8B shows a bag (100) for horticultural products formed by means of the tube of Figure 8A. The window (9) enables displaying the product through a plastic sheet (91).

[0044] Figure 9A shows a partial schematic view of the tube (1) for forming bags of the present invention, according to a sixth embodiment. In this case, the front band (2) and the back band (3) are made with 50gr/m² paper, while the lateral bands (4, 5) are made of transparent low-density polyethylene (LDPE). The printing of said lateral bands (4, 5) generates two opaque strips (92) in each of them, between which a transparent strip (93) is arranged as a "false window". Said transparent strip (93) can be printed to simulate a mesh.

[0045] The tube (1) may further comprise a cutting mark (94), which is useful for indicating where to cut the tube (1) during the process of forming the bag (100).

[0046] Figure 9B shows a bag (100) for horticultural products formed by means of the tube of Figure 9A. The transparent strip (93) enables displaying the product therethrough. According to the present example, the bag (100) has a length of 510 mm, a width of 170 mm and bellows of 210 mm.

Claims

1. A continuous mixed tube for forming bags, comprised of a front band (2) and a back band (3) made

of paper, joined laterally by a first lateral band (4) and a second lateral band (5) made of plastic, wherein:

- the first lateral band (4) is made up of a first folding section (4a) from which a first joining section (4b) joined to the front band (2) and a second joining section (4c) joined to the back band (3) extend; and
- the second lateral band (5) is made up of a second folding section (5a) from which a third joining section (5b) joined to the front band (2) and a fourth joining section (5c) joined to the back band (3) extend;

said tube (1) **characterized in that:**

- the first and the third joining section (4b, 5b) extend respectively from a first front end area (2A) and a second front end area (2B) of the front band (2) to a central front area (2C) thereof; **and in that**
- the second and the fourth joining section (4c, 5c) extend respectively from a first back end area (3A) and a second back end area (3B) of the back band (3) to a central back area (3C) thereof.

2. The continuous mixed tube for forming bags according to claim 1, **characterized in that** the first lateral band (4) and the second lateral band (5) are joined to each other.
3. The continuous mixed tube for forming bags according to claim 1, **characterized in that** the first lateral band (4) and the second lateral band (5) are separated from each other.
4. The continuous mixed tube for forming bags according to any of claims 1 to 3, **characterized in that** each of the lateral bands (4, 5) has an M-shaped configuration.
5. The continuous mixed tube for forming bags according to any of claims 1 to 4, **characterized in that** each of the folding sections (4a, 5a) has a V-shaped configuration.
6. The continuous mixed tube for forming bags according to any of claims 1 to 5, **characterized in that** the joining sections (4b, 4c, 5b, 5c) are joined to the front band (2) and to the back band (3) by means of glue or heat sealing.
7. The continuous mixed tube for forming bags according to any of claims 1 to 6, **characterized in that** each of the joining sections (4b, 4c, 5b, 5c) has a free section (41 b, 41 c, 51 b, 51 c) extending from the folding section (4a, 5a) to a first strand or strip

of glue (43b, 43c, 53b, 53c) that joins the joining section (4b, 4c, 5b, 5c) to the end area (2A, 2B, 3A, 3B).

8. The continuous mixed tube for forming bags according to claim 7, **characterized in that** each of the joining sections (4b, 4c, 5b, 5c) has a fixed section (42b, 42c, 52b, 52c) extending from the first strand or strip of glue (43b, 43c, 53b, 53c) to a second strand or strip of glue (44b, 44c, 54b, 54c) that joins the joining section (4b, 4c, 5b, 5c) to the central area (2C, 3C).

9. The continuous mixed tube for forming bags according to any of claims 1 to 8, **characterized in that** the folding sections (4a, 5a) comprise perforations (8).

10. The continuous mixed tube for forming bags according to any of claims 1 to 9, **characterized in that** it comprises a window (9) in at least one of the front (2) and back (3) bands covered with a translucent or transparent sheet (91).

11. The continuous mixed tube for forming bags according to any of claims 1 to 10, **characterized in that** the first lateral band (4) and the second lateral band (5) are arranged towards the inside of the tube (1).

12. A bag for horticultural or similar products, comprised of a front band (2) and a back band (3) made of paper, laterally joined by a first lateral band (4) and a second lateral band (5) made of plastic, and transversally joined for forming a base (101) and a mouth (102) of said bag (100), wherein:

- the first lateral band (4) is made up of a first folding section (4a) from which a first joining section (4b) joined to the front band (2) and a second joining section (4c) joined to the back band (3) extend; and
- the second lateral band (5) is made up of a second folding section (5a) from which a third joining section (5b) joined to the front band (2) and a fourth joining section (5c) joined to the back band (3) extend;

said bag (100) **characterized in that:**

- the first and the third joining section (4b, 5b) extend respectively from a first front end area (2A) and a second front end area (2B) of the front band (2) to a central front area (2C) thereof; **and in that**
- the second and the fourth joining section (4c, 5c) extend respectively from a first back end area (3A) and a second back end area (3B) of the back band (3) to a central back area (3C) thereof.

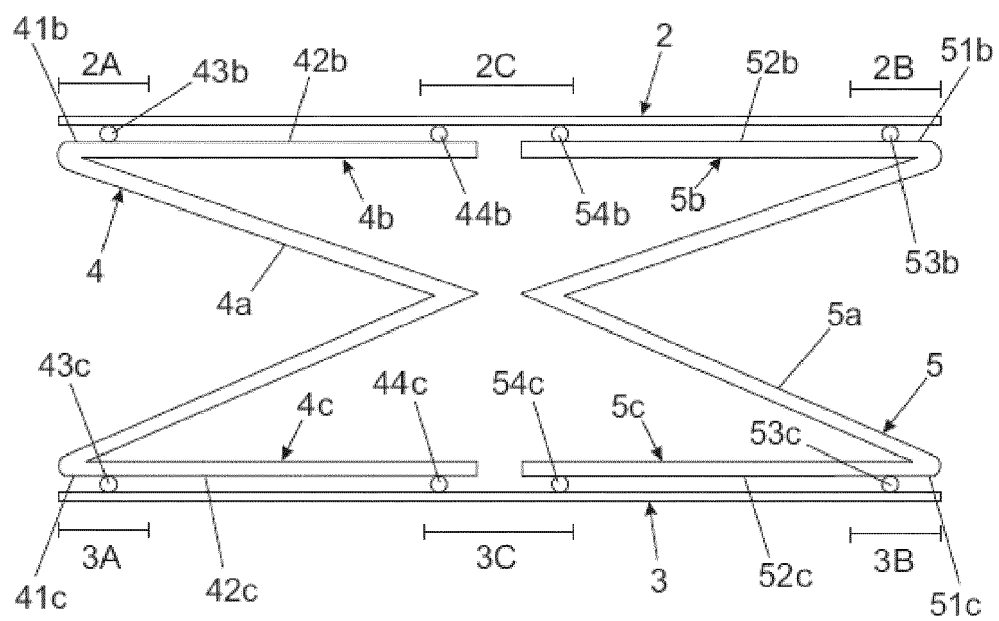
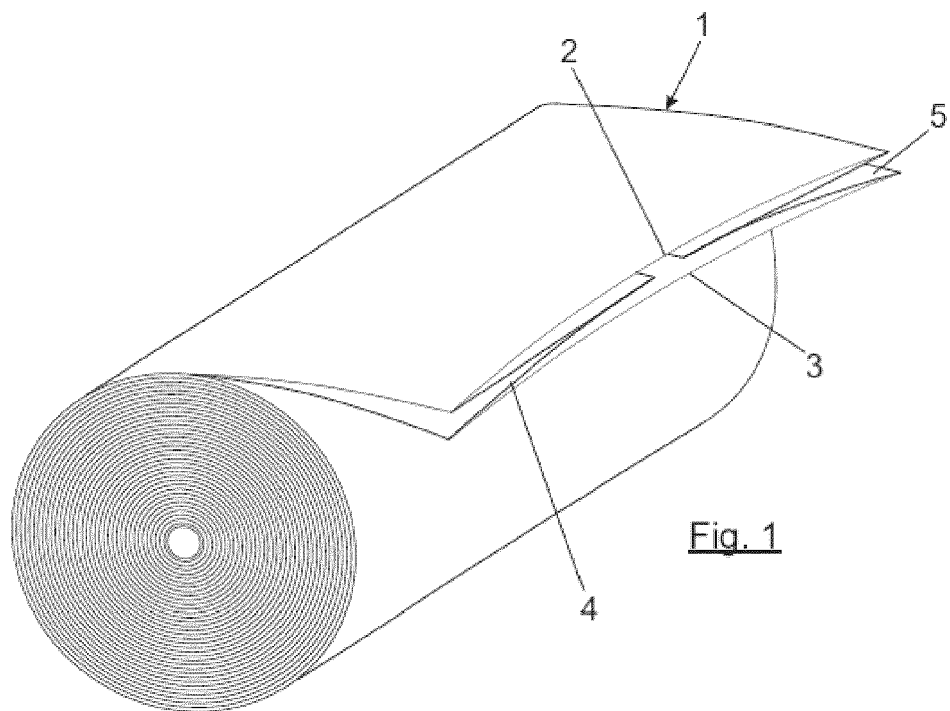
13. The bag for horticultural or similar products accord-

ing to claim 12, **characterized in that** the first lateral band (4) and the second lateral band (5) are joined to each other.

14. The bag for horticultural or similar products according to claim 12, **characterized in that** the first lateral band (4) and the second lateral band (5) are separated from each other.

15. The bag for horticultural or similar products according to any of claims 12 to 14, **characterized in that** each of the lateral bands (4, 5) has an M-shaped configuration; and **in that** each of the folding sections (4a, 5a) has a V-shaped configuration.

16. The bag for horticultural or similar products according to any of claims 12 to 15, **characterized in that** each of the joining sections (4b, 4c, 5b, 5c) has a free section (41 b, 41 c, 51 b, 51 c) extending from the folding section (4a, 5a) to a first strand or strip of glue (43b, 43c, 53b, 53c) that joins the joining section (4b, 4c, 5b, 5c) to the end area (2A, 2B, 3A, 3B) **and in that** each of the joining sections (4b, 4c, 5b, 5c) has a fixed section (42b, 42c, 52b, 52c) extending from the first strand or strip of glue (43b, 43c, 53b, 53c) to a second strand or strip of glue (44b, 44c, 54b, 54c) that joins the joining section (4b, 4c, 5b, 5c) to the central area (2C, 3C).



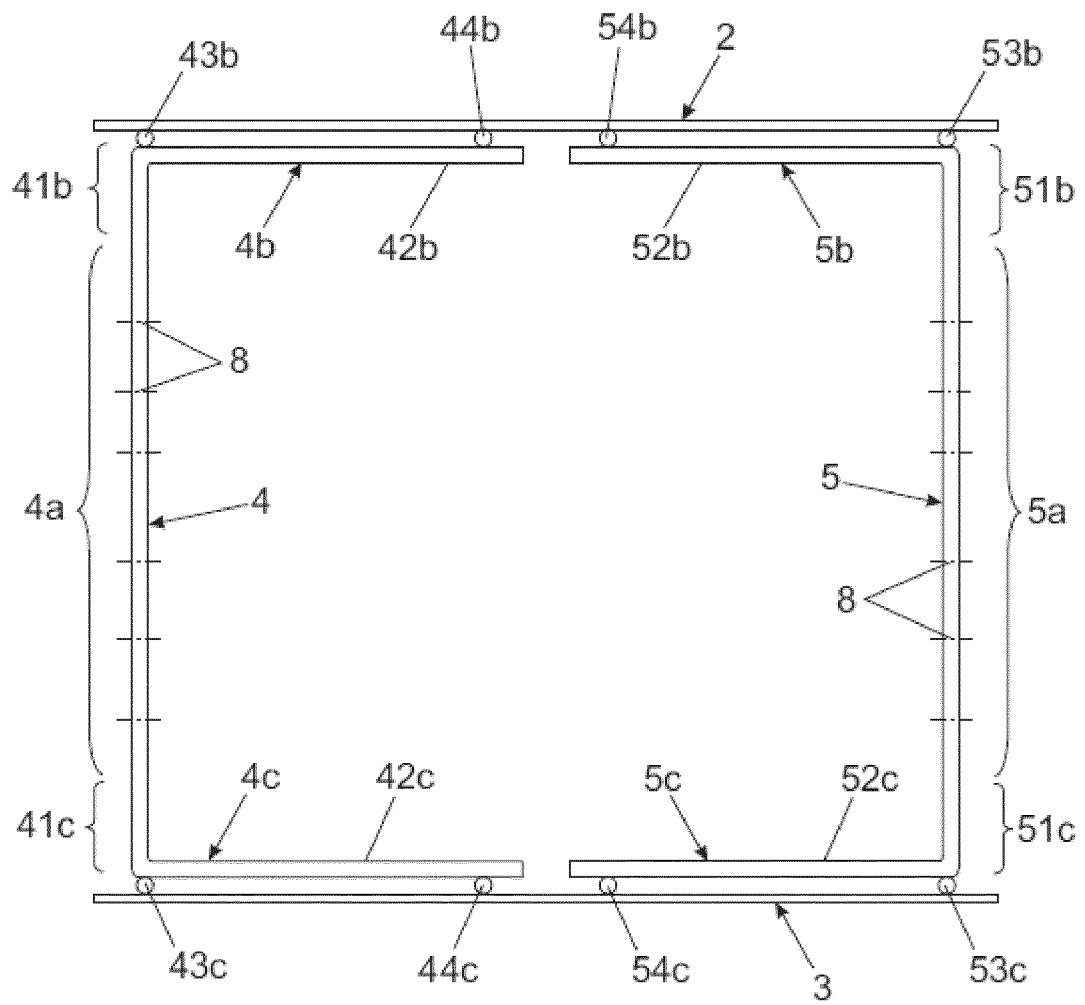


Fig. 3

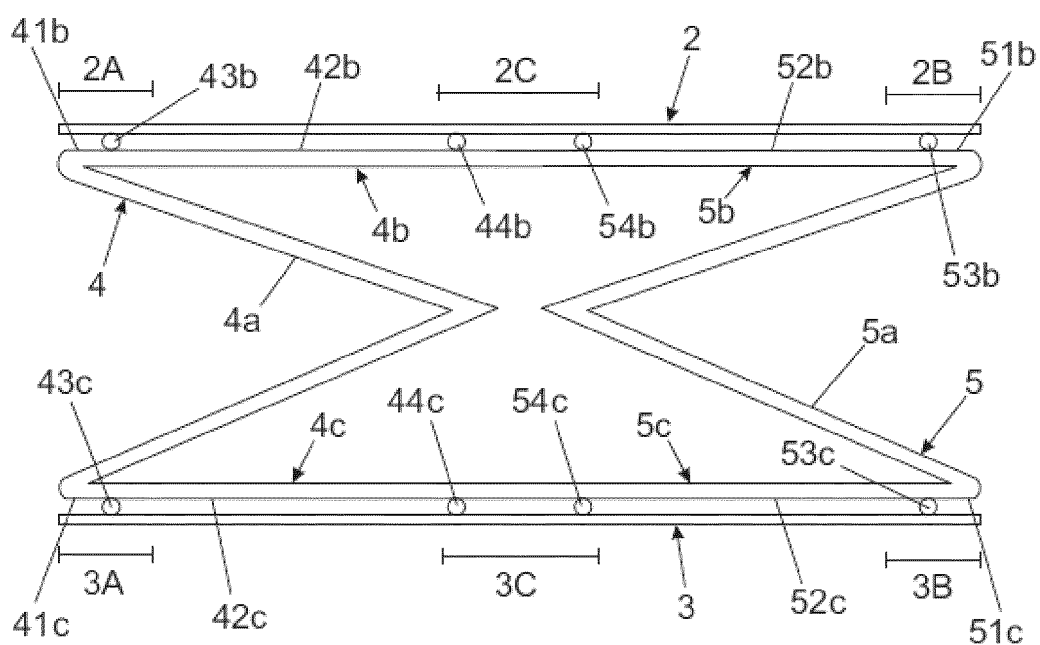


Fig. 4

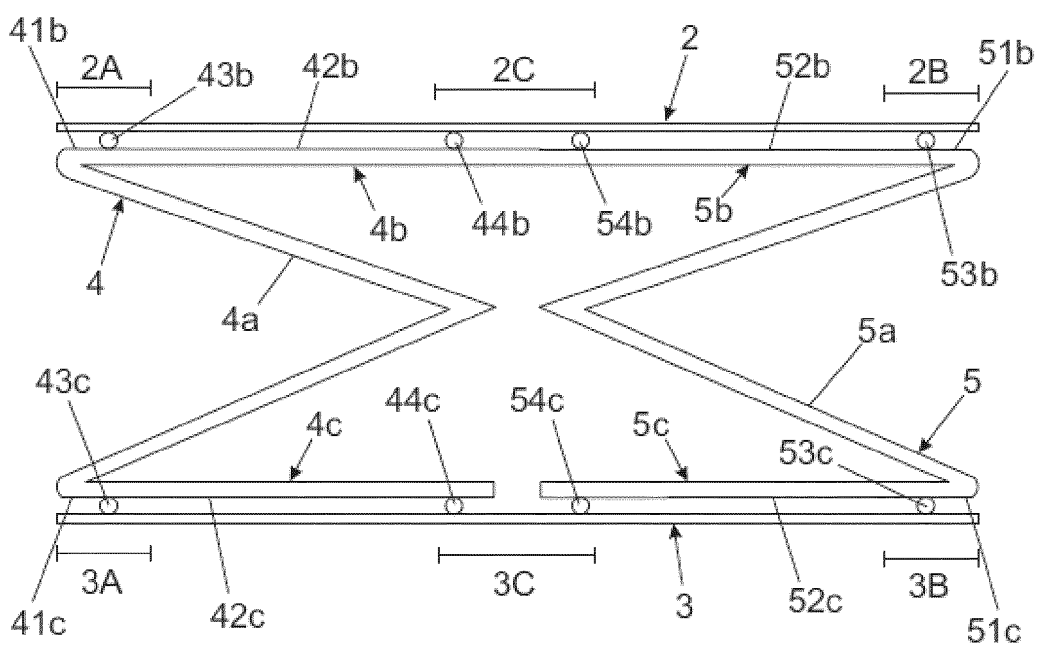


Fig. 5

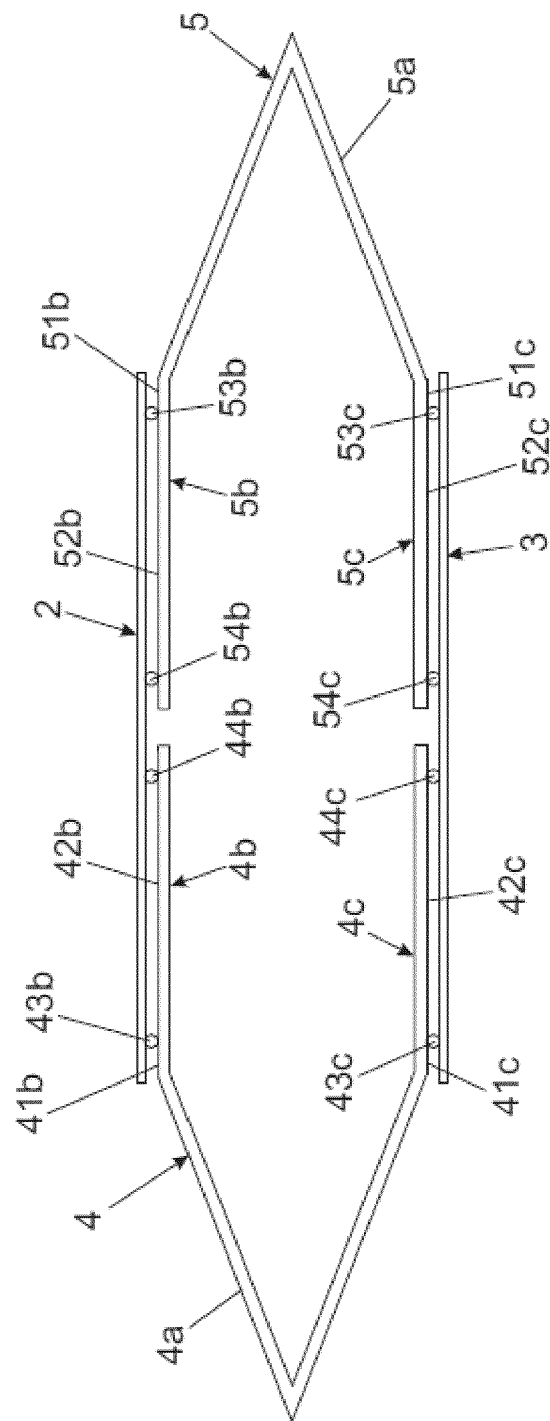


Fig. 6

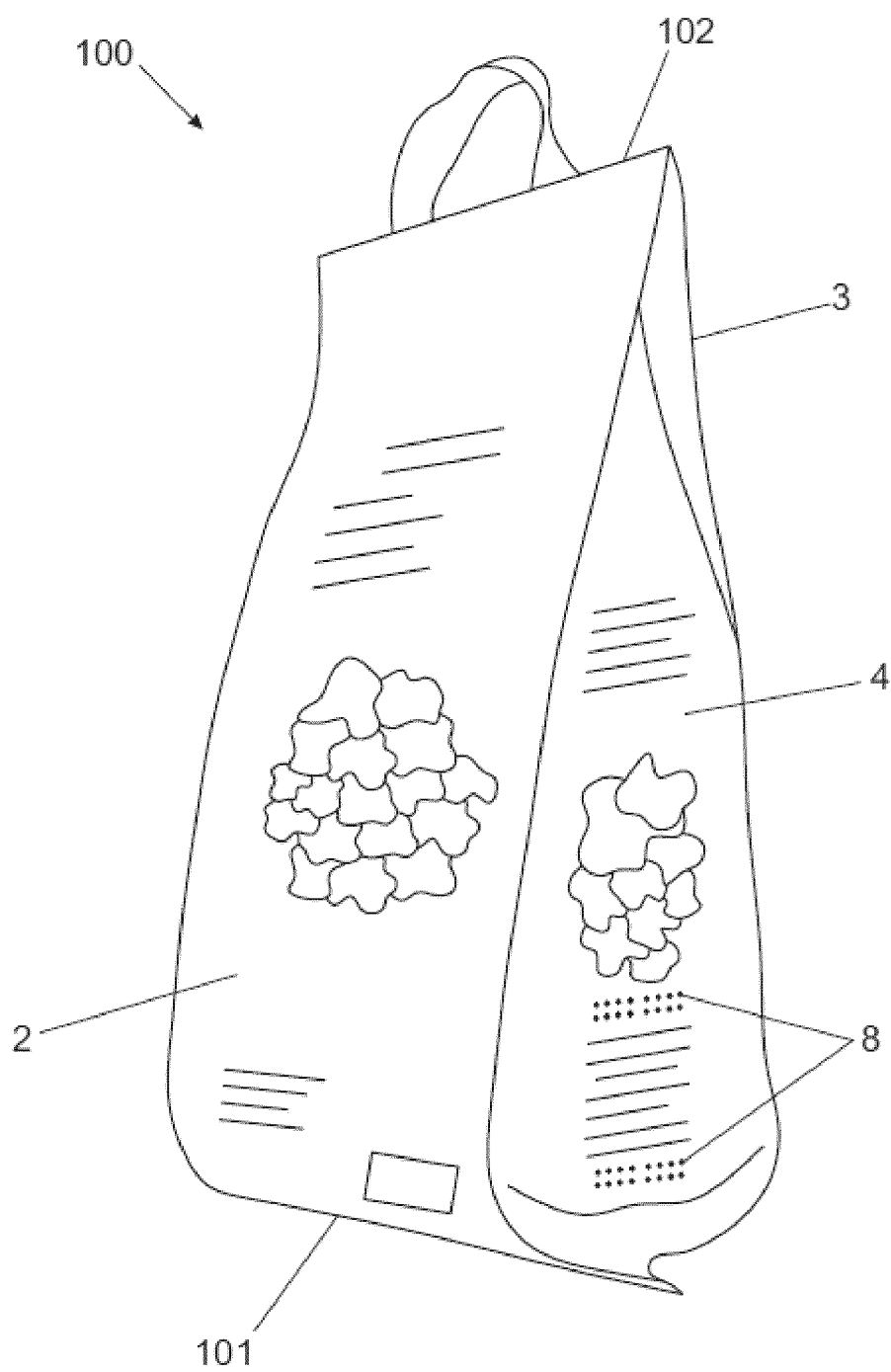


Fig. 7

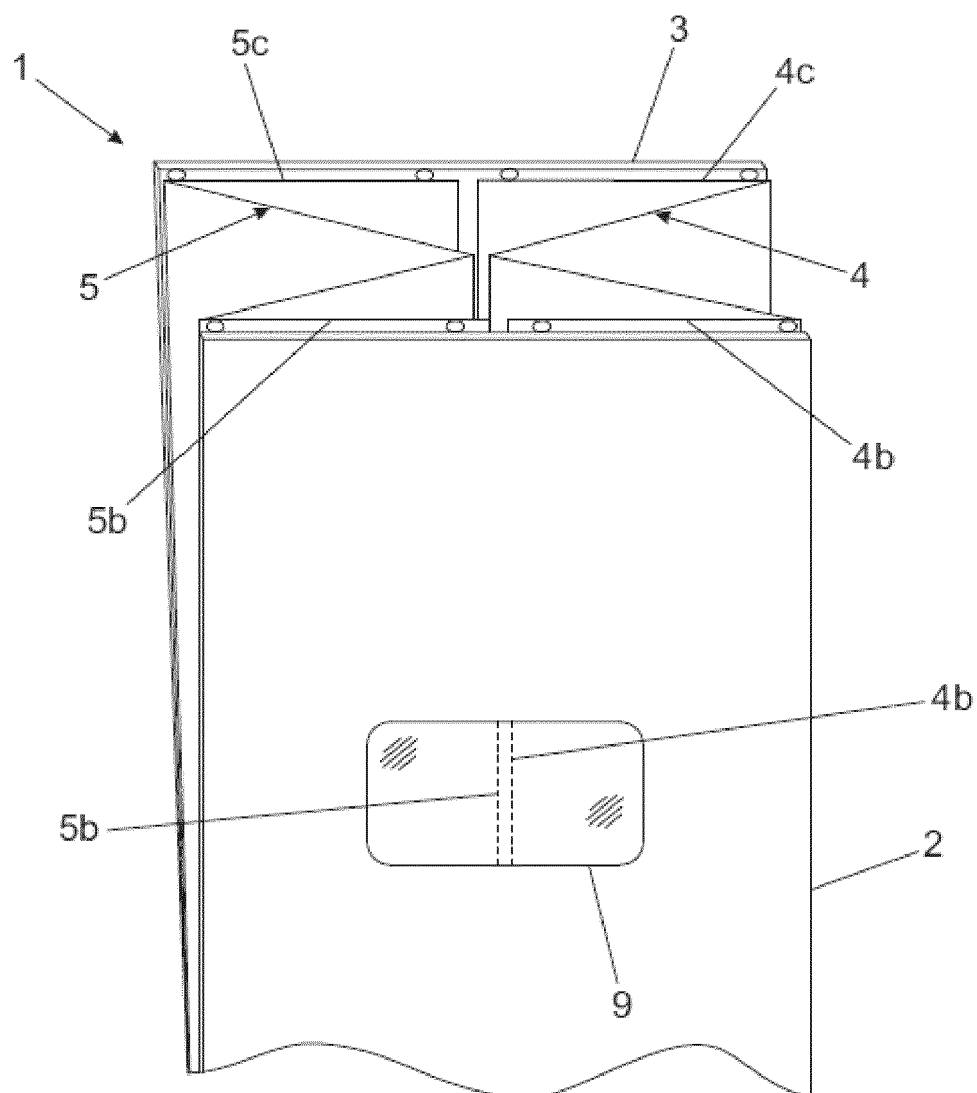


Fig. 8A

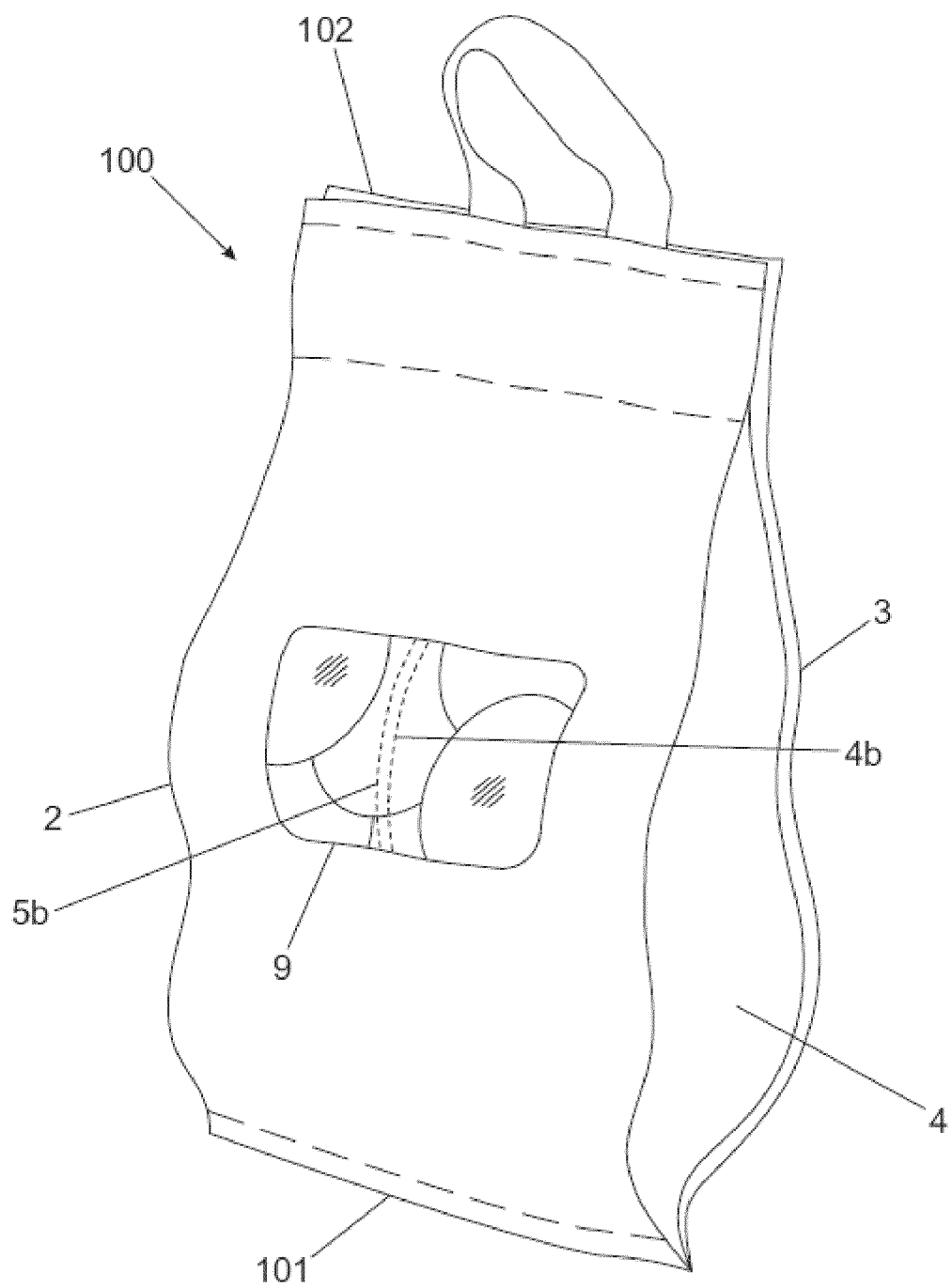


Fig. 8B

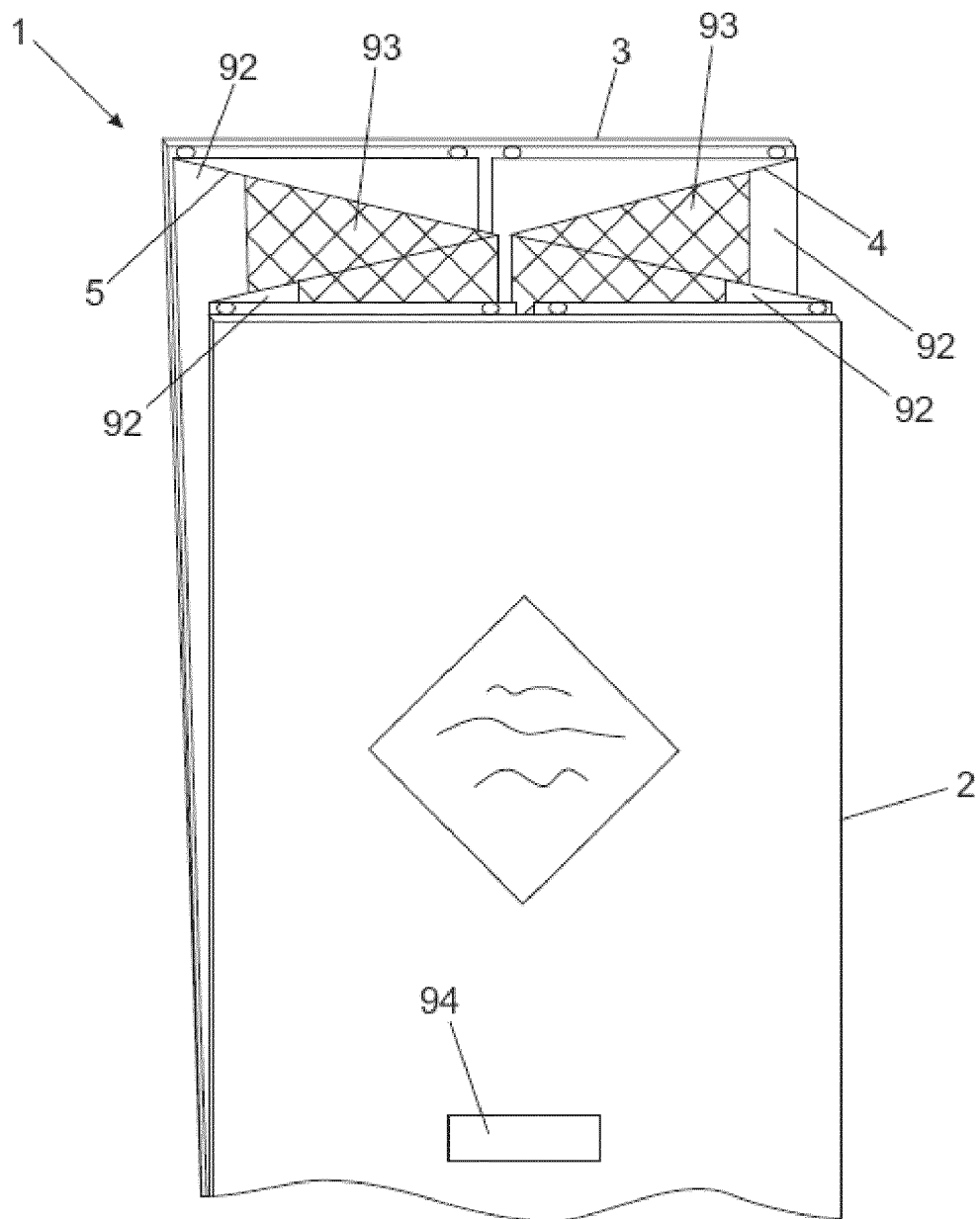


Fig. 9A

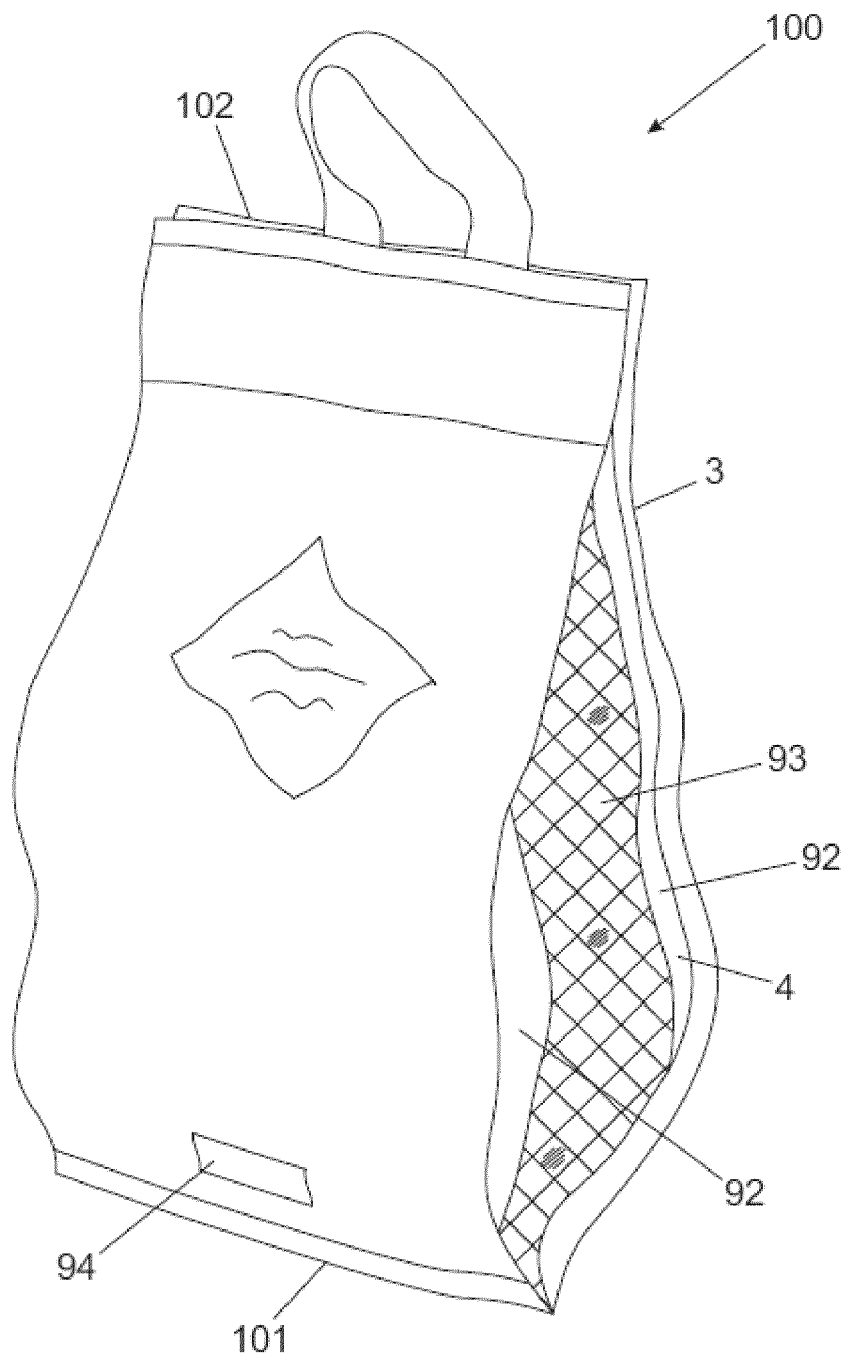


Fig. 9B



EUROPEAN SEARCH REPORT

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EP 17 18 3318

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Place of search Munich		Date of completion of the search 28 November 2017	Examiner Weyand, Tim
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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