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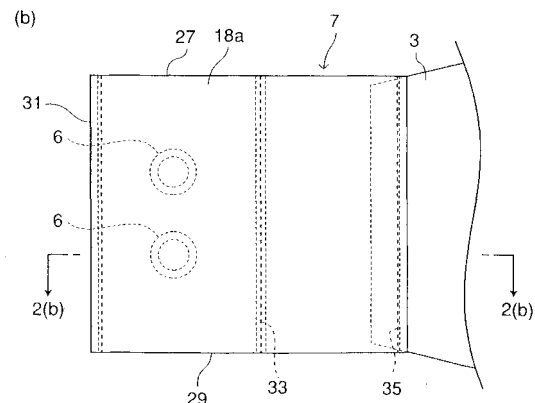
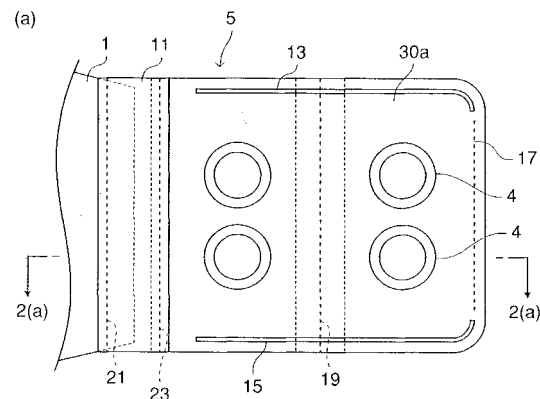
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(54) **A fastener for a brassier or brassier-like garment, a manufacturing method thereof and a brassier or brassier-like garment using such a fastener**

(57) Right and left fastener parts (5, 7) attached to the right and left ends (1, 3) of a brassier strap. The male fastener part (7) comprises a male tape piece (18a), which is cut out from a male cloth tape (18) on which at least one row of synthetic resin male snap buttons (6) is formed and fastened in such a way that there is at least one button per row. The female fastener part (5) comprises a female tape piece (30a), which is cut out from a female cloth tape (30) on which at least two rows of synthetic resin female snap buttons are formed and fastened in such a way that there is at least one button per row. The male snap button (6) has an engagement protrusion (20) that extends directly from the cloth tape (30) rather than from a base.

FIG.1



## Description

### FIELD OF THE INVENTION

**[0001]** The present invention relates to a fastener for a brassier or brassier-like garment, a manufacturing method thereof and a brassier or brassier-like garment using such a fastener. Here, "brassier-like garment" refers to any women's garment that has at least cups and a strap having right and left ends, and includes a brassier, a swimsuit, lingerie, and a corset, etc. In the following explanation, a brassier is taken as an example.

### BACKGROUND OF THE INVENTION

**[0002]** The fastener parts of a brassier are provided on the right and left strap ends either on the back side or the front side of the wearer. These fastener parts are engaged with each other to fasten the brassier on the wearer. The ends of the strap are usually adjustable in several steps so as to fit the wearer's body size.

**[0003]** The most common type of fastener is a hook-and-eye type. This type of fastener is often made of metal and has the following defects: (1) it easily causes a tear in other clothes; (2) it easily gets damaged when the brassier is washed, and (3) it is difficult to be dyed in the same color as the other part.

**[0004]** JP2001-178507A proposes using plastic snap buttons for fastener parts and making such fastener parts from tape-mounted snap fasteners.

**[0005]** Both the male and female snap buttons used in the JP2001-178507A have bases. One problem with this composition is that when the male and female parts are engaged, they make a thick snap fastener. Another problem is that this snap fastener cannot have directionality, which is a feature of the hook-and-eye type fastener.

**[0006]** While the present invention inherits the idea of the JP2001-178507A, it also aims at providing a brassier fastener having all or part of the following characteristics.

- (1) The overall thickness is thinner than that of the conventional snap fastener even when the male and female buttons are engaged.
- (2) The male and female buttons have directionality for engagement and disengagement.
- (3) Strong and durable.

**[0007]** The present invention also relates to a method for manufacturing such a fastener for a brassier or brassier-like garment as well as a brassier or brassier-like garment using such a fastener.

### SUMMARY OF THE INVENTION

**[0008]** The fastener for a brassier or brassier-like garment according to the first aspect of the present appli-

cation comprises right and left fastener parts that are attached to the right and left ends of the strap of a brassier or brassier-like garment. The male fastener part comprises a male tape piece cut out from a male cloth tape on which at least one row of synthetic resin male snap buttons is formed and fastened in such a way that there is at least one per row. The female fastener part comprises a female tape piece cut out from a female cloth tape on which at least one row of synthetic resin female snap buttons is formed and fastened in such a way that there is at least one button per row. The male snap button has an engagement protrusion that extends directly from the cloth tape rather than from a base.

**[0009]** The fastener for a brassier or brassier-like garment according to the second aspect of the present application comprises right and left fastener parts that are attached to the right and left ends of the strap of a brassier or brassier-like garment. The male fastener part comprises a male cloth tape on which at least one row of synthetic resin male snap buttons is formed and fastened in such a way that there is at least one button per row. The female fastener part comprises a female cloth tape on which at least one row of synthetic female snap buttons is formed and fastened in such a way that there is at least one button per row. The male fastener part and the female fastener part have directionality for engagement and disengagement.

**[0010]** The third aspect of the present application is a method for manufacturing a brassier or brassier-like garment of the first invention, more specifically, the right and left fastener parts attached to the right and left ends of the strap of a brassier or brassier-like garment. From a male cloth tape, on which a plurality of rows of synthetic resin male snap buttons are formed and fastened in such a way that there is at least one button per row, a tape piece having at least one row is cut out to make the male fastener part. From a female cloth tape, on which a plurality of rows of synthetic resin female snap buttons are formed and fastened in such a way that there is at least one button per row, a tape piece having at least two rows is cut out to make the female fastener part. The male snap button has an engagement protrusion that extends directly from the cloth tape rather than from a base, and the female and male fastener parts are attached to the right and left ends of the brassier strap.

**[0011]** The fourth aspect of the present application is a method for manufacturing a brassier or brassier-like garment of the second invention, more specifically, the right and left fastener parts attached to the right and left ends of the strap of a brassier or brassier-like garment. From a male cloth tape, on which a plurality of rows of synthetic resin male snap buttons are formed and fastened in such a way that there is at least one button per row, a tape piece having at least one row is cut out to make the male fastener part. From a female cloth tape, on which a plurality of rows of synthetic resin female snap buttons are formed and fastened in such a way that there is at least one button per row, a tape piece

having at least two rows is cut out to make the female fastener part. The male snap button and the female snap button have directionality for engagement and disengagement.

**[0012]** The fifth aspect of the present application is a brassier or brassier-like garment having the fastener according to the first and/or second aspect.

**[0013]** The upper and lower ends of the male and female tape pieces (the cut ends of the tapes) may be ultrasonically welded to obtain sufficient strength, but free ends and sections adjacent to the snap buttons are preferably sewn up to increase the strength of these parts.

**[0014]** For the same purpose, reinforcement cloths are preferably provided under the male tape piece and the female tape piece.

**[0015]** For aesthetic reasons, the exteriors of the male snap button and the female snap button are ring-shaped when viewed from either the face side or the back side. Because the tape is not provided with holes, the tape is exposed in the center of each ring.

**[0016]** To give directionality for engagement and disengagement to the male snap button and to the female snap button, the following composition is taken. With regard to the male snap button, an engagement protrusion extends diagonally upwards from the face side of the base. On the face side of the engagement socket of the base, a slant surface, which is parallel with the slant surface that forms the engagement protrusion, is formed. With regard to the female snap button, an engagement protrusion extends diagonally downwards from the face side of the base in the direction of the engagement socket. On the face side of the engagement socket of the base, a slant surface, which is parallel with the slant surface that forms the engagement protrusion, is formed. Together with the engagement socket, this slant surface forms a space for receiving the protrusion of the male snap button when the male and female snap buttons are engaged.

**[0017]** The male snap button is preferably formed in the following process. A cloth tape of a coarse texture that allows the permeation of molten resin under a forming pressure is inserted between an upper die and a lower die, which are provided with a space for forming the fastener. The part of the cloth tape that is in the hollow inside the engagement protrusion of the male snap button is clamped by the upper and lower dies, after which synthetic resin is injected into the space for forming. In this way, the front part and the back part of the male snap button formed on either side of the cloth tape are integrated with the synthetic resin that permeates through the cloth tape.

**[0018]** The female snap button is preferably formed in the following process. A cloth tape of a coarse texture that allows the permeation of molten resin under a forming pressure is inserted between an upper die and a lower die, which are provided with a space for forming the fastener. The part of the cloth tape that is in the engagement socket of the female snap button is clamped by

the upper and lower dies, after which synthetic resin is injected into the space for forming. In this way, the front part and the back part of the female snap button formed on either side of the cloth tape are integrated with the synthetic resin that permeates through the cloth tape.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0019]** The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which:

FIG. 1 shows plan views of the right and left ends of a brassier strap provided with the brassier fastener of the first embodiment of the present invention. (a) shows the left end 1 and (b) shows the right end 3;

FIG. 2 (a) is a cross sectional view taken along 2 (a) - 2 (a) of FIG. 1, and FIG. 2 (b) is a cross sectional view taken along 2 (b) - 2 (b) of FIG. 1;

FIG. 3 shows plan views of the fastener tapes 2 of the present invention as seen from the engagement side. (a) shows the side of the female snap buttons 4, and (b) shows the side of the male snap buttons 6;

FIG. 4 is a plan view of a male snap button 6 of the present invention;

FIG. 5 is a cross sectional view of the male snap button 6 of the present invention;

FIG. 6 is a plan view of a female snap button 4;

FIG. 7 is a cross sectional view of the female snap button 4;

FIG. 8 is a cross sectional view of a male snap button 6 and a female snap button 4 of the present invention as they are engaged;

FIG. 9 is a cross sectional view of a male snap button 60 and a female snap button 40 of the prior art as they are engaged;

FIG. 10 shows plan views of the right and left ends of a brassier strap provided with the brassier fastener of the second embodiment of the present invention. (a) shows the left end 1A and (b) shows the right end 3A;

FIG. 11 (a) is a cross sectional view and FIG. 11(b) is a plan view of the of a male snap button 6A of the present invention;

FIG. 12 (a) is a cross sectional view and FIG. 12 (b) is a plan view of a female snap button 4A of the present invention; and

FIG. 13 is a cross sectional view of the male snap button 6A and the female snap button 4A of the present invention as they are engaged.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

### Embodiment 1

**[0020]** FIG. 1 shows plan views illustrating the right and left ends of a brassier strap provided with a brassier fastener according to a first embodiment of the present invention. FIG. 1 (a) shows the left end 1 and FIG. 1 (b) shows the right end 3. FIG. 2 (a) is a cross sectional view taken along line 2(a)-2(a) of FIG. 1, and FIG. 2 (b) is a cross sectional view taken along line 2(b)-2(b) of FIG. 1.

**[0021]** The left end 1 shown in FIG. 1 (a) is provided with a left fastener part 5, on which two rows of two female snap buttons 4 are arranged. The right end 3 shown in FIG. 1 (b) is provided with a right fastener part 7, on which two male snap buttons 6 are arranged. The female and male snap buttons 4, 6 on the right and left fastener parts are engaged to join the right and left ends 1, 3 of the brassier strap. The joint is usually on the back side, but it can also be on the front side of the wearer.

**[0022]** The snap buttons 4, 6 used in the present invention and the method for manufacturing them will now be explained based on the examples shown in FIGS. 3 through 8. FIG. 3 shows plan views of fastener tapes 2, from which the snap buttons of the present invention are made. Both tapes are shown face-up, i.e., viewed from the engagement side. FIG. 3 (a) shows a tape 30 on which female snap buttons 4 are arranged. FIG. 3 (b) shows a tape 18 on which male snap buttons 6 are arranged. The snap buttons 4, 6 are all ring-shaped. The opposite sides of the snap buttons, which are not shown, are also ring-shaped. The widths of the rings on the opposite sides are slightly larger for reasons related to forming as will be explained later.

**[0023]** The right and left ends of the female tape 30 are folded so that the tape is double layered where there are snap buttons. The right and left ends of the male tape 18 are also folded so that the tape is double layered where there are snap buttons. Both tapes are not provided with holes for holding the snap buttons because there is no need for such holes as will be explained later.

**[0024]** FIG. 4 is a plan view of a male snap button 6. FIG. 5 is a cross section of the same. Unlike the male snap button of the prior art, the male snap button 6 does not have a base near the cloth tape. In the drawing, the part of the male snap button 6 that joins the cloth tape 18 looks slightly bulging, but this level of bulging is not considered a base. Moreover, it is also possible to design a male snap button that is completely free of such bulging.

**[0025]** The male snap button has an engagement protrusion 20 with a hollow 28 inside. The periphery of the engagement protrusion 20 is provided with a bulging edge 22 for engagement and a notch 24 to allow for deformation by expansion and shrinkage that are caused by the elasticity of the resin material.

**[0026]** The male snap button 6 is formed in the following process. A cloth tape 18 of a coarse texture that allows the permeation of molten resin under a forming pressure is inserted between an upper die and a lower die, which are provided with a space for forming the fastener. The part of the cloth tape that is in the hollow 28 of the engagement protrusion 20 is clamped by the upper and lower dies, after which synthetic resin is injected into the space for forming. In FIG. 5, the small dent indicated by numeral 26 corresponds to the injection port of the die. Because of the injection port, the width of the ring viewed from the back side is slightly larger than the width of the engagement protrusion 20 (i.e., the width of the ring viewed from the front side).

**[0027]** In this way, the front part and the back part of the male snap button formed on either side of the cloth tape 18 are integrated with the synthetic resin that permeates through the cloth tape 18. Because the part of the cloth tape that is in the hollow 28 of the engagement protrusion 20 is clamped by the upper and lower dies, the area on the cloth tape that is subjected to the high injection pressure is smaller than in the case of the prior art. Therefore, the tape is seldom or never bent or undulated by the injection pressure when the male snap button is formed. As a result, it is possible to avoid the situation in which the tape emerges from the surface of the synthetic resin, an occurrence that tends to lessen the strength and spoil the appearance of the fastener.

**[0028]** The tape cloth 18 needs to be such that it allows the permeation of molten resin without being melted itself. Either a woven or knitted cloth, such as a cotton or blended yarn cloth can be used. For the synthetic resin, a thermoplastic resin, for example, polyacetal molten resin can be used.

**[0029]** FIG. 6 is a plan view and FIG. 7 is a cross sectional view of a female snap button 4. An engagement socket 32 is formed with synthetic resin that permeates the cloth tape 30. An engagement edge 34 is formed inside the opening of the engagement socket 32 in such a way that it allows the male snap button to be pressed inside and taken out of the engagement socket 32.

**[0030]** The method for forming the female snap button is basically the same as that for the male snap button 6. Accordingly, a detailed explanation therefor will be skipped. The small dent indicated by numeral 36 of FIG. 7 is the injection port.

**[0031]** FIG. 8 is a cross sectional view showing a condition in which the male snap button 6 and the female snap button 4 of the present invention are engaged with each other. It is in effect an enlarged view of the engaged condition of a male snap button and a female snap button of a brassier fastener.

**[0032]** According to the present invention, the tape 30 for female snap buttons (hereinafter referred to as "the female tape 30" for convenience) and the tape 18 for male buttons (hereinafter referred to as "the male tape 18" for convenience) are cut off from the fastener tapes 2 of FIG. 3 at the alternate long and short dash lines and

used as brassier fasteners. Just sewing the tapes onto a brassier strap, however, does not fix them firmly enough to be used as a brassier fastener. In order to increase the strength of the fastener, the following steps are taken.

**[0033]** As shown in FIG. 2 (a), the left fastener part 5 incorporating female snap buttons 4 is provided with a base cloth 9 made of non-woven cloth on its lower side (i.e., the wearer's side). The right and left ends of the base cloth are folded to make double layered parts 9a, 9b. A female tape piece 30a having the female snap buttons 4 is placed on the base cloth 9. The base cloth 9 is somewhat longer than the female tape piece 30a, so in order to compensate for the difference, an intermediate cloth 11 is sewn onto the female tape piece 30a.

**[0034]** In the above condition, the upper and lower ends 13, 15 (see FIG. 1 (a)) are ultrasonically welded. The free end 17 may also be ultrasonically welded, but because this part requires extra strength, it is preferably sewn up. In order to further increase the strength of the fastener part 5, the intermediate section 19 between the two rows of snap buttons is also sewn up.

**[0035]** In order to join the left fastener part 5 and the left end 1 of the left brassier strap, the left end 1 of the left brassier strap is inserted between the base cloth 9 of the fastener and the intermediate cloth 11, and the right and left ends 21, 23 of the intermediate cloth 11 are sewn up.

**[0036]** As shown in FIG. 2 (b), the right fastener part 7 incorporating male snap buttons 6 is provided with a triple layered base cloth 25 on its lower side (i.e., the wearer's side). The right and left ends of the base cloth are folded to make double layered parts 25a, 25b, and a core piece 25c is inserted between them. A male tape piece 18a having male snap buttons 6 is placed on the base cloth 25.

**[0037]** In the above condition, the upper and lower ends 27, 29 (see FIG. 1 (b)) are ultrasonically welded. The free end 31 may also be ultrasonically welded, but because this part requires extra strength, it is preferable to sew up this part. In order to further increase the strength of the fastener part 7, the section 33 close to the snap buttons is also sewn up.

**[0038]** In order to join the right fastener part 7 and the right end 3 of the right brassier strap, the right end 3 of the right brassier strap is inserted between the base cloth 25 of the fastener and the male tape piece 18a, and the section indicated by numeral 35 in FIG. 1 (b) is sewn up.

## Embodiment 2

**[0039]** FIGS. 10 through 13 illustrate a second embodiment of the present invention. FIG. 10 shows plan views of the right and left ends of a brassier strap provided with a brassier fastener according to the second embodiment of the present invention. FIG. 1 (a) shows the left end 1A and FIG. 1 (b) shows the right end 3A.

**[0040]** The difference between the second embodiment and the first embodiment is that in the second embodiment, the female snap button 4A on the left fastener part and the male snap button on the right fastener part 6A both have directionality.

**[0041]** A male snap button 6A is illustrated in FIG. 11, in which (a) is a cross sectional view and (b) is an inverted plan view. The base 41 of the male snap button 6A is generally elliptical, and is firmly adhered by injection molding to a cloth tape 18A on which an engagement hole 42 is provided. In order to avoid the tape 18A from being twisted during the injection molding process, the upper and lower dies for forming the periphery of the base 41 are provided with several pins (not shown) for pressing down the tape 18A. To accommodate the pins, holes 43 having a complementary shape are formed on the base.

**[0042]** The base 41 has an engagement protrusion 44 and an engagement socket 45. The engagement protrusion 44 extends diagonally upwards from the face side of the base 42 in the direction of the engagement socket 45. The head 44a of the protrusion is parallel with the cloth tape 18A, and on slant surface 44b that forms the protrusion a bulge 44c is formed on the side of the engagement socket. The protrusion-forming slant surface 44b is slanted at an angle of 30 to 60 degrees, or preferably, 45 degrees. There is no protrusion-forming slant surface on the back side of the base 41; instead, a perpendicular surface 44d is formed.

**[0043]** On the face side of the engagement socket 45 of the base 41, a slant surface 46a, which is parallel with the protrusion-forming slant surface 44b, is formed. On the back side of the engagement socket 45 of the base 41, a perpendicular surface 46b and a curved surface 46c, which spreads out from the perpendicular surface 46b, are formed. Code 47 is an indentation that serves as a mark indicating the engagement direction. This indentation 47 is not an essential element of the present invention.

**[0044]** A female snap button 4A is illustrated in FIG. 12, in which (a) is a cross sectional view and (b) is a plan view. The base 50 of the female snap button 4A is also generally elliptical, and is firmly adhered by injection molding to a cloth tape 30A on which an engagement hole 51 is provided. In order to avoid the tape 30A from being twisted during the injection molding process, the upper and lower dies for forming the periphery of the base 50 are provided with several pins (not shown) for pressing down the tape 30A. To accommodate the pins, holes 52 having a complementary shape are formed on the base 50.

**[0045]** The base 50 has an engagement protrusion 53 and an engagement socket 54. The engagement protrusion 53 extends diagonally downwards from the face side of the base 50 in the direction of the engagement socket 54. The head 53a of the protrusion is parallel to the cloth tape 30A, and on the protrusion-forming slant surface 53b a step 53c is formed on the engagement

socket side. The protrusion-forming slant surface 53b is slanted at an angle of 30 to 60, or preferably, 45 degrees. There is no protrusion-forming slant surface on the back side of the base 50; instead, a perpendicular surface 53d is formed.

**[0046]** Unlike the engagement protrusion 44 of the male snap button 6A, the engagement protrusion 53 of the female snap button 4A has walls 53e on its either side as shown in FIG. 12 (b). Together with the engagement socket 54, these walls 53e form a socket for housing the male engagement protrusion 44 when the male and female snap buttons are engaged.

**[0047]** On the face side of the engagement socket 54 of the base 50, a slant surface 55a, which is parallel with the protrusion-forming slant surface 53b, is formed. On the back side of the engagement socket 54 of the base 50, a perpendicular surface 55b and a curved surface 55c, which spreads out from the perpendicular surface 55b, are formed. Code 56 is an indentation that serves as a mark indicating the engagement direction. This indentation 56 is not an essential element of the present invention.

**[0048]** FIG. 13 is a cross sectional view showing a condition in which the male snap button 6A and the female snap button 4A are engaged. As evident from FIG. 13, the male snap button 6A and the female snap button 4A engage and disengage as they slide on the protrusion-forming slant surfaces 44b, 53b. They cannot engage or disengage from other directions. In other words, this snap fastener has a directionality for both engagement and disengagement. Moreover, when they are completely engaged, the bulge 44c of the male snap button 6A sits on the step 23c of the female snap button 4A and stabilizes.

**[0049]** The method for manufacturing the fastener of the second embodiment is basically the same as that for the first embodiment. The only difference is that the shapes of the dies for forming the buttons are different.

**[0050]** The fastener of the second embodiment has directionality. When the left end of FIG. 10 (b) is held and pulled to the right, the fastener is disengaged, but when it is pulled in the opposite direction, it is not disengaged.

#### EFFECTS OF THE INVENTION

**[0051]** According to the first embodiment, the engagement protrusion 20 of the male snap button 6 used for the fastener part extends directly from the cloth tape 30 rather than from a base. This makes it possible to eliminate the thickness of such a base when the male snap button 6 is engaged with the female snap button 4, thereby reducing the overall thickness of the fastener. For example, in FIG. 8, which shows an engagement condition of the present invention, the distance between the upper and lower cloths is  $t_1$ . Whereas in FIG. 9, which shows an engagement condition according to the prior art, the distance between the upper and lower

cloths is  $t_2$ . It is evident that  $t_1$  is smaller than  $t_2$ .

**[0052]** As well as being provided with reinforcement cloths 9, 25, the fastener of the present invention is reinforced at the sections indicated by numerals 17, 19, 21, 23, 31 and 35, which are sewn up.

**[0053]** According to the second embodiment of the present invention, the male snap button 6A and the female snap button 4A have directionality for engagement and disengagement. As an effect of this directionality, these snap buttons do not get disengaged inadvertently.

#### Claims

1. A fastener for a brassier or brassier-like garment equipped with a strap, comprising right and left fastener parts (5,7) attached to the right and left ends (1, 3) of the strap, in which:

the male fastener part (7) comprises a male tape piece (18a) cut out from a male cloth tape (18) on which at least one row of synthetic resin male snap buttons (6) is formed and fastened in such a way that there is at least one button per row;

the female fastener part (5) comprises a female tape piece (30a) cut out from a female cloth tape (30) on which at least one row of synthetic resin female snap buttons (4) is formed and fastened in such a way that there is at least one button per row; and

the male snap button (6) has an engagement protrusion (20) that extends directly from the cloth tape (18) rather than from a base.

2. A fastener according to claim 1, in which the upper and lower ends (13, 15, 27, 29) of the male tape piece (18a) and female tape piece (30a), i.e., the parts at which the tapes are cut, are ultrasonically welded, and free ends (17, 31) of the respective tape pieces and sections (19, 33) adjacent to the snap buttons are sewn up.

3. A fastener according to claim 1 or 2, in which reinforcement base cloths (9, 25) are provided under the male tape piece (18a) and the female tape piece (30a) respectively.

4. A fastener according to any one of claims 1 to 3, in which the exteriors of the male snap button (6) and the female snap button (4) are ring-shaped when viewed from either the face side or the back side.

5. A fastener for a brassier or brassier-like garment equipped with a strap, comprising right and left fastener parts (7A, 4A) attached to the right and left ends (1A, 3A) of the strap, in which:

the male fastener part (7A) comprises a male cloth tape (18A) on which at least one row of synthetic resin male snap buttons (6A) is formed and fastened in such a way that there is at least one button per row;  
 the female fastener part (5A) comprises a female cloth tape (30A) on which at least one row of synthetic resin female snap buttons (4A) is formed and fastened in such a way that there is at least one button per row; and  
 the male fastener part (7A) and the female fastener part (5A) have directionality for engagement and disengagement.

6. A fastener for a brassier or brassier-like garment according to claim 5, in which:

the male snap button (6A) has an engagement protrusion (44) provided with an engagement-protrusion-forming slant surface (44b), an engagement socket (45) and a base (41), said engagement protrusion (44) extending diagonally upwards from the face side of the base (41) in the direction of the engagement socket (45), while a slant surface (46a), which is parallel with the protrusion-forming surface (44b), is formed on the face side of the engagement socket (45) of the base (41); and  
 the female snap button (4A) has an engagement protrusion (53) provided with an engagement-protrusion-forming slant surface (53b), an engagement socket (54) and a base (50), said engagement protrusion (53) extending diagonally downwards from the face side of the base (50) in the direction of the engagement socket (54), while a slant surface (55a), which is parallel with the protrusion-forming slant surface (53b), is formed on the face side of the engagement socket (54) of the base (50), creating, together with the engagement socket (54), a space for receiving the engagement protrusion (44) of the male snap button when the male and female snap buttons are engaged.

7. A method for manufacturing a fastener for a brassier or brassier-like garment equipped with a strap, said fastener comprising right and left fastener parts (5, 7) attached to the right and left ends (1, 3) of the strap, in which:

from a male cloth tape (18), on which a plurality of rows of synthetic resin male snap buttons (6) are formed and fastened in such a way that there is at least one button per row, a tape piece (18a) having at least one row is cut out to make the right (male) fastener part (7);  
 from a female cloth tape (30), on which a plurality of rows of synthetic resin female snap but-

tons (4) are formed and fastened in such a way that there is at least one button per row, a tape piece (30a) having at least two rows is cut out to make the left (female) fastener part (5A);  
 the male snap button (6) has an engagement protrusion (20) that extends directly from the cloth tape (18) rather than from a base; and  
 the left (female) and right (male) fastener parts (5, 7) are attached to the right and left ends (1, 3) of the strap of the brassier or brassier-like garment.

8. A method for manufacturing a fastener for a brassier or brassier-like garment equipped with a strap, said fastener comprising right and left fastener parts (5A, 7A) attached to the right and left ends (1A, 3A) of the strap, in which:

from a male cloth tape (18A), on which a plurality of rows of synthetic resin male snap buttons (6A) are formed and fastened in such a way that there is at least one button per row, a tape piece having at least one row is cut off to make the right (male) fastener part (7A);  
 from a female cloth tape (30A), on which a plurality of rows of synthetic resin female snap buttons (4A) are formed and fastened in such a way that there is at least one button per row, a tape piece having at least two rows is cut off to make the left (female) fastener part (5A); and  
 the male snap button (6A) and female snap button (4A) have directionality for engagement and disengagement.

9. A method according to claim 7 or 8 in which the male snap button (6 or 6A) is formed by inserting a cloth tape (18 or 18A) of a coarse texture that allows the permeation of molten resin under a forming pressure between an upper die and a lower die, which are provided with a space for forming the fastener, then the part of the cloth tape that is in the hollow inside the engagement protrusion (20 or 44) of the male snap button (6 or 6A) is clamped by the upper and lower dies, after which synthetic resin is injected into the space for forming, thereby integrating the front part and the back part of the male snap button formed on either side of the cloth tape with the synthetic resin that permeates through the cloth tape (18 or 18A).

10. A method according to claim 7 or 8 in which the female snap button (4 or 4A) is formed by inserting a cloth tape (30 or 30A) of a coarse texture that allows the permeation of molten resin under a forming pressure between an upper die and a lower die, which are provided with a space for forming the fastener, then the part of the cloth tape that is in the engagement socket (32 or 54) of the female snap

button (4 or 4A) is clamped by the upper and lower dies, after which synthetic resin is injected into the space for forming, thereby integrating the front part and the back part of the female snap button formed on the cloth tape with the synthetic resin that permeates through the cloth tape (30 or 30A). 5

11. A brassier or brassier-like garment having snap buttons (4, 4A; 6, 6A) according to any one of claims 1 to 6. 10

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FIG.1

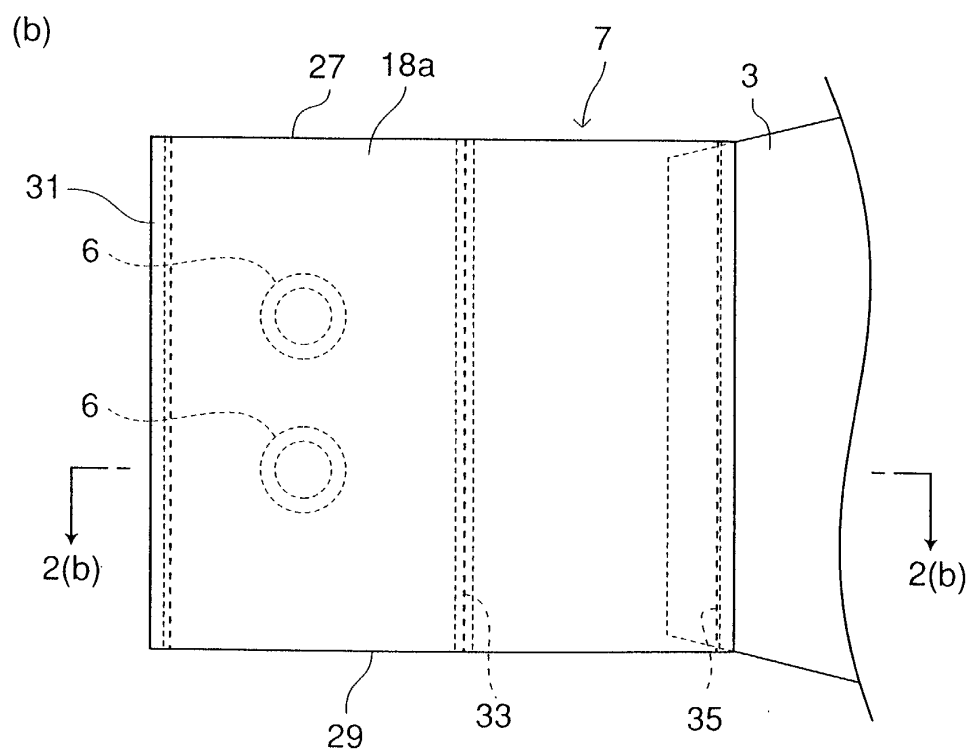
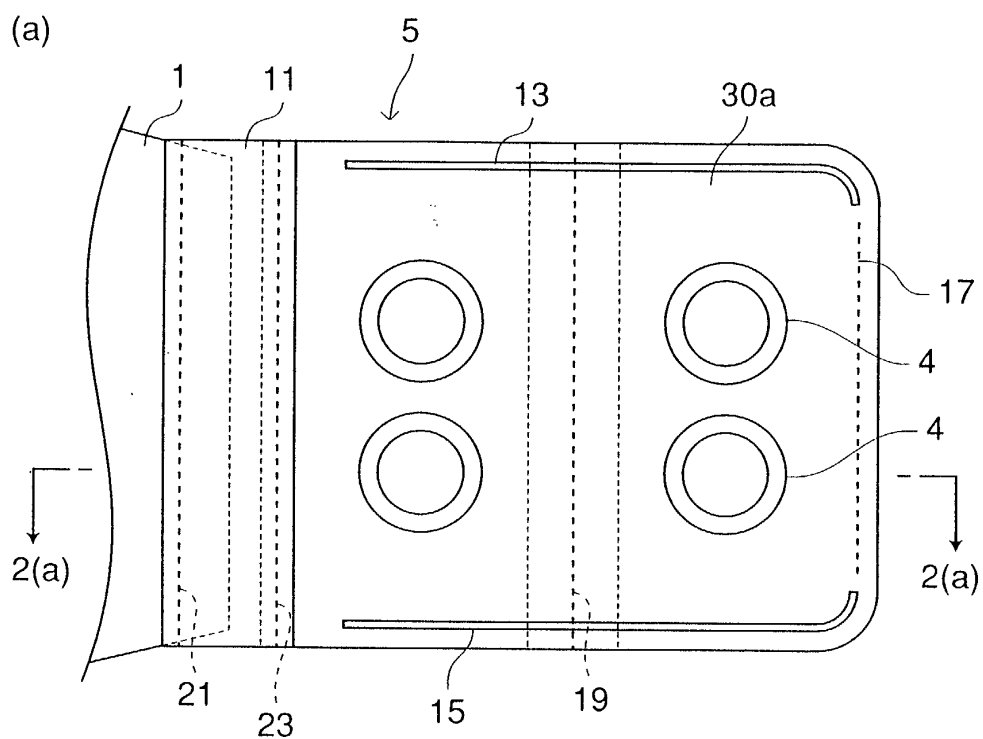
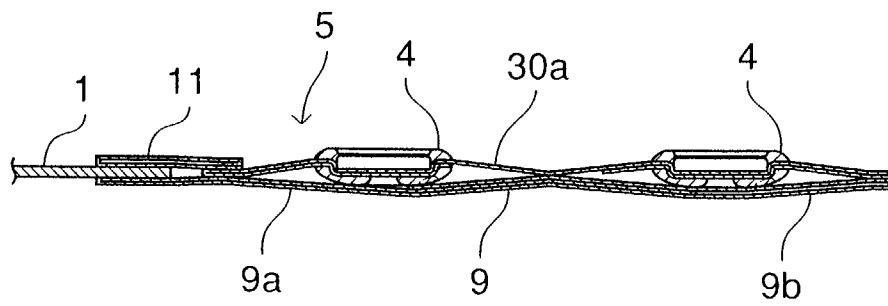


FIG.2

(a)



(b)

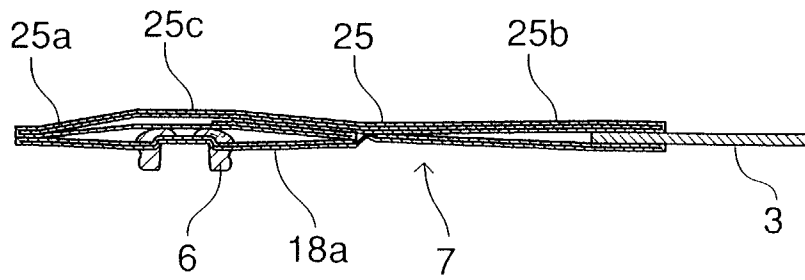


FIG.3

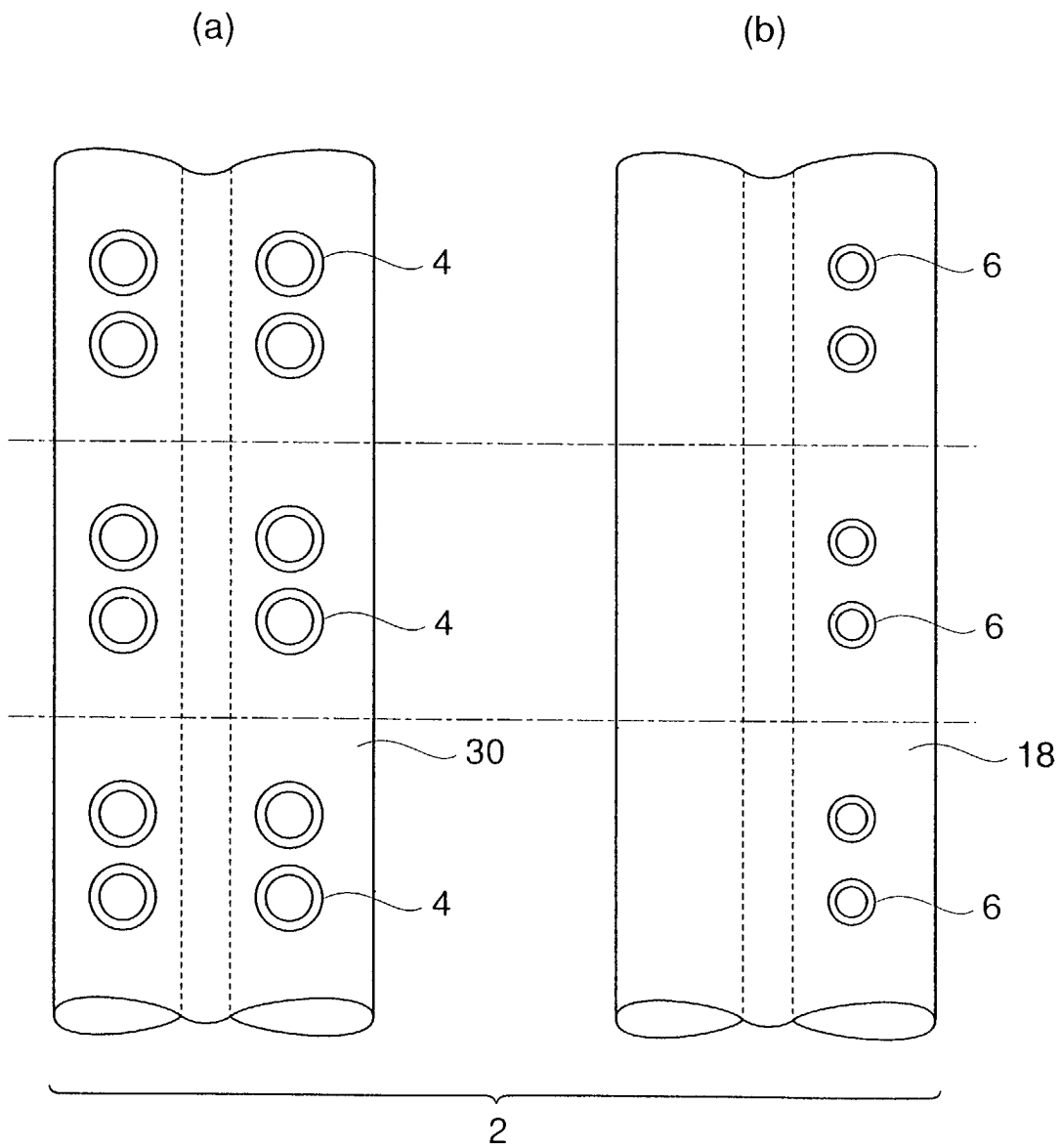


FIG.4

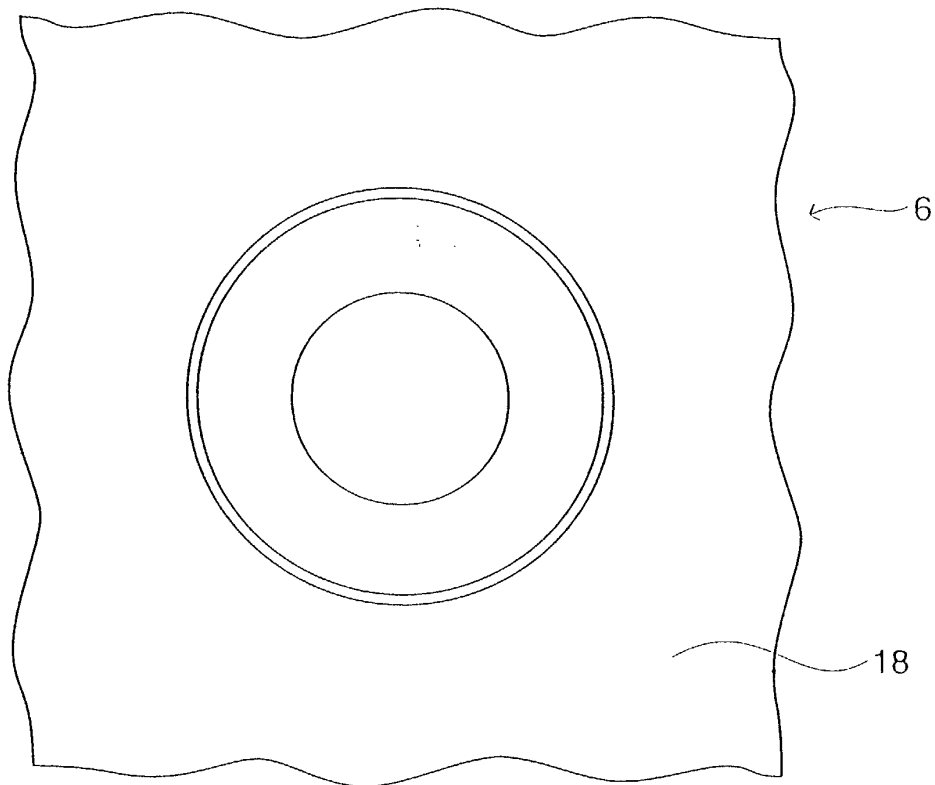


FIG.5

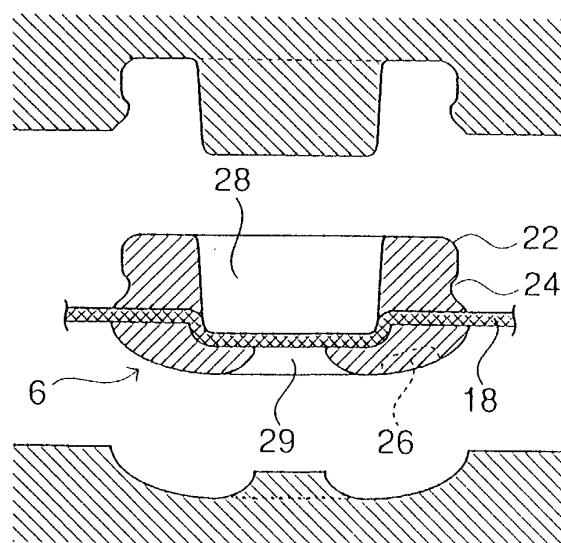


FIG.6

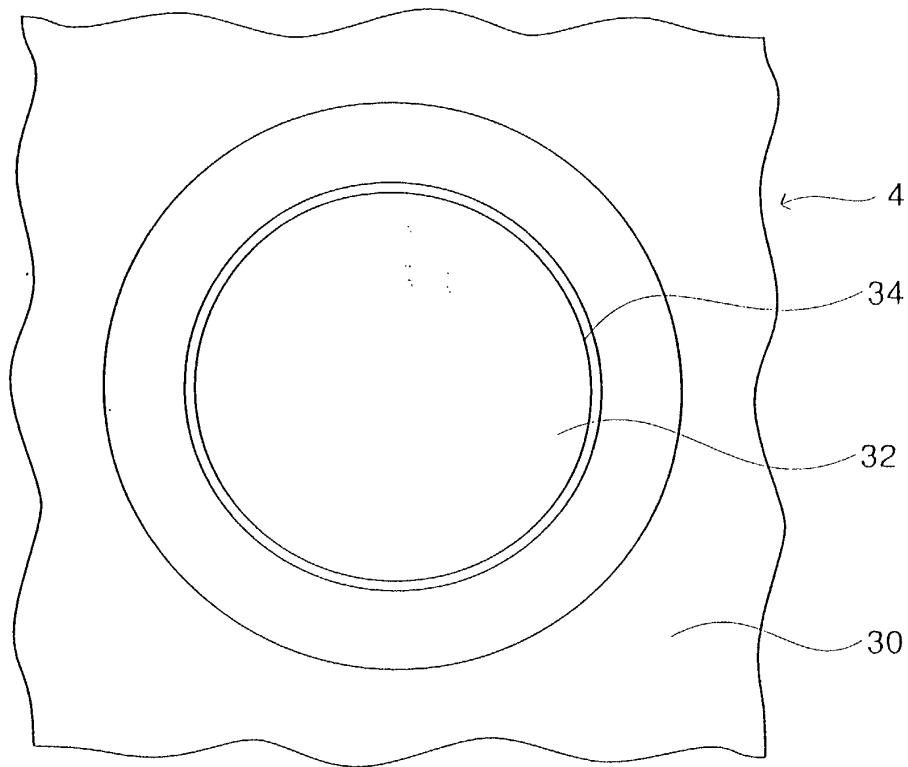


FIG.7

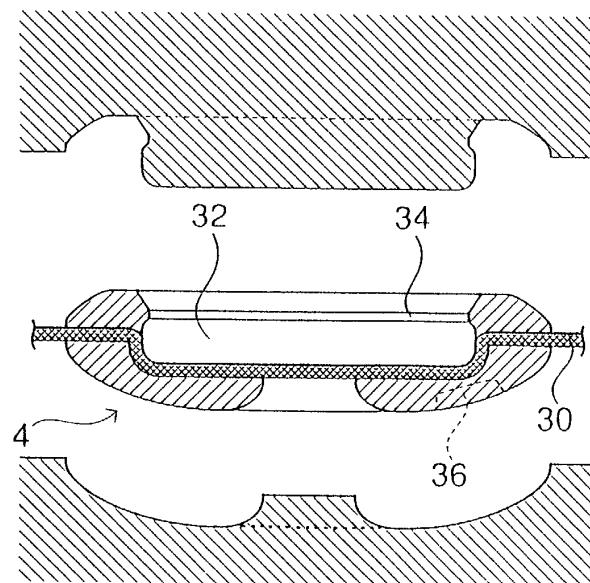


FIG.8

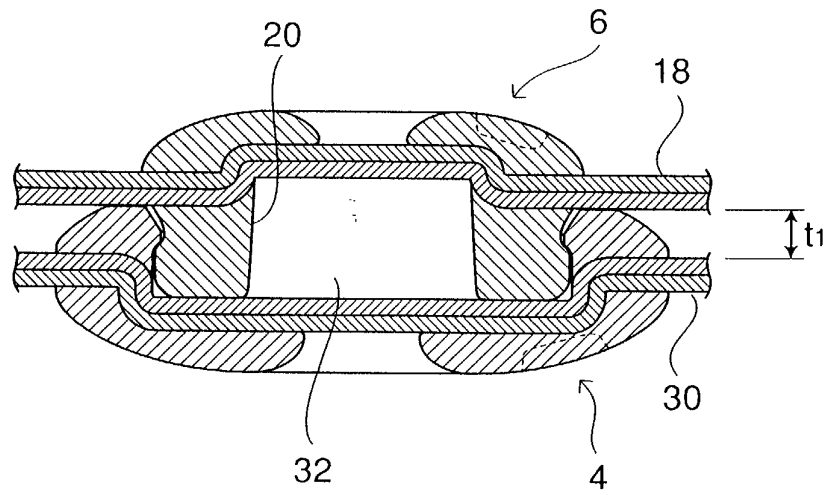


FIG.9

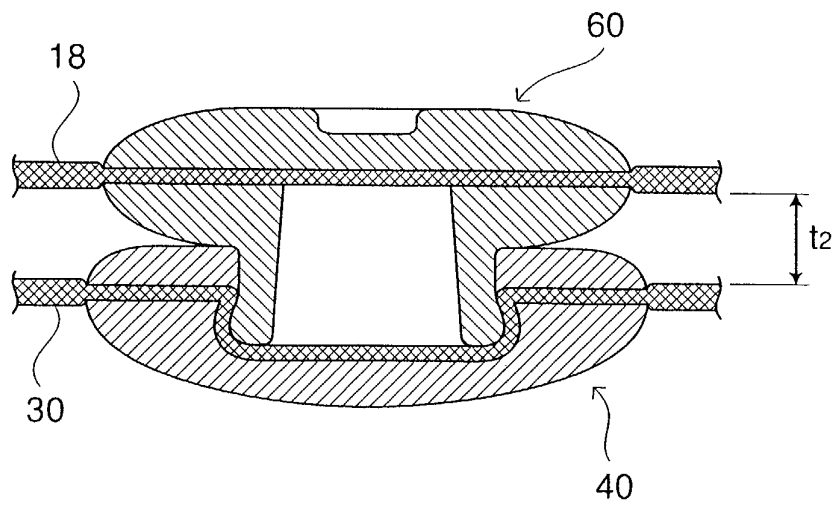


FIG.10

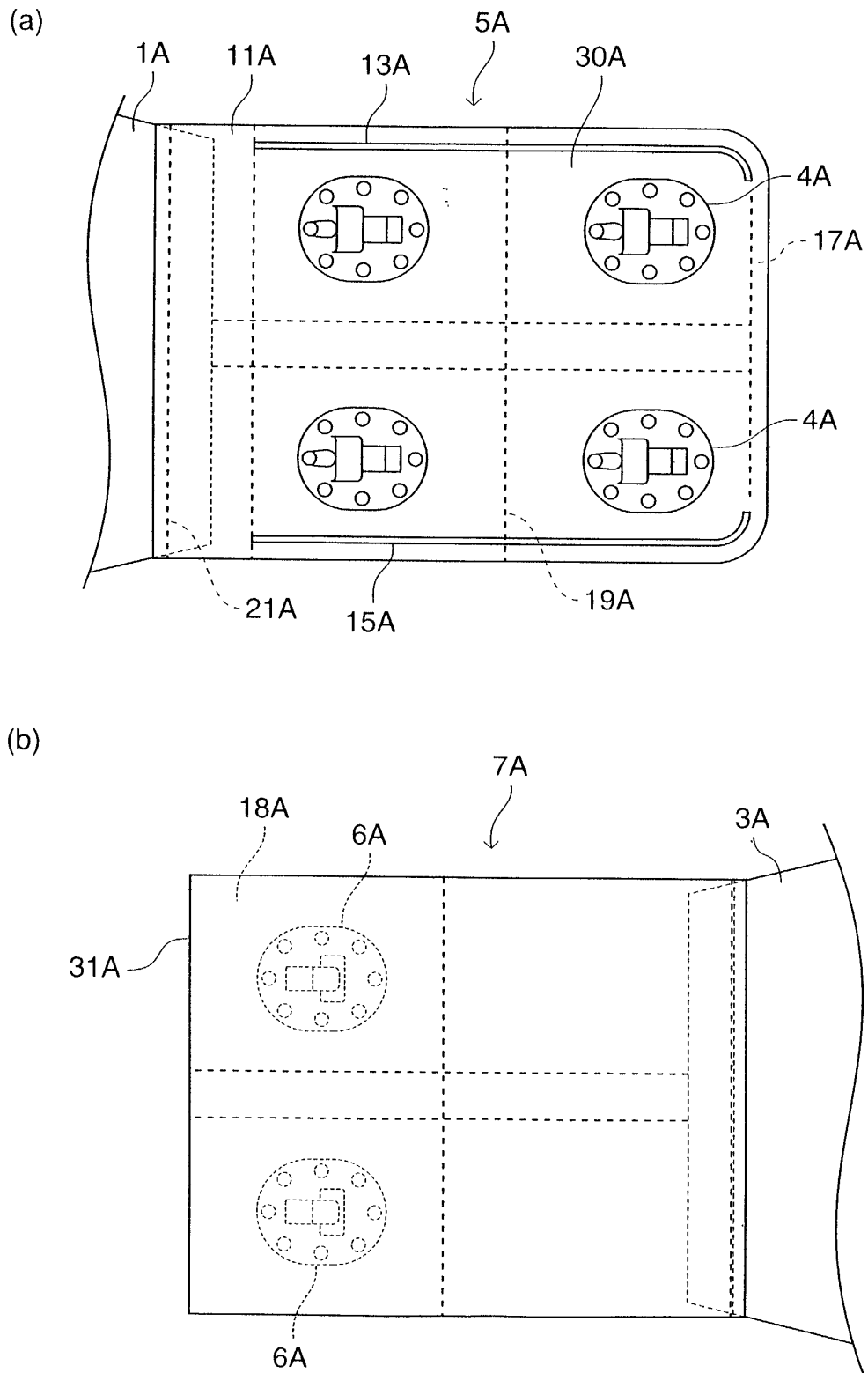


FIG.11

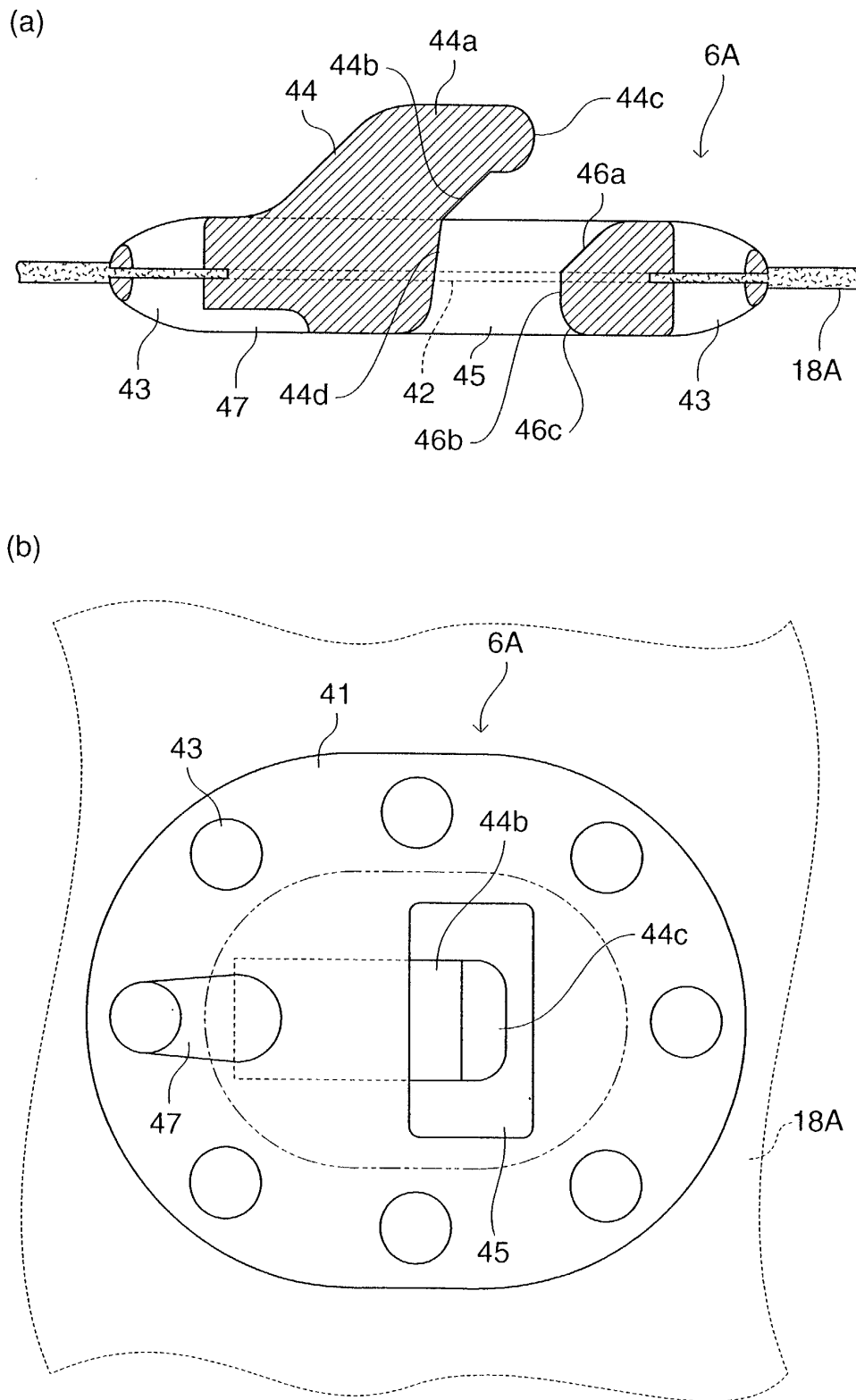


FIG.12

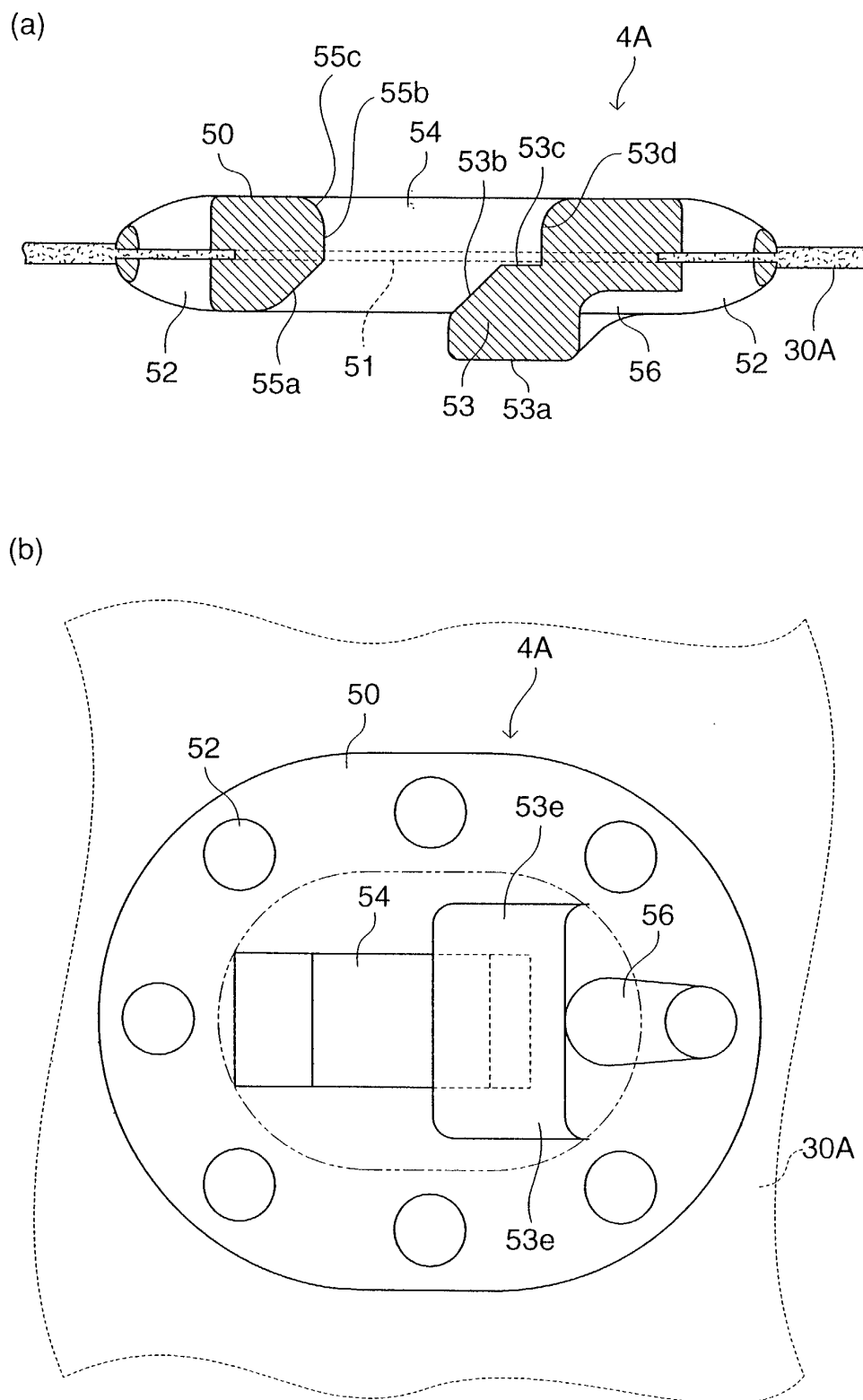


FIG.13

