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(72) Inventors:
• **Hasegawa, Kenji**
Chiyoda-ku
Tokyo 102-8410 (JP)
• **Takamura, Yoshio**
Kurobe-shi
Toyama 938-8601 (JP)

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(71) Applicant: **YKK Corporation**
Chiyoda-ku,
Tokyo (JP)

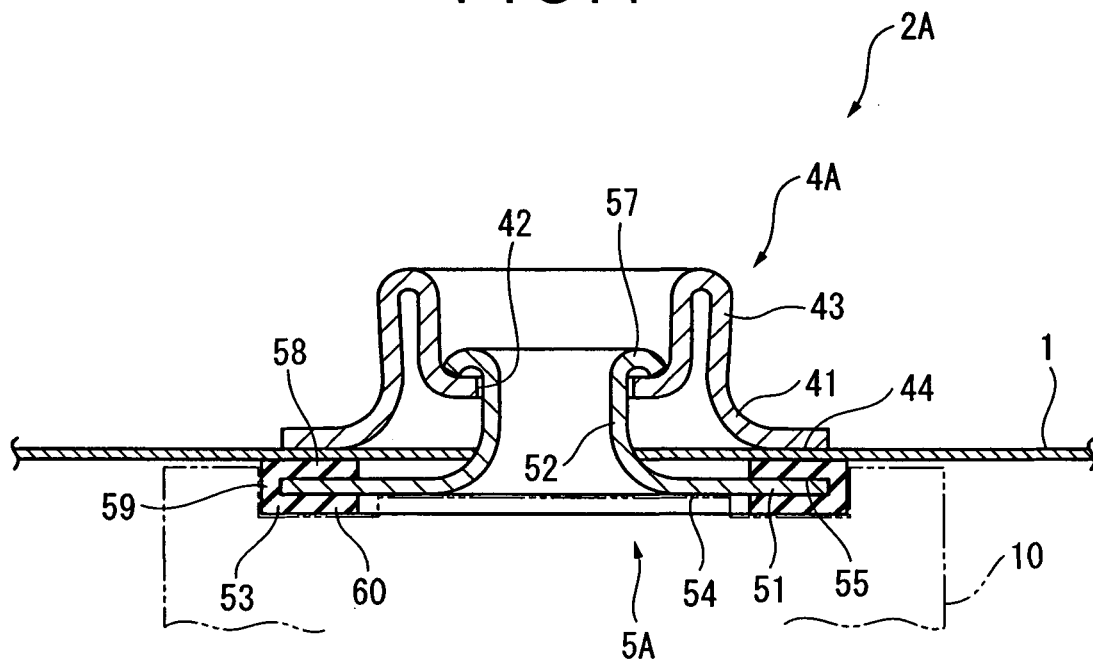
(74) Representative: **Luckhurst, Anthony Henry**
William
Marks & Clerk
90 Long Acre
London WC2E 9RA (GB)

(54) **Fixture and button**

(57) A fixture (5A) for fixing a button body (4A) on a fabric (1) includes a flange (51), a fixing post (52) provided at the center of the flange, and a packing (53) provided on the flange. The packing (53) includes a spacer (58) provided on a surface of the flange confronting the fabric,

and a retainer edge (60) extending from the spacer (58) to a surface opposite to the fixing post (52) via a connecting portion (59) and covering at least a part of an outer circumferential edge of the flange (51) except an area occupied by a pressure receiver (54).

FIG. 1



Description

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

[0001] The present invention relates to a fixture for fixing a button body on a fabric and a button using such fixture, concerning a button for fastening mating parts of a garment, a decorative button mainly used for decorating purposes, and the like.

2. DESCRIPTION OF RELATED ART

[0002] In prior art, there has been found a button for fastening mating parts of a garment, a decorative button mainly used for decorating purposes, and the like, each of which consists of a male button and a female button to be fitted with each other. The male button is generally attached on one side of the mating parts of the garment while the female button confronting the male button is attached on the other side and the male button is then fitted to the female button, so that the mating parts of the garment can be fastened.

[0003] The male button and the female button each include a button body attached on a mating surface side of the garment and a fixture that fixes the button body on the fabric from a side opposite to the mating surface of the fabric.

[0004] Figs. 13A and 13B show typical examples of a button body 104A and a fixture 105A used for a male button of a prior art. As shown in the drawings, the button body 104A includes a button flange 41 and a male fitting portion 43 integrally formed on an inner circumferential edge of the button flange 41 by bending. An aperture 42 is formed at the center of the male fitting portion 43. The fixture 105A includes a flange 51, and a cylindrical fixing post 52 provided substantially at the center of the flange 51.

[0005] In order to attach a button on the fabric, for instance, the fixture 105A is placed on a die of a button attaching machine, and then the button body 104A is superposed on the fixture 105A with the fabric interposed therebetween. Then, an external force is applied to a tip end of the fixing post 52 over the fabric with use of a punch or the like. Owing to this, the fabric is cut off due to the punch and the tip end of the fixing post 52. When applying further pressure with the punch, as shown in Fig. 14, the tip end of the fixing post 52 is deformed outward, and accordingly the button body 104A is fixed on a fabric 1 while an edge of the aperture 42 of the button body 104A is interposed. Namely, the button body 104A is fixed on the fabric 1 while the fabric 1 is held by the button body 104A and the flange 51 of the fixture 105A.

[0006] The fabric 1 on which the above-described button is attached usually has a certain thickness, however, a button is occasionally attached on a thin fabric 1 according to the type of garments. In such case, i.e., in a

case where the fabric 1 with the button attached is thin, retention of the button body 104A and the fixture 105A is not enough for being held on the fabric 1, and a gap is possibly formed between the button body 104A and the flange 51 both being held on the fabric 1, resulting in that the button body 104A may not be held on the fabric 1 tightly.

[0007] In order to overcome such disadvantage, as shown in Fig. 15, an elastic washer 9 could conceivably be interposed between the button body 104A and the flange 51 of the fixture 105A both sandwiching the fabric 1. In such case, however, since the number of components of the button becomes three (the button body 104A, the fixture 105A and the washer 9), the prior button attaching machine, which attaches the two components (the button body 104A and the fixture 105A) on the fabric 1 while automatically feeding them, may not be used. Therefore, in order to attach the three components effectively, a three component automatically feeding button attaching machine that can automatically feed the three components is newly required, causing great expense to be involved.

[0008] Incidentally, a technique has been proposed that a part of a button body or a fixture is covered with an elastic body such as plastic.

[0009] For example, for enhancing waterproofing property of a button, there have been proposed an example (see Document 1: Japanese Utility Model No. 2,580,389, First Embodiment) in which a surface confronting a fabric (an inner side) of a button body to be fixed on the fabric via a fixture is covered with a plastic member, an example (for instance, see Second Embodiment of Document 1) in which a periphery of a cylindrical part of the fixture for fixing the button body on the fabric by penetrating through the fabric is covered with the plastic member, and an example (see Document 2: JP-B-61-33561 or Document 3: JP-A-2004-187916) in which, in order to enhance decorative property of a button, a surface of a button opposite to a surface confronting a fabric is covered with an elastic body.

[0010] However, above-described Documents 1 to 3 not only may not overcome the above-mentioned disadvantage, but also may raise further disadvantages.

[0011] According to the button body described in First Embodiment of Document 1, since the surface (the inner side) of the button body confronting the fabric is covered with the plastic member, this configuration may be used instead of the washer 9 shown in Fig. 15, by increasing the thickness of the plastic member. However, since the inner side of the button body is covered with the plastic member, it is difficult to cut off the fabric between the cylindrical part of the fixture and the inner surface of the button body when the button body is attached on the fabric, and besides, the button body is likely unset from the fabric because the cylindrical part of the fixture is merely fitted to the elastic plastic member.

[0012] According to the fixture described in Second Embodiment of Document 1, a center part of the flange

and the periphery of the cylindrical part projecting from the center of the flange are covered with the plastic member. However, since an outer circumferential edge of the flange holding the fabric with the button body is not covered with the plastic member, the above-described disadvantage may not be overcome.

[0013] And, since the cylindrical part is covered with the plastic member, in attachment, the cylindrical part is difficult to cut off the fabric and to be deformed, the button body is hard to be attached on the fabric.

[0014] According to the button described in Document 2, the flange of a metal eyelet (a metal leg for fixing the button body on the fabric by penetrating through the fabric) is covered with a plastic cap head. The cap head covers it to extend from the surface of the flange of the metal eyelet, which is opposite to the surface confronting the fabric, to an outer circumferential edge of the surface confronting the fabric.

[0015] Accordingly, this configuration may be used instead of the washer 9 shown in Fig. 15, by holding the fabric with the plastic of the outer circumferential edge of the flange of the metal eyelet and the button body. However, the engagement between the flange of the metal eyelet and the plastic cap head causes the flange of the metal eyelet to be pressed into a dent of the cap head molded with plastic, thus the cap head receiving large pressure in pressing. Owing to this, the plastic cap head is possibly deformed or deteriorated in color appearance. To prevent this, the thickness of the cap head covering the side of the flange opposite to the fabric (the thickness of plastic) is increased. However, the increase also influences on the thickness of the cap head covering the flange of the metal eyelet, in other words, the projecting dimension of the cap head on the side confronting the skin is increased, thereby causing mattering on the skin.

[0016] According to a grommet described in Document 3, front and back surfaces of a base of a male grommet penetrating through the fabric are covered with a plastic decorative body. In this arrangement, even though the retention can be secured in some measure since the decorative body is interposed between the male grommet and the fabric, the projecting dimension of the decorative body from the fabric is large because the base of the male grommet is curved, and additionally, in attachment, the external force cannot be utilized efficiently when the tip end of the male grommet is deformed and thus the button body is hard to be attached on the fabric because the plastic decorative body is provided on an external surface.

SUMMARY OF THE INVENTION

[0017] An object of the present invention is to provide a fixture and a button enabling a button body to be held even on a thin fabric tightly without increasing the number of components and to be attached accurately and effectively.

[0018] A fixture according to an aspect of the present

invention that penetrates through a fabric from a first surface to a second surface and fixes a button body on the second surface of the fabric, includes: a flange to be abutted on the first surface of the fabric; a fixing post provided substantially at the center of the flange, the fixing post penetrating through the fabric to the second surface and fixing the button body on the second surface of the fabric; and an elastic packing provided on the flange, in which the flange is provided at the center of a surface of the flange on a side opposite to the fixing post and has a pressure receiver that receives a force for deforming a tip end of the fixing post when the button body is fixed, and the packing includes a spacer provided on the surface of the flange to be abutted on the first surface of the fabric and a retainer edge extended from the spacer to a surface of the flange on the side opposite to the fixing post via a connecting portion and covering at least a part of an outer circumferential edge of the flange except an area occupied by the pressure receiver.

[0019] With this configuration, in order to attach the button body on the fabric, the fabric is interposed between the fixing post and the button body, and then an external force is applied to a tip end of the fixing post over the fabric with a punch or the like, or the button body is pressed toward the fixing post. Accordingly, the fabric is cut off by the tip end of the fixing post, and the tip end of the fixing post is deformed to be engaged with the button body. At this time, the fabric is held between the button body and the flange, as well as the spacer of the packing is compressed. Then, if the external force applied to the tip end of the fixing post is released, or the pressurizing force applied to the button body is released, even though the springback occurs in some measure on the deformed part of the fixing post, the restoring force acts between button body and the flange both holding the fabric therebetween, thus the button body being held on the fabric tightly. Particularly, when the button body is attached on the thin fabric, since the restoring force of the spacer acts between the button body and the flange both holding the fabric therebetween, the button body can be held tightly.

[0020] Since the packing is integrated by being fixed with the fixture in advance, the number of components is not increased, and the button can be attached on the fabric with use of the prior button attaching machine. And, since the pressure receiver is exposed to the outside, the external force or the pressurizing force in attachment can sufficiently be used, and it is easy to attach the button body on the fabric. Since the packing is provided on the flange, in other words, since the surface of the fixing post is not covered with the packing, the external force or the pressurizing force in attachment will not affect on the deformation of the fixing post, and the tip end of the fixing post can cut off the fabric without any trouble. In view of this, the button body can be attached accurately and effectively.

[0021] Preferably, in the fixture, the spacer may be provided on the surface of the flange confronting via the fabric a fabric contacting portion of the button body con-

tacting to the fabric.

[0022] With this configuration, since the spacer is surely be present between the fabric contacting portion and the flange of the button body holding the fabric, the button body can be held even on the thin fabric tightly due to the restoring force of the spacer. Since the spacer does not necessarily cover the whole surface of the flange on the side abutting on the first surface of the fabric, the covering form and method of the packing may be varied.

[0023] Preferably, in the fixture, the spacer may be formed in a flat ring continuously extending along the outer circumferential edge of the flange on a side abutting on the first surface of the fabric with a constant width, the retainer edge is formed in a flat ring continuously extending along the outer circumferential edge of the flange on the side opposite to the fixing post with a constant width, and the connecting portion is formed in a ring continuously connecting the spacer and the retainer edge along an outer circumferential end surface of the flange with a constant width.

[0024] With this configuration, since the spacer is formed in a flat ring continuously extending along the outer circumferential edge of the flange on the side abutting on the first surface of the fabric with a constant width, a retaining force acting between the fabric contacting portion and the flange of the button body can be equalized, so that the button body can be held on the fabric while the fabric is prevented from being wrinkled or twisted even when the fabric is thin. In view of this, the button body can be attached accurately and effectively.

[0025] And, concerning the appearance of the surface of the flange on the side opposite to the fixing post, since the appearance is expressed by a circular shape of the flange at the center and by a flat ring of the retainer edge at the outer circumferential edge, this arrangement is preferable in view of design. For instance, a new image of two-tone colors can be provided when the surfaces of the flange and the retainer edge are varied in color design, and a decorative appearance of the button can be enhanced without provision of any other decorative body. Further, due to the enhanced decorative property, in a case of a button for a reversible garment, no decorative body is necessary, so that the projecting amount of the button on the side confronting the skin can be decreased, thereby lowering mattering on the skin no matter which side of the fabric is worn.

[0026] Preferably, in the fixture, an uneven portion may be provided on the surface of the spacer abutting on the first surface of the fabric or on the surface of the flange on the side opposite to the first surface of the fabric.

[0027] Note that, the uneven portion may include small protrusions or wavy protrusions scattered on the surface.

[0028] With this configuration, for instance, when the uneven portion is provided on the surface of the spacer, since the frictional force applied between the spacer and the fabric is increased due to the uneven portion, the button body can be held even on the thin fabric tightly, and the button body can be attached accurately and ef-

fectively. And, even when the uneven portion is provided on the surface of the flange, the surface roughness of the uneven portion affects on the surface of the spacer abutting on the fabric, and causes the spacer to be grabbed into the fabric indirectly, so that the frictional force acting between the spacer and the fabric is increased, thus providing the same advantages described above.

[0029] Preferably, in the fixture, the retainer edge may be a plurality of engaging claws which are fixed on the surface of the flange on the side opposite to the fixing post.

[0030] With this configuration, since the retainer edge is the engaging claws, an area of the retainer edge occupying the surface of the flange on the side opposite to the fixing post can remarkably be decreased, and consequently the area of the button on the side confronting the skin can be decreased, thus lowering mattering on the skin.

[0031] Preferably, in the fixture, the packing may integrally be formed along the outer circumferential edge of the flange.

[0032] With this configuration, the packing is hardly peeled off from the flange.

[0033] Preferably, in the fixture, the packing may be formed separately from the flange, and the retainer edge is deformed inward.

[0034] With this configuration, a spacer of the packing is disposed after contacting the surface of the flange holding the fabric, then the retainer edge is deformed inward using the external force so that the outer circumferential edge of the flange is interposed, and the packing and the flange can be held. Owing to this, the packing is easily held by the flange and also the packing can be molded as a subassembly in advance, thus enhancing manufacturability.

[0035] A button according to another aspect of the present invention includes: a button body; and a fixture, in which the button body and the fixture are engaged with each other while a fabric is interposed between the button body and the fixture, the fixture including: a flange to be abutted on a first surface of the fabric; a fixing post provided substantially at the center of the flange, the fixing post penetrating through the fabric to the second surface and fixing the button body on the second surface of the fabric; and an elastic packing provided on the flange, in which the flange is provided at the center of a surface of the flange on a side opposite to the fixing post and has a pressure receiver that receives a force for deforming a tip end of the fixing post when the button body is fixed, and the packing includes a spacer provided on the surface of the flange to be abutted on the first surface of the fabric and a retainer edge extended from the spacer to the surface of the flange on the side opposite to the fixing post via a connecting portion and covering at least a part of an outer circumferential edge of the flange except an area occupied by the pressure receiver.

[0036] With this configuration, the same advantages

can be expected as that mentioned for the fixture.

BRIEF DESCRIPTION OF THE DRAWINGS

[0037]

Fig. 1 is a cross section showing a male button according to a first embodiment of the present invention;

Fig. 2 is a cross section showing a fixture of the aforesaid embodiment;

Fig. 3 is a cross section showing a male button according to a modification of the aforesaid embodiment;

Fig. 4 is a cross section showing a fixture according to a modification of the aforesaid embodiment;

Fig. 5 is a cross section showing a female button according to a second embodiment of the present invention;

Fig. 6 is a cross section showing a female button according to a modification of the aforesaid embodiment;

Fig. 7 is a cross section showing a reversible button according to a third embodiment of the present invention;

Fig. 8 is a cross section showing a reversible button according to a prior art;

Fig. 9 is a cross section of a fixture according to a modification of the present invention;

Fig. 10 is a perspective view showing a fixture according to another modification different from the one shown in Fig. 9 of the present invention;

Fig. 11 is a perspective view showing a fixture according to still another modification different from the one shown in Figs. 9 and 10 of the present invention;

Fig. 12 is a perspective view showing a fixture according to yet another modification different from the one shown in Figs. 9 to 11 of the present invention;

Figs. 13A is a cross section showing a button body of a prior art;

Fig. 13B is a cross section showing a fixture of a prior art;

Fig. 14 is a cross section showing the state in which the male button of Figs. 13A and 13B is attached on a fabric; and

Fig. 15 is a cross section showing the state in which a male button of another prior art is attached on a fabric with use of a washer.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT(S)

[0038] Embodiments of the present invention will be described below with reference to attached drawings. In describing respective embodiments, the same numeric references will be assigned to the same components and the description thereof will be omitted.

[First Embodiment]

[0039] A first embodiment will be illustrated in Figs. 1 and 2. The first embodiment is an example of a male button, Fig. 1 showing cross section of the male button attached on a fabric and Fig. 2 showing a cross section of a fixture.

[0040] As shown in Fig. 1, a male button 2A of the first embodiment includes a button body 4A and a fixture 5A that penetrates through a fabric 1 from a first surface (a surface opposite to a mating surface of the fabric 1) to a second surface thereof (the mating surface of the fabric 1) and fixes the button body 4A on the second surface.

[0041] The button body 4A includes a flat ringed button flange 41, a male fitting portion 43 integrally formed on an inner circumference of the button flange 41 by bending, and an aperture 42 formed at the center of the male fitting portion 43.

[0042] In the button flange 41, a fabric contacting portion 44 is formed on a surface confronting the fabric 1, the fabric contacting portion 44 contacting to the fabric 1 and holding the fabric 1 when is attached on the fabric 1.

[0043] Concerning the male fitting portion 43, the outer periphery is formed in a tapered tube with diameter thereof gradually increased in a direction away from the button flange 41.

[0044] As shown in Fig. 2, the fixture 5A includes a flange 51 abutted on the first surface of the fabric 1, a cylindrical fixing post 52 provided substantially at the center of the flange 51, and a packing 53 integrally formed on an outer circumferential edge of the flange 51 by insert molding.

[0045] The flange 51 is provided with a pressure receiver 54 at the center of a surface opposite to the fixing post 52, the pressure receiver 54 contacting a die 10 of a button attaching machine and receiving an external force caused by a punch when being attached to the fabric 1. The pressure receiver 54 is flat and exposed to the outside. Provided on a surface of the flange 51 confronting the fabric 1 is a fabric attachment 55 that holds the fabric 1 when attached to the fabric 1.

[0046] The fixing post 52 formed in a cylinder has a sharp blade 56 at an inner circumferential edge of a tip end of the fixing post 52. The tip end of the fixing post 52 defines a fixing portion 57 that is deformed outward when attached on the fabric 1 to fix the button body 4A.

[0047] The packing 53 is made of elastic material, or in this embodiment, is made of plastic, and includes a spacer 58 provided on the surface of the flange 51 confronting the fabric 1, a connecting portion 59 connected to the spacer 58, and a retainer edge 60 extended to the surface of the flange 51 opposite to the fixing post 52 via the connecting portion 59 to cover the outer circumferential edge of the flange 51 except an area occupied by the pressure receiver 54.

[0048] The spacer 58 is formed in a flat ring continuously extending along the outer circumferential edge of the flange 51 with a constant width, the retainer edge 60

is formed in a flat ring continuously extending along the outer circumferential edge of the flange 51 with a constant width, and the connecting portion 59 is formed in a ring continuously connecting the spacer 58 and the retainer edge 60 along an outer circumferential end surface of the flange 51.

[0049] Now, a method for attaching the male button 2A of the first embodiment on the fabric 1 with use of the button attaching machine will be described.

[0050] The fixture 5A temporarily equipped with the packing 53 is placed on the die 10 of the button attaching machine, and then the button body 4A is superposed on the fixture 5A with the fabric 1 being interposed therebetween. Then, external force is applied to the tip end of the fixing post 52 over the fabric 1 with use of a punch or the like (not shown). Accordingly, the fabric 1 is cut off by the punch due to the blade 56 located at the tip end of the fixing post 52, and then, the tip end of the fixing post 52 is gradually deformed outward. Incidentally, when an attachment hole to which the fixing post 52 is inserted is formed in the fabric 1 in advance, the blade 56 may not be formed on the fixing post 52, and also, the fabric 1 is not necessary to be cut off at the attachment of the male button 2A.

[0051] With this arrangement, the fabric 1 is held between the fabric contacting portion 44 of the button body 4A and the fabric attachment 55 of the flange 51, and the spacer 58 of the packing 53 interposed therebetween is compressed. After that, when the external force by the punch is released, springback occurs in some measure on the fixing portion 57 of the fixing post 52, so that restoring force of the spacer 58 acts between the fabric contacting portion 44 and the fabric attachment 55 even if the gap between the fabric contacting portion 44 and the fabric attachment 55 is widened, thus the button body 4A being held on the fabric 1 tightly.

[0052] With the first embodiment, following advantages may be expected.

(1) When the button body 4A is attached on the fabric 1, the fabric 1 is held between the fabric contacting portion 44 of the button body 4A and the fabric attachment 55 of the flange 51, and the spacer 58 of the packing 53 is compressed, as the fixing post 52 is pressurized and deformed due to the external force applied to the tip end of the fixing post 52. After this, when the external force is released, even though the springback occurs in some measure on the fixing portion 57 of the fixing post 52, the restoring force acts between the fabric contacting portion 44 and the fabric attachment 55 both holding the fabric 1 therebetween, thus the button body 4A being held on the fabric 1 tightly. Accordingly, even when the button body 4A is attached on a thin fabric 1, the restoring force of the spacer 58 acts between the button body 4A and the flange 51 both holding the fabric 1, thus holding the button body 4A tightly.

(2) Since the packing 53 is integrally fixed to the fix-

ture 5A in advance, the number of components will not be increased, thus attaching the male button 2A to the fabric 1 with the use of the prior button attaching machine. Accordingly, the button body 4A can effectively be attached.

(3) Since the pressure receiver 54 of the flange 51 is flat and exposed to the outside, in other words, since the pressure receiver 54 is not covered with the packing 53, the external force can be utilized sufficiently in attachment to the fabric 1, thus easily attaching the button body 4A to the fabric 1. Accordingly, the button body 4A can be attached accurately and effectively.

(4) Since the packing 53 is provided only on the flange 51, in other words, since the periphery of the fixing post 52 is not covered with the packing 53, the external force in attachment to the fabric 1 will not affect on the pressurizing-deformation of the fixing post 52. Accordingly, the button body 4A can be attached accurately and effectively.

(5) Since the periphery of the fixing post 52 is not covered with the packing 53, the tip end of the fixing post 52 can cut off the fabric 1 without any trouble. Accordingly, the button body 4A can be attached accurately and effectively.

(6) Since the spacer 58 may not necessarily cover the whole surface of the flange 51 confronting the fabric 1, the covering form and method of the packing 53 may be varied.

(7) Since the spacer 58 is formed in a flat ring continuously extending along the outer circumferential edge of the flange 51 confronting the fabric 1 with a constant width, the restoring force against the retaining force between the button body 4A and the flange 51 can be equalized. Accordingly, the button body 4A can be held even on the thin fabric 1 while the fabric 1 is prevented from being wrinkled or twisted.

(8) Since the spacer 58 and the retainer edge 60 are formed in flat rings continuously extending along the outer circumferential edges of the front and back surfaces of the flange 51 with constant widths, and the connecting portion 59 is formed in a ring continuously connecting the spacer 58 and the retainer edge 60 along the outer circumferential end surface of the flange 51, this arrangement is preferable in view of design and can provide a decorative appearance without provision of any other decorative body.

For instance, the appearance is expressed by a circular shape of the flange 51 at the center and by a flat ring of the retainer edge 60 at the outer circumferential edge, so that a new image of two-tone colors can be provided when the center circular shape of the flange 51 and the flat ring of the retainer edge 60 are varied in color design.

(9) Since the packing 53 is integrally formed along the outer circumferential edge of the flange 51, the packing 53 is hardly peeled off from the flange 51. Incidentally, the first embodiment is an example of

the male button 2A with the aperture 42 provided on the button body 4A (open type), however, the first embodiment may be applied to a male button 2B with no aperture provided on a button body 4B (closed type) as shown in Figs. 3 and 4.

[0053] Fig. 3 is a cross section showing a closed type male button 2B, and Fig. 4 is a cross section showing a fixture 5B used for the male button 2B. The closed type male button 2B also includes the button body 4B and the fixture 5B. The button body 4B is different from the button body 4A shown in Fig. 1 in that the button body 4B includes a substantially spherical male fitting portion 43B. A narrow portion 45 with the internal diameter narrowing is formed on an inner side defined between the male fitting portion 43B and the button flange 41. A fixing post 52 of the fixture 5B is formed in a tapered post with the diameter of a tip end part thereof gradually increased toward a tip end thereof, and has a sharp blade 56 at an inner circumferential edge of the tip end.

[0054] When the closed type male button 2B is attached on the fabric 1, the following will be different from the first embodiment since the button body 4B is the closed type.

[0055] (A) The tip end of the fixture 5B is deformed and engaged with the button body 4B by applying pressurizing force to an external surface (an upper surface as shown in Fig. 3) of the button body 4B. (B) The fabric 1 is cut off when the blade 56 frictions the fabric 1 interposed between the blade 56 and the narrow portion 45. (C) As shown in Fig. 3, the tip end of the fixing post 52 deformed inward due to the pressurizing force fixes the narrow portion 45, so that the fixture 5B fixes the button body 4B.

[0056] Accordingly, as with the case of the male button 2B, since the packing 53 provides the same advantages as the packing 53 of the first embodiment, the male button 2B can achieve the same advantages as the male button 2A in the first embodiment.

[Second Embodiment]

[0057] A second embodiment is shown in Fig. 2. The second embodiment is an example of a female button. Fig. 5 is a cross section showing a female button attached on a fabric.

[0058] A female button 3A of the second embodiment is a button fitting with the male button 2A of the first embodiment, which includes a button body 4C and a fixture 5C that penetrates through the fabric 1 from a first surface (a surface opposite to a mating surface of the fabric 1) to a second surface thereof (the mating surface of the fabric 1) and fixes the button body 4C on the second surface.

[0059] The button body 4C has a button base 61 contacting to the fabric 1 and a female fitting portion 62 extending from the button base 61 and fitting to the male button 2A.

[0060] An aperture 63 is formed at the center of a portion contacting to the fabric 1 of the button base 61, and the fixing post 52 of the fixture 5C is fixed to a circumference of the aperture 63. A surface of the button base 61 confronting the fabric 1 defines a fabric contacting portion 64 that contacts the fabric 1 to hold it.

[0061] The female fitting portion 62 includes a button fitting aperture 65 formed on a side opposite to the mating surface of the fabric 1, and a button fixing spring 66 provided on an inner periphery of the button fitting aperture 65. The male fitting portion 43 of the male button 2A is inserted to the inside of the button fitting aperture 65, and then held by the button fixing spring 66.

[0062] The fixture 5C is basically the same configuration as the fixture 5A of the first embodiment, however, is different from the fixture 5A in that a spacer 58 is provided to further extend towards the center of the flange 51 than that of the retainer edge 60. In other words, the spacer 58 extends to the fabric attachment 55 of the flange 51 confronting the fabric contacting portion 64 of the button body 4C with the fabric 1 interposed.

[0063] According to the second embodiment, the same advantages as that of (1) to (9) of the first embodiment can be expected.

[0064] Incidentally, the profile of the female button may be the one shown in Fig. 6. A female button 3B shown in Fig. 6 is the one fitting with the closed type male button 2B shown in Fig. 3. The female button 3B has the smaller diameter of the button fitting aperture 65 of a button body 4D than that of the button fitting aperture 65 of the button body 4C, and the profile thereof is different from that of the female button 3A shown in Fig. 5.

[0065] Therefore, as with the case of the female button 3B, the same advantages as that of the female button 3A of the second embodiment can be obtained.

[Third Embodiment]

[0066] A third embodiment is shown in Fig. 7. The third embodiment is an example of a reversible button used for a reversible garment or the like. Fig. 7 is a cross section showing the reversible button attached on the fabric.

[0067] A reversible button 7 of the third embodiment includes a male button 2A attached on one (a fabric 1A) of fabrics in a mating portion and a female button 3C attached on the other one (a fabric 1B) of the fabrics to confront the male button 2A.

[0068] The male button 2A is the same configuration as that of the male button 2A of the first embodiment.

[0069] The female button 3C includes a button body 4C abutting on a mating surface of the fabric 1B, and a fixture 5D that penetrates through the fabric 1B from a surface opposite to the mating surface of the fabric 1B to the mating surface and fixes the button body 4C on the mating surface.

[0070] The button body 4C is substantially the same configuration as that of the button body 4C used for the female button 3A of the second embodiment. The fixture

5D includes a cap eyelet 67 as a decorative body attached on a surface opposite to the fixing post 52 of the flange 51. The cap eyelet 67 is curved inward at an outer circumferential edge to form a curved portion, the curved portion being engaged with an outer circumferential edge of the flange 51.

[0071] According to the third embodiment, the following advantages can be expected in addition to that of (1) to (9) of the first and second embodiments.

(10) Since the packing 53 enhances the decorative property of the button, in a case of the button attached on a reversible garment, the button need not be covered with a decorative body, so that the projecting amount of the button on the side confronting the skin due to the coverage of the decorative body on the button can be decreased, thereby lowering mattering on the skin when the garment is worn.

[0072] Fig. 8 is a cross section showing a reversible button according to a prior art. As shown in Fig. 8, in a prior art, the cap eyelet 67 was required to be attached either on the male button and the female button. This is because the appearance had to be good no matter which fabric of the fabrics 1A and 1B is appeared outside in wearing them. However, in the configuration shown in Fig. 8, the projecting amount of the button on an inner side, i.e., on a side confronting the skin in wearing is influenced by the cap eyelets 67.

[0073] This disadvantage can be solved here, if the reversible button 7 of the third embodiment is used in view of the advantage (10) described above.

[0074] Incidentally, while the fixture 5A is used only for the male button 2A in the third embodiment (Fig. 7), the fixture 5C can be used for the female button 3C. With this arrangement, the cap eyelet 67 is no longer required, and besides the surface of the fixture 5A on the side opposite to the mating part of the fabric 1 is highly decorative without any decorative body such as the cap eyelet 67, thus no decorative body being necessary either for the male button or the female button. Accordingly, the reversible button with the small projecting amount of the button no matter which side of the fabric is worn can be provided.

[0075] And, while the reversible button 7 of the third embodiment employs the open type male button 2A and the female button 3C making a pair with the male button 2A, a reversible button employing the closed type male button 2B and the female button 3B (shown in Figs. 3 and 6) can be applied as a modification of the first and second embodiments.

[Modification]

[0076] The present invention is not limited to the above-described embodiments, and includes modifications and improvements as long as the object of the present invention can be attained.

[0077] For example, although the packing 53 is integrally formed with the flange 51 by insert molding as the method for engaging the packing 53 with the flange 51 according to the first to third embodiments, the packing 53, as shown in Fig. 9, may be formed separately from the flange 51, so that the retainer edge 60 is deformed inward.

[0078] With this configuration, a spacer of the packing is disposed by contacting the surface of the flange holding the fabric, then the retainer edge is deformed inward using the external force so that the outer circumferential edge of the flange is interposed, and the packing and the flange can be held. Owing to this, the packing 53 is likely held by the flange 51 and also the packing 53 can be molded as a subassembly in advance, thus enhancing manufacturability.

[0079] The material of the packing 53 is not limited to plastic employed in the respective embodiments, and any material such as elastomer and rubber may be used as long as it is elastic.

[0080] When concerning the packing 53, although the spacer 58 is formed in a flat ring continuously extending along the outer circumferential edge of the flange 51 on the side confronting the fabric 1 with a constant width, the retainer edge 60 is formed in a flat ring continuously extending along the outer circumferential edge of the flange 51 on the side opposite to the fixing post 52 with a constant width, and the connecting portion 59 is formed in a ring continuously connecting the spacer 58 and the retainer edge 60 along the outer circumferential end surface of the flange 51 according to the first to third embodiments, the present invention is not limited thereto as long as the spacer 58 is provided on the fabric attachment 55 of the flange 51.

[0081] For example, as shown in Fig. 10, the retainer edge 60 may be replaced with a plurality of engaging claws 60A which are fixed on the surface of the flange 51 on the side opposite to the fixing post 52. According to a fixture 5F with such configuration, an area of the retainer edge 60 occupying the surface of the flange 51 on the side opposite to the fixing post 52 can remarkably be decreased, and consequently the area of the button on the side confronting the skin can be decreased, thus lowering mattering on the skin.

[0082] Also, the spacer 58 is not necessarily provided on the entire circumference of the flange 51. For example, as shown in Fig. 11, the spacer 58 may cover in a cross-shape about the fixing post 52 on the surface of the flange 51 on the side of the fixing post 52.

[0083] In the first to third embodiments, the thickness of the spacer 58 is not particularly mentioned, however, the spacer 58 preferably has the thickness of 0.2 mm or more.

[0084] In the first to third embodiments, the surface profile of the spacer 58 is not particularly mentioned, however, for instance as shown in Fig. 12, an uneven portion 581 may have sow-tooth arranged radially, or projections in waved or dotted form scattered on the surface of the

spacer 58. The surface of the spacer 58 may even be flat instead of forming the uneven portion 581 on the surface of the spacer 58, or an uneven portion 581 with any one of the above-described profiles may be formed on the surface of the flange 51 confronting the fabric 1. In such case, the surface roughness of the uneven portion 581 affects on the surface of the spacer 58 abutting on the fabric 1, and causes the spacer 58 to be grabbed into the fabric 1 indirectly. With the above-mentioned configuration, since the frictional force acting between the spacer 58 and the fabric 1 due to the uneven portion 581 is increased, the button body 4A, 4B, 4C, 4D can be held on the thin fabric 1 tightly, and the button body 4A, 4B, 4C, 4D can be attached accurately and effectively.

[0085] Although the flange 51 of the fixture 5A, 5B, 5C, 5F according to the first to third embodiments is flat as mainly shown in Fig. 2, and accordingly the pressure receiver 54 formed on the flange 51 is also flat, it is not limited thereto. The flange 51 may be conical shape gradually inclining and widening from the center toward the outer circumferential edge in the same direction as the fixing post 52, or the pressure receiver 54 may have a conical surface as long as the inclination is small enough for receiving the external force or the pressurizing force in attachment. In the case of the flange 51 with the above-mentioned profile, since the pressure receiver 54 and/or the flange 51 with the conical surface is deformed flat in attachment, the fabric 1 can further tightly be pressed. Additionally, if the flange 51 is conical, a packing 53 provided on the flange 51 will also be conical.

[0086] Although the fixing post 52 of the fixture 5A, 5B, 5C, 5F is a hollow cylinder according to the first to third embodiments, the fixing post 52, for instance, may be a solid post with radial slits being formed along an axial direction.

[0087] According to the present invention, the material of the fixture 5A, 5B, 5C, 5F is not particularly restricted, and may be: metal such as brass, superalloy, iron, aluminum and stainless steel; resin material such as plastic; or even combined material of these for forming the fixture 5A, 5B, 5C, 5F.

Claims

1. A fixture (5A, 5B, 5C, 5F) that penetrates through a fabric (1) from a first surface to a second surface and fixes a button body (4A, 4B, 4C, 4D) on the second surface of the fabric (1), comprising:

a flange (51) to be abutted on the first surface of the fabric (1);
a fixing post (52) provided substantially at the center of the flange (51), the fixing post (52) penetrating through the fabric (1) to the second surface and fixing the button body (4A, 4B, 4C, 4D) on the second surface of the fabric (1); and
an elastic packing (53) provided on the flange

(51),

wherein the flange (51) has a pressure receiver (54) provided at the center of a surface of the flange (51) on a side opposite to the fixing post (52), the pressure receiver (54) receiving a force for deforming a tip end of the fixing post (52) when the button body (4A, 4B, 4C, 4D) is fixed, and

the packing (53) includes a spacer (58) provided on the surface of the flange (51) to be abutted on the first surface of the fabric (1) and a retainer edge (60) extended from the spacer (58) to a surface of the flange (51) on the side opposite to the fixing post (52) via a connecting portion (59) and covering at least a part of an outer circumferential edge of the flange (51) except an area occupied by the pressure receiver (54).

2. The fixture according to claim 1, wherein the spacer (58) is provided on the surface of the flange (51) confronting via the fabric (1) a fabric contacting portion (44) of the button body (4A) contacting to the fabric (1).
3. The fixture according to claim 1 or 2, wherein the spacer (58) is formed in a flat ring continuously extending along the outer circumferential edge of the flange (51) on a side abutting on the first surface of the fabric (1) with a constant width, the retainer edge (60) is formed in a flat ring continuously extending along the outer circumferential edge of the flange (51) on the side opposite to the fixing post (52) with a constant width, and the connecting portion (59) is formed in a ring continuously connecting the spacer (58) and the retainer edge (60) along an outer circumferential end surface of the flange (51) with a constant width.
4. The fixture according to any one of claims 1 to 3, wherein an uneven portion (581) is provided on the surface of the spacer (58) abutting on the first surface of the fabric (1) or on the surface of the flange (51) on the side opposite to the first surface of the fabric (1).
5. The fixture according to any one of claims 1 to 4, wherein the retainer edge (60) is a plurality of engaging claws (60A) which are fixed on the surface of the flange (51) on the side opposite to the fixing post (52).
6. The fixture according to any one of claims 1 to 5, wherein the packing (53) is integrally formed along the outer circumferential edge of the flange (51).
7. The fixture according to any one of claims 1 to 5, wherein the packing (53) is formed separately from the flange (51), and the retainer edge (60) is de-

formed inward.

8. A button, comprising:

a button body (4A, 4B, 4C, 4D); and 5
 a fixture (5A, 5B, 5C, 5F),
 wherein the button body (4A, 4B, 4C, 4D) and
 the fixture (5A, 5B, 5C, 5F) are engaged with
 each other while a fabric (1) is interposed be- 10
 tween the button body (4A, 4B, 4C, 4D) and the
 fixture (5A, 5B, 5C, 5F),
 the fixture (5A, 5B, 5C, 5F) including:

a flange (51) to be abutted on a first surface
 of the fabric (1); 15
 a fixing post (52) provided substantially at
 the center of the flange (51), the fixing post
 (52) penetrating through the fabric (1) to the
 second surface and fixing the button body 20
 (4A, 4B, 4C, 4D) on the second surface of
 the fabric (1); and
 an elastic packing (53) provided on the
 flange (51),
 wherein the flange (51) a pressure receiver
 (54) provided at the center of a surface of 25
 the flange (51) on a side opposite to the fix-
 ing post (52), the pressure receiver (54) re-
 ceiving a force for deforming a tip end of the
 fixing post (52) when the button body (4A,
 4B, 4C, 4D) is fixed, and 30
 the packing (53) includes a spacer (58) pro-
 vided on the surface of the flange (51) to be
 abutted on the first surface of the fabric (1)
 and a retainer edge (60) extended from the
 spacer (58) to the surface of the flange (51) 35
 on the side opposite to the fixing post (52)
 via a connecting portion (59) and covering
 at least a part of an outer circumferential
 edge of the flange (51) except an area oc-
 cupied by the pressure receiver (54). 40

45

50

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FIG. 1

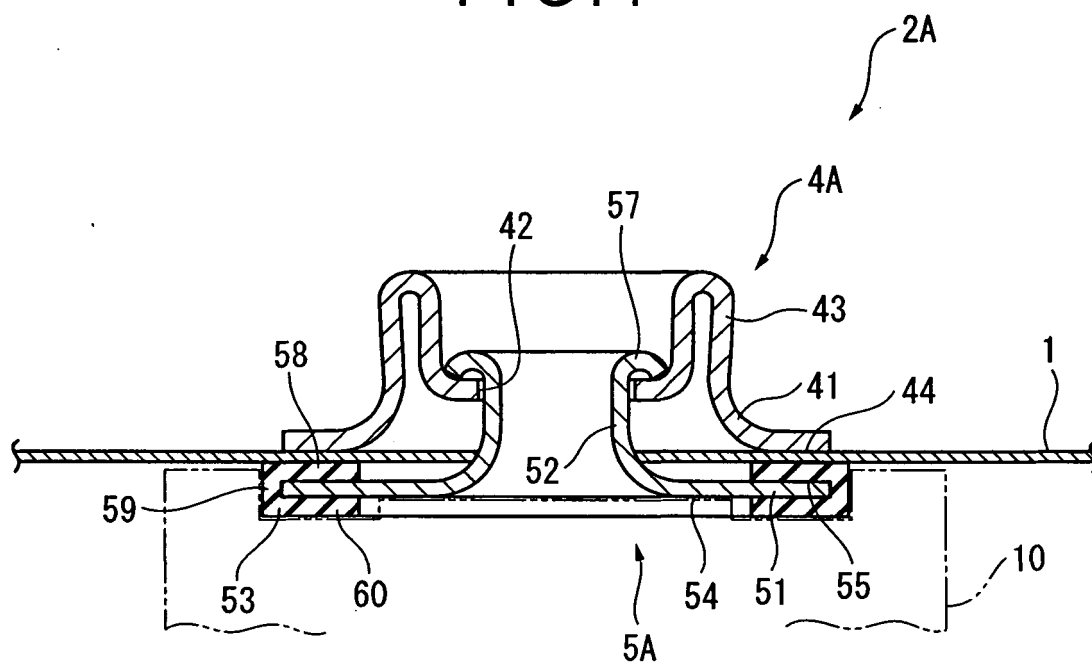


FIG. 2

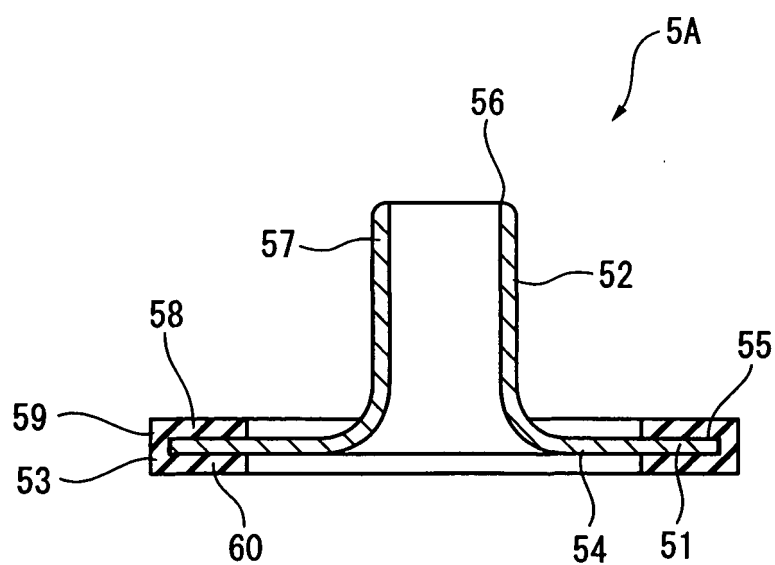


FIG. 3

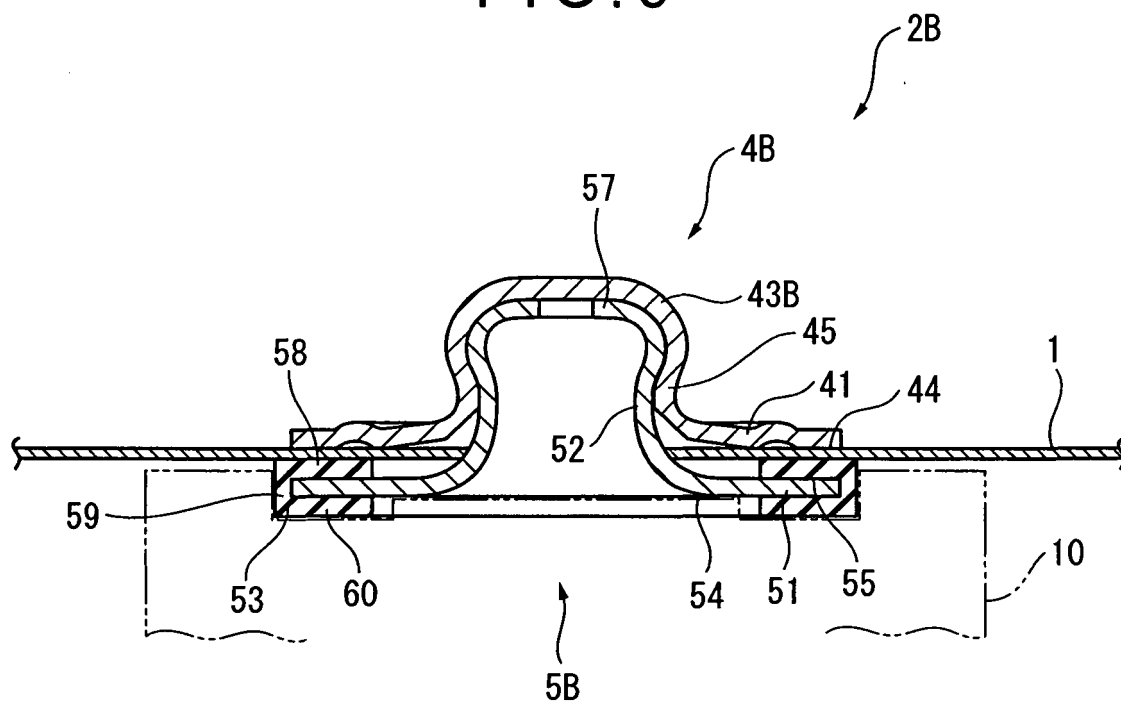


FIG. 4

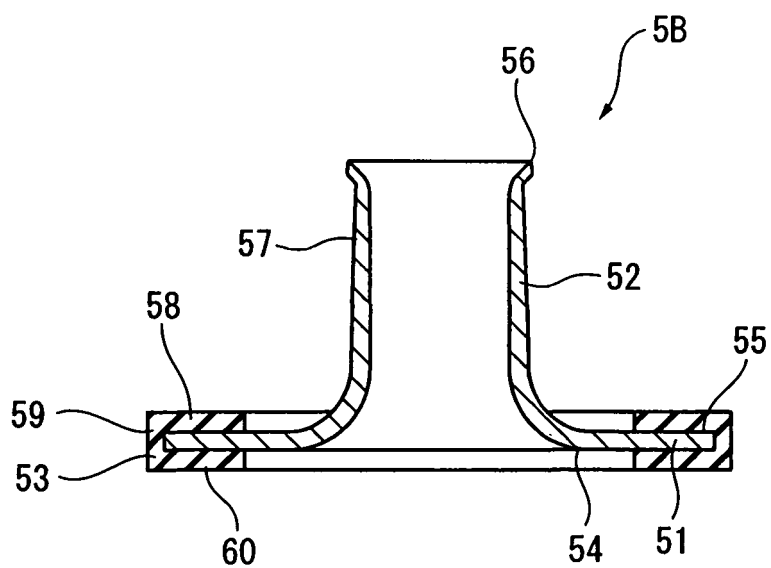


FIG. 5

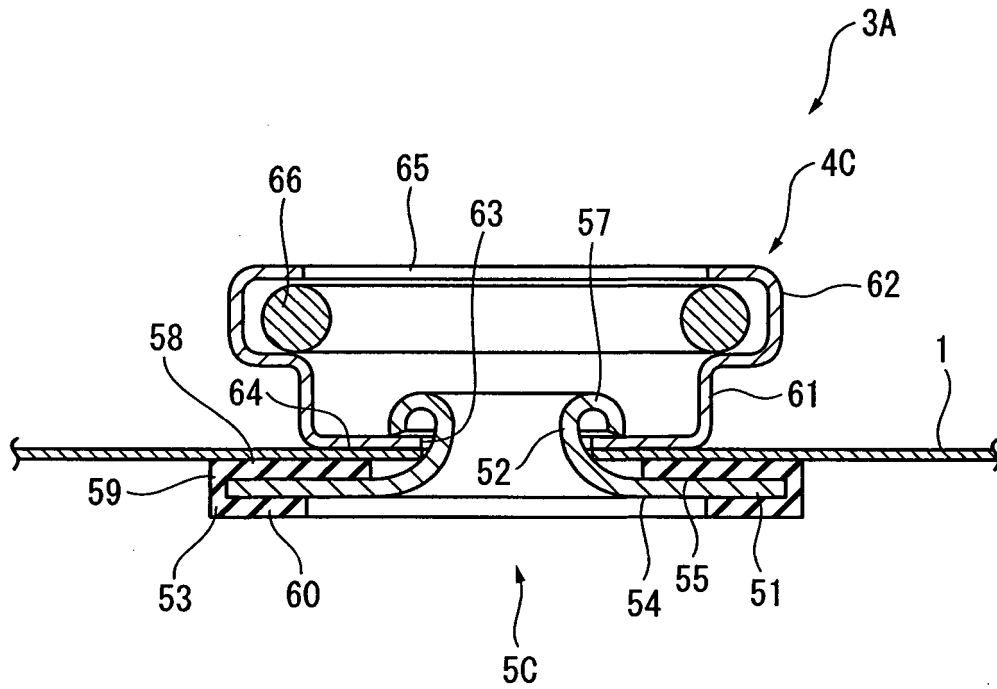


FIG. 6

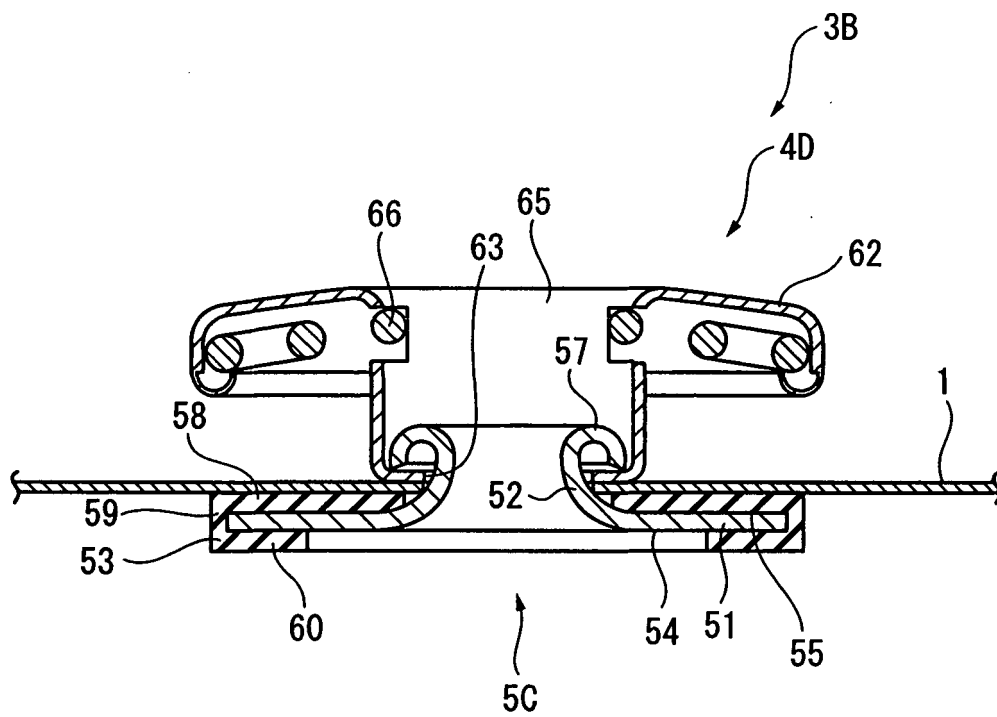


FIG. 7

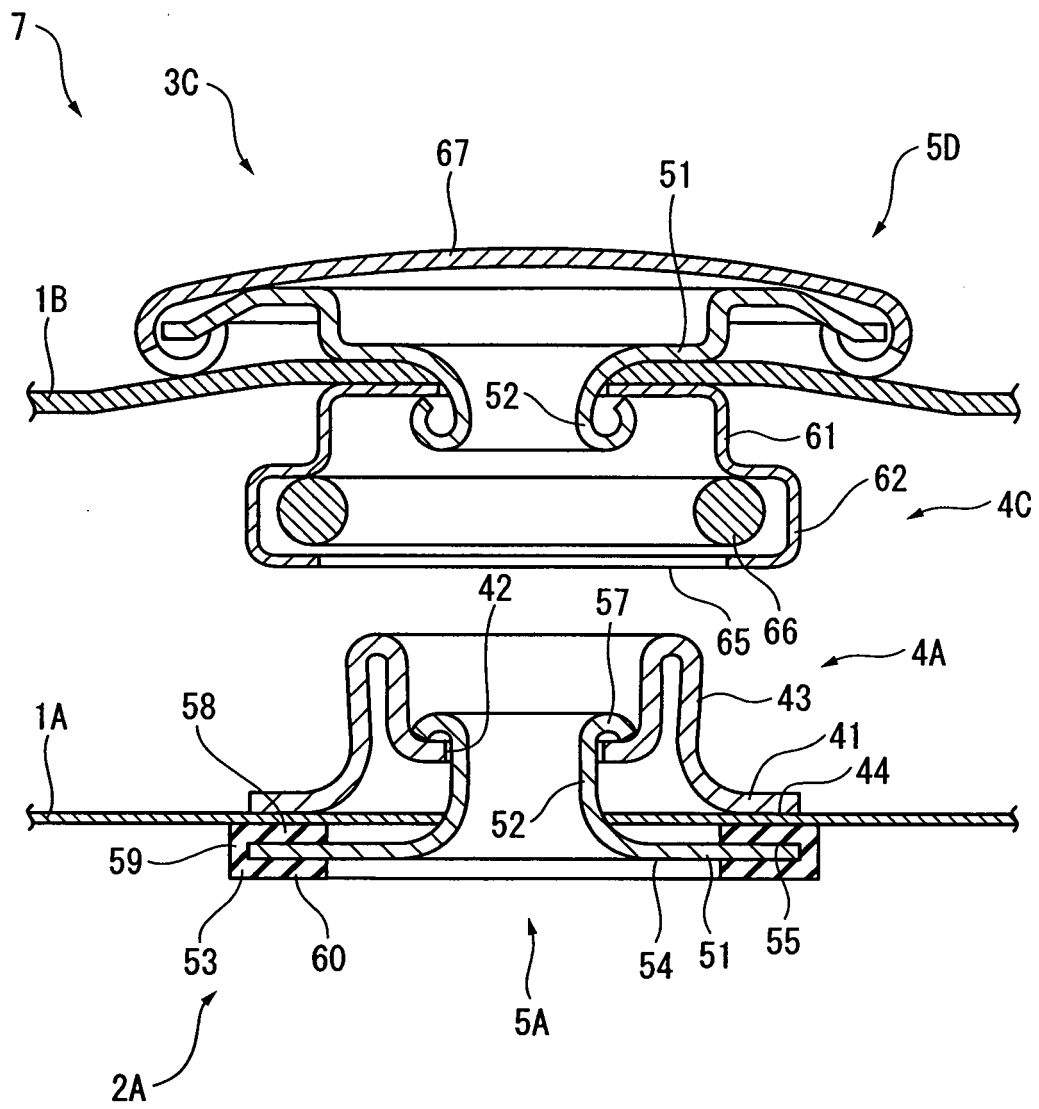


FIG. 8
PRIOR ART

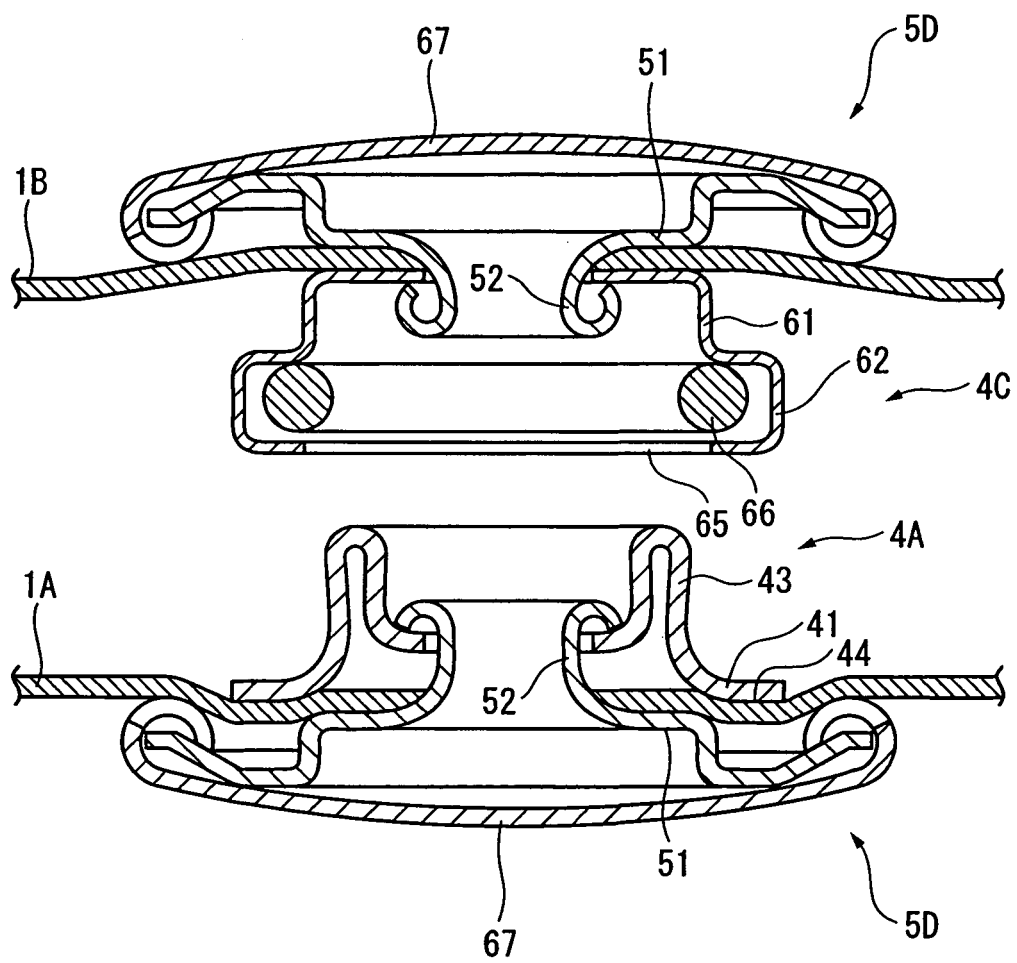


FIG. 9

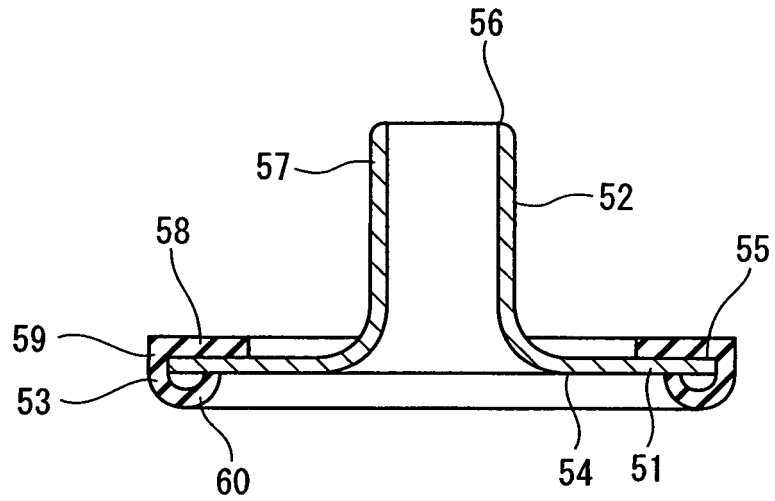


FIG. 10

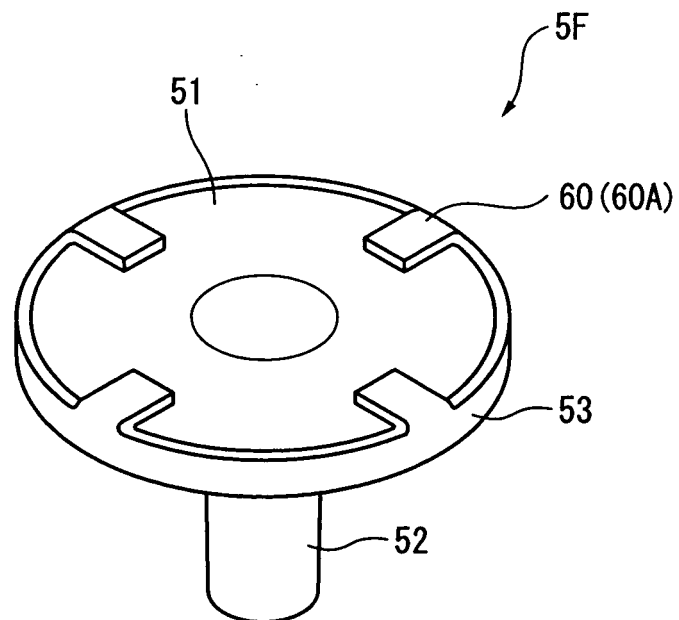


FIG. 11

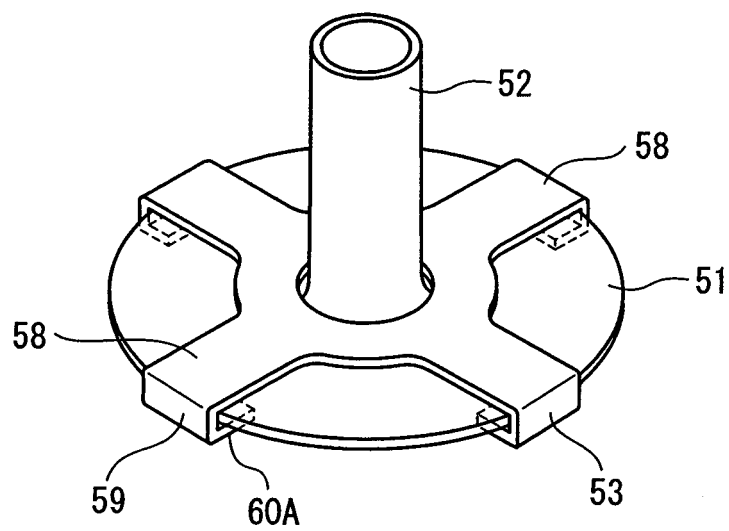


FIG. 12

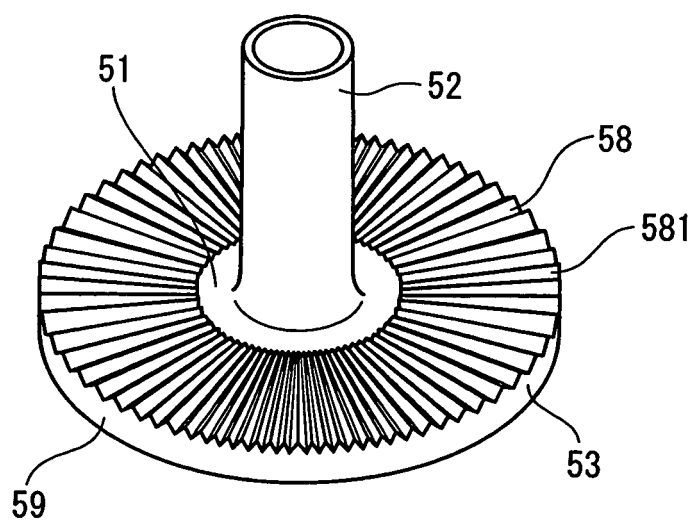


FIG. 13A
PRIOR ART

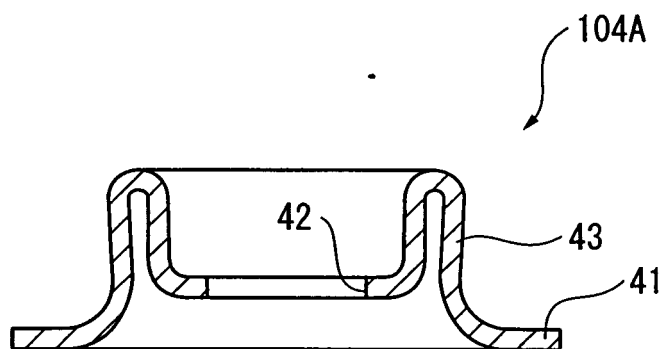


FIG. 13B
PRIOR ART

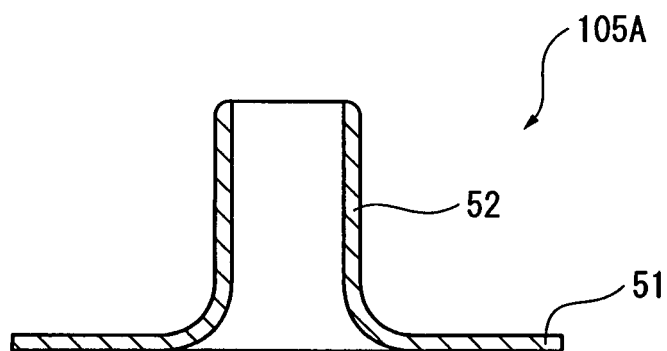


FIG. 14
PRIOR ART

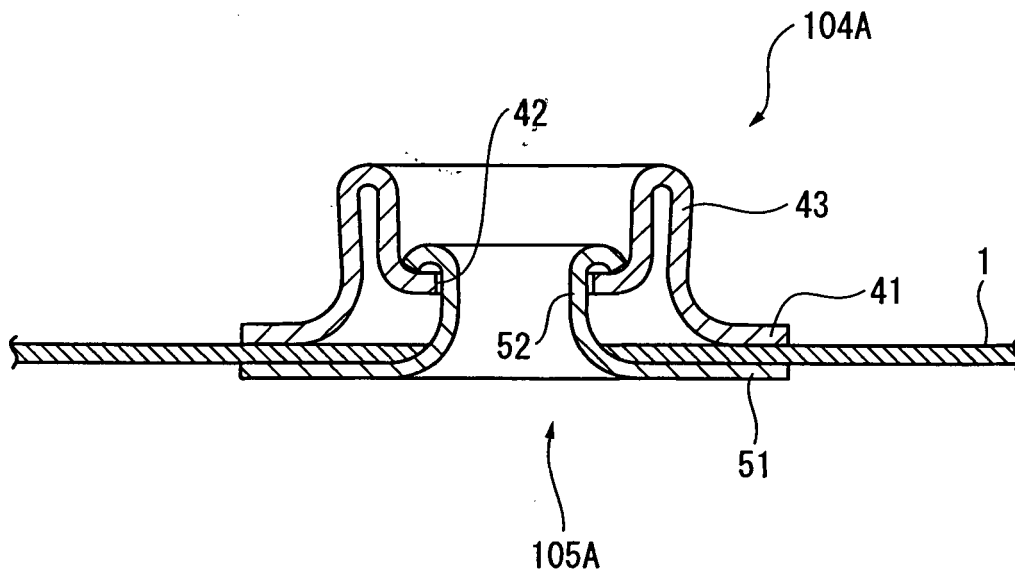


FIG. 15
PRIOR ART

