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(54) Slider for slide fastener

Schieber für Reissverschluss

Curseur pour fermeture à glissière

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(73) Proprietor: **YKK Corporation**
Chiyoda-ku,
Tokyo (JP)

(72) Inventors:
- **Iwase, Yuichi**
  Namerikawa-shi,
  Toyama-ken (JP)
- **Keyaki, Keiichi**
  Namerikawa-shi,
  Toyama-ken (JP)

(74) Representative: **Casalonga, Axel et al**
Casalonga & Partners
Bayerstrasse 73
80335 München (DE)

(56) References cited:
DE-B- 1 164 721 **US-A- 2 894 305**

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Description

[0001] The present invention relates to a pull rotated type slider of a slide fastener, in which a pull of the slider is capable of rotating from a top face to a front face and a bottom face of a body, and an upper stopper provided on a fastener chain opposing this pull rotated type slider.

[0002] In a conventionally known pull rotated type slider in a slide fastener, its U-shaped guide lever, which is provided on a body so as to guide a pull for rotating from a top face to a front face and a bottom face of the body, is formed having a T-shaped cross section. Further, the T-shaped guide portion for guiding the pull is so constructed that an inner face at its corner presents a right angle. For example, according to a pull rotated type slider disclosed in Japanese Utility Model Application Publication No. 38-7934, as shown in Fig. 13, the inner face at the corner of the U-shaped guide lever 110 provided on the body 119 is formed at the right angle and inwardly directed attachment pieces 118 provided on both sides of a front end of the pull 117 are fitted therein.

[0003] Also known by German patent application DE-A-1164721 (Poste1-Spritzguss) is a pull rotated type slider for opening and closing a fastener chain having a U-shaped guide lever.

[0004] US patent No 2,894,305 discloses a quick releasing type slide fastener. When a greater pulling force is exerted on the slider, it passes over the end stop whereupon the stringers are disengaged without moving the slider.

[0005] US patent No 1,302,606 discloses a separable fastener slider having a U-shaped yoke member on which the pull tab is attached and can travel around on either side of the slider.

[0006] Upper stopper provided on the fastener chain, which the known pull rotated type slider formed in the aforementioned way is mounted to slidably, is not an upper stopper having any special configuration, but a rectangular upper stopper made of an ordinarily used thermoplastic resin or a metallic upper stopper having a U-shaped cross section. Thus, this is not an upper stopper particularly corresponding to the U-shaped guide lever of the pull rotated type slider.

[0007] The slide fastener of the invention is attached to an edge of a mouth portion of a front pocket in a wear such as anorak, as shown in Fig. 2, so as to be used reversibly, and this slide fastener is convenient when it is intended to accommodate the wear into a reversed pocket. Therefore, if the slide fastener is attached to the edge of the mouth portion of the pocket and used reversibly, fastener tapes on front ends relative to the upper stoppers are mounted more or less in a closed state as shown in Fig. 3, for example, so as to form a good appearance pocket.

[0008] If the slide fastener is opened or closed with this state in case of the aforementioned conventional pull rotated type slider and upper stoppers, when the pull rotated type slider is operated to open the fastener chain from its closed condition to its open condition, the upper stopper of the fastener chain comes into contact with an inner face of the guide portion 111 having a T-shaped section in the U-shaped guide lever 110 of the pull rotated type slider, thereby making it difficult for the slider to be started or operated for the opening smoothly.

[0009] The invention has been achieved in views of the above-described problems and a main object of the invention is to provide a slide fastener, in which the pull rotated type slider and/or the upper stopper includes a guide portion for guiding the upper stopper and the guide lever in the pull rotated type slider, which are kept in a contact state with each other when the slider fastener is closed, in the direction that they leave each other in a sliding contact condition, when the pull rotated type slider is operated so as to open the fastener chain, thereby ensuring a start of a smooth opening operation.

[0010] In addition, another object of the invention is to provide a slide fastener, in which even if both fastener tapes on front ends relative to the upper stoppers mounted on the fastener chain are disposed in a closed state, that is, such that they approach each other, excessive contact between the guide lever and the upper stoppers is released easily, thereby starting the opening operation of the pull rotated type slider smoothly. Further, it is a further object to provide a slide fastener, in which a smooth opening operation of the pull rotated type slider is achieved and which comprises a pull rotated type slider which allows the pull thereof to be rotated securely without the pull's escaping from the guide lever through the guide portion.

[0011] To achieve the above-described objects, according to the invention, there is provided a slide fastener with a pull rotated type slider for opening or closing a fastener chain having upper stoppers. The slider has a U-shaped guide lever protruded continuously from a top face, a front face and a bottom face of a body thereof an inner face of said guide lever having a pull guide portion formed with a T-shaped cross section. The pull guide portion includes a guide face formed in an arc face or an inclined face for guiding an upper stopper and the guide lever kept in a state that they contact with each other upon closing the fastener chain so as to achieve a sliding contact and a separation of the upper stopper and the guide lever upon separating the fastener chain. The guide face is provided on the inner edge portion of the guide lever, in the front piece thereof, except for the upper and lower pieces thereof and expanding gradually from an end portion of the upper and lower pieces toward the front piece so as to guide and expand upper stoppers to right and left when a pulling force is applied by a pull in opening direction of the fastener chain.

[0012] With such a structure, it is possible to obtain a slide fastener, in which the pull rotated type slider can be started very smoothly when it is intended to open the fastener chain in the closed state and further execute the opening operation easily.

[0013] And it is preferable that fastener tapes on a front

end side relative to the upper stoppers attached of the fastener chain are disposed such that they are curved inwardly, that is, in a closed state. With such a structure, even if front ends of the fastener chain are disposed relatively in the closed state, the pull rotated type slider can be started smoothly and the opening operation can be executed smoothly, thereby finishing a slider fastener optimal for a reversible product.

[0014] Further, in the pull rotated type slider disposed on the fastener chain, it is preferable that a pull guide portion with T-shaped cross section is formed integrally continuous along the guide lever and an inner edge of the pull guide portion mounted on the fastener chain includes a guide face for the upper stopper formed in an arc face or an inclined face.

[0015] And further, it is preferable that the guide face for the upper stopper disposed on the pull guide portion in the guide lever of the pull rotated type slider is provided on an inner edge of the pull guide portion of a front face of the body or provided on an inner edge of the pull guide portion, which the upper stopper comes into sliding contact with, disposed on the front face of the body. With such a structure, the pull rotated type slider capable of corresponding to the configuration of the upper stopper promptly can be provided easily.

[0016] Further, it is possible that the guide face for the upper stopper disposed on the pull guide portion in the guide lever of the pull rotated type slider has a horizontal holding face capable of coming into sliding contact with an attaching piece at a base end thereof. With such a structure, in the pull rotated type slider inserted into the fastener chain, the pull can be held to the guide lever so securely that it never escapes, and at the same time, the pull can be moved around easily.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017]

Fig. 1 is a front view of a slide fastener.

Fig. 2 is a front view of a wear employing the slide fastener.

Fig. 3 is a front view showing a use condition of the slide fastener.

Fig. 4 is a front view of a pull rotated type slider.

Fig. 5 is a side view of the same pull rotated type slider.

Fig. 6 is a sectional view taken along the line VI-VI in Fig. 4 of the same pull rotated type slider.

Fig. 7 is a sectional view of a front piece of a guide lever.

Fig. 8 is a sectional view showing a modification of a front piece of the guide lever.

Fig. 9 is a partially broken front view showing a start mechanism disposed in the guide lever.

Fig. 10 is a side view showing a modification of the pull rotated type slider.

Fig. 11 is a partially broken front view showing the start mechanism disposed in the guide lever and the upper stopper.

Fig. 12 is a partially broken front view showing the start mechanism disposed on the upper stopper which is not part of the present invention.

Fig. 13 is a front view of a well-known pull rotated type slider.

[0018] Hereinafter, embodiments of a slide fastener of the invention will be described with reference to the accompanying drawings.

[0019] The slide fastener of the invention is a reversible slide fastener, which is used at a pocket B in a wear A such as anorak shown in Fig. 2. This slide fastener is a well-known slide fastener. For example, in a fastener chain 1 shown in Fig. 1, fastener elements 3, upper stoppers 4 and a lower stopper 5 are integrally molded along side edges of a fastener tape 2 using thermoplastic resin such as polyacetal, polyamide, polypropylene, polybutylene terephthalate or the like, by injection molding means so as to produce a slide fastener. Meanwhile, the fastener element may be zigzag-type linear fastener element of synthetic resin monofilament or a single metallic unit.

[0020] In a known reversible pull rotated type slider 6, as shown in Figs. 4 to 6, in order to form a pull 7 such that it may round from a top face to a front face and a bottom face of a body 9, in which an upper plate 15 and a lower plate 16 are connected through a diamond 17, a U-shaped guide lever 10 entirely presenting a U-letter is mounted on the body 9. The U-shaped guide lever 10 is mounted so as to surround a mounting post 22 erected at a rear mouth of the upper plate 15 and the lower plate 16 of the body 9 in a condition that the U-shaped guide lever 10 is capable of moving slightly back and forth. Consequently, the U-shaped guide lever 10 is moved by pulling the pull 7 in a back-and-forth direction.

[0021] A concave portion 21 is provided in a front face of the diamond 17 of the body 9 so as to accommodate a hook piece 31 of a locking lever 28. Further, an insertion hole 24 is provided laterally in a middle of the diamond 17 and a spring 33 is fitted therein in order to press the hook piece 31 of the locking lever 28. A pawl hole 23 is made near the rear mouth of the upper plate 15 of the body 9 and a locking pawl 29 of the locking lever 28 is fitted therein. The locking pawl 29 is capable of moving into/from a guide groove 20 in the fastener element 3.

[0022] In the pull rotated type slider 6, the body 9 and U-shaped guide lever 10 are formed separately by die-casting using metal such as aluminum alloy, zinc alloy or the like, and the pull 7 is produced by pressing a metallic plate. After that, the pull rotated type slider 6 is assembled.

[0023] An inner face of the U-shaped guide lever 10 is formed with T-shaped cross section. For example, in a front piece 39 of the U-shaped guide lever 10 disposed on a front face of the body 9 as shown in Fig. 7, a center of the T-shaped pull guide portion 11 is protruded inward so as to form a cam 25 and a concave groove 13 is pro-

vided in a center of each of the pull guide portions 11 of an upper piece 37 and a lower piece 38. The top portion of the locking lever 28 supported by the body 9 is fitted into the concave groove 13 of the upper piece 37 while a convex row 19 protruded on a surface of the lower plate 16 of the body 9 is fitted into the concave groove 13 of the lower piece 38.

[0024] The locking lever 28 is entirely formed in substantially elongated inverted-U shape and provided with the locking pawl 29 at one end and the hook piece 31 which is longer than the locking pawl 29 at the other end thereof. A pin hole 32 is provided in a base portion of the hook piece 31 so as to support the locking lever 28 on the body 9 with a pin 34 such that it can swing freely. A protruded piece 30 is provided protrudedly on an upper side of the hook piece 31 and this protruded piece 30 is fitted into an elongated hole 26 provided in the U-shaped guide lever 10 thereby restricting the swing of the locking lever 28 in the back-and-forth direction. When the U-shaped guide lever 10 is moved forward by the pull 7, the protruded piece 30 is pressed by an edge portion of the elongated hole 26. Consequently, the locking pawl 29 is made to float from the guide groove 20 against elastic force of the spring 33, so that the pull rotated type slider 6 can be slid in the closing direction.

[0025] If the pull rotated type slider 6 is slid in the opening direction, the U-shaped guide lever 10 is moved toward the rear mouth by pulling the pull 7, and at the same time, the hook piece 31 presses and pressurizes the spring 33 by a cam 25 so as to make the locking pawl 29 float from the guide groove 20. Consequently, the pull rotated type slider 6 can be slid. Generally, the pull rotated type slider is operated as described above.

[0026] The feature of the slide fastener of the invention is provision of a start mechanism, which allows the pull rotated type slider 6 to start smoothly in the opening direction of the fastener chain 1 when the slide fastener is used in a mode that ends of the fastener tape 2 are closed as shown in Fig. 3. In case where the conventional slide fastener is disposed in the state shown in Fig. 3, a front end of the upper stopper 4 mounted on the fastener chain 1 comes into contact with a corner of the pull guide portion 11 in the U-shaped guide lever 10 disposed in the pull rotated type slider 6. Consequently, the sliding of the pull rotated type slider 6 is blocked and the starting of the slider becomes difficult.

[0027] According to a first embodiment of the start mechanism in the pull rotated type slider 6 of the invention, as shown in Fig. 5, an inclined face at an inner edge portion of the pull guide portion 11 in the front piece 39, except for the upper piece 37 and the lower piece 38, in the U-shaped guide lever 10 provided on the periphery of the body 9 is cut out as shown in Figs. 7 and 9 so as to form the guide face 12 for the upper stopper.

[0028] The pull guide portion 11 of the U-shaped guide lever 10 is formed with T-shaped cross section and the inner edge portion of this pull guide portion 11 is formed into an inclined face so as to provide the guide face 12. A holding face 14 for holding the pull 7 in the horizontal condition, which comes into sliding contact with a front end of each L-shaped attaching piece 8 formed in the pull 7, is formed at a base end of the guide face 12, thereby holding the pull 7 securely and preventing the pull 7 from escaping from the U-shaped guide lever 10 in advance. In the meantime, the guide face 12, which is an inclined face in Fig. 7, may be an arc face as shown in Fig. 8. This arch-shaped guide face 12 is formed such that it is expanded gradually from an end portion of the upper piece 37 or lower piece 38 toward the front piece 39.

[0029] By disposing such a guide face 12 in the pull guide portion 11, even if the upper stoppers 4 mounted on the fastener chain 1 has a conventional shape, the upper stoppers 4 are guided and expanded easily to right and left by the guide face 12 provided in the pull guide portion 11 when a force is applied to the pull guide portion 11 in the direction of an arrow as shown in Fig. 9. Consequently, the pull rotated type slider can be started smoothly. Meanwhile, a fulcrum of pulling operation of the pull 7 in the closing direction of the pull rotated type slider 6 is a point P indicated in figures.

[0030] According to a second embodiment of the start mechanism, even if the guide face 12 is formed by cutting out a part of the front piece 39 of the U-shaped guide lever 10 provided on the periphery of the body 9, for example, only a portion which the upper stopper 4 mounted on the fastener chain 1 comes into sliding contact with, so as to define an inclined face or an arc face, as shown in Fig. 10, the pull rotated type slider 6 can be started smoothly.

[0031] According to a third embodiment of the start mechanism, as shown in Fig. 11, the guide face 12 for the upper stopper 4 is formed by cutting out an inner edge portion of the pull guide portion 11 in the front piece 39 of the U-shaped guide lever 10, as shown in Fig. 11, so as to define an inclined face or an arc face. Further, a guide portion 35 for the U-shaped guide lever 10 is formed by cutting out the corner which the pull guide portion 11 of the U-shaped guide lever 10 in the pull rotated type slider 6 comes into contact with, the upper stopper 4 mounted on the fastener chain 1. Consequently, the pull rotated type slider 6 can be started smoothly by a sliding contact between this guide face 12 and the guide portion 35.

[0032] According to another form of start mechanism, as shown in Fig. 12, which is not part of the invention, the upper piece 37, the lower piece 38 and the front piece 39 of the U-shaped guide lever 10 in the pull rotated type slider 6 are formed in a conventional configuration with a inner face formed at right angle. The corner which the pull guide portion 11 of the U-shaped guide lever 10 comes into contact with, the upper stopper 4 mounted on the fastener chain 1 is cut out in a wide inclined face or an arc face protruded outward from the outside edge of the pull guide portion 11 so as to form the guide portion 35 for the U-shaped guide lever 10. Consequently, the

pull rotated type slider 6 can be started smoothly.

[0033] As described above, the slide fastener of the invention has various kinds of the start mechanisms. Therefore, of course, the conventional use condition is available and even if end portions of the fastener chain 1 are closed upon usage as shown in Fig. 3, the pull rotated type slider 6 can be started smoothly and further, it can be changed to a reversible slide fastener easily.

Claims

1. A slide fastener with a pull rotated type slider (6) for opening or closing a fastener chain (1) having upper stoppers (4), said slider (6) having a U-shaped guide lever (10) protruded continuously from a top face, a front face and a bottom face of a body (9) thereof an inner face of said guide lever (10) having a pull guide portion (11) formed with a T-shaped cross section, said pull guide portion (11) including a guide face (12) formed in an arc face or an inclined face for guiding an upper stopper (4) and the guide lever (10) kept in a state that they contact with each other upon closing the fastener chain so as to achieve a sliding contact and a separation of the upper stopper (4) and the guide lever (10) upon separating the fastener chain, said guide face being provided on the inner edge portion of the guide lever, in the front piece (39) thereof, except for the upper (37) and lower (38) pieces thereof and expanding gradually from an end portion of the upper (37) and lower (38) pieces toward the front piece (39) so as to guide and expand upper stoppers (4) to right and left when a pulling force is applied by a pull (7) in opening direction of the fastener chain.

2. A slide fastener according to claim 1, wherein right and left end portions of the fastener chain (1) on the side to which the upper stopper (4) is attached are disposed in such a manner that the end portions are approached to each other.

3. A slide fastener according to claims 1 or 2, wherein said guide face (12) for the upper stopper (4) is formed on an inner edge of a pull guide portion (11 of said guide lever (10) with which the upper stopper (4) comes into sliding contact disposed on a front face of a body (9).

4. A slide fastener according to any claims 1 to 3, wherein said guide face (12) for the upper stopper (4) has a horizontal holding face (14) at a base end thereof, which comes into sliding contact with an attaching piece (8) of a pull (7).

Patentansprüche

1. Reißverschluss mit einem Zieherdrehungstyp-Schieber (6) zum Öffnen oder Schließen einer obere Anschläge (4) aufweisenden Verschlusskette (1), wobei der Schieber (6) einen U-förmigen Führungshebel (10) aufweist, der kontinuierlich von einer oberen Fläche, einer vorderen Fläche und einer unteren Fläche eines Körpers (9) desselben vorragt, wobei eine innere Fläche des Führungshebels (10) einen mit einem T-förmigen Querschnitt ausgebildeten Zieherführungsabschnitt (11) aufweist, wobei der Zieherführungsabschnitt (11) eine in einer Bogenfläche oder einer Neigungsfläche ausgebildete Führungsfläche (12) zum Führen eines oberen Anschlags (4) beinhaltet und der Führungshebel (10) in solcher Lage gehalten wird, dass sie einander berühren beim Schließen der Verschlusskette zwecks Erzielung eines gleitenden Kontakts und einer Trennung des oberen Anschlags (4) und des Führungshebels (10) beim Trennen der Verschlusskette, wobei die Führungsfläche auf dem Innenrandabschnitt des Führungshebels, im vorderen Teil (39) desselben, den oberen (37) und den unteren (38) Teil desselben ausgenommen, vorgesehen ist und sich graduell von einem Endabschnitt des oberen (37) und des unteren (38) Teils in Richtung des vorderen Teils (39) ausdehnt zum Führen und Ausbreiten oberer Anschläge (4) nach rechts und nach links, wenn durch einen Zieher (7) eine Zugkraft in Öffnungsrichtung der Verschlusskette angewandt wird.

2. Reißverschluss nach Anspruch 1, wobei der rechte und der linke Endabschnitt der Verschlusskette (1) auf der Seite, an der der obere Anschlag (4) angebracht ist, in solcher Weise angeordnet sind, dass die Endabschnitte einander genähert sind bzw. werden.

3. Reißverschluss nach Anspruch 1 oder 2, wobei die Führungsfläche (12) für den oberen Anschlag (4) auf einem auf einer vorderen Fläche eines Körpers (9) angeordneten Innenrand eines Zieherführungsabschnitts (11) des Führungshebels (10) ausgebildet ist, mit dem der obere Anschlag (4) in gleitenden Kontakt kommt.

4. Reißverschluss nach einem der Ansprüche 1 bis 3, wobei die Führungsfläche (12) für den oberen Anschlag (4) eine horizontale Haltefläche (14) an einem Basisende derselben aufweist, die in gleitenden Kontakt mit einem Befestigungsteil (8) eines Ziehers (7) kommt.

Revendications

1. Fermeture à glissière comportant un curseur du type

à tirette rotative (6) pour ouvrir ou fermer une chaîne de fermeture (1) comportant des butées supérieures (4), ledit curseur (6) ayant un levier de guidage en U (10) qui fait saillie de façon continue depuis une face supérieure, une face avant et une face inférieure d'un corps (9) de celui-ci, une face intérieure dudit levier de guidage (10) comportant une partie de guidage de tirette (11) présentant une section transversale en forme de T, ladite partie de guidage de tirette (11) comprenant une face de guidage (12) formant une face arquée ou une face inclinée pour guider une butée supérieure (4) et le levier de guidage (10) maintenus dans un état dans lequel ils sont en contact entre eux lors de la fermeture de la chaîne de fermeture afin d'obtenir un contact glissant et une séparation de la butée supérieure (4) et du levier de guidage (10) lors de la séparation de la chaîne de fermeture, ladite face de guidage étant placée sur la partie de bord intérieur du levier de guidage, dans la partie avant (39) de celui-ci, à l'exception des parties supérieure (37) et inférieure (38) de celui-ci et grandissant progressivement depuis une partie d'extrémité des parties supérieure (37) et inférieure (38) vers la partie avant (39) afin de guider et d'écarter les butées supérieures (4) vers la droite et la gauche quand une force de traction est appliquée par une tirette (7) dans la direction d'ouverture de la chaîne de fermeture.

2. Fermeture à glissière selon la revendication 1, dans laquelle des parties d'extrémité droite et gauche de la chaîne de fermeture (1) du côté sur lequel la butée supérieure (4) est fixée sont disposées de telle manière que les parties d'extrémité sont rapprochées l'une de l'autre.

3. Fermeture à glissière selon la revendication 1 ou 2, dans laquelle ladite face de guidage (12) pour la butée supérieure (4) est formée sur un bord intérieur d'une partie de guidage de tirette (11) dudit levier de guidage (10) sur lequel la butée supérieure (4) vient en contact glissant disposé sur une face avant d'un corps (9).

4. Fermeture à glissière selon l'une quelconque des revendications 1 à 3, dans laquelle ladite face de guidage (12) pour la butée supérieure (4) comporte une face de support horizontale (14) au niveau d'une extrémité de base de celle-ci, qui vient en contact glissant avec une partie de fixation (8) d'une tirette (7).

FIG. 1

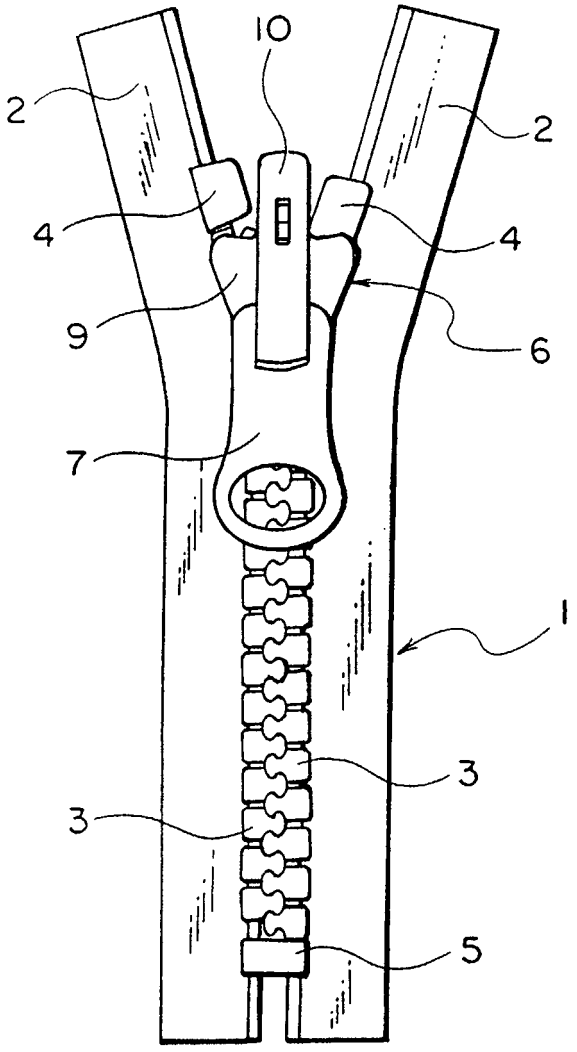


FIG. 2

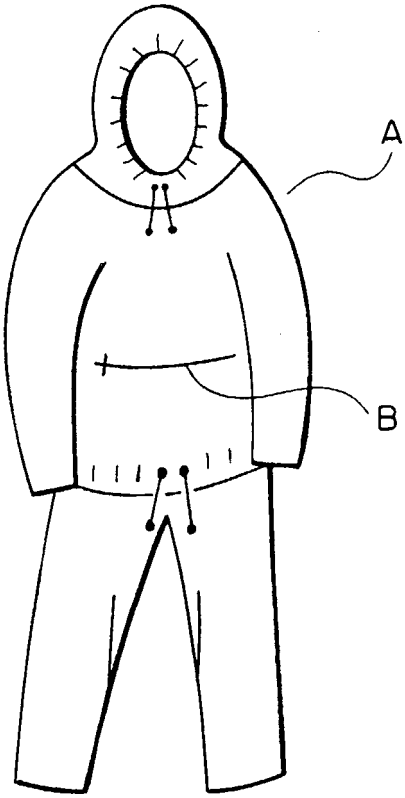


FIG. 3

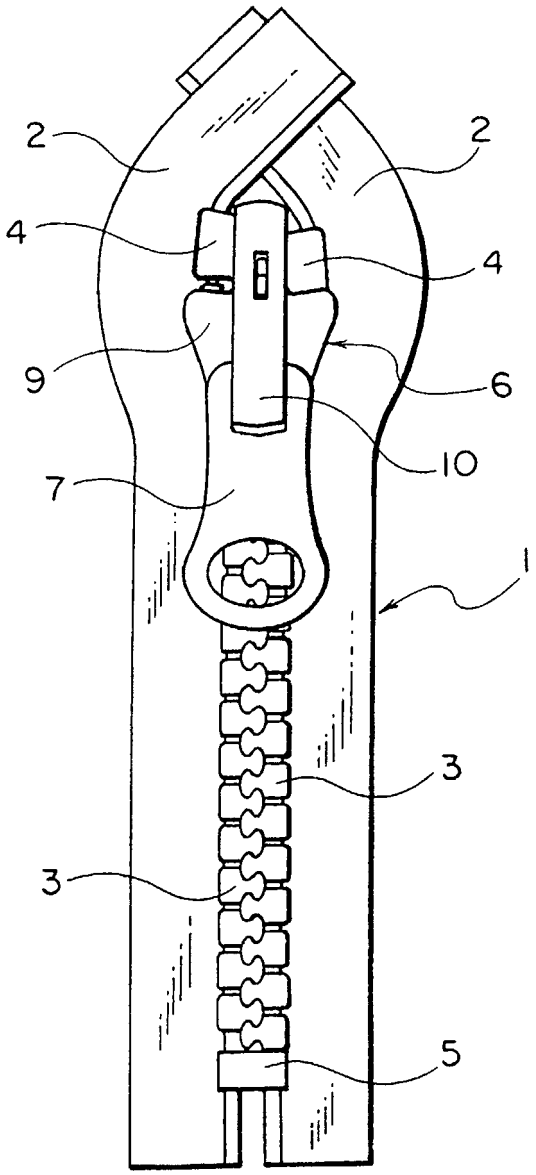


FIG. 4

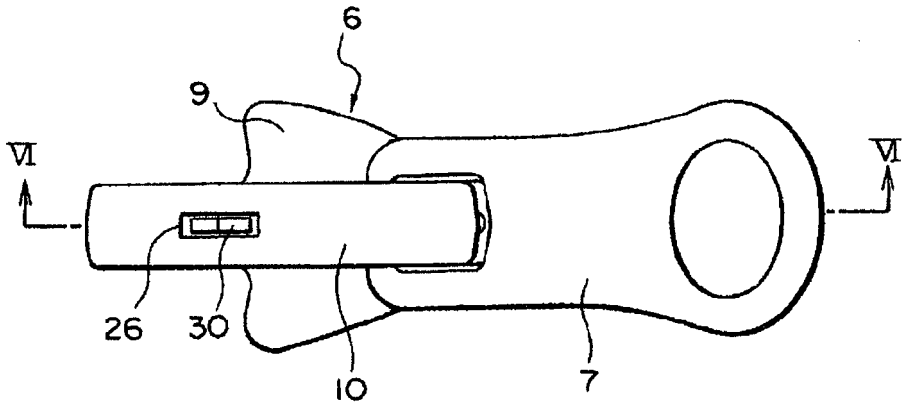

6
9
VI
VI
26
30
10
7

FIG. 5

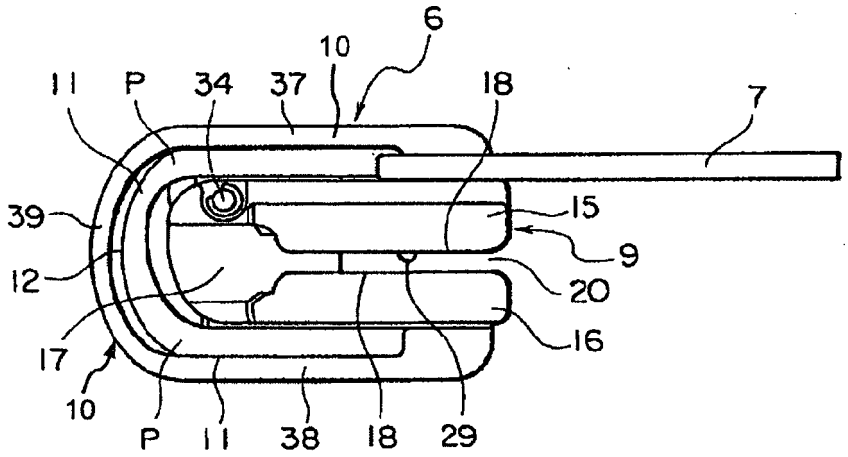

6
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11
P
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12
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10
P
11
38
18
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FIG. 6

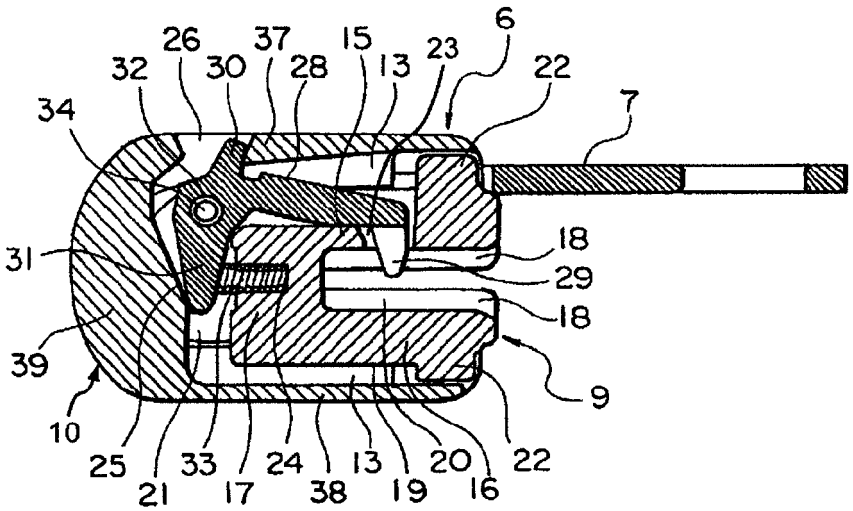

6
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FIG. 7

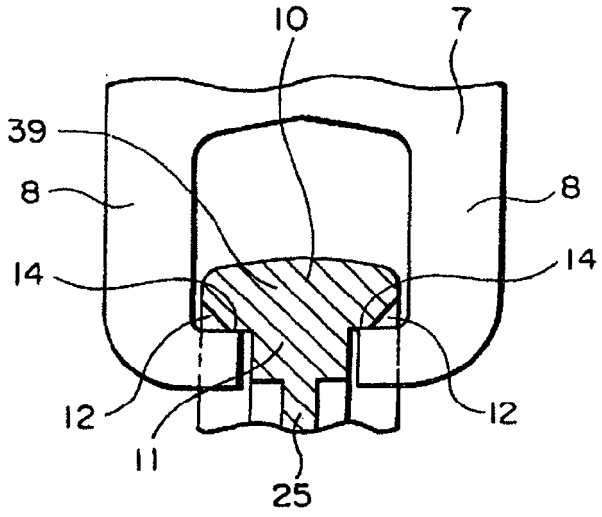

10
7
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8
8
14
14
12
12
11
25

FIG. 8

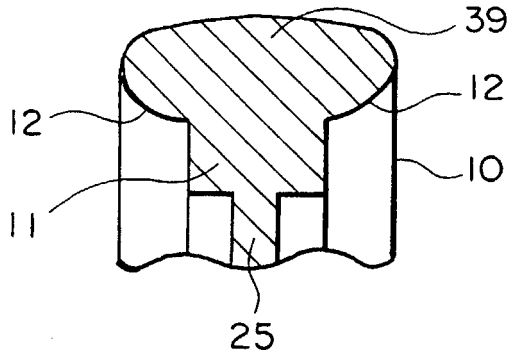


FIG. 9

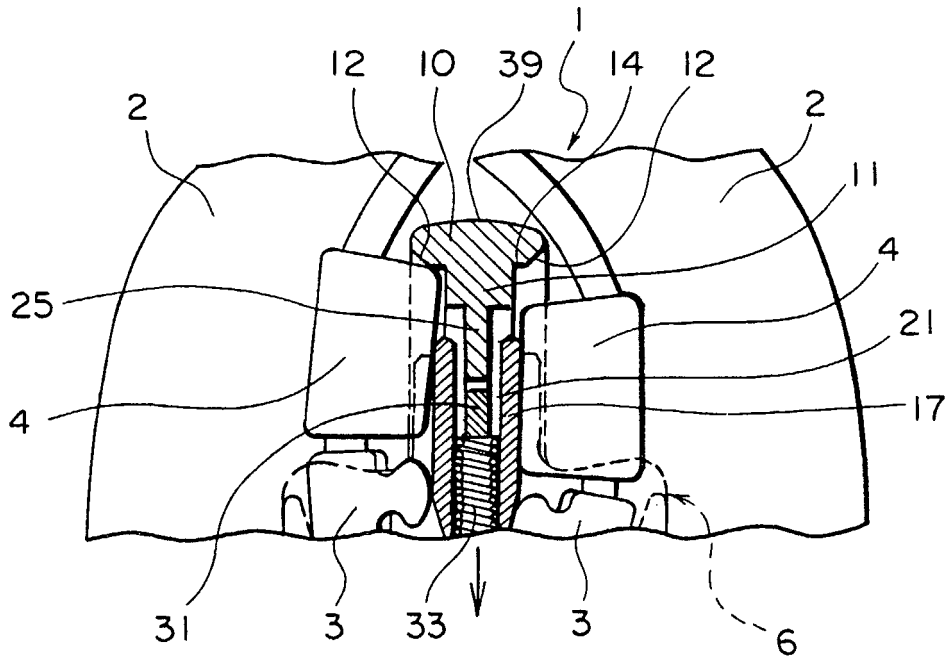


FIG. 10

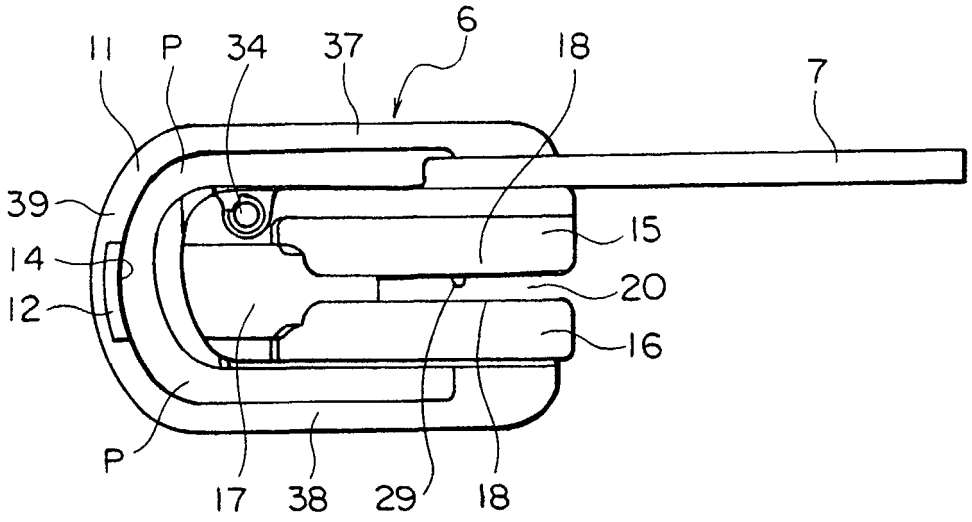

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FIG. 11

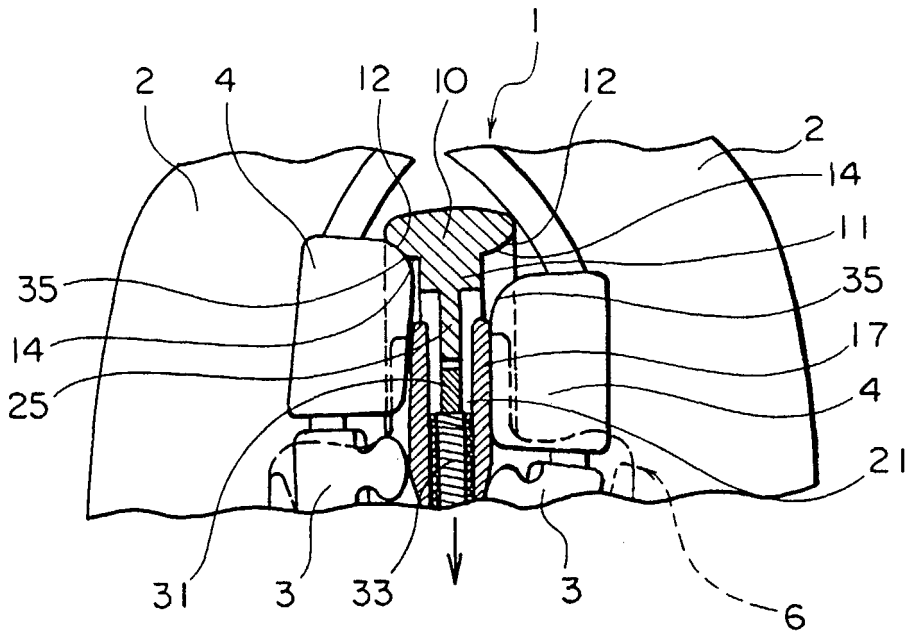

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FIG. 12

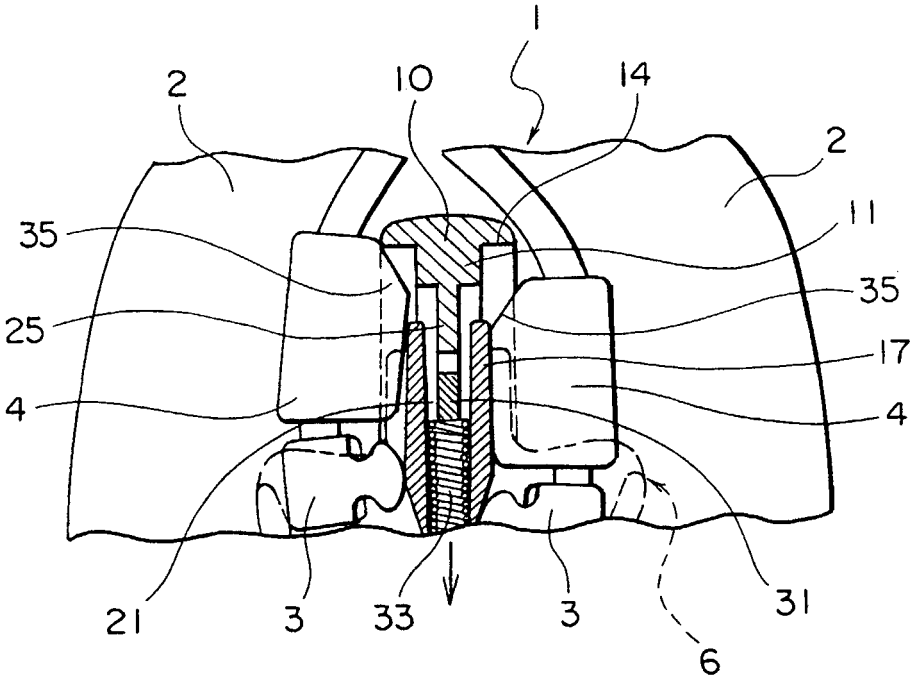
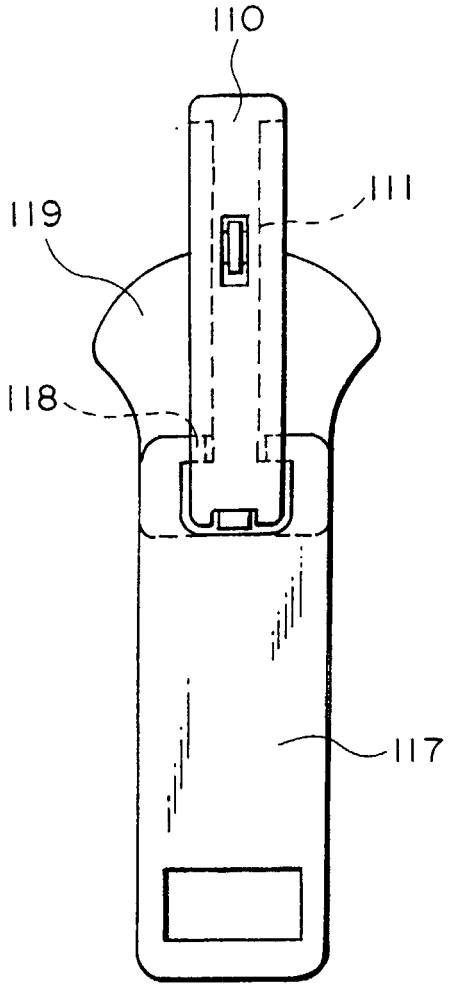


FIG. 13
PRIOR ART



REFERENCES CITED IN THE DESCRIPTION

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