



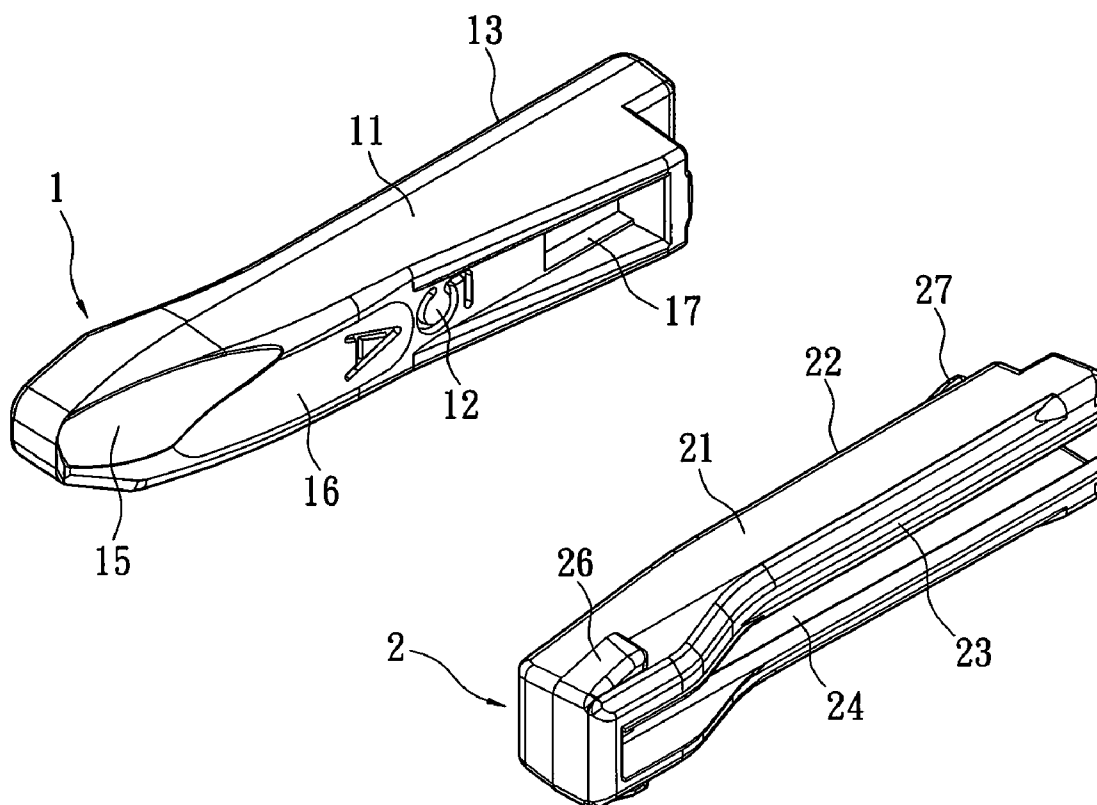
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(19) **United States**(12) **Patent Application Publication**
LIN(10) **Pub. No.: US 2010/0299887 A1**(43) **Pub. Date: Dec. 2, 2010**(54) **INSERTION PIN AND INSERTION PIN
ASSEMBLY FOR ZIPPER****Publication Classification**(51) **Int. Cl.**
A44B 19/24

(2006.01)

(52) **U.S. Cl.** **24/433**(57) **ABSTRACT**

An insertion pin for a zipper, in which the insertion pin has an insertion pin body with a first side and a second side that are opposite to each other and lengthwise along the insertion pin body is provided. A first receiving slot is formed on an interior of the insertion pin body. The first side has a slant surface close to a head of the insertion pin body. Via the aforementioned design, interference can be prevented when the insertion pin inserts a slider tab, and thus making the insertion action smooth. An insertion pin assembly is further provided.

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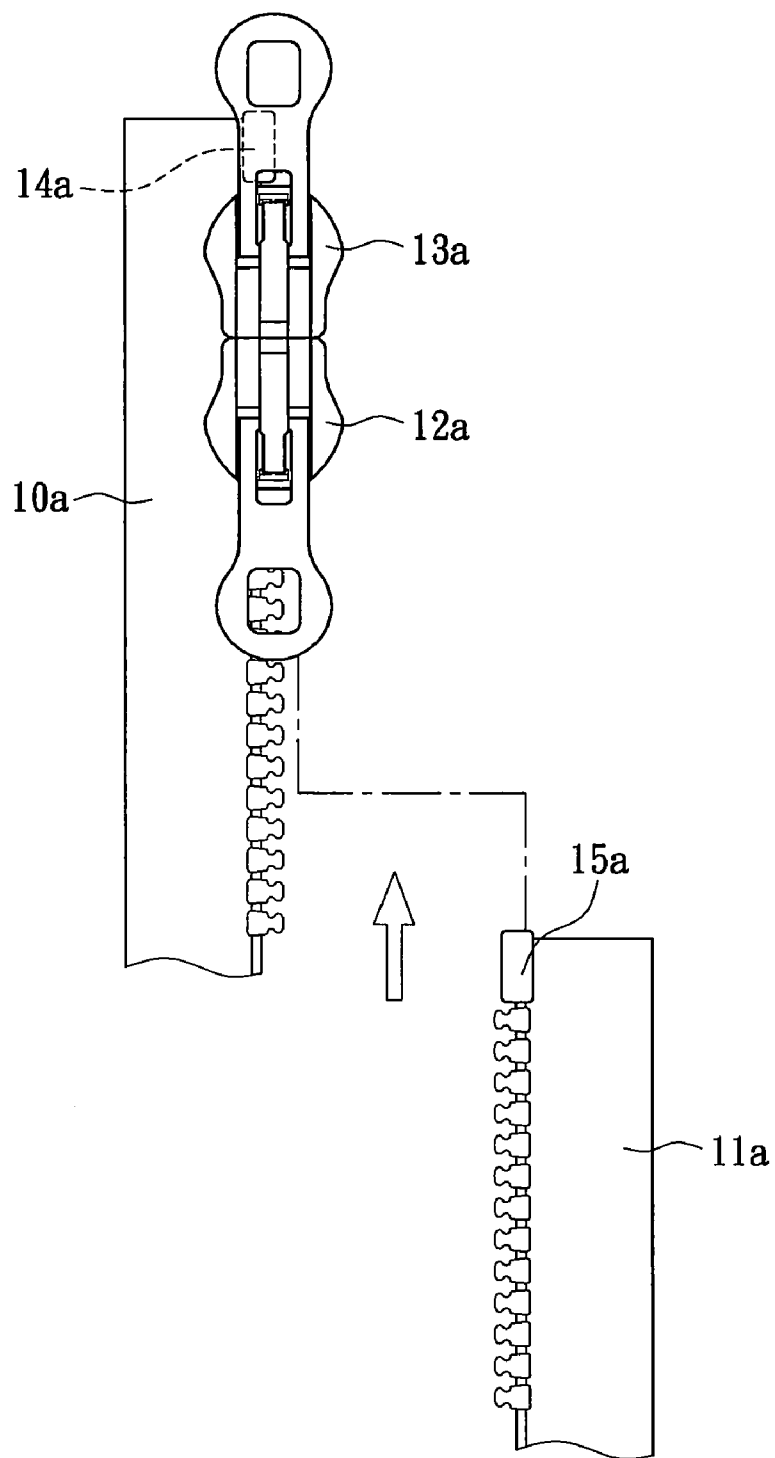


FIG. 1
PRIOR ART

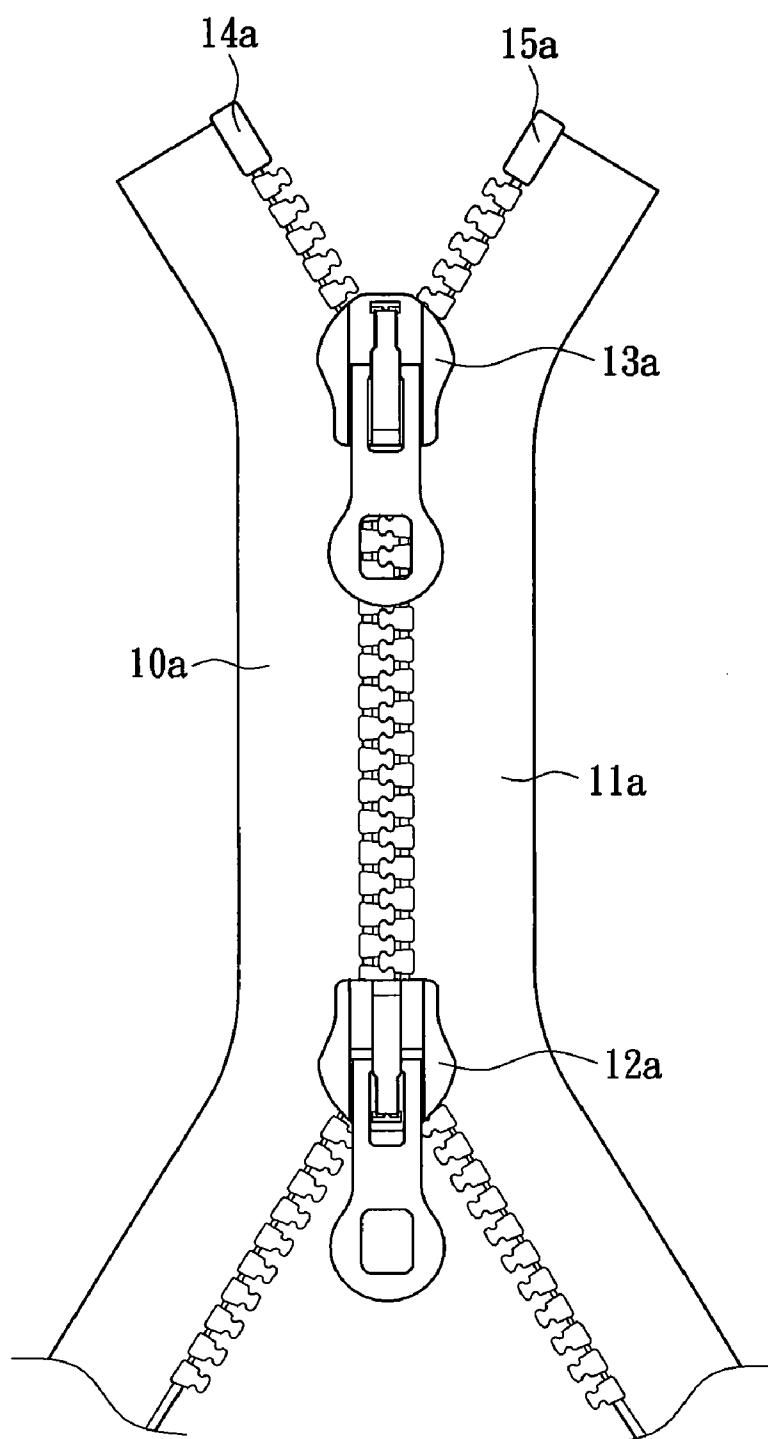


FIG. 2
PRIOR ART

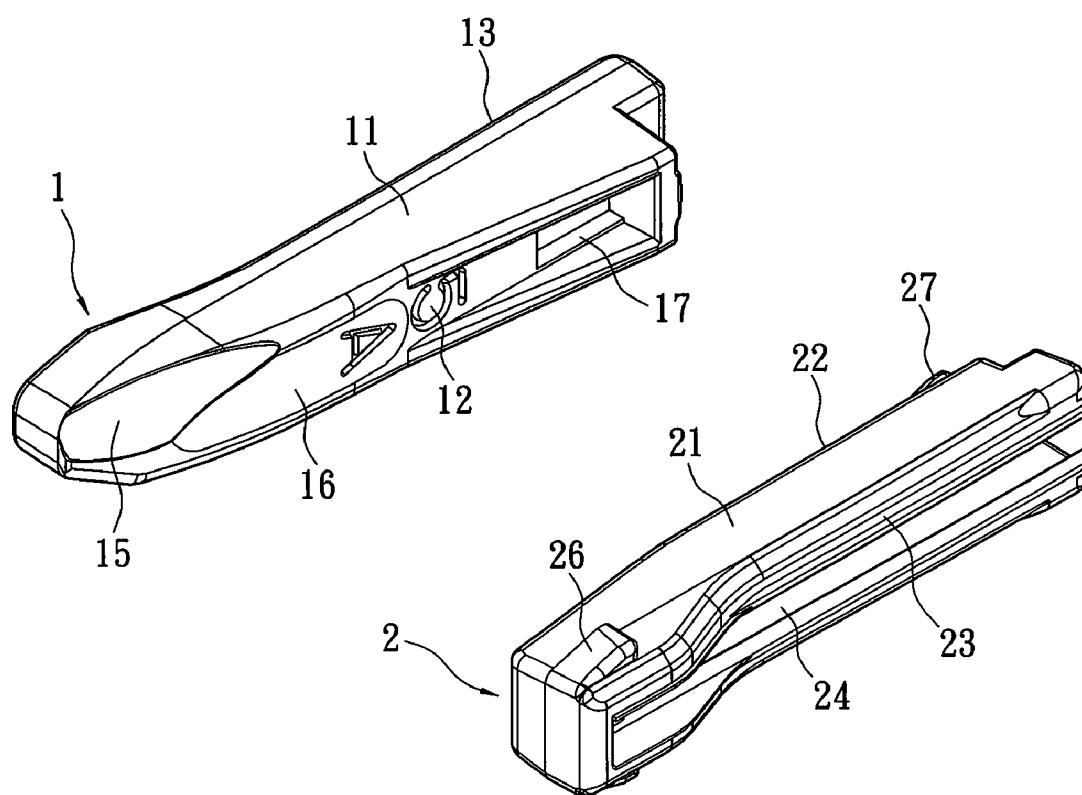


FIG. 3

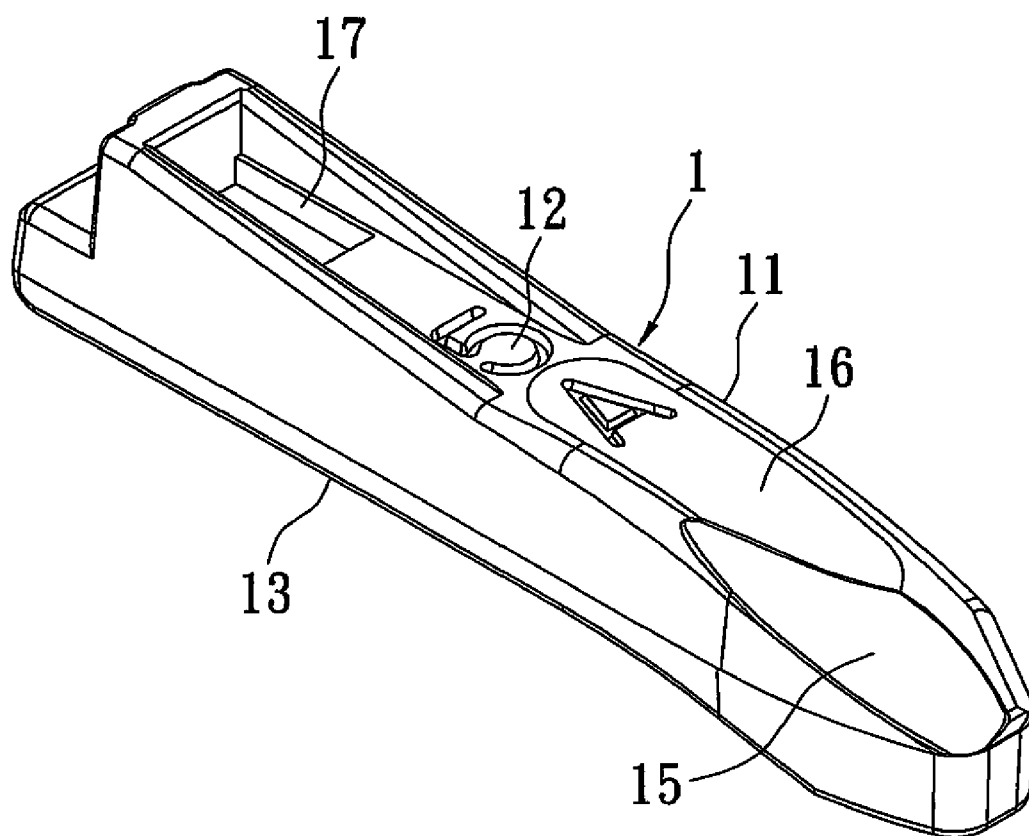


FIG. 4

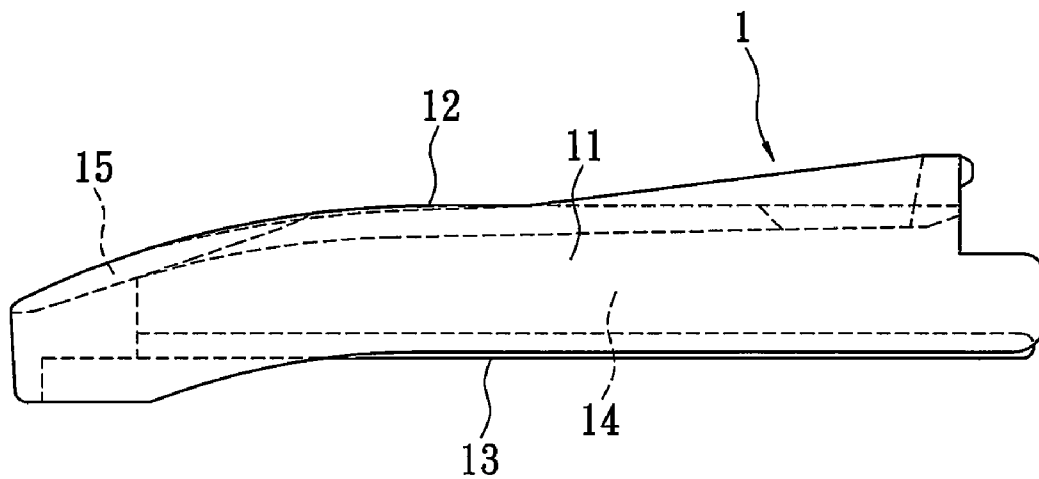


FIG. 5

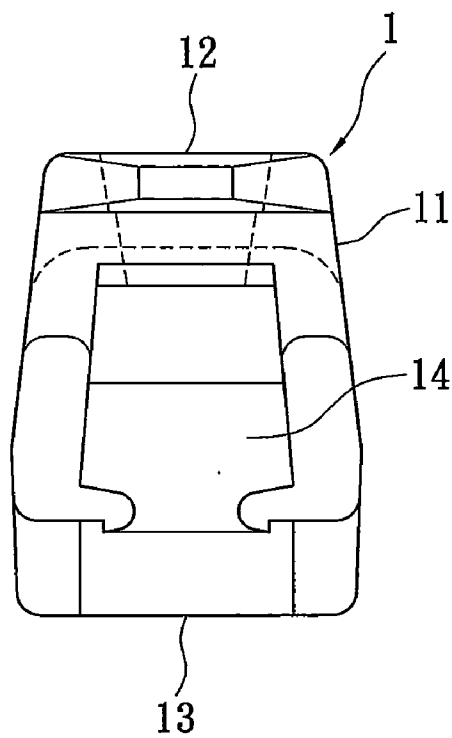


FIG. 6

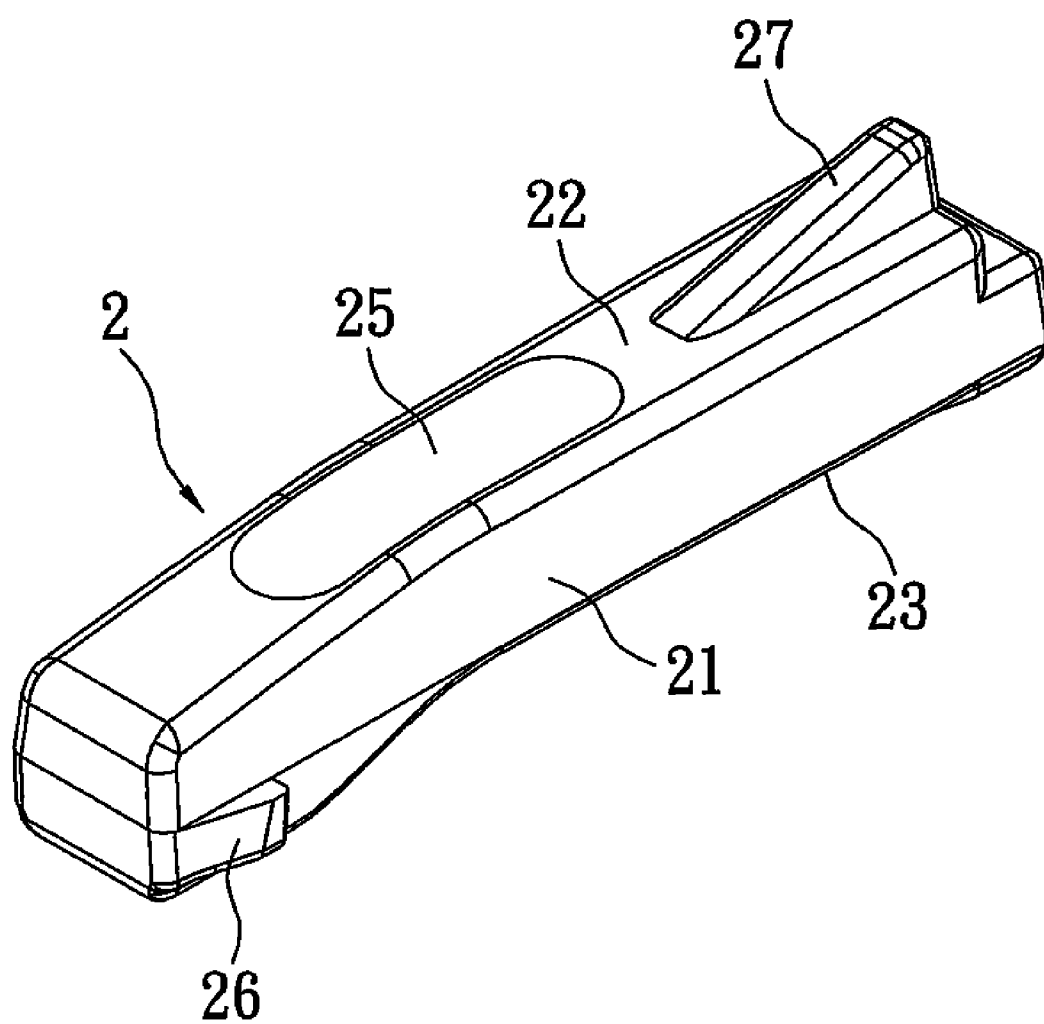


FIG. 7

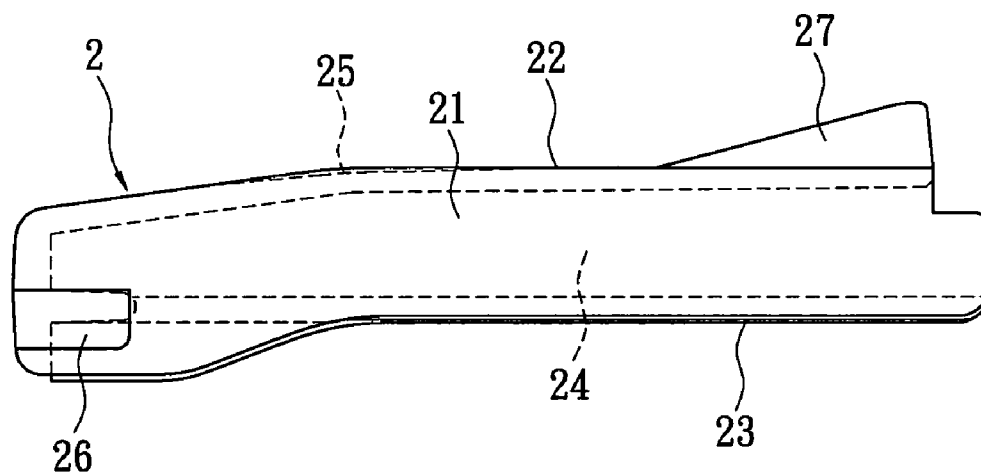


FIG. 8

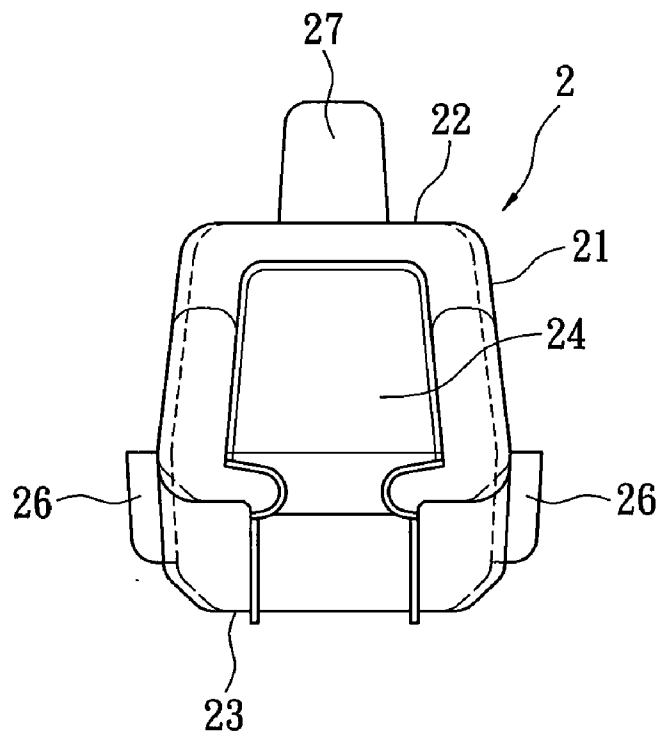


FIG. 9

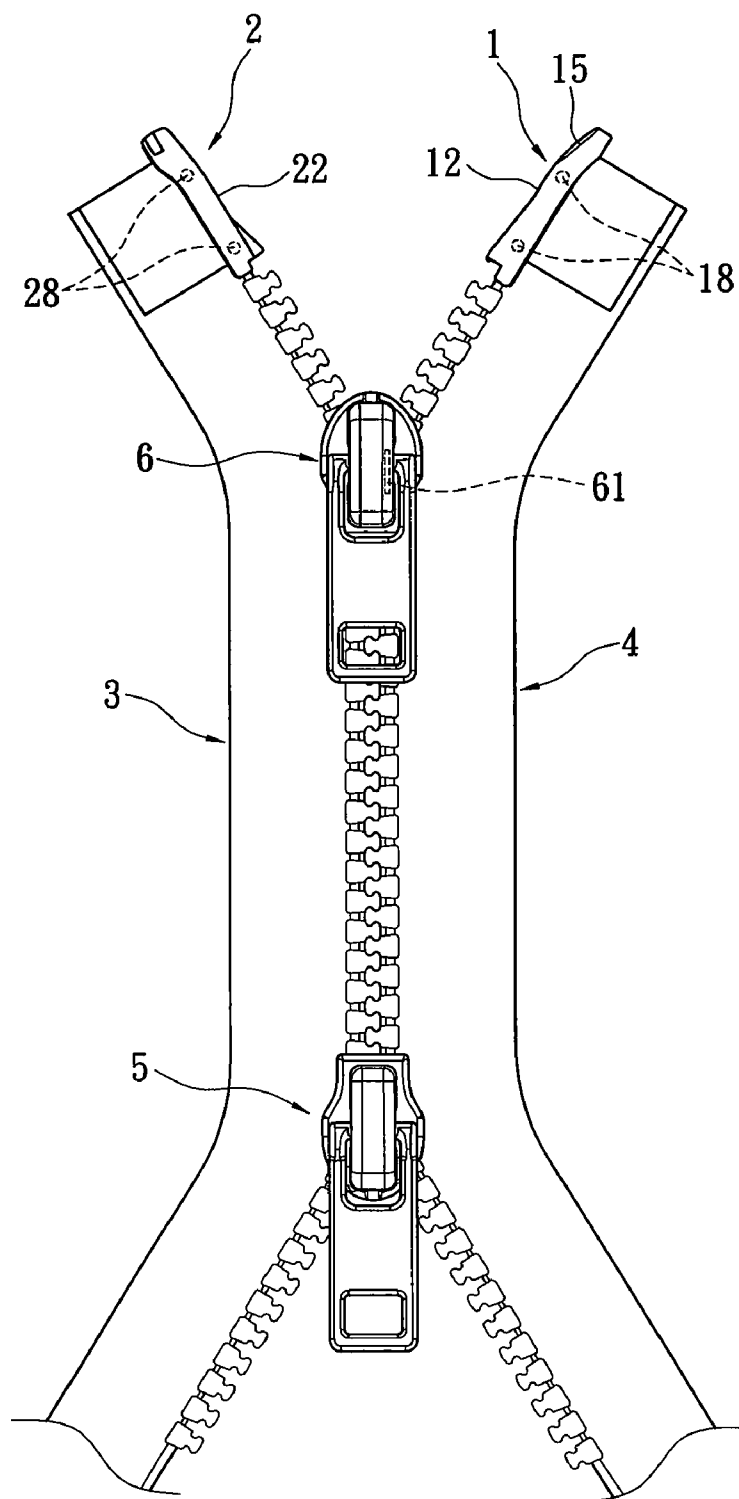


FIG. 10

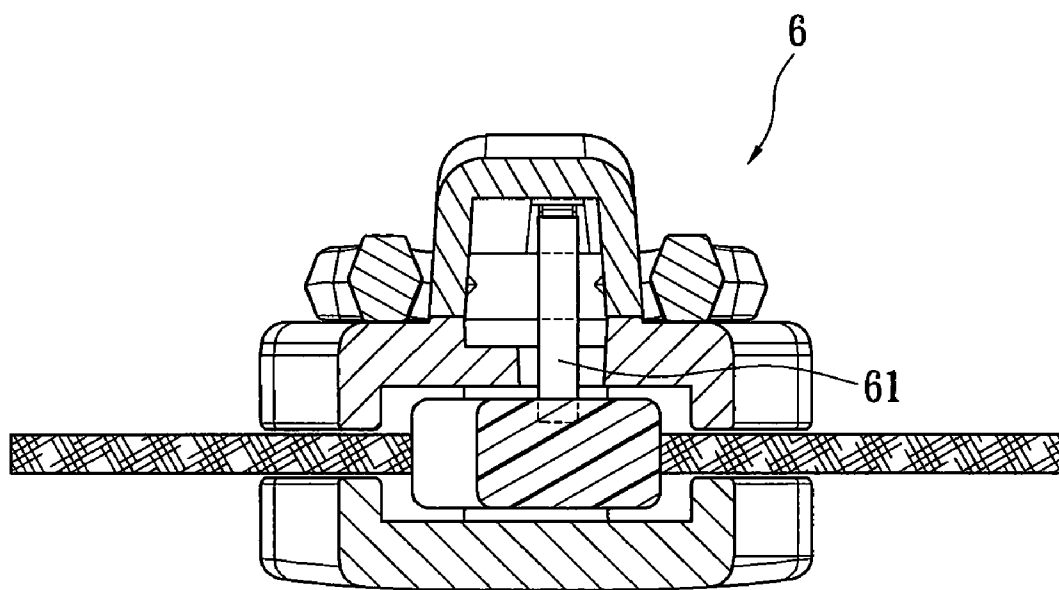


FIG. 11

INSERTION PIN AND INSERTION PIN ASSEMBLY FOR ZIPPER

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to an insertion pin and an insertion pin assembly, especially an insertion pin and an insertion pin assembly that respectively allow the insertion and removal action of the insertion pin to be smooth.

[0003] 2. Description of Related Art

[0004] A zipper has been widely applied to bags and fabrics because of its advantages of convenience. Closing or opening action of the zipper is controlled by means of pulling a slider tab up or down so as to allow two rows of face-to-face teeth to engage with each other or split from each other. The material for the zipper tape and the slider tab can be metal, nylon, or plastic steel.

[0005] Referring to FIG. 1 and FIG. 2, a conventional dual-tab zipper can be a commercial one having a first zipper tape 10a with a first slider tab 12a and a second zipper tape 11a with a slider tab 13a in such a manner that both ends of each of the first zipper tape 10a and the second zipper tape 11a can be opened and closed. One end of each of the first zipper tape 10a has a retainer pin 14a, while the second zipper tape 11a has an insertion pin 15a.

[0006] The first slider tab 12a and the second slider tab 13a have been mounted in advance onto the first zipper tape 10a. The retainer pin 14a at one end of the first zipper tape 10a is used as a positioner as shown in FIG. 1. The insertion pin 15a at one end of the second zipper tape 11a inserts into a sliding slot of the second slider tab 13a through a sliding slot of the first slider tab 12a, as shown in FIG. 2. In this way, the first slider tab 12a and the second slider tab 13a are respectively assembled with the first zipper tape 10a and the second zipper tape 11a. By pulling up or down the first zipper tab 12a and the second zipper tab 13a, the engaging of the first zipper tape 10a with the second zipper tape 11a or the splitting of the first zipper tape 10a from the second zipper tape 11a is achieved, thereby the zipper may be controlled to close or open.

[0007] However, a hooking part, not shown, on an interior of the second slider tab 13a touches the sliding slot when the insertion pin 15a at one end of the second zipper tape 11a inserts into the second slider tab 13a. In this situation, the interference between the insertion pin 15a and the hooking part occurs, making the insertion and removal action of the insertion pin unsmooth.

SUMMARY OF THE INVENTION

[0008] It is one object of the present invention to provide an insertion pin and an insertion pin assembly for a zipper, which prevents any interference between an insertion pin and a slider tab when the insertion pin inserts into the slider tab.

[0009] In order to achieve the above objectives, an insertion pin for a zipper according to the present invention has an insertion pin body with a first side and a second side opposite to each other and lengthwise along the insertion pin body. A first receiving slot is formed on an interior of the insertion pin body. The first side has a slant surface close to a head of the insertion pin body.

[0010] The present invention further provides an insertion pin assembly for a zipper. The insertion pin assembly includes an insertion pin having an insertion pin body with a

first side and a second side opposite to the first side; and a retainer pin having a retainer pin body.

[0011] The first side and the second side are located lengthwise along the insertion pin body. The insertion pin body further has a first receiving slot. The first side further has a slant surface close to a head of the insertion pin body. The retainer pin body has a third side and a fourth side opposite to each other and lengthwise along the retainer pin body. The retainer pin body further has a second receiving slot. The insertion pin is positioned at one end of a zipper tape, opposite to the retainer pin that is located at one end of another zipper tape.

[0012] The present invention achieves a guiding action to the insertion pin by providing the slant surface that is located close to the head of the insertion pin body. When the insertion pin inserts the second slider tab, the slant surface guides a hooking part inside the second slider tab to rise, thereby preventing any interference between the insertion pin and the hooking part of the second slider tab. The insertion and removal action of the insertion pin can thereby be made smooth.

[0013] In order to further understand the techniques, means, and effects that the present invention takes for achieving the prescribed objectives, the following detailed descriptions and appended drawings are hereby referred; such that, through which the purposes, features, and aspects of the present invention can be thoroughly and concretely appreciated; however, the appended drawings are merely provided for reference and illustration, without any intention to be used for limiting the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a schematic view of a conventional dual-tab zipper.

[0015] FIG. 2 is a schematic view of the conventional dual-tab zipper at different status from FIG. 1.

[0016] FIG. 3 is a perspective view of an insertion pin assembly according to the present invention.

[0017] FIG. 4 is a perspective view of an insertion pin according to the present invention.

[0018] FIG. 5 is a front view of the insertion pin according to the present invention.

[0019] FIG. 6 is a side view of the insertion pin according to the present invention.

[0020] FIG. 7 is a perspective view of a retainer pin according to the present invention.

[0021] FIG. 8 is a front view of the retainer pin according to the present invention.

[0022] FIG. 9 is a side view of the retainer pin according to the present invention.

[0023] FIG. 10 is a schematic view of the insertion pin assembly mounted in the dual-tab zipper.

[0024] FIG. 11 is a schematic view of a hooking part inside a second slider tab according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0025] Referring to FIG. 3 through FIG. 9, the present invention provides an insertion pin assembly for a zipper, especially for a dual-slider tab type of metallic zipper. The insertion pin assembly includes an insertion pin 1 and a retainer pin 2. The insertion pin 1 and the retainer pin 2 have complementary shapes in a manner that closely engages with

each other. The insertion pin 1 is made of metal and has an insertion pin body 11 as shown in FIG. 4 through FIG. 6. The insertion pin body 11 is shaped substantially as a rectangle with a slightly arced head and a slightly stepped rear. The insertion pin body 11 has a first side 12 and a second side 13 opposite to the first side 12, with both sides 12, 13 being positioned lengthwise along the insertion pin body 11. A rectangular receiving slot 14 is formed on an interior of the insertion pin body 11 along the second side 13, and extends to the rear of the insertion pin body 11 so that the insertion pin 1 can engage with one end of a second zipper tape 4 by means of placing the end of the second zipper tape 4 into the first receiving slot 14 through the insertion pin body 11.

[0026] The first side 12 has a slant surface 15 and a recess 16. The slant surface 15 is adjacent to the head of the insertion pin body 11 and extends to the opposite side of the insertion pin body 11, in such a manner that the insertion pin body has the tapered head. The first recess 16 is located around the center of the insertion pin body 11 on the first side 12 with predetermined depth. The area of the first recess 16 varies, depending on the pressing force exerting on a certain fixing point and location. The first side 12 further has an embedded groove 17 close to the rear of the insertion pin body 11.

[0027] The retainer pin 2 is made of metal and has a retainer pin body 21 as shown in FIG. 7 through FIG. 9. The retainer pin body 21 is shaped substantially as a rectangle, with a slightly bent head and a slightly stepped rear. The retainer pin body 21 has a third side 22 and a fourth side 23 opposite to the third side 22, both sides 22, 23 being positioned lengthwise along the retainer pin body 21. A rectangular second receiving slot 24 is formed on an interior of the retainer pin body 21. The second receiving slot 24 extends along the fourth side 23 to the rear of the retainer pin body 21. The retainer pin 2 is allowed to engage with one end of a first zipper tape 3 by means of placing the end of the first zipper tape 3 into the second receiving slot 24 through the rear of the retainer pin body 21.

[0028] The third side 22 has a second recess 25 located around the center of the retainer pin body 21 on the third side 22 with predetermined depth. The area of the second recess 25 varies, depending on the pressing force exerting on a certain fixing point and the location. The retainer pin body 21 further has a pair of opposite vertical sides that are vertical to the third side 22 and the fourth side 23. A stopper 26 is formed on each vertical side near the head of the retainer pin body 21 to urge against the corresponding protrusion on an interior of a slider tab so as to stop the slider tab. The third side 22 further has an extension 27 close to the rear of the retainer pin body 21 in such a manner that the extension 27 corresponds to the embedded groove 17.

[0029] Referring to FIG. 3 and FIG. 10, the insertion pin 1 uses the first receiving slot 14 to engage with one end of the second zipper tape 4 and uses the second receiving slot 24 to engage with one end of the first zipper tape 3. The insertion pin 1 and the retainer pin 2 are respectively fixed to the second zipper tape 4 and the first zipper tape 3 by pressing down onto fixing points 18, 28. The fixing points 18, 28 are formed on one or both sides of the insertion pin 1 and the retainer pin 2 so that the insertion pin 1 and the retainer pin 2 fixedly engages with the second zipper tape 4 and the first zipper tape 3, with the insertion pin 1 and the retainer pin 2 being opposite to each other.

[0030] While the fixing points 18, 28 are being formed, the first side 12 of the insertion pin 1 and the third side 22 of the

retainer pin 2, which face each other, would have protruded because of being pressed; however, the formation of the first recess 16 and the second recess 25 offsets the action of protrusion so as to retain the flatness of the first side 12 of the insertion pin 1 and the third side 22 of the retainer pin 2. Therefore no interference between a first slider tab 5 and a second tab 6 occurs. The sliding action of the insertion pin 1 from and to the retainer pin 2 can thereby proceed smoothly.

[0031] The insertion pin 1 at one end of the second zipper tape 4 passes through an internal sliding slot of the first slider tab 5 and then gets into an internal sliding slot of the second slider tab 6, so that the first slider tab 5 and the second slider tab 6 combine the first zipper tape 3 and the second zipper tape 4 together. By this way, the first zipper tape 3 engages with the second zipper tape 4 by their teeth. The zipper can be closed or opened by pulling up or down the first slider tab 5 and the second slider tab 6. When the insertion pin 1 and the retainer pin 2 come together, the extension 27 enters the corresponding embedded groove 17.

[0032] The present invention aims at offering a guiding action to the insertion pin 1 by providing the slant surface 15 close to the head of the insertion pin body 11. When the insertion pin 1 inserts into the second slider tab 6, the slant surface 15 guides a hooking part 61 inside the second slider tab as shown in FIG. 10 and FIG. 11 to raise, thereby preventing any interference between the insertion pin 1 and the hooking part 61 of the second slider tab 6. The insertion and removal action of the insertion pin 1 can thereby be made smooth.

[0033] The above-mentioned descriptions represent merely the preferred embodiment of the present invention, without any intention to limit the scope of the present invention thereto. Various equivalent changes, alternations, or modifications based on the claims of present invention are all consequently viewed as being embraced by the scope of the present invention.

What is claimed is:

1. An insertion pin for a zipper, in which the insertion pin has an insertion pin body with a first side and a second side opposite to each other and lengthwise along the insertion pin body, wherein a first receiving slot is formed on an interior of the insertion pin body and the first side has a slant surface close to a head of the insertion pin body.
2. The insertion pin of claim 1, wherein the insertion pin is made of metal.
3. The insertion pin of claim 1, wherein the first receiving slot extends along the second side to one rear of the insertion pin body.
4. The insertion pin of claim 1, wherein the slant surface extends to another side of the insertion pin.
5. An insertion pin assembly, comprising:
 - an insertion pin, having an insertion pin body with a first side and a second side opposite to each other and lengthwise along the insertion pin body, wherein the insertion pin body further has a first receiving slot, and the first side further has a slant surface close to a head of the insertion pin body;
 - a retainer pin, having a retainer pin body, wherein the retainer pin body has a third side and a fourth side opposite to each other and lengthwise along the retainer pin body, and the retainer pin body further has a second receiving slot;

wherein the insertion pin is positioned at one end of a zipper tape, opposite to the retainer pin that locates at one end of another zipper tape.

6. The insertion pin assembly of claim 5, wherein the insertion pin and the retainer pin are made of metal.

7. The insertion pin assembly of claim 5, wherein the first receiving slot extends along the second side body to the rear of the insertion pin body, and the second receiving slot extends along the fourth side to the rear of the retainer pin body.

8. The insertion pin assembly of claim 5, wherein the retainer pin body has a pair of opposite vertical sides, each of

which has a protruding stopper close to the head of the retainer pin body.

9. The insertion pin assembly of claim 5, wherein the first side has an embedded groove close to the rear of the insertion pin body, and the third side further has an extension close to the rear of the retainer pin body in a such manner that the extension corresponds to the embedded groove.

10. The insertion pin assembly of claim 5, wherein the slant surface extends to another side of the insertion pin body.

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