Oct. 4, 1966 P. B. HANSON 3,276,087

DEVICE FOR OPENING AND CLOSING BACK ZIPPER

Filed Sept. 28, 1965

FIG. 1.

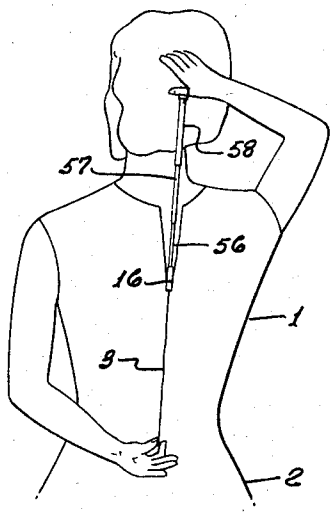


FIG. 2.

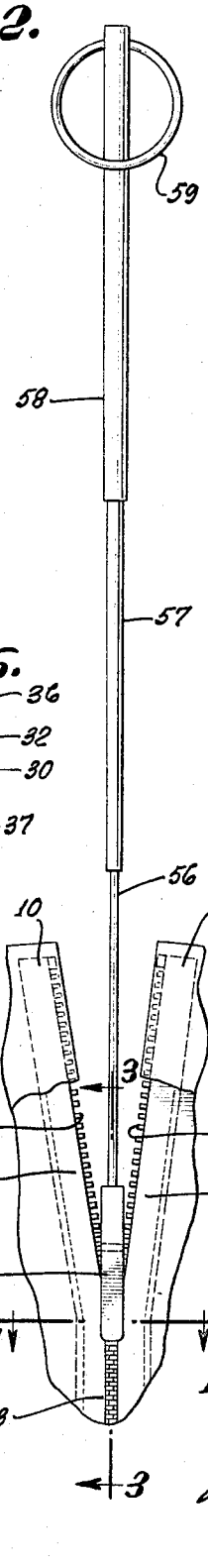


FIG. 4.

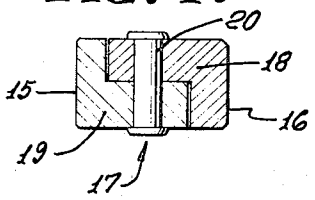


FIG. 5.

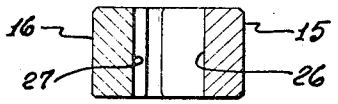


FIG. 7.

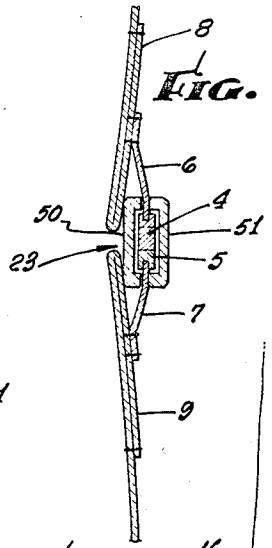


FIG. 6.

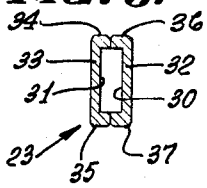


FIG. 3.

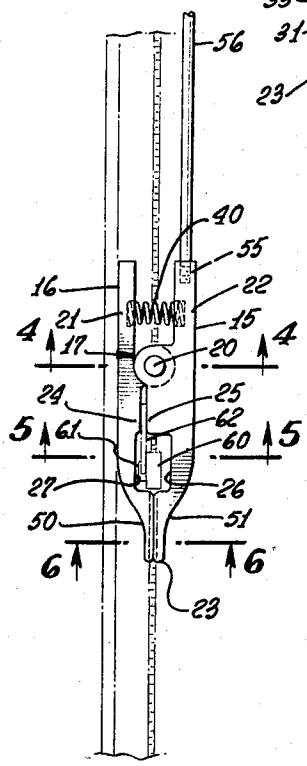
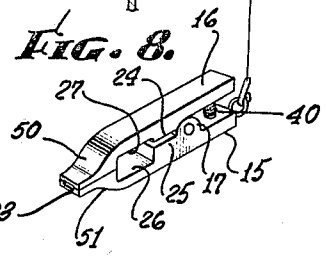


FIG. 8.



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DEVICE FOR OPENING AND CLOSING BACK ZIPPER

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The present invention relates to a device for detachable connection with a slide fastener of the type used for lacing zipper teeth. It has been found that a slide fastener is difficult to move to perform a lacing operation particularly when the zipper teeth for a garment or other article is not easily accessible. I have in mind the back of a lady's garment, which back is provided with zipper teeth and a lacing device which must be pulled from substantially the waist of the individual to the neck. This is difficult of accomplishment without the assistance of a second party to perform the zipping operation for the reason that the hand of each arm must be employed, one of which holds the waist portion of the garment while the opposite hand must be moved so as to pull the slide fastener upwardly to lace the zipper teeth. As a rule the length of the split at the back of a garment is 18" and hence imposes quite a problem for an unassisted person.

An object of the present invention is to provide a small attractive device so constituted and arranged as to readily engage the slide fastener and particularly the tab member thereof so that the slide fastener may be moved to lace the zipper teeth.

I have found it necessary in the practice of my invention to provide a device which will hold the slide fastener in such a manner that the slide fastener will not release from the device and the device will separate the fabric overlying the zipper teeth so that the fabric is not in any way caught during a zipping or unzipping operation operation and which might impair slide fastener operation.

An object of my invention is to provide a device for cooperation with a slide fastener for the lacing of zipper teeth which will not snag, tear, or fail to operate and which separates the cloth on either side of the zipper teeth during a lacing or unlacing operation.

A further object is the provision of a device for actuating a slide fastener to lace zipper teeth, constructed and arranged to assure that the device will not release the lacing device during the operation thereof.

A further object is the provision of a device for cooperation with a slide fastener which is easily carried in a purse, attractive in appearance, foolproof in operation and generally superior to devices now known to the inventor for assisting in the lacing of zipper teeth.

With the above mentioned and other objects in view, my invention comprises a device which is inexpensive in cost of manufacture, and easily assembled.

In the drawing:

FIGURE 1 is a fragmentary view showing the device of the invention in the act of moving a slide fastener to lace zipper teeth at the back of a garment;

FIGURE 2 is an enlarged view showing a portion of a garment provided with zipper teeth and the device of the invention for cooperation with a slide fastener to lace the zipper teeth;

FIGURE 3 is a fragmentary sectional view on the line 3—3 of FIGURE 2, and on an enlarged scale;

FIGURE 4 is a sectional view on the line 4—4 of FIGURE 3, and on an enlarged scale;

FIGURE 5 is a sectional view on the line 5—5 of FIGURE 3, and on an enlarged scale;

FIGURE 6 is a sectional view on the line 6—6 of FIGURE 3, and on an enlarged scale;

FIGURE 7 is a sectional view on the line 7—7 of FIGURE 2, and on an enlarged scale; and,

FIGURE 8 is a perspective view of the device of the invention for cooperation with a slide fastener.

Referring to the drawing, in FIGURE 1 I have shown a person wearing a garment of a style which has a waist or bodice **1** which joins with a skirt **2**. The waist or bodice **1** extends from the hips to the neck and the back of such a garment is usually split vertically as shown at **3**, to provide for easy access within the garment. Modern practice dictates that some fastening means be used at the split portion **3** and generally this consists in the use of zipper teeth on both sides of the garment adapted to be laced by a slide fastener. Thus, it is usual practice to provide zipper teeth of the type shown in FIGURE 2 at **4** and **5** which teeth are secured to fabric tape **6** and **7**. The waist or bodice at the vertical split **3** as a rule has the cloth material hemmed, as shown in FIGURE 7 at **8** and **9**. The tape **6** and **7** is stitched to the hem as shown, and the hems overlap the zipper teeth as shown at **10** and **11**, FIGURE 2.

It, therefore, becomes essential that any device for actuating the zipper lacing device must separate the two hems on sides of the split **3** and properly guide the engaged or disengaged teeth so that snagging, or tearing of fabric does not occur. I accomplish these very essential objects by providing pliers for controlling movement of the lacer which include a pair of levers **15** and **16** hinged together at **17** in the manner shown in FIGURE 4 wherein each lever has identically formed joint plates or knuckles **18** and **19**, secured together by a transverse pin **20**. The lever portions at **21** and **22** from the hinge point outwardly constitute the handles for manipulating the pliers and that portion of each lever forwardly from the hinge to the nose **23** includes gripping jaws **24** and **25** and extensions from said jaws to the nose **23**, the nose being substantially flat and of reduced depth. That portion of the pliers included between the jaws and the nose is recessed or transversely grooved, as shown at **26** and **27**, the grooves lying in opposed relationship. The nose portion of each jaw is grooved as shown in section in FIGURE 6, at **30** and **31**. This construction provides a plane base **32** and **33** for each grooved portion and parallel side flanges at **34**, **35**, **36** and **37**. The grooves or ways are in facing relationship and the jaws when closed have the flange portions **34** to **37** inclusive in abutting relationship, as shown in FIGURE 6. Each groove of a jaw extends to the groove portions **26** and **27** and the gripping portions of the jaws at **24** and **25** are adapted to engage when the jaws are closed. The jaws are urged to closed position by means of a coil spring **40**, interposed between the arms or handles, the spring being held in position in any approved manner such as by providing each arm with a blind bore for receiving ends of the spring as shown in FIGURE 3. As before stated, the lever depth varies to provide the nose portion which may be accomplished by curving and reducing the depth of each lever to said nose portion, as shown in FIGURES 3 and 8 at **50** and **51**. The groove **27** has less depth than the groove **26** and the lever **15** is of greater depth than the lever **16**. The reason for this construction will be detailed in the statement of operation. The handle end of lever **15** may have a threaded bore **55** adapted to receive the threaded end of a pull rod. As the pull rod must be long enough to properly manipulate the pliers of the invention, I contemplate a telescopic rod which may be in three sections, as shown at **56**, **57**, and **58** having an extension of approximately 18". This pull rod may be formed of any material desired, either metal or plastic with the section **58** provided with a ring **59** whereby the pull rod may be manipulated. Other adaptations may provide in place

of the pull rod a nylon cord such as shown in FIGURE 8, one end of the cord being secured to a ring having a threaded portion for reception in the threaded bore **55**.

The operation, uses, and advantages of my invention, are as follows.

The ordinary fastener for zipper teeth includes a slide fastener, lacer, or lacing device **60** which is usually carried between pairs of teeth **4** and **5** to be joined together or to be separated as the lacer moves in one direction relative to the teeth. To move the lacer, in ordinary practice, the lacer body is provided with an external closed hook **61** to which an elongated tab **62** is attached. The tab extends for a given length beyond the body of the lacer and is gripped as a rule by the person desiring to open or close the zipper teeth by movement of the lacer. It is assumed that a garment such as the bodice shown in FIGURE 1 is to be laced. As this area is difficult of acess, the telescopic rod is secured as shown in FIGURES 1, 2 and 3 to the pliers and the pliers are in turn positioned to hold the lacer and its tab prior to the wearer placing the garment upon the body. Thus, upon compressing the spring by the fingers swinging the arm portions of the levers together, the gripping jaws **24** and **25** and the nose portions separate to permit the lacer to be received in the space defined by the grooves **26** and **27** with the tab **62** held between the jaw portions **24** and **25**. In so positioning the lacer relative to the pliers, the grooves **30** and **31** of the nose portion receives therebetween the zipper teeth and enclose opposite sides of the teeth. The flanges **34** to **37** inclusive function to engage the tapes **6** and **7** adjacent edges of the zipper teeth as shown in FIGURE 7 and the nose portion of lever **16** separates the pair of hems of the garment at the split hem portion **3** as shown in FIGURE 7. Hence, as the pliers move to pull the lacer, the nose portion guides the tapes **6** and **7** and the garment hem on both sides of the lacer and the device does not snag, tear, or fail to operate.

A further feature is due to the variation and depth of the lacer receiving grooves wherein it will be observed that the lacer body is positioned substantially intermediate both grooves as are likewise the zipper teeth carried on the tapes **6** and **7** with the tab **62** offset relative to the zipper teeth. As both the pull tab for the lacer and the pull rod are in offset relationship so far as the pivot point is concerned, the pliers will not tend to move the lacer so as to bind the lacer relative to the zipper teeth. Normally the offset relationship of the pull rod **56** relative to the pivot pin **20** would tend to rotate the pliers and particularly the nose portion inwardly, but by providing the gripping portion for the jaws at **24** and **25**, the lacer body counters this tendency to twist or rotate with the result that there is no malfunction in the operation of the lacer. It is to be realized, of course, that the pliers will rest against the back of the user of the device as shown in FIGURE 1.

A device of this character is small in dimensions and may be ornamented as desired, such as by jewels. A

nylon cord may be substituted for the pull rod and the device may be enclosed in a small case for carrying in a handbag. It is desirous, of course, when the device of the invention is to perform a lacing operation that the person using the device grasp the garment as shown in FIGURE 1 by one hand while the other hand is elevating the pliers and the lacer by running a finger through the ring **59** and pulling upwardly. As the lacing device operates easily relative to the zipper tape, a movement in the opposite direction of the rod **55** will cause downward movement of the lacing device to open the zipper teeth.

It has been found that a light spring **40** is sufficient to maintain the jaws closed in gripping engagement with tab **62** so that the lacer is not released during movement thereof. In this regard, inspection of FIGURE 3 shows that the lacer ends lie adjacent the bounding side walls of each groove **26** and **27**. Hence any tendency of the jaws to release the tab **62** is resisted by lacer engagement with said bounding side walls.

Obviously, the sides of the levers, particularly lever **15**, due to greater depth from the hinge to ends of handles **21** and **22** spread the zipper teeth and the garment as split **3** as the lacer moves to lace said teeth in the manner shown in FIGURE 2.

I claim:

1. Pliers for engagement with a slide fastener to move the fastener relative to zipper teeth, including: a pair of levers hinged together to provide handle portions, said levers having a nose portion formed with two lengthwise grooves in opposed relationship, and which grooves are adapted to receive zipper teeth therebetween; each lever provided with opposed transverse grooves in communication with the lengthwise grooves in the nose portion, said transverse grooves adapted to position the slide fastener therein, the slide fastener having a pull tab, and the levers provided with jaw portions between the hinge point and said transverse grooves for engagement with the pull tab whereby when the pliers are moved, the slide fastener is moved by the pull tab.

2. The device as set forth in claim **1**, one lever of the handle end provided with means for moving the pliers.

3. The device as set forth in claim **1**; and means urging the jaws into gripping engagement with the pull tab and for maintaining the nose closed to guide movement of the zipper teeth in the lengthwise grooves when the slide fastener is moved.

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