March 8, 1949. B. R. AUSTIN 2,463,937

SLIDE FASTENER

Filed Sept. 24, 1947

Fig. 1.

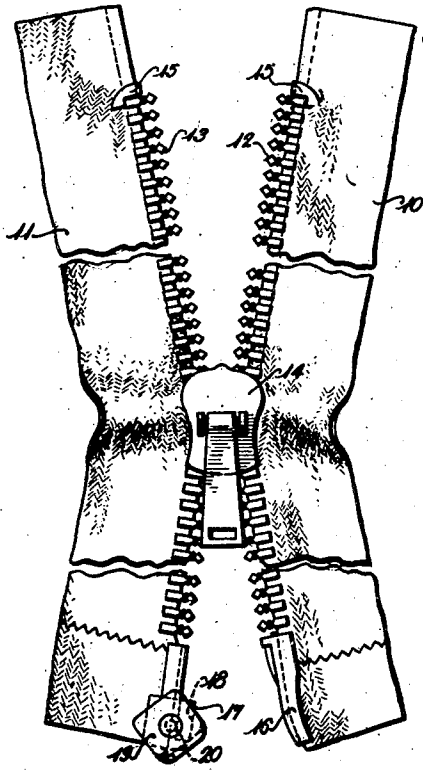



Fig. 2.

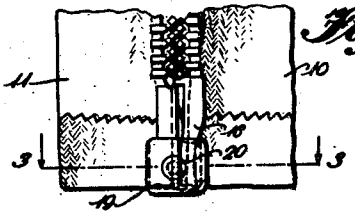



Fig. 3.

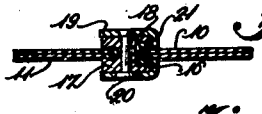



Fig. 4.




Fig. 5.

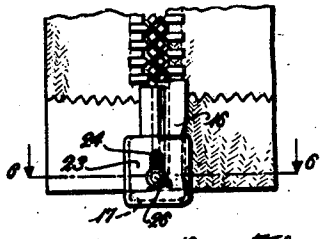



Fig. 6.




Fig. 9.

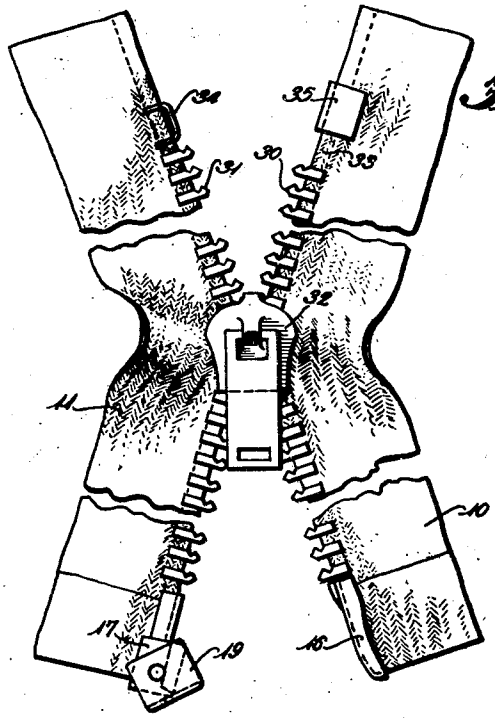



Fig. 7.

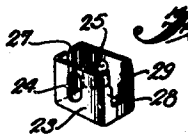
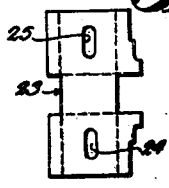



Fig. 8.




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# UNITED STATES PATENT OFFICE

2,463,937

## SLIDE FASTENER

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5 Claims. (Cl. 24—205.11)

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This invention relates to improvements in slide fasteners of the type commonly referred to as "zipper" fasteners.

Slide fasteners of the type to which this invention pertains consist essentially of a pair of flexible tapes provided with scoops and a slider for meshing and unmeshing the scoops for respectively attaching and separating the flexible tapes. It is conventional to provide some means for securing the tapes together at what is commonly referred to as the starting end of the fastener. This means ordinarily consists of a pin on the starting end of one of the tapes and some form of retainer for the pin on the corresponding end of the other tape. It is not ordinarily possible to separate the tapes at the starting end of the slide fastener except when the slider has reached its extreme limit of movement toward the starting end. Separation of the tapes at the starting end of the conventional fastener renders the fastener inoperative for the reason that the slider can be moved toward the starting end only while the scoops are meshed. There is, however, a slide fastener on the market in which the slider is capable of meshing the scoops in either direction of its travel. Such fasteners are commonly referred to as self-healing fasteners.

It has heretofore been proposed to provide means which permits intentional separation of the tapes at the starting end of the fastener in order to make the fastener more versatile in its fields of use. Examples of such proposals will be found in my prior United States Patents Nos. 2,146,714 of February 14, 1939, and 2,263,481 of November 18, 1941. Arrangements of the type illustrated in the foregoing patents are advantageous for use on wearing apparel such as coats, jackets, and the like. These arrangements permit complete closure of the fastener or partial closure throughout any desired portion of the length of the fastener. Many of the advantages of the use of buttons on such apparel are thus obtained without, however, sacrificing the advantages of slide fasteners.

The present invention relates specifically to improved means for securing one of the tapes to the other at the starting end of a slide fastener and for permitting intentional separation of the tapes at the starting end of the fastener, irrespective of the position of the slider. The present application may be said to relate to improvements over the arrangements shown in my prior patents above mentioned. There are several practical problems involved in the provision of releasable securing means for this purpose. Economy of manufacture is a prime consideration for the reason that slide fasteners must of necessity be manufactured and sold at small cost. Simplicity of operation is also of primary importance for the reason that users are unwilling to undergo an involved educational program for the purpose of learning to operate the slide fasteners. The presence of the flexible tapes at the starting end of the fastener precludes the use of conventional latches. Care must also be taken to avoid the use of securing means which would tend to cause excessive wear or fraying of the tapes. The use of latches or the like involving small spring members has proven impractical, not only because of the excessive expense involved but also because of the fact that the spring members break or lose their resiliency after a period of use.

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The objects of my invention are to provide releasable securing means for the starting end of a slide fastener which is of simple and reliable construction, which can be manufactured at low cost, which will not cause excessive wear or fraying of the flexible tapes of the fastener, and which will operate satisfactorily throughout a long period of use with a minimum tendency to get out of order.

For a complete understanding of my invention reference is had to the following detailed description and the accompanying drawings, wherein:

Figure 1 is a front elevation view of one form of the invention illustrating the scoops unmeshed and the tapes separated at both the starting and terminal ends of the fastener;

Fig. 2 is a fragmentary front elevation view of the starting end of the slide fastener illustrated in Fig. 1 and showing the starting end of the slide fastener in closed or secured relationship;

Fig. 3 is a sectional view looking in the direction of the arrows along the line 3—3 of Fig. 2;

Fig. 4 is a perspective view of the case which forms an element of the slide fastener illustrated in Figs. 1 to 3;

Fig. 5 is a fragmentary front elevation view of the starting end of a slide fastener and illustrates a modified form of the invention;

Fig. 6 is a sectional view looking in the direction of the arrows along the line 6—6 of Fig. 5;

Fig. 7 is a perspective view of a case which forms an element of the starting end securing means in the form of the invention illustrated in Figs. 5 and 6;

Fig. 8 is a top plan view of the blank which is used in forming the case illustrated in Fig. 7; and

Fig. 9 is a front elevation view of a modified form of slide fastener embodying my invention.

The form of the invention illustrated in Figs. 1 to 4 embodies a slide fastener having flexible textile tapes 10 and 11 which are provided with opposed complementary rows of scoops 12 and 13. These scoops are of the self-healing type and are provided with a slider 14 which is capable of meshing the scoops in either direction of travel in the manner which is well understood in the art. The flexible tapes 10 and 11 are provided with stops 15 at the terminal end of the fastener.

A pin 16 is secured to the flexible tape 10 at the starting end of the fastener. This pin 16 is clamped to or molded on the tape 10 in a conventional manner as is best illustrated in Fig. 3. A block 17 is clamped or otherwise secured to the starting end of the flexible tape 11. The block 17 is provided with a recess 18 in its surface which lies adjacent to the pin 16. The recess 18 is for the purpose of receiving the lower end of the pin 16 when the starting end of the fastener is closed as illustrated in Figs. 2 and 3. A hollow case 19 is pivotally mounted on the block 17 by means of a rivet or other suitable securing means 20. The rivet 20 is positioned in the approximate center of gravity of the case 19 to avoid any undue tendency for the case to pivot unintentionally from a particular position of adjustment. There is preferably some frictional resistance to pivotal movement between the interior surfaces of the case 19 and the exterior surfaces of the block 17 to assist in maintaining the case 19 in adjusted position.

The case 19 is provided with a wall 21 which is positioned adjacent the recess 18 in the block 17. A slot 22 (as best shown in Fig. 4) is formed in the wall 21. The slot 22 is of a width sufficient to receive the lower end of the flexible tape 10 but is of insufficient width to permit passage of the pin 16 laterally therethrough.

When the slider 14 and the case 19 are in the positions illustrated in Fig. 1, the slider may be moved downwardly to the lower end of the fastener and the pin 16 will be directed into the recess 18. The case 19 may then be pivoted in a counterclockwise direction to the position illustrated in Fig. 2. The pin 16 will thus be retained in the recess 18 and the slider 14 may be moved upwardly to mesh the scoops. When the fastener has its tapes entirely separated, the slider 14 may be moved to its lowermost position on the row of scoops 13 and the pin 16 may then be passed through the slider 14 into the recess 18. The slider 14 may then be moved upwardly in the conventional manner to effect partial or complete closing of the fastener. When the starting end of the fastener is in the condition illustrated in Fig. 2, the case 19 may be pivoted clockwise to an extent sufficient to release the pin 16 from the recess 18 and the starting end of the fastener may then be separated, as illustrated in Fig. 1.

The form of the invention illustrated in Figs. 5 to 8 is similar in many respects to that above described, the primary distinction being that in this second form of the invention the case is slidable on the blocks rather than being pivotally mounted thereon. With the exception of the slidable case, the elements in this form of the invention may be identical with the corresponding elements in the form of the invention above described, and for that reason the same reference numerals are used. The block 17 with its recess 18 is secured to the starting end of the tape 11. The pin 16 is secured to the starting end of the tape 10. The sliding case 23 is best illustrated



in Fig. 7 and is preferably formed by folding the blank illustrated in Fig. 8. Slots 24 and 25 are provided in opposite side walls of the case 23. A rivet or other suitable means 26 extends through the block 17 and through the slots 24 and 25 in the case 23. The rivet 26 is provided with heads at each of its ends which overlie the edges of the slots 24 and 25. This rivet 26 thus acts as a stop for limiting sliding movement of the case 23 in either direction, and also preferably clamps the edges of the slots 24 and 25 with sufficient firmness to provide some friction to relative movement between the case 23 and the block 17.

One end wall of the case 23 is provided with a slot 27 for reception of the flexible tape 11. The opposite end wall of the case 23 is provided with a slot 28 for reception of the end of the flexible tape 10. The upper end of the slot 28 is preferably enlarged as indicated at 29 to permit the pin 16 to be inserted laterally into the recess 18 when the case 23 is in its lowermost position. It will be apparent from the foregoing that the starting end of the slide fastener may be joined or separated while the case 23 is in its lowermost position and that the pin 16 will be retained in the recess 18 when the case is in its uppermost position.

Fig. 9 illustrates one form of the invention as applied to a more conventional type of slide fastener, that is the type in which the scoops and slider are so constructed that the slider is able to mesh the scoops in only one direction of movement. The arrangement at the starting end of the fastener, that is the block, the pin, and the case, are identical with the arrangement illustrated in Figs. 1 to 4, and for that reason the same reference numerals have been used. However, as illustrated, the complementary rows of scoops 30 and 31 and the slider 32 are of such construction that the slider could not be moved toward the starting end of the fastener when the fastener is in the condition illustrated in Fig. 9. For this reason, the portion of the upper end of the tape indicated by the reference numeral 33 has no scoops applied thereto. The stop 34 on the tape 11 is so positioned that when the slider 32 is moved against this stop, the portion 33 of the tape 10 is within the slider and can be laterally withdrawn therefrom. This permits complete separation of the two tapes and the slider 32 may be moved to the starting end of the tape 11 while it is completely out of engagement with the tape 10 and the row of scoops 30. Somewhat comparable arrangements at the terminal ends of the tapes are illustrated and described in my prior patents above mentioned. I have found it advisable to clamp a plastic or metal sheet 35 to the portion 33 of the tape 10 to prevent undue wear or fraying of this portion of the tape during its withdrawal from the slider 32 in the manner above described. In all other respects the form of the invention illustrated in Fig. 9 operates in a manner identical to the operation described in connection with Figs. 1 to 4.

Having thus described my invention, I claim:

1. A retainer for the pin on the starting end of the first of two flexible tapes of a slide fastener, said retainer comprising a block secured to the starting end of the second of said tapes and having a recess in one side for reception of said pin, a hollow case mounted on said block and having a wall adjacent said recess for retaining said pin in said recess, said wall having a slot therein for receiving the starting end of said first tape while

said pin is in said recess, and said case being movable on said block to retract said wall from said recess to permit withdrawal of said pin from said retainer.

2. A retainer for the pin on the starting end of the first of two flexible tapes of a slide fastener, said retainer comprising a block secured to the starting end of the second of said tapes and having a recess in one side for reception of said pin, a hollow case mounted on said block and having a wall adjacent said recess for retaining said pin in said recess, said wall having a slot therein for receiving the starting end of said first tape while said pin is in said recess, and said case being pivotally movable on said block to retract said wall from said recess to permit withdrawal of said pin from said retainer.

3. A retainer for the pin on the starting end of the first of two flexible tapes of a slide fastener, said retainer comprising a block secured to the starting end of the second of said tapes and having a recess in one side for reception of said pin, a hollow case mounted on said block and having a wall adjacent said recess for retaining said pin in said recess, said wall having a slot therein for receiving the starting end of said first tape while said pin is in said recess, and said case being slidably movable on said block to retract said wall from said recess to permit withdrawal of said pin from said retainer.

4. A retainer for the pin on the starting end of the first of two flexible tapes of a slide fastener,



said retainer comprising a block secured to the starting end of the second of said tapes, a hollow case mounted on said block and having a wall laterally spaced from said block, said wall being provided with a slot therein for reception of the starting end of the first of said tapes while said pin is positioned between said wall and said block, said case being movable on said block to retract said wall from engagement with said pin to permit lateral withdrawal of said pin from said retainer.

5. In a slide fastener of the self-healing type having complementary rows of fastening elements mounted on flexible tapes, a slider for securing and separating said rows of fastener elements and means for releasably securing the starting ends of said rows together, said means comprising a pin on the starting end of the first of said tapes, a block on the starting end of the second of said tapes, said block having a recess in one side for reception of said pin, a hollow case mounted on said block and having a wall adjacent said recess for retaining said pin in said recess, said wall having a slot therein for receiving the starting end of said first tape while said pin is in said recess, said case being movable on said block to retract said wall from said recess to permit withdrawal of said pin.

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No references cited.