

Jan. 20, 1953

B. R. AUSTIN

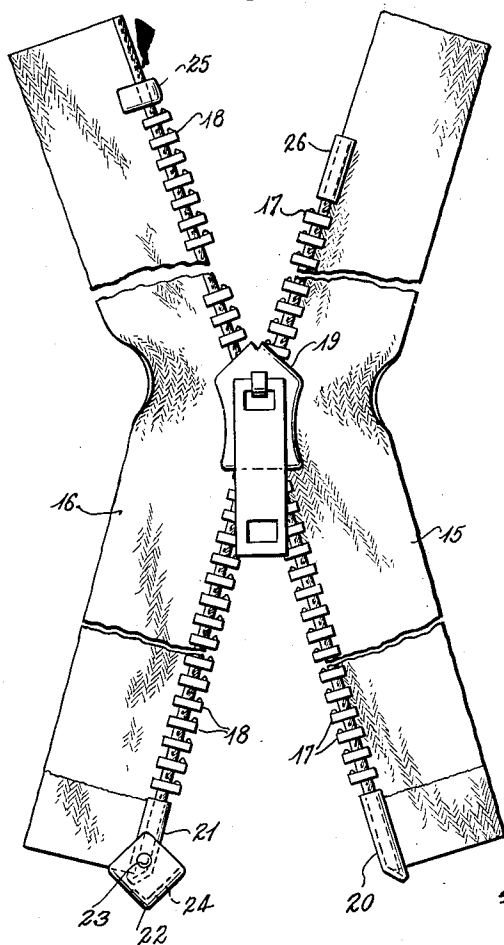
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SLIDE FASTENER

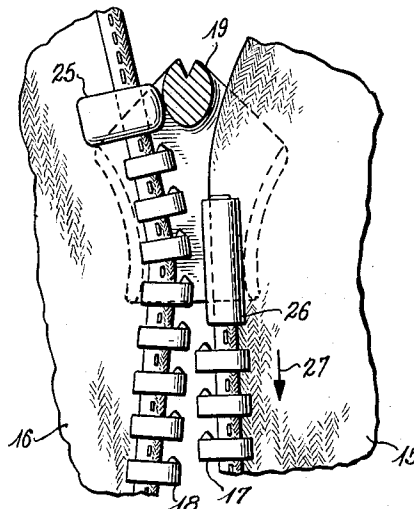
Filed Aug. 4, 1949

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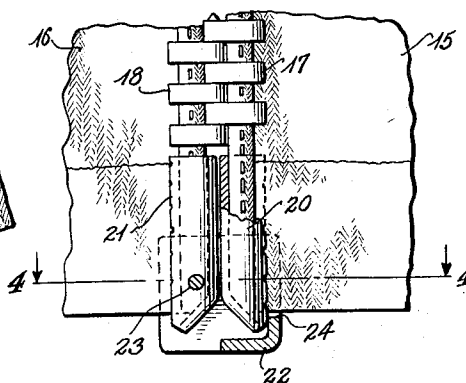
*Fig. 1.*



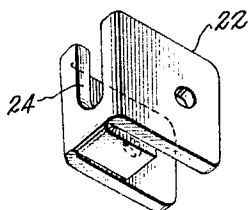
*Fig. 2.*



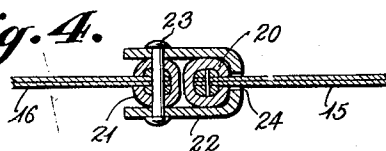
*Fig. 3.*



*Fig. 5.*



*Fig. 4.*



INVENTOR.

*Ben Ragan Austin*

BY

*Burns, Doane & Benedict*

ATTORNEYS

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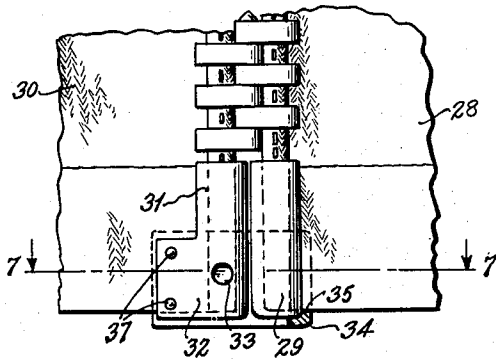
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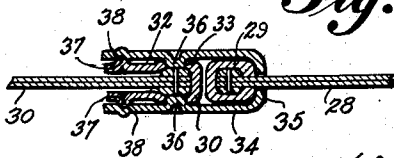
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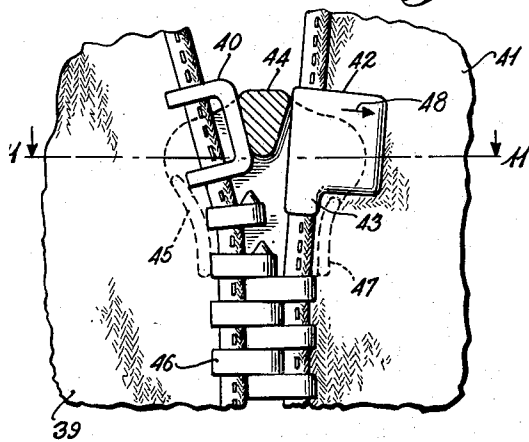
*Fig. 6.*



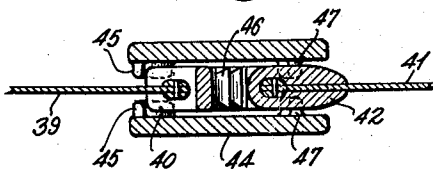
*Fig. 7.*



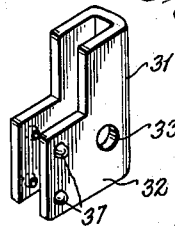
*Fig. 10.*



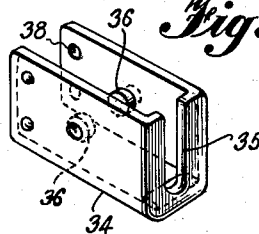
*Fig. 11.*



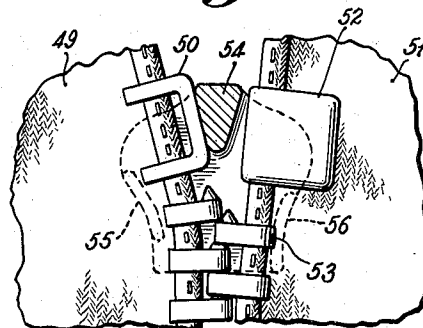
*Fig. 8.*



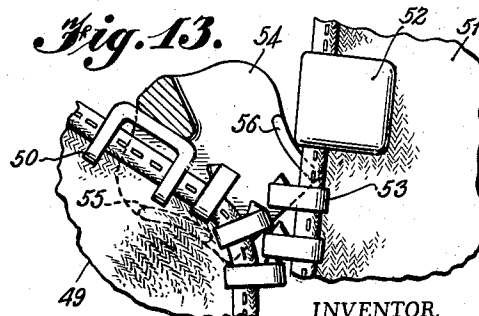
*Fig. 9.*



*Fig. 12.*



*Fig. 13.*



INVENTOR.

*Ben Ragan Austin*  
BY

*Burns, Doane & Benedict*  
ATTORNEYS

## UNITED STATES PATENT OFFICE

2,625,726

## SLIDE FASTENER

Ben R. Austin, New York, N. Y.

Application August 4, 1949, Serial No. 108,645

2 Claims. (Cl. 24—205.11)

1

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

A slide fastener of the type to which the invention relates consists 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 securing means usually 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. Conventional slide fasteners have not included means for separating the tape and the starting end except when the slider has reached its limit of movement toward the starting end. Unintentional separation of the tapes and unmeshing of the scoops at the starting end of a conventional slide fastener (in which the scoops can be meshed in only one direction of travel of the slider) renders the fastener inoperative for the reason that the slider can not be moved along the tapes toward the starting end except while the scoops are meshed.

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 2,146,714 of February 14, 1939, 2,263,481 of November 18, 1941, and 2,463,937 of March 8, 1949. Slide fasteners of the type illustrated in the foregoing patents are particularly advantageous for use on wearing apparel such as coats, jackets, and the like. These arrangements permit complete closure of the fastener or partial closure along a desired portion of the length of the fastener. Many of the advantages of the use of buttons on such apparel are thus obtained without sacrificing the advantages of slide fasteners.

In improved slide fasteners of the type here under consideration, the pin on one of the tapes at the starting end of the fastener may be intentionally separated from its retainer while the slider is at any intermediate position along the length of the fastener or while the slider is at the terminal end of the fastener. This separation permits unmeshing of the scoops and separation of the tapes from the starting end of the fastener to the slider. The more conventional type of slide fasteners has scoops which can be

2

meshed in only one direction of travel of the slider and after the foregoing separation occurs, it is impossible to move the slider along both tapes toward the starting end of the fastener. The slider can, however, be moved to the terminal end of the fastener. Some means must be provided at the terminal end of the fastener to permit release of one of the tapes and its associated scoops from the slider. The slider can then be returned to the starting end of the fastener along the tape with which it remains associated.

A slider stop is secured to one of the tapes immediately adjacent the last scoop at the terminal end of that tape. This stop limits the movement of the slider at the terminal end of the fastener. If no scoops were provided on the other tape along the portion of its length corresponding to the position of the stop, this other tape could be removed from the slider by merely withdrawing it laterally therefrom while the slider was in engagement with the stop. However, the absence of scoops along this portion of the length of one of the tapes gives the fastener a damaged or unfinished appearance which makes the fastener objectionable or unacceptable to the trade. Such an arrangement also has the objection that it is possible for the tape having no scoops along a portion of its length to become unintentionally separated from the slider while the slider is at the terminal end of the fastener and while it is desired to maintain the fastener closed along its entire length. It is possible to reduce the likelihood of this unintentional separation by placing a semi-stop on the tape which resists movement of the slider thereover but which permits such movement when sufficient force is intentionally exerted on the slider. The use of such a semi-stop causes excessive stresses to be applied to the tape and results in undue wear and fraying of the tape.

The primary objects of the present invention are to provide an arrangement for slide fasteners of the type discussed above which permits intentional separation of one tape from the slider while the slider is at the terminal end of the fastener, which reduces the likelihood of unintentional separation of one of the tapes from the slider under the foregoing conditions, which gives the fastener a finished and undamaged appearance and which substantially reduces the tendency of one of the tapes to become worn or frayed.

Other objects and advantages of the invention are referred to in the following detailed descrip-

3

tion which has reference to the accompanying drawings wherein:

Fig. 1 is a front elevation view of a slide fastener embodying one form of my invention;

Fig. 2 is a fragmentary view partly in front elevation and partly in section showing the slider at the terminal end of the fastener illustrated in Fig. 1;

Fig. 3 is a fragmentary view partly in front elevation and partly in section showing the starting end of the fastener illustrated in Fig. 1 and illustrating the pin in its retainer with the scoops in mesh;

Fig. 4 is a sectional view taken in the direction of the arrows along the line 4—4 of Fig. 3;

Fig. 5 is a perspective view of the casing which forms the releasable pin retainer at the starting end of the fastener;

Fig. 6 is a fragmentary view partly in front elevation and partly in section of the starting end of slide fastener embodying a modified form of my invention;

Fig. 7 is a sectional view taken in the direction of the arrows along the line 7—7 of Fig. 6;

Fig. 8 is a perspective view of the member which is secured to one of the tapes and to which the casing is hinged in the form of the invention illustrated in Figs. 6 and 7;

Fig. 9 is a perspective view of the casing which forms the releasable pin retainer in the form of the invention illustrated in Figs. 6 and 7;

Fig. 10 is a fragmentary view partly in front elevation and partly in section of the terminal end of a slide fastener embodying a further modification of the invention;

Fig. 11 is a sectional view taken in the direction of the arrows along the line 11—11 of Fig. 10;

Fig. 12 is a fragmentary view partly in front elevation and partly in section of the terminal end of a slide fastener embodying a further modification of my invention; and

Fig. 13 is a similar view of the arrangement shown in Fig. 12 but illustrating the elements in position for withdrawal of one of the tapes from the slider.

The forms of the invention illustrated in Figs. 1 to 5 include a first tape 15 and a second tape 16 which are preferably of conventional flexible textile material. The tape 15 is provided with scoops 17 which are arranged to mesh with the scoops 18 on the tape 16. A slider 19, which may be conventional in this form of the invention, is provided for movement along the fastener for meshing and unmeshing the scoops 17 and 18. A pin 20 is secured to the tape 15 at the starting end of the fastener. The tape 16 is provided with a similar pin-like member 21. A casing 22 is pivotally secured to the member 21 by any suitable means such as a rivet 23. The casing 22 is provided with a slot 24 for receiving the lower end of the tape 15 while the pin 20 is within the casing as illustrated in Fig. 3. The casing 22 may be pivoted from the position illustrated in Fig. 3 to the position illustrated in Fig. 1 and the pin 20 is then released from its retainer and the scoops 17 and 18 may be unmeshed and the tapes 15 and 16 separated from the starting end of the fastener to the slider 19.

The arrangement as thus far described is similar in its essential respects to one of the arrangements described and claimed in my above mentioned Patent No. 2,463,937 of March 8, 1949. However, in the present form of the invention the upper end of the tape 16 is provided with a slider

4

stop 25 which is positioned closely adjacent the last scoop 18. The terminal end of the tape 15 is provided with a sleeve 26 which is positioned not quite opposite the stop 25, but a little nearer the starting end of the fastener. As illustrated in Figures 1 and 2, the upper end of the sleeve 26 is positioned approximately two scoops nearer the starting end of the fastener than the lower end of the stop 25. The sleeve 26 is also positioned closely adjacent the last of the scoops 17 on the tape 15. In other words, no appreciable gap is left between the sleeve 26 and the last scoop 17.

The relative positions of the various elements including the stop 25 and the sleeve 26 when the slider is at the terminal end of the fastener are best illustrated in Fig. 2. This figure illustrates the scoops 17 and 18 unmeshed. This unmeshing has been accomplished by pivoting the casing 22, releasing the pin 20, unmeshing the scoops 17 and 18, and separating the tapes 15 and 16 from the starting end of the fastener to the slider positioned at the terminal end of the fastener. With the elements as illustrated in Fig. 2, the sleeve 26 may be withdrawn from the slider 19 by merely moving the tape 15 in the direction of the arrow 27. This permits complete separation of the tapes 15 and 16. The slider 19 may then be moved to the starting end of the fastener along the tape 16 and the scoops 18. The fastener is then in condition for reuse, it being only necessary to pivot the casing 22 to the pin retaining position shown in Fig. 3.

Figs. 6 to 9 illustrate a modified arrangement for the starting end of the slide fastener. The tape 28 is provided with a pin 29. Tape 30 is provided with a pin-like member 31 having wings or flanges 32 projecting laterally therefrom on opposite sides of the tape. The member 31 is provided with apertures 33 in which the casing 34 is pivoted. The casing 34 is provided with a slot 35 for reception of the lower end of the tape 28. The side walls of the casing are stamped to provide inwardly extending lugs 36 which are received in the apertures 33 in the member 31 to thus eliminate the need for a rivet to provide the pivotal axis. The wings 32 of the member 31 are provided with protuberances 37 which are positioned to enter concavities 38 in the side walls of the casing 34 to resiliently hold the casing in closed or pin retaining position.

Figs. 10 and 11 illustrate a modified arrangement for the terminal end of the fastener. The tape 39 is provided with a stop 40 which may be conventional. The tape 41 is provided with a sleeve 42 which, in this instance, extends a substantial distance from the edge of the tape. The sleeve 42 has a projecting portion 43 which extends toward the starting end of the fastener. The slider 44 has conventional flanges 45 between which are received the tape 39 and which engage the rear ends of the scoops 46 on that tape. The slider 44 also has flanges 47 which are of lesser length than the flanges 45. The length of the flanges 47 and their positions are such that they are in juxtaposition to the projecting portion 43 of the sleeve 42 when the slider 44 engages the stop 40. The relative positions just described are illustrated in Fig. 10. The pin may be released from its retainer at the starting end of the zipper and the tapes separated by unmeshing the scoops to the slider 44. The tape 41 and the sleeve 42 may then be removed from the slider by moving the sleeve 42 in the direction of the arrow 48 which enables

5

the projecting portion 43 of the sleeve to ride over the upper ends of the flanges 47.

The further modification illustrated in Figs. 12 and 13 also relates to the arrangement at the terminal end of the fastener. The tape 49 is provided with a conventional stop 50. The tape 51 is provided with a sleeve 52 which is similar to the sleeve 42 but which has no projecting portion. The sleeve 52 is slightly spaced from the adjacent scoop 53 on the tape 51. The slider 54 is provided with flanges 55 which terminate above the lower end of the slider. The slider is also provided with flanges 56 which extend from the bottom of the slider upwardly but which terminate below the level of the upper ends of the flanges 55. This arrangement is best illustrated in Fig. 12. The slider is shown in engagement with the stop 50 and the upper ends of the flanges 56 are disposed slightly below the sleeve 52. The tape 51 may be withdrawn from the slider 54 by tilting the slider in a counter-clockwise direction to the position illustrated in Fig. 13. The flanges 56 may then pass between the uppermost scoop 53 on the tape 51 and the lower edge of the sleeve 52.

In all illustrated forms of the invention the terminal end of the slider presents a finished and undamaged appearance which is acceptable to the trade. The instructions for using slide fasteners embodying my improvements are simple and can be followed by ordinary users without difficulty. The likelihood of unintentional separation of the fastener at its terminal end is minimized. No excessive force is required in any of the operations involved in the use of my slide fasteners and the danger of excessive wear or fraying of the tapes is greatly reduced.

I have illustrated and described what I now consider to be the preferred forms of my invention, but it is to be understood that various alterations and modifications may be resorted to without departing from the broader scope of the invention as defined by the following claims.

Having thus described my invention, I claim:

6

1. In a slide fastener, the combination of a pair of flexible tapes, scoops on said tapes, a slider for meshing and unmeshing said scoops, a pin on the starting end of the second of said tapes, a block on the starting end of the first of said tapes, and a pin retainer case pivotally mounted on said block for releasably securing said pin, said block consisting of a pinlike member with wings engaging the sides of said case and offering resistance to pivotal movement of said case, said block having apertures which serve as a fulcrum for said case, and cooperating protuberances and concavities on said block and case which engage to restrain said case in pin retaining position.

2. In a slide fastener, the combination of a pair of flexible tapes, scoops on said tapes, a slider for meshing and unmeshing said scoops, a pin on the starting end of one of said tapes, a block on the starting end of the other of said tapes, and a pin retainer case pivotally mounted on said block for releasably securing said pin, said block consisting of a pinlike member with wings for engagement with the sides of said case, said block having apertures which serve as a fulcrum for said case and protuberances which engage concavities on the sides of the case causing said case to snap in and out of pin retaining position, and said case having inwardly extending lugs which fit into said apertures of said block to pivotally mount said case on said block.

BEN R. AUSTIN.

#### REFERENCES CITED

The following references are of record in the file of this patent:

#### UNITED STATES PATENTS

Number	Name	Date
2,146,714	Austin	Feb. 14, 1939
2,177,599	Murphy	Oct. 24, 1939
2,325,305	Carlile	July 27, 1943
2,423,202	Morin	July 1, 1947
2,463,937	Austin	Mar. 8, 1949