Jan. 17, 1950 H. G. NISSEN 2,495,176

REVERSIBLE SLIDER FOR SLIDE FASTENERS

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Fig. 1

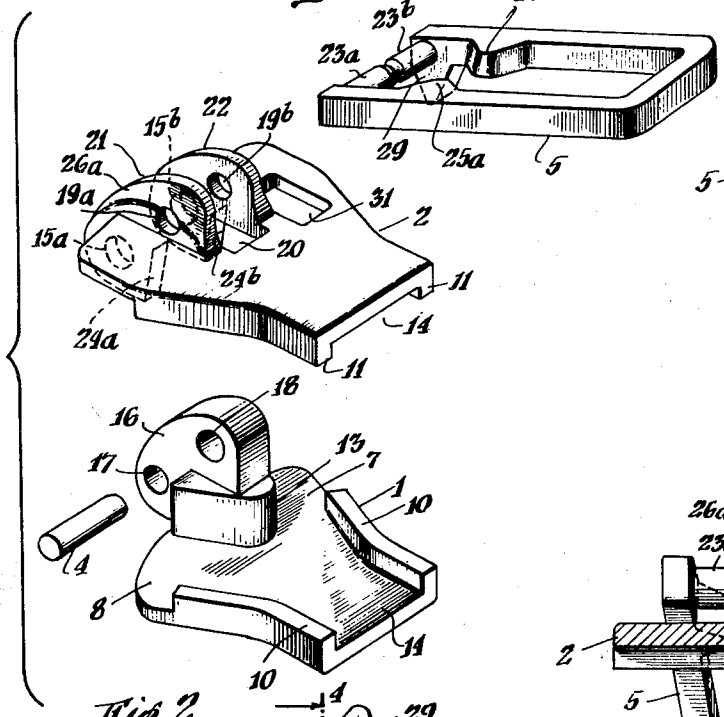


Fig. 5

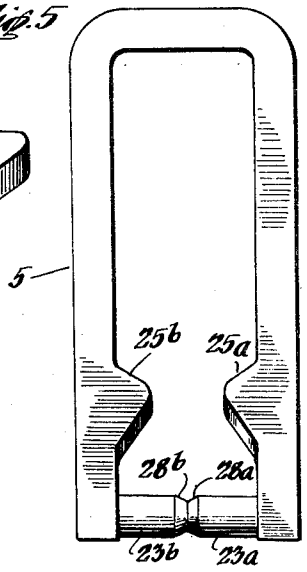


Fig. 4

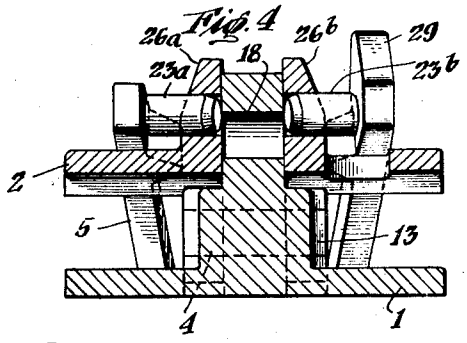


Fig. 2

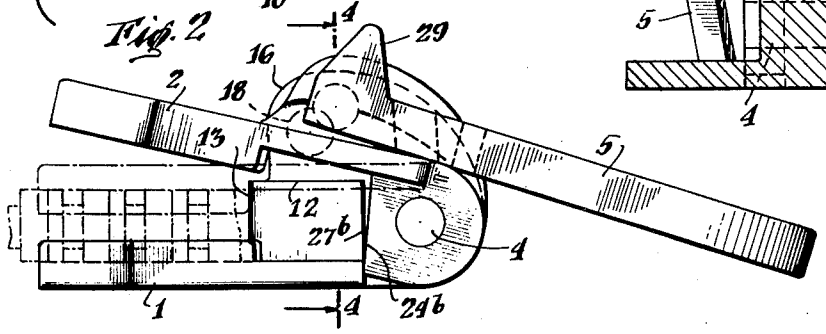
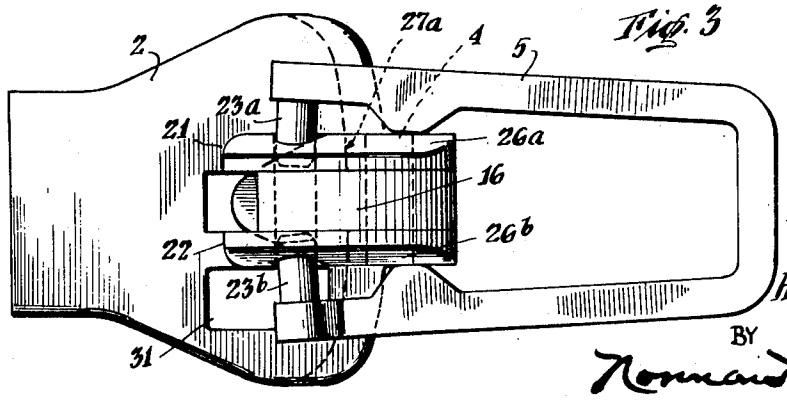


Fig. 3



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REVERSIBLE SLIDER FOR SLIDE FASTENERS

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7 Claims. (Cl. 24—205.14)

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The present invention relates to slide fasteners and more particularly to an improved slider for use in opening and closing rows of slide fastener elements or zippers.

The purpose of the present invention is to provide a reversible slider for slide fasteners. That is, the slider may be removed from the flexible slide fastener tapes or stringers which it closes and opens, turned over so that the pulling tab or tongue is located at the opposite side of the stringers and replaced on the stringers to open and close them from this opposite side. This reversible type of slider is desirable when utilized in connection with garments of the reversible type. For example, many coats designed to serve in a dual capacity have a tweed surface on one side for service as a top coat and of water repellent material on the other side for use as a raincoat. The normal slider operates satisfactorily from one side of a reversible coat but when the coat is turned inside out it is difficult to reach and pull the slider from the interior of the coat. With the present invention a slider may be reversed whenever the coat is reversed, so that the pull tab or tongue which is used to open or close a row of cooperating fastener elements is always readily accessible.

An object of the present invention is to provide an improved reversible slider for use with slide fasteners.

Another object of the present invention is to provide a reversible slider having a minimum number of parts.

Another object of the present invention is to provide a reversible slider that may be readily and inexpensively manufactured.

Another object of the present invention is to provide a reversible slider that will not easily become accidentally released from the tapes or stringers of slide fastener elements.

Still another object of the present invention is to provide a reversible slider that may be readily understood and operated by an average person.

A still further object of the present invention is to provide a reversible slider which presents a neat appearance and which does not differ greatly in appearance from ordinary non-reversible sliders.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

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A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings, forming a part of the specification, wherein:

Fig. 1 is an enlarged, exploded, perspective view showing a preferred embodiment of the present invention

Fig. 2 is an enlarged side view of the preferred embodiment in assembled relation;

Fig. 3 is an enlarged top view of the embodiment shown in Fig. 2;

Fig. 4 is a sectional view taken along the line 4—4 of Fig. 2; and

Fig. 5 is an enlarged top plan view of a part shown in Figs. 1 through 4.

Referring again to the drawings and more particularly to Fig. 1 thereof, there is shown a slider comprising a back or rear member 1, a front or upper member 2 adapted to be pivotally secured to the back member 1 by a pin or peg 4, and a tab or tongue 5 adapted to be assembled with the three previously mentioned parts to facilitate moving or pulling an assembled and closed slider so as to either open or close a row of cooperating or interlocking slide fastener elements. These four parts shown in Fig. 1 are preferably the only parts which comprise the reversible slider of the present invention.

The closing of interlocking rows of slide fastener elements is achieved by causing opposite sides or rows thereof to pass through separate grooves or channels 7 and 8 formed by the side walls 10 and 11 and the V-shaped dividing portion 13 of the front and back members 1 and 2, to emerge in closed relation out of the groove or channel 14. In unlocking or opening a series of slide fastener elements the slider element is pulled along the closed row of fastener elements so that they enter into the groove 14 and are separated at the V-shaped dividing portion 13 so that the separated halves thereof feed outwardly through the grooves or channels 7 and 8. With the usual non-reversible slider the front and back members thereof are generally integral, being joined together intermediate the merging V-shaped grooves; this conventional type of slider is assembled with a row of slider elements and thenceforth remains secured to the slider at all times.

Extending outwardly and upwardly from the V-shaped dividing portion 13 of the bottom or back member 1, and integral therewith, is a lug or ear 16 provided with a pair of transversally extending apertures 17 and 18. This lug 16 is adapted to fit into an opening 20 between spaced, outwardly and upwardly extending projections 21

and 22 of the upper or front member 2, the spaced projections 21 and 22 being provided with pairs of apertures 15a, 15b and 19a, 19b. When the lug 16 of the back member 1 is inserted into the opening 20 between the spaced projections 21 and 22, the apertures 17, 15a and 15b are in alignment to receive the pin or peg 4; after the pin is inserted through these aligned apertures the ends thereof may be headed over to prevent accidental removal and consequent disassembly of the front and back members. This pin should be of such diameter as to permit pivotal movement of the members 1 and 2 about the pin 4 so that these back and front members may be easily opened or closed about a row of slide fasteners, as will be clearly brought out hereinafter. A shoulder or shelf 12 may be provided on the portion 13 to form a stop or rest for maintaining the desired spacing of the members in their closed position; the spacing is desirable in connection with obtaining correct freedom of operation in opening or closing rows of slide fastener elements.

Preferably the outwardly extending portions of the spaced projections 21 and 22 are provided with flat faces 24a and 24b adapted to abut against the end surfaces 27a and 27b at the end of the V-shaped dividing portion 13. This construction permits opening or separation of the front and back members sufficiently far to permit ready disengagement from or engagement with rows of interlocking fasteners, but retains the back and front members together so that they may be readily closed about the fastener element rows. The open relationship of the front and back members 1 and 2 is clearly shown in Fig. 2. When the front and back members are in closed position the slider may be moved to and fro along lines of cooperating slide fastener elements to lock and unlock the elements; when the front and back members are separated as shown in Figs. 2 and 3 the element may be readily removed from a row of zippers.

In order to provide means for gripping a slider to move it to and fro and also to facilitate locking together and unlocking of the front and back members, there is utilized a tab or tongue 5; the tab is provided with inwardly extending detents or projections 23a and 23b adapted to project inwardly into the hereinabove referred to apertures 18, 19a and 19b. When the front and back members 1 and 2 are closed about a zipper, the apertures 18, 19a and 19b are in alignment and the pins or projections 23a and 23b of the tab may extend through into these apertures to abut each other at substantially the center of the aperture 18 of the lug or ear 16; with the tab and its projections 23a and 23b in this position the slider may be moved along a zipper fastener to open or close it in the usual manner. When the pins 23a and 23b extend into the aligned apertures 18, 19a and 19b of the lug 16 and projections 21 and 22, the front and back members 1 and 2 are prevented from rotating about the pin 4 to open position; these two members are securely locked together.

To permit separation or opening of the front and back members 1 and 2, the projections 23a and 23b must be withdrawn or separated sufficiently far from each other to clear the sides of the lug 16 and unlock the front and back members 1 and 2 from each other, so that they may be rotated to open position about the pin 4. In the embodiment shown this desired withdrawal is facilitated by means of inwardly extending projections or protuberances 25a and

25b spaced a slight distance from the pins 23a and 23b of the tab 5. When it is desired to withdraw the pins 23a and 23b and unlock the front and back members, the tab 5 is rotated about the pivot or center formed by these two pins until the protuberances 25a and 25b contact the upper and outer surfaces of the spaced, upwardly extending projections 21 and 22; as the tab 5 is pressed to rotate still further about the center formed by the pins, the outer surfaces of the protuberances 25a and 25b commence to spread apart and draw the pins outwardly. Continued movement of the tab causes the pins to be eventually withdrawn entirely from the aperture 18 of the lug 16 so that the front and back members 1 and 2 may be moved or rotated to open position for removal from a zipper. The protuberances 25a and 25b are, in effect, cams or cam surfaces. When the front and back members 1 and 2 are rotated to open position the inner ends of the pins 23a and 23b press inwardly against the sides of the lug 16. Since the apertures 19a and 19b are out of alignment with the aperture 18 the pins cannot spring inwardly. When the slider is replaced in position on a zipper and the front and back members 1 and 2 pressed together about the zipper, the apertures 18, 19a and 19b are again brought into alignment and the pins 23a and 23b may snap into the aligned apertures toward each other to lock the front and back members together. The bevelled edges 28a and 28b at the inner ends of the detents 23a and 23b facilitate alignment and entry of the detents into opposite ends of the aperture 18 of the lug 16.

It is desirable that the tongue or tab 5 be manufactured from some resilient material such as spring steel so that it will readily and repeatedly separate and spring back together again whenever it is desired to open or close the slider about complementary rows of fastener elements.

It will be noted that in the embodiment shown in the drawings the upper, outer portions of the spaced projections 21 and 22 are bevelled to furnish sloping cam or cam surfaces 26a and 26b. This bevelling is not absolutely essential but it does cooperate with the cams or cam surfaces 25a and 25b of the tab member 5 to separate or spread the pins 23a and 23b when the tab is pressed toward the projections to unlock the front and back members.

The particular shape of the protuberances or projections 25a and 25b and their distance from the pins 23a and 23b may be varied to regulate the point of contact with the projections 21 and 22, and consequently to obtain a desired time and rate of separation or spreading of the pins 23a and 23b.

The tab member 5 may be provided with a locking detent 29 adapted to extend through an opening 31 in the front or top member 2 to grip and hold the position of a slider on a zipper strip.

The exploded view of Fig. 1 shows the parts of the present reversible slider separated from each other. In order to assemble these parts the front and back members are fitted together with the lug 16 projecting upwardly between the spaced projections 21 and 22 of the top member 2. In this relation the apertures 17, 15a and 15b will be in alignment and the pin 4 may be inserted through them and headed or riveted over to maintain them pivotally secured together. The lower end of the substantially U-shaped resilient tab member 5 may be spread apart to

separate the inwardly extending pins 23a and 23b so that these pins may be allowed to snap into the apertures 19a and 19b. These four elements or parts are the only ones required to comprise the present reversible slider.

It will be seen that the present invention provides a reversible slider comprised of a small number of parts. The parts are readily assembled without the use of special jigs, tools, or fixtures. The device is simple to understood and easy to operate; it may be easily understood by a person totally unfamiliar with slide fasteners. It is foolproof in that it is not likely to become accidentally unlocked and disengaged from a slide fastener. The present reversible slider presents a neat and trim appearance which differs very little from the appearance of the usual slide fastener that purchasers are accustomed to using. The device is rugged in construction and readily capable of withstanding the rough usage to which it may be subjected.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. A removable slider device of the class described comprising the combination of front wall and back wall members pivotally secured together and adapted to be positioned at opposite sides of a row of fastener elements, an apertured projection on each of said wall members, a tab member connected with one of said wall members, a locking pin carried by said tab member normally extending into said apertures of the wall member projections and retaining said front and back wall members in adjoining relationship, a cam surface carried by said tab member spaced from said locking pin and movable into contact with the projection of one of said wall members, movement of said tab member in one direction being effective to place the cam surface thereof into contact with the projection on one of said wall members and to move the locking pin out of said apertures and thereby permit pivotal movement of the front and wall members to open relationship.

2. A removable slider device of the class decribed comprising the combination of front wall and back wall members pivotally secured together and adapted to be positioned at opposite sides of a row of fastener elements, an apertured projection on each of said members, a tab member having spaced yieldable leg portions, inwardly projecting locking pins carried by said leg portions adjacent one end thereof and normally extending into said apertures of the wall member projections and retaining said front wall and back wall members in adjoining relationship, a pair of cam surfaces carried by said tab member at locations spaced from said locking pins and movable into contact with the projection of one of said wall members upon movement of said tab member, movement of said tab member being effective to place the pair of cam surfaces thereof into contact with the projection on one of said wall members and to spread the yieldable legs of said tab member and move the locking pins out of said apertures and thereby permit rotation of the front and back wall members to opened relationship.

3. A removable slider of the class described comprising the combination of a rear wall movable along one side of a row of fastener elements, a front wall movable along an opposite side of a row of fastener elements and pivotally secured to said rear wall, a cam surface on one of said walls, a tab member carried by one of said walls, a projection on said tab member interlocking said front and rear walls when in closed position, and means carried by the tab member adapted to co-operate with said cam surface to move the projection and release said walls and thereby permit movement of said walls with respect to each other to an open position.

4. A removable slider of the class described comprising the combination of a rear wall having a recess therein and movable along one side of a row of fastener elements, a front wall pivotally secured to said rear wall having a recess therein registrable with the recess of said rear wall and movable along an opposite side of a row of fastener elements, a cam surface on one of said walls, a tab member carried by one of said walls, a projection on said tab member extending into said recesses of the front and rear walls when in registry and thereby interlocking said front and rear walls when in closed position, and means carried by the tab member adapted to co-operate with said cam surface to move the projection and release said walls and thereby permit movement of said walls with respect to each other to an open position.

5. A removable slider for opening and closing rows of co-operating fastener elements, comprising the combination of a rear wall member, a front wall member movably connected with said rear wall member, a tab member connected with one of said wall members, a cam surface on one of said wall members and disposed toward said tab member, a laterally movable projection normally interlocking said front and rear wall members in closed relationship, and a yieldable side portion on said tab member operatively connected with a portion of said projection and laterally movable with said projection upon engagement of and relative movement between said cam surface and said yieldable side portion to release the interlocking of the wall members and thereby permit movement of said walls with respect to each other to an open position.

6. A removable slider for opening and closing rows of co-operating fastener elements, comprising the combination of a rear wall member, a front wall member movably connected with said rear wall member, a tab member connected with one of said wall members, a pin-like projection carried by said tab member normally interlocking said front and rear wall members in closed relationship, cam means on one of said members and a cam-contacting portion on said tab member movable into contact with said cam means upon movement of the tab member to move the pin-like projection and release the interlocking of the wall members and thereby permit movement of said walls with respect to each other to an open position.

7. A removable slider device of the class described comprising the combination of front wall and back wall members pivotally secured together and adapted to cooperate in opening and closing a row of fastener elements, a substantially U-shaped tab member swingably connected with one of said wall members and provided with a laterally yieldable leg portion having a projection thereon normally engaged with and interlocking said front and back members in ad-

joining relationship, one of said swingably connected members having a cam surface and the other having a protuberance, said cam surface and protuberance being movable into camming engagement with each other for laterally moving said yieldable leg portion and moving said projection out of said interlocking engagement to thereby unlock said front and back wall members and permit movement of them into open relationship.

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