Dec. 5, 1961 A. J. McNAMARA 3,011,238

CONCEALED SLIDE FASTENER AND CLOTH ARTICLE CONTAINING THE SAME

Filed Nov. 3, 1958 2 Sheets-Sheet 1

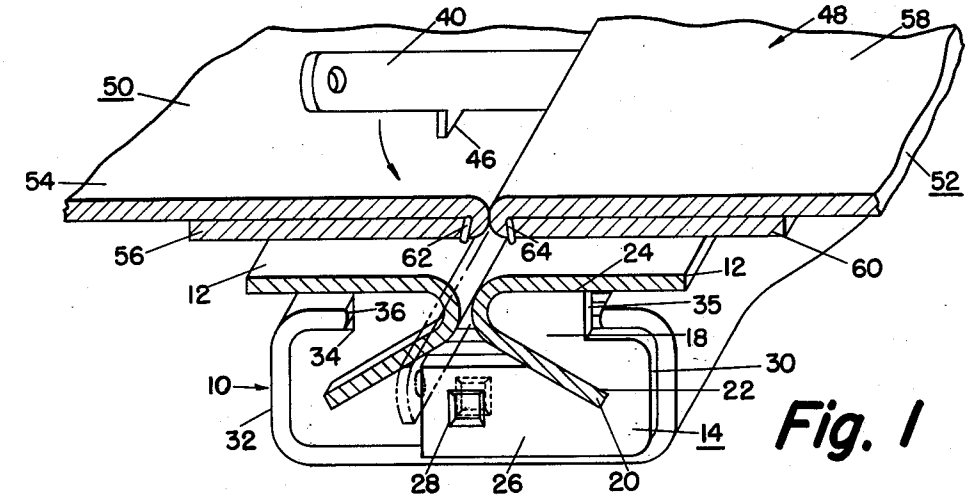


Fig. 1

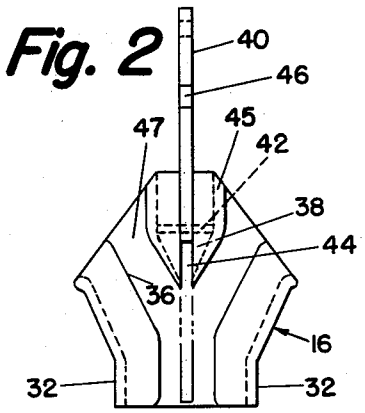


Fig. 2

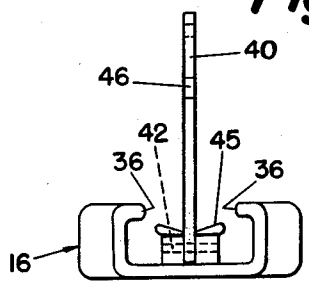


Fig. 3

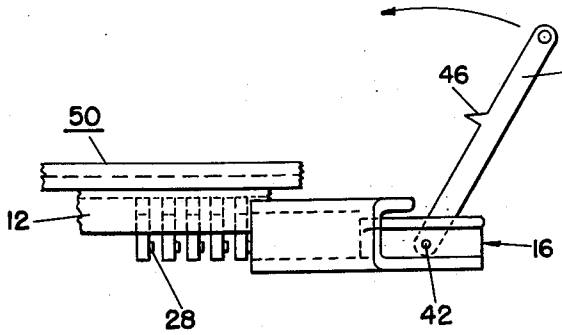


Fig. 4

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Fig. 5

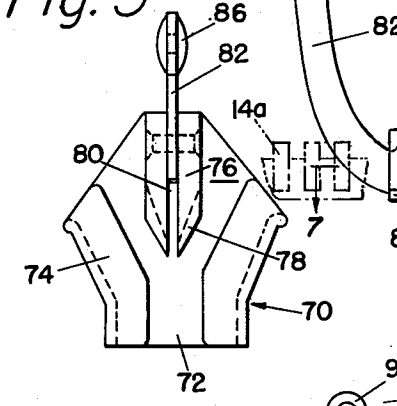


Fig. 6

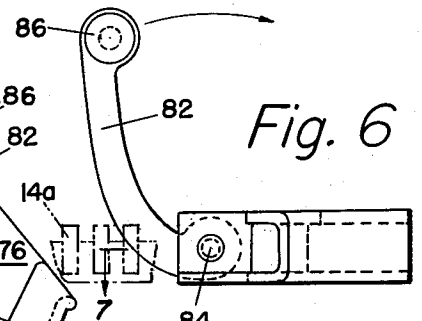


Fig. 7

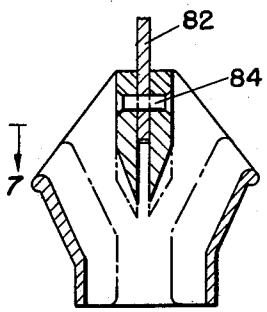


Fig. 9

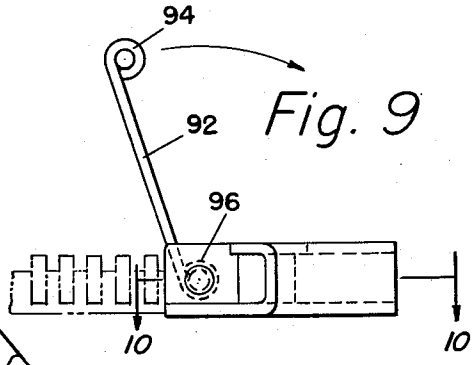


Fig. 8

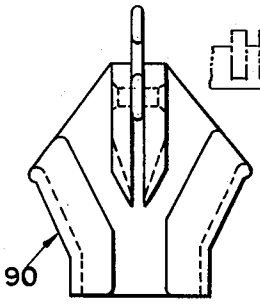
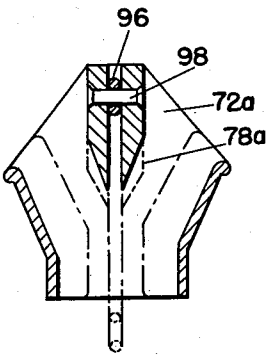


Fig. 10



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3,011,238

CONCEALED SLIDE FASTENER AND CLOTH ARTICLE CONTAINING THE SAME

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Filed Nov. 3, 1958, Ser. No. 771,494
8 Claims. (Cl. 24—205.1)

The present invention is directed to a concealed slide fastener and cloth article containing the same, and more particularly to a slide fastener of the concealed type which closely simulates a seam in its closed disposition within a cloth article.

It has long proved desirable to provide a slide fastener which simulates a seam in its closed disposition within a cloth article. To achieve this goal, slide fasteners have been developed in which the slide fastener elements overlie the tapes on which they are carried when the elements of such slide fasteners are matingly engaged. For example, see the slide fastener disclosed in United States Letters Patent 2,738,560 issued March 20, 1956 to Jacques Hug.

However, all prior concealed slide fasteners of the aforesaid type suffer from the handicap that the pull tab of the slider is visible when the slide fastener is closed and its elements are matingly engaged. The presence of the pull tab detracts from the otherwise almost perfect illusion of a simulated seam which the closed slide fastener presents.

This invention has as an object the provision of a novel concealed slide fastener comprising a novel slider.

This invention has as another object the provision of a novel cloth article.

This invention has as another object the provision of a slide fastener which in its closed disposition closely simulates a seam, and in which disposition the pull tab of the slide fastener's slider is substantially or entirely concealed from view so that the closed slide fastener presents an almost perfect illusion of a sewn seam.

This invention has as a still further object the provision of a slider whose pull tab may be substantially or entirely concealed from view and yet whose pull tab functions substantially as efficiently as conventional pull tabs which are exposed to the viewer in the closed disposition of the slide fastener.

This invention has as a yet further object the provision of a slide fastener of the aforesaid type which will function without undue wear on the cloth adjacent the slide fastener.

Other objects will appear hereinafter.

For the purpose of illustrating the invention there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

Referring to the drawings wherein like reference characters refer to like parts:

FIGURE 1 is a fragmentary perspective view of the slide fastener of the present invention, with the pull tab shown in full line in exposed disposition, and the pull tab shown in phantom line in concealed or retreated disposition.

FIGURE 2 is a plan view of the slider of the slide fastener of the embodiment shown in FIGURE 1, with the various positions assumed by the pull tab being shown.

FIGURE 3 is a bottom end elevational view of the slider of FIGURE 2.

FIGURE 4 is a side elevational view of the slider and elements of the slide fastener of the embodiment shown in FIGURE 1.

FIGURE 5 is a plan view revealing another embodiment of the slider of the slide fastener of the present invention.

FIGURE 6 is a side elevational view of the slider of FIGURE 5 revealing the relationship between such slider and elements of the slide fastener of the present invention.

FIGURE 7 is a sectional view taken on line 7—7 of FIGURE 6.

FIGURE 8 is a plan view of another embodiment of the slider of the present invention.

FIGURE 9 is a side elevational view of the slider of FIGURE 8 revealing its relationship to elements of the slide fastener of the present invention.

FIGURE 10 is a sectional view taken on line 10—10 of FIGURE 9.

Referring to the drawings, and initially to FIGURES 1 through 4, FIGURE 1 reveals the slide fastener designated generally as **10**. Slide fastener **10** comprises a pair of slide fastener element-carrying tapes **12** on which are carried the mating slide fastener elements **14**. The slide fastener elements **14** are engaged and disengaged by the action of the slider **16**.

The slide fastener elements **14** are preferably those disclosed in my copending patent application Serial No. 761,027 filed September 15, 1958 entitled: Slide Fastener. Such elements **14** may be formed of metal, or may be formed of plastic, such as nylon. Each slide fastener element **14** comprises a clamping jaw portion **18** within which the innermost portion **20** of the supporting tape **12** is received. I have found that by forming the clamping jaw portion **18** in the manner indicated in the drawings, namely as the slot **22**, which is angularly disposed to the flat back **24**, the use of a welted or beaded edge on the tape **12** for anchorage purposes can be avoided. However, the slide fasteners of the present invention comprise constructions, such as those of the embodiments of FIGURES 6 through 10, in which the elements include a clamping jaw portion which is constructed to receive a tape having a welted or beaded edge, such elements being shown in above-mentioned Patent 2,738,560. The shank **26** of the slide fastener element **14** includes the interlocking members, such as the cup **28** on one surface of the shank **26** and a projection on the other surface of the shank **26**. The engagement between the cup **28** of one slide fastener element and the projection of the next adjacent mating slide fastener element is shown in FIGURE 1, and the use of any of the wide variety of projections and cups known to those skilled in the art is contemplated in the slide fastener elements of the slide fastener of the present invention.

The slide fastener elements **14** are provided with laterally projecting sides **30** for engagement with the mating adjacent flanks **32** of the slider **16**. Each of such sides **30** does not extend to the back **24** of the slide fastener element **14**, but instead, the back end **34** of each side **30** is spaced from the back **24** by the intermediate step **35**, such step **35** having a height appreciably greater than the maximum thickness of the free edge portion of the slider **16**. The provision of the step **35** ensures that engagement between the free edge portion **36** of the slider **16** of the tape **12** will be avoided because notwithstanding flexing of the tape **12** and bending thereof in respect to the back **24**, the free edge portion **36** of the slider **16** is spaced a sufficient distance from the tape **12** by the step **35** to avoid engagement.

The slider **16** of the present invention is shown particularly in FIGURES 2, 3, and 4 and comprises the flanks **32** and diamond **38**.

It is essential for the purposes of the present invention that the slider **16** have a thin pull tab **40**, as the same is to be as inconspicuous as possible. In the illustrated embodiment the length of the rigid metal pull tab **40** is approximately equal to the length of the slider **16**. In any event, the length of the pull tab **40** should be sufficient so that a finger grip may be secured on the

pull tab 40 enabling the same to be grasped by the fingers of the user, notwithstanding the thinness of such pull tab 40.

The pull tab 40 is pivotably secured on the cross pin 42 which is carried within the diamond 38. A slot 44 of uniform width is disposed along the center of diamond 38 within which the pull tab 40 is received. The pull tab 40 has a uniform width along its entire length which in the illustrated embodiment comprises just somewhat less than the width of slot 44.

The pull tab 40 may be pivoted within slot 44 about cross pin 42 from a disposition in which the pull tab 40 is substantially disposed along the central axis of the slider 16 beyond the topmost part of the slider 16 (shown in FIGURE 2 in full line) to a position in which the pull tab 40 is superposed above the slider 16 (shown in FIGURE 2 in full line) to a position in which the pull tab 40 is superposed above the slider 16 (shown in phantom line in FIGURE 2). The slot 44 serves to guide the pull tab 40 through its aforesaid pivotation and prevents lateral shifting of the pull tab 40.

The diamond 38 is provided with laterally projecting wings 45. The wings 45 project laterally above the walls of the diamond 38, and serve to guide the elements 14 of the slide fastener 10 intermediate such wings and the back 47 of the slider 16.

As seen particularly in FIGURES 3 and 4, the cross pin 42 is positioned about halfway between the wings 45 and the back 47, namely about halfway up the walls of the diamond 38. By so positioning the cross pin 42 any thrust on the pull tab 40 does not cant or cock the slider 16 in respect to the elements 14. This is most important, since canting or cocking of the slider 16 in respect to the elements 14 would impede the movement of the slider 16 on the slide fastener 10. Furthermore, canting or cocking of the slider 16 would lead to engagement between the slider 16 and the cloth members of the cloth article on which the slide fastener 10 is mounted.

If desired, the pull tab 40 may be provided with the detent 46 for locking the engaged elements 14 of the slide fastener.

The disposition of the slide fastener 10 on the cloth article 48 is shown in FIGURE 1. The cloth article 48 comprises a pair of members 50 and 52, each of which consists of a pair of overlapped flaps, namely the relatively large outer flap 54 and the relatively small inner flap 56 of cloth member 50, and the relatively large outer flap 58 and the relatively small inner flap 60 of cloth member 52. The abutting line intermediate the cloth members 50 and 52 resembles a seam when the slide fastener 10 is in its closed disposition with its elements engaged with each other.

The tapes 12 and 12 of the slide fastener 10 are secured by respective lines of stitching 62 and 64 to the relatively small inner flaps 56 and 60 of the cloth members 50 and 52. The lines of stitching 62 and 64 are positioned closely adjacent the slide fastener elements 14 on the tapes 12 and are at the fold lines which define the flaps 54 and 56 of cloth member 50 and 58 and 60 of cloth member 52.

When the slide fastener 10 is in its closed disposition, the pull tab 40 is disposed in the phantom line disposition shown in FIGURE 1 intermediate the cloth members 50 and 52. In this disposition the pull tab 40 is substantially concealed and does not destroy the illusion of a sewn seam presented by the closed slide fastener 10. In order to open the slide fastener 10 it is only necessary to pry up the pull tab 40 with the user's fingernail and to pull on the pull tab 40.

FIGURES 5, 6, and 7, and FIGURES 8, 9, and 10 reveal slider embodiments intended for use with elements of the type disclosed in aforementioned United States Letters Patent 2,738,560 which are carried on welted tapes.

Referring to FIGURES 5, 6, and 7 the slider 70 comprises the back 72 having the flanks 74.

The diamond 76 is provided with wings 78 which guide the elements 14*a*. Slot 80 runs the entire length of diamond 76 and is of uniform width throughout its length. The pull tab 82 is received within the slot 80, such pull tab 82 being pivotably carried on the cross pin 84. As seen particularly in FIGURE 6 the pull tab 82 is a bowed member having knobs 86 at its free end. As seen particularly at FIGURE 6, the curvature of the pull tab 82 is such that when the same is pivoted to the disposition shown at the left side of FIGURE 6, the pull tab 82 projects substantially perpendicularly to the back 72 with its knobs 86 uppermost. The curvature of pull tab 82 is advantageous, since it permits the pull tab 82 to be substantially concealed when the same is pivoted downwardly from the position shown in FIGURE 6, in the direction of the arrow.

As seen in FIGURE 6, the slot 80 extends through both the diamond 76 and back 72 in the upper portion of slider 70. The slot 80 guides the pull tab 82 during its pivotation, preventing it from shifting laterally.

The cross pin 84 on which the pull tab 82 is pivoted is positioned midway along the height of the walls of the diamond 76 between the wings 78 and the back 72. Thus, the cross pin 84 is disposed midway of the height of the elements 14*a* when the slider 70 is engaged with such elements 14*a*. By positioning cross pin 84 midway along the height of the elements 14*a*, canting or cocking of the slider 70 is prevented when thrust is applied to the pull tab 82.

The slider 90 shown in FIGURES 8, 9, and 10 generally resembles the slider 70 except that in place of the pull tab 82, the slider 90 is provided with the pull tab 92. Thus, the pull tab 82 is formed from sheet metal having a perforation through which the cross pin 84 is received. The pull tab 92 is formed from a rod or wire whose ends 94 and 96 are looped. The end 94 comprises the free end of pull tab 92 which is grasped by the fingers of the user. The end 96 is looped about the cross pin 98 on which the pull tab 92 pivots. The cross pin 98 may be formed in an identical manner as the cross pin 84, and is positioned midway between the wings 78*a* and the back 72*a* of slider 90.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

1. A slider for a slide fastener comprising a diamond having a pair of spaced laterally extending wings, a back connected to said diamond and having curved flangs, there being a slot in said diamond between said wings, said slot extending along the longitudinal axis of said diamond for the entire length of said diamond, said slot extending from the top of said diamond toward said back and having a depth greater than one-half the height of said diamond, and an elongated thin pull tab having one end pivotably mounted in said slot at a point midway up the height of said diamond, said pull tab being thinner than said slot and lying in a plane which is substantially coincident with the plane of said slot.

2. A slider fastener comprising a pair of element carrying tapes, mating slide fastener elements gripping the inside edges of said tapes, a slider having a back and a diamond, said diamond being connected to said back, a pair of spaced laterally extending wings on said diamond, curved flanks on said back, said tapes overlapping said elements and said flanks when the slide fastener is in its closed disposition with the elements in mating engagement, there being a slot in said diamond between said wings, said slot extending along the longitudinal axis of

said diamond for the entire length of said diamond, said slot extending from the top of said diamond toward said back and having a depth greater than one-half the height of said diamond, and an elongated thin pull tab having one end pivotably mounted in said slot midway up the height of said diamond, said pull tab being thinner than said slot and lying in a plane which is substantially coincident with the plane of said slot.

3. A slider in accordance with claim 1 in which the pull tab comprises a straight thin element.

4. A slider in accordance with claim 1 in which the pull tab comprises a curved element.

5. A slider in accordance with claim 1 in which the pull tab is formed from a wire having a circular cross-section.

6. A slider in accordance with claim 1 in which the pull tab is pivotably mounted on a cross pin which extends across the slot perpendicularly to the longitudinal axis of the slot.

7. A cloth article comprising a pair of overlapped cloth members, each of said cloth members comprising a relatively large outside flap and a relatively small inside flap, with the fold lines of the cloth article defining said flaps being adjacent each other, a slide fastener comprising a pair of element carrying tapes, one of said tapes being secured to the relatively small inside flap of one cloth member and the other of said tapes being secured to the relatively small inside flap of the other cloth member, with each of said tapes being joined to its flap by a line of stitching closely adjacent to the elements carried by the tape, the mating elements of the two tapes spanning the gap between the cloth members when the slide fastener is in its closed disposition, the tapes overlapping the slide fastener's slider and elements when the slide fastener is in its closed disposition with its elements mating, with said slider comprising a diamond, a back, and flanks, there being a longitudinal slot in the top of said diamond, extending along the entire length of said diamond, said slot extending along the longitudinal axis of the slider, and an elongated thin pull tab pivotably mounted on said diamond midway up the height of said diamond, said pull tab being pivotably mounted in said slot and having a pivotable range of substantially 180 degrees, with said pull tab being pivotable between a disposition wherein the longitudinal axis of said pull tab coincides with the longitudinal axis of said slot and a disposition wherein the longitudinal axis of said pull tab is perpendicular to the axis of said slot, with substantially the entire length of pull tab being disposed intermediate the cloth members when it is disposed in its former disposition, the fold lines of the cloth article closely simulating a seam when the slide fastener is in its closed disposition with the pull tab disposed intermediate the cloth members, with the slider of the slide fastener being provided with laterally projecting wings on the top of the diamond.

8. A cloth article in accordance with claim 7 in which the pull tab is mounted on a cross pin which extends perpendicularly across the longitudinal axis of the slider.

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