Feb. 25, 1958 A. FOLTIS 2,824,352

SLIDABLE FASTENER

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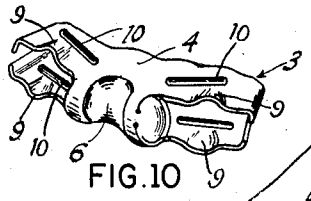


FIG. 10

FIG. 1

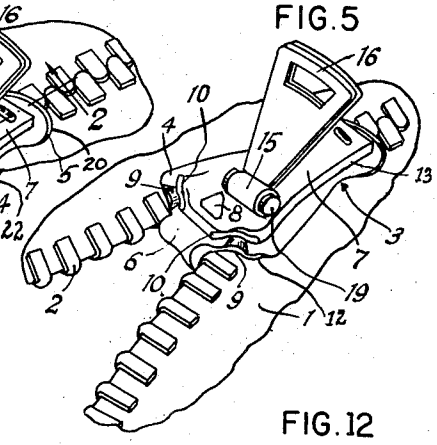


FIG. 5

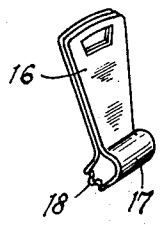


FIG. 3

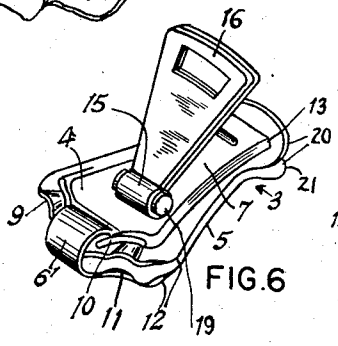


FIG. 6

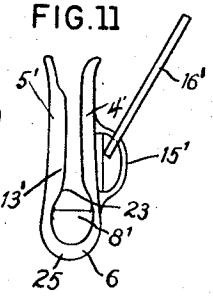


FIG. 11

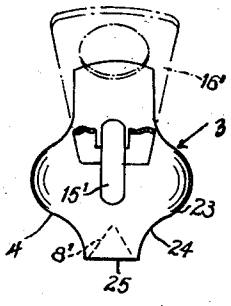


FIG. 12

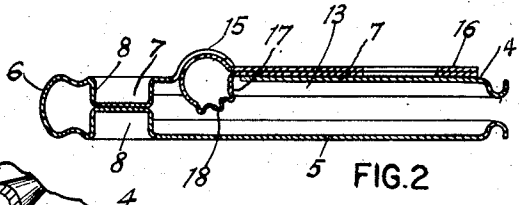


FIG. 2

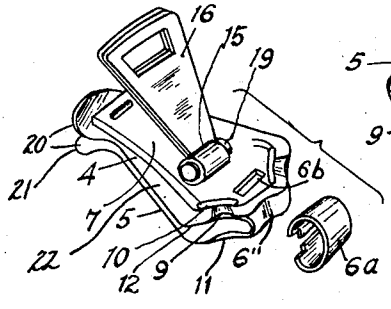


FIG. 7

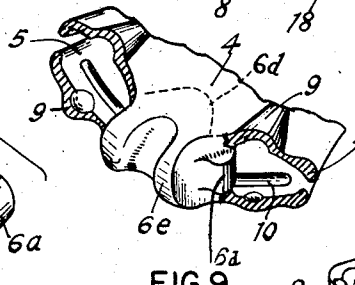


FIG. 9

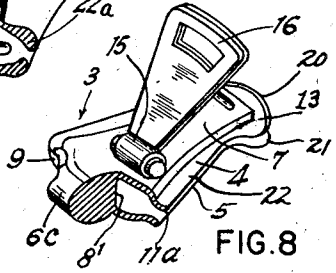


FIG. 8

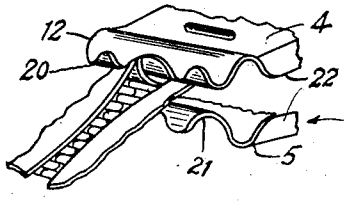


FIG. 4

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SLIDABLE FASTENER

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Application June 7, 1954, Serial No. 434,705

2 Claims. (Cl. 24—205.15)

My invention is an improvement in sliding fasteners, for use on garments and other articles to unite opposing edges thereof.

An important object of my invention is to provide a sliding fastener adapted to join the conventional stationary fastening elements and release them; and constructed to prevent folds of the material from being jammed in the slider, especially when it is moving to connect the stationary fastener elements; and thus avoid damage by ripping or tearing said material.

A further object is to provide a sliding fastener designed to obstruct folds and bends in sheet material that might slip into the fastener, which has inside parts, so located and shaped as to bring about this result, while at the same time doing an efficient fastening operation.

Additional objects and the advantages and nature of the improvement are made clear in the ensuing description and the novel features are pointed out in the claims. On the drawings several embodiments of the slide fastener of my invention are illustrated, but I do not wish to be limited to the particular structural details that the drawings present. Variations in details may be adopted without omitting or deviating from any of the essential characteristics.

On said drawings:

Figure 1 is a perspective view of a slide fastener according to my invention, superposed on a piece of sheet material.

Figure 2 is a central longitudinal section thereof, the plane of section being in the middle of the fastener appearing in Figure 1.

Figures 3 and 4 show details, illustrating the construction of this fastener.

Figure 5 shows said fastener in operation; and

Figure 6 illustrates in perspective another form of fastener.

Figure 7 shows in perspective still another modification of a fastener.

Figure 8 shows in perspective a slide fastener of the same construction for the most part as Figure 7 with a slightly changed construction at one end.

Figure 9 illustrates in perspective a fastener similar to what is illustrated in Figure 8, with a further structural alteration at one end thereof.

Figure 10 is a fragmentary view showing one end of a further modification of fastener, and

Figure 11 is a side view and

Figure 12 is a plan view of still another form of fastener.

On Figures 1, 2, 3, 4 and 5 the numeral 1 indicates cloth or other sheet material with opposing edges, each of which bears a row of stationary fastener elements 2. They are moved to unite and hold the edges of the material together by a sliding fastener or member 3, which also releases or disengages the elements 2 from one another when the edges are to be moved apart. The fastener 3 has a front section 4 and a back section 5 parallel

to each other and joined at one end by a connector or neck 6 which is rounded on its exterior surface. The fastener is open, with a space between the two halves or sections 4 and 5 at each side of the neck 6, along its sides and end opposite the neck 6.

The central parts of the front and back halves of the fastener are formed with a large area in relief on their outer faces, as indicated at 7; and in each area 7 adjacent the neck 6 is a projection 8 extending inward. The inner ends of these projections are flat and in contact and they serve as a guide element of the usual form to separate the elements 2 when the fastener is moved with the neck 6 trailing to disengage the fastener elements 2. The neck 6 is shown as integral with the front 4 and back 5 of the fastner 3 and the guide 8 is a little to the rear of the neck 6.

The edges of the front half or section 4 of the sliding fastener 3 have rounded projections 9 on the outer face of said section, one at each side of the neck 6 and guide 8. These projections are hollow on the inner face of the fastener 3 and present recesses to the inside space between the sections 4 and 5 at these points. Near the base of each projection 9 the section 4 is indented on its outer face to produce small projecting portions or ribs 10 inside the member 3. The section 5 is also indented to present ribs 10 directly under the ribs 10 in section 4; the ridges being shown as extending transversely toward each adjacent corner of the member 3. In front of each rib 10 the edges of the section 5 are bent inward slightly between the neck 6 and the corners as shown at 11, and at said corners the two sections are bent slightly towards each others, as shown at 12. The areas 7 have the general outline of the conventional slide fastener, with a wide end at the neck 6 and a narrower opposite ends, and the sides 13 of these areas 7 on both halves 4 and 5 act as lateral flanges for the member 3; and the projections 9, inside ribs 10, and bent parts 11 and 12 at the sides of the guide formed by the abutting projections 8 are all so located that the elements 2 are all between the flanges 13 when the elements 2 are actuated into engaging positions.

When the member 3 is manipulated to unite the elements 2, it is moved so that the neck 6 is at the leading end. The member 3 envelops a row of elements 2 at each side of the neck 6 and between it and the bent corners 12, so as to force said elements between the internal guide projections 8 and the flanges 13 to bring their adjacent ends into connecting positions, and as the opposite narrow end of the member 3 passes over the elements 2, they are left with the two rows firmly united. The diagonal space between the ribs 10 and upturned edge portions 11 and corners 12 is in effect a short groove in each section 4 and 5. If a fold of cloth is forced into the member 3 it fills each groove and the spaces under the projections 9 in the section 4, and will usually be stopped by the ribs 10 in the sections. The slider is then checked, and the operator, feeling the resistance, pulls the slider back and manipulates it forward and in reverse, till the cloth is freed and smoothed, and then the connecting operation is completed.

In the movement of the member 3 with the neck 6 foremost, a fold of cloth indicated at 14 in Figure 1 may lie between the elements 2; and the ribs 10 will be effective in preventing this cloth being caught too tightly in the member 3. If this cloth becomes temporarily snagged by the elements 2, it may be forced into the member 3, and fill the space at one side or both sides of the neck between the sections 4 and 5. It may fill the recesses on the inner faces of the projections 9, but these recesses diminish in depth from the neck 6 inward, and the fold will not be gripped too securely, so that it cannot easily

be pulled out. The fold 14 can then enter the member 3 no farther than the ribs 10. The member 3 is now pulled back a short distance to liberate the fold 14, which at once comes clear of the fastener 3 and elements 2, and on the resumption of movement of the fastener with the neck 6 leading, the cloth 14 is pushed down by the neck and out of position between the rows of elements 2. The spaces beneath the two projections 9 give more room for the cloth to enter, but the fold will not be jammed therein.

The section 4 has a tongue 15 cut out of the area 7 to form a bearing for a movable tab 16 to be grasped by thumb and finger when the member 3 is to be moved. The tab is made of bent metal with a hollow journal 17 at one end and having teeth 18. The bearing envelopes the journal 17 and permits limited pivotal movement of the tab but clamps it in place on the member 3. The teeth 18 on the journal 17 lock the member 3 to the elements 2 when pressed flat against the member. The journal may be filled at its ends with caps secured in any suitable manner for the sake of a better appearance. Other types of pivotal connection of the tab to the fastener 3 can be utilized. The caps are indicated at 19.

The opposite or narrower end of the member 3 may be bent and formed with out-curved projections 20 and 21 on both halves 4 and 5, to smooth out the elements 2 when the fastener is moved to release them. The two halves 4 and 5 may have edges or flanges flanking the flanges 13 and bent towards each other as shown at 22 in Figures 1 and 4 and these flanges 22 always overlie the cloth along the outside of the elements 2. The fastener has wide projections at each side of the neck between it and the flanges 22, and the portions 9, 10 and 11 and bent corners 12 are parts of said projections.

In Figure 6 the fastener is shown with the neck 6' made in one piece with the section 5 and curved up in front and higher than the neck 6 and secured to the section 4 at the wide end. Otherwise, the construction is the same as above set forth.

Figure 7 illustrates a fastener with a connecting neck 6'' and a round clip 6*a* with ends that enter slots 6*b* in the sections 4 and 5. The design is otherwise the same as described in Figures 1, 2 and 3.

Figure 8 shows a fastener similar to the fastener of Figure 1 but with the neck 6*c* and guide part 8' all in one piece.

The fastener shown in Figure 9 has the halves 4 and 5 in section at each side of the neck 6*e* across the projections 9. The ridges 10 are in the same places but only in the section 5 and additional side flanges are indicated at 22*a*. The neck 6*e* has the guide 6*d* within the member 4.

Another modification is outlined on Figure 10 with hollow projections 9 in both halves and inside ridges 10, one behind each projection 9. Between this type and that of Figures 1 and 5 there is no other difference.

The sections 4 and 5 may be cut through along the ribs 10 and the edges at the cuts bent inward.

The design of sliding member appearing on Figures 11 and 12 is well adapted to prevent folds of material from being torn if caught in the sliding member and held in the leading end connected by the neck 6. This slider has a front or top half 4' bearing a tab 16' attached to a cut-out loop 15' and the side edges of the rear half or section 5 and front section 4' have the flanges 13'. The sides of the front and rear sections have round wing-like projections 23 connected by concave edges 24 to the end at the neck 6. Both front and rear sections are slightly concave outside and convex inside, and converge towards each other away from the neck 6, so that the spaces between the ribs 13' becomes smaller toward the opposite end. Also the wings 23 on each section are bent to approach the wings on the other section at each side of the member 4. Thus the space inside the slider adjacent the neck 6 is made a little larger than the transverse thickness of the elements 2. If on the movement of the member 4 with the neck 6 leading, a fold of cloth should slip into the member 4, it would be gradually but not sharply checked in the front part of the inside space between the sections, narrowing towards the opposite end. The wearer of the garment, feeling the increased resistance to forward movement of the member 4, then stops it, reverses it, and impels it forward and back slowly and easily several times. The fold is thus withdrawn from inside the member 3 and the edges 24 push the cloth towards the space between the elements 2, where the smooth round outer side 25 of the neck 6 pushes it down out of the space between the elements 2 and the movement of the slide member 4 to unite the elements 2 can be continued. All risk of tearing is thus obviated. Within the neck is the usual guide element 8'. The bends in the ends of each projection 23 towards the opposite section are indicated by the curved lines on the wings 23 in Figure 12.

Having described my invention, what I believe to be new is:

1. A slidable fastener having a front section and a back section, with a space between them and relatively wide connected ends, said sections having a neck at said connected ends and an open opposite end, and being open along the sides and adjacent said neck, the edges of said fastener between the neck and sides having short hollow projections enlarging the adjacent portions of the inside space between said sections, and ribs within the fastener at the inner ends of said projections, and extending crosswise of said projections.

2. A slidable fastener having a front section and a back section, with a space between them and relatively wide connected ends, said sections having a neck at said connected ends and an open opposite end, and being open along the sides and adjacent said neck, the edges of said fastener between the neck and sides having short hollow projections enlarging the adjacent portions of the inside space between said sections, and ribs within the fastener at the inner ends of said projections, and extending crosswise of said projections, the fastener having portions along the edges of one section at each side of said neck having bends extending toward said hollow projections.

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