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SLIDER FOR SLIDE FASTENERS

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Fig-1

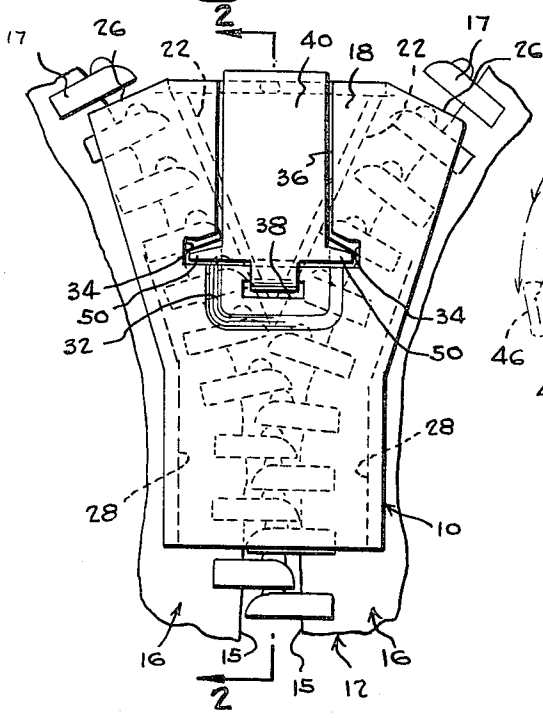


Fig-2

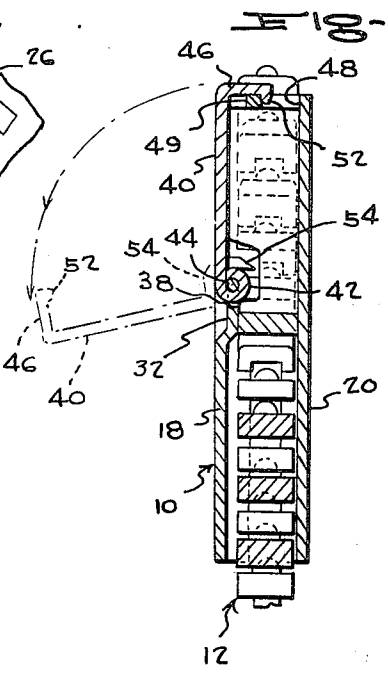


Fig-3

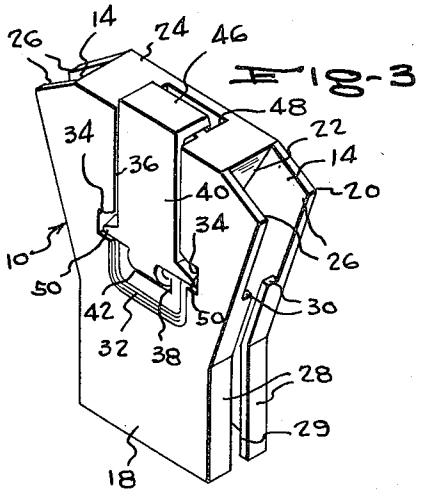
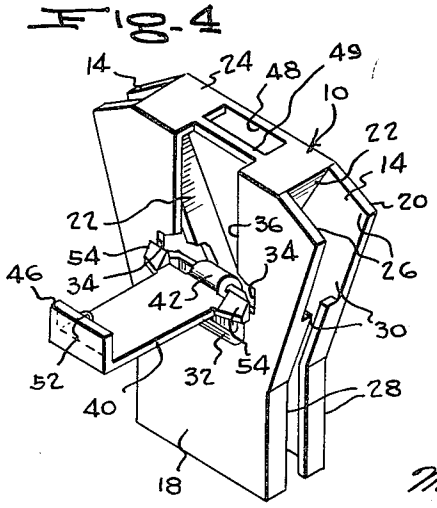


Fig-4



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SLIDER FOR SLIDE FASTENERS

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3 Claims. (Cl. 24—205.14)

This invention relates generally to the art of slide fastener construction. More particularly, the invention has reference to a novel construction of a slider for a slide fastener.

The convention slider is so formed that the outer face thereof is provided with ears or similar bearing projections, extending outwardly from said face, between which a pull is supported for pivotal movement upon the mentioned surface of the slider body.

This construction has the distinct disadvantage that the pull is in overlying relation to the outer wall or surface of the slider body, as a result of which said pull, and the ears or projections that support the pull for pivotal movement, form an undesirable projection upon the slider body. Said projection represented by the pull and the means supporting the same for pivotal movement interfere with pressing of the garment on which the slide fastener is provided, that is, any fabric overlying the slider tends to be bulged out by the projecting, overlying pull. Therefore, when an attempt is made to press this portion of the fabric, the pull presses into the fabric, causing rapid wear of the same at this particular location. In any event, there is often provided a visible projection of the fabric at the particular location of the slider, and this also, of course, should be obviated if possible.

The main object of the present invention is to provide an improved slider of the type in which the pull is maintained in the plane of the outer wall of the slider body, when not in use. In other words, it is already known, per se, to provide a flush pull slider, that is, a slider for a fastener, that incorporates a pull which will lie flush with the outer wall of the slider, and will not represent an undesirable projection. In the prior art devices, the overall length of the slider is undesirably extended, in accomplishing the flush mounting of the pull, it having been noted that in those instances in which the pull is truly mounted in the plane of the outer wall of the slider, it projects for its entire length or for at least a substantial portion of its length beyond one end of the slider. In accordance with the present invention, the overall length of the slider is not increased by the flush-mounted pull, except to a completely inconsequential degree that would escape anything except the most careful inspection.

A further object is to incorporate a flush pull in a slider in a manner such as not to increase the overall thickness of the slider above that of sliders not having the characteristic of the present invention, except, again, to no more than a completely inconsequential degree.

Still another object is to provide a flush-mounted pull which will be so formed in relation to the slider as to have a novel locking means normally engaging the pull in coplanar relation to the top wall of the slider, said locking means being disposed at the free or distal end of the pull so as to increase the effectiveness of the lock as compared to constructions in which the pull is locked in its inoperative, down position by means located

at or near the pivotal connection of the pull to the slider body.

Another object is to provide a flush pull slider designed for incorporation in a slide fastener without requiring modification of the slide fastener tapes or of the tooth elements on the tapes.

Another object is to provide a slider having a flush-mounted pull, which slider can be manufactured at a low cost, by mass production methods.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a front elevational view of a slider according to the present invention, the stringer tapes being illustrated fragmentarily;

Figure 2 is a longitudinal sectional view on line 2—2 of Figure 1 in which the pull is shown in full and dotted lines in its inoperative and operative positions, respectively;

Figure 3 is a perspective view of the slider per se, on a scale slightly reduced below that of Figures 1 and 2, with the pull in its inoperative position; and

Figure 4 is a view similar to Figure 3 in which the pull is in its operative position.

Referring to the drawings in detail, the slider **10** constituting the present invention is illustrated as being a part of a slide fastener generally designated **12**. In addition to the slide **10**, the slide fastener **12** includes the confronting stringer tapes generally designated **16**, having the usual fastener elements or teeth **17**. The elements **17** are mounted on the confronting longitudinal edge portions **15** of the tapes **16**, with said elements extending in alternating relation partially across the space intervening between the edge portions. The edge portions **15**, carrying the elements **17**, are extended within the outwardly opening sides of the slider, in the usual manner.

The slider **10** constitutes the invention, and comprises outer and inner walls **18**, **20** respectively lying in parallel planes (Figure 2), to provide a slider of the so-called flush type. The outer and inner walls **18**, **20** respectively, at one end portion of the slider, shown as the lower end portion in Figures 1–4, are respectively formed with parallel side edges, with the walls remaining of constant width for part of the length of the slider body, said walls being thereafter progressively increased in width in a direction toward the opposite extremity of the body, shown at the upper end in the several figures of the drawing.

This of course is a generally conventional configuration of the slider body, it being understood that the tapes are interlocked where they extend out of the narrower end of the body, and are unlocked, in diverging relation, where they extend out of the wider end of the body.

At opposite sides of the body, there are provided the outwardly facing guide channels **14**, **14** for the respective edge portions **15**, said channels opening upon the opposite ends of the body, and also opening throughout their lengths upon the adjacent sides of the body. The walls **18**, **20** define side walls for the channels. Inner walls or webs for the channels are defined by a V-shaped guide structure provided in the wider end of the body between the walls **18**, **20**, said structure comprising divergent walls **22**, which walls converge at a location medially between opposite ends of the body, and diverge from this location toward the wider end of the body as shown to particular advantage in Figure 1. The walls **22** extend in laterally inwardly spaced relation to the divergent portions of the sides of the body, so as to cause the channels **14** to diverge to impart a corresponding divergence to the stringer tapes where they extend

out of the wider end of the slider body. The channels 14, between the point of convergence of the walls 22 and the narrower extremity of the body, are in full communication with each other, since it is in this portion of the length of the body that the fastener elements 17 of the respective edge portions 15 are interlocked (see Figure 1).

An end wall 24 at the wider end of the body terminates at its opposite ends at the divergent extremities of walls 22.

At the wider end of the body, the channels 14 are of maximum width, having guide surfaces 26 defined by the inner surfaces of the walls 18, 20. Inwardly a short distance from this extremity of the channels, the channels are narrowed where they open upon the sides of the body, through the provision of confronting longitudinal flanges formed upon the opposite sides of the walls 18, 20, said flanges being designated 28 and defining shoulders 30 where the narrower portion 29 of the channel opens into the wider channel portion.

Intermediate the length of the body, wall 18 is formed, medially between opposite sides thereof, with a shallow depression 32. Depression 32, at the opposite sides thereof, is in communication with latrally outwardly directed extensions 34 of a wide, longitudinal recess 36 formed in wall 18, said recess 36 at its inner end being bounded by the edge of the inwardly offset portion or depression 32, the recess extending continuously to the wider extremity of wall 18.

Centrally formed within the inwardly offset portion 32 is a transversely extending, elongated opening 38. A wide, flat pull or tab 40 has at its inner end an integral sleeve 42 extending transversely of the pull and loosely receiving a pivot pin or cross bar 44, that is an integral part of wall 18 and is defined between recess 36 and opening 38, that is, the cross bar is the portion of the wall 18 that extends as a separation or divider between the recess 36 and said opening 38.

By reason of this arrangement, when the pull is in its normal, inoperative position of Figures 1 and 3, it is coplanar with the main portion of the top wall 18, that is, with the entire area of the top wall with the exception of the inwardly offset portion 32 thereof.

The pull pivots between the full and dotted line positions of Figure 2, extending outwardly from the top wall 18 when in its dotted line, use position.

At its distal end, pull 40 is formed with a transversely extending lip 46 directed toward the inner wall 20.

In end wall 24 there is formed an opening 48, coextensive in width with the recess 36 and separated from the recess by a cross bar 49 that constitutes an integral part of the wall 24 as shown to particular advantage in Figure 4. The pull 40, on the inner surface of the lip 46, has a small, inwardly projecting lug or node 52 that constitutes a detent engageable in back of the cross bar 49 in the closed position of the pull shown in full lines in Figure 2. Thus, the pull is effectively locked in its closed or inoperative position, and it is important to note that the lock is disposed at the end of the pull remote from its pivot axis, so that with a minimum amount of projection of the lug 52, a highly effective lock is provided, thought to possess considerable advantages over locks disposed in close proximity to the pivot axis, where it is difficult to obtain an effective locking action for holding the pull in its inoperative, normal position.

At opposite sides of the sleeve 42, the pull 40 is formed with laterally outwardly projecting fingers 50 tapering or decreasing progressively in width in a direction toward their free, outer ends. The fingers 50 form abutments or stops, which move into the lateral extension 34 of recess 36 when the pull is in its inoperative position. When the pull is swung to its use position, the stop fingers 50 bear against the top wall 18, at opposite sides of the inwardly offset or depressed portion 32, as shown in Figure 4, limiting swinging movement of the pull outwardly from the body in the direction of the arrow in Figure 2, beyond a position in which the pull is at an angle slighty more than 90 degrees to the wider portion of the body.

It is to be noted that the fingers not only project laterally outwardly from the sides of the pull, but also, are formed on their inside surfaces with locking projections 54 which are of triangular cross section as shown to best advantage in Figure 4, that is, the locking projections 54 are extended inwardly of the body in the inoperative position of the pull, at right angles to the planes of the pull, within the divergent portions of the guide channels 14, so as to engage at their pointed, free ends, in the interstices between adjacent fastening elements 17 of the stringer tapes.

By reason of this arrangement, when the pull is swung to its inoperative position shown in full lines in Figure 2, not only will it automatically lock in said position when it becomes fully coplanar with the main portion of the outer wall 18, but also, it will locate its locking projections in locking engagement with the beaded or toothed stringers, so that the slide is prevented from slipping longitudinally of the stringers.

Of course, the stringers are unlocked, that is, disengaged from the projections 54, simultaneously with unlocking of the pull from the body and swinging of the pull to its dotted line position of Figure 2.

It is believed clear that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. A slider for a slide fastener, comprising: a body including outer and inner walls defining between them longitudinal guide channels extending along opposite sides thereof, the outer wall having a recess; a pull pivoting on the outer wall between an inoperative position in which said pull lies in the recess in coplanar relation to the outer wall, and a use position in which it projects outwardly from the outer wall; and interengaging means on the pull and body respectively, releasably locking the pull in the inoperative position thereof, comprising a lug on the pull and a cross bar on the body in back of which the lug engages in said inoperative position of the pull, said pull pivoting on the outer wall at one end of the pull, the pull at its opposite end being formed with a lip projecting toward the inner wall in the inoperative position of the pull and carrying said lug, said cross bar of the body extending transversely of one end of the body in the space between the outer and inner walls, said outer wall of the body being formed over part of its area with a portion offset inwardly in respect to the remaining portion of the area of the outer wall, the pull being formed at said one end thereof with a sleeve correspondingly offset inwardly and lying in the plane of the inwardly offset portion of the outer wall, said inwardly offset portion of the outer wall having an opening closely spaced from said recess defining between the opening and recess a cross member loosely extended through the sleeve to provide the pivotal mounting of the pull upon the body.

2. A slider for a slide fastener, comprising: a body including outer and inner walls defining between them longitudinal guide channels extending along opposite sides thereof, the outer wall having a recess; a pull pivoting on the outer wall between an inoperative position in which said pull lies in the recess in coplanar relation to the outer wall, and a use position in which it projects outwardly from the outer wall; interengaging means on the pull and body respectively, releasably locking the pull in

the inoperative position thereof; fingers projecting laterally outwardly from opposite sides of the pull adjacent the pivot axis thereof, said fingers being disposed for engaging the outer wall on swinging of the pull to its use position, to limit swinging of the pull beyond the use position thereof; and locking projections formed upon the fingers and extending, in the inoperative position of the pull, toward said inner wall into the guide channels, in position to lockably engage between adjacent fastener elements of stringer tapes extending through said channels when the pull is in the inoperative position thereof.

3. A slider for a slide fastener, comprising: a body including outer and inner walls defining between them longitudinal guide channels extending along opposite sides thereof, the outer wall having a recess; a pull pivoting on the outer wall between an inoperative position in which said pull lies in the recess in coplanar relation to the outer wall, and a use position in which it projects outwardly from the outer wall; said outer wall extending the full length and width of the body and having laterally

outwardly directed extensions of said recess adjacent the pivot axis of the pull; and laterally outwardly projecting stop fingers on the pull movable into the extensions in the inoperative position of the pull in the plane of the outer wall, said extensions being radially spaced from the pivot axis of the pull and traveling in an arcuate path about said axis into engagement with the outer wall on swinging of the pull from its inoperative to its operative position.

References Cited in the file of this patent

UNITED STATES PATENTS

1,680,362	Binns	Aug. 14, 1928
1,903,415	Greenberg	Aug. 4, 1933
2,131,567	Marinsky	Sept. 27, 1938
2,269,879	Marinsky	Jan. 13, 1942

FOREIGN PATENTS

139,854	Sweden	Apr. 14, 1953
661,719	Great Britain	Nov. 28, 1951