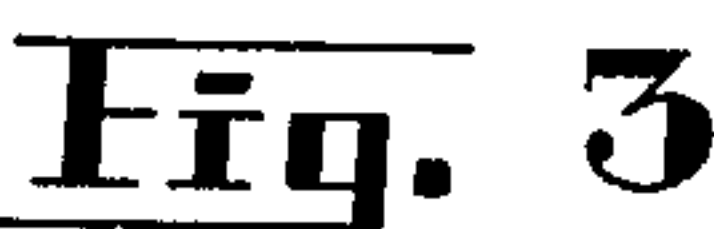


2,628,400

Filed Oct. 6, 1949



ATTORNEY

UNITED STATES PATENT OFFICE

2,628,400

SLIDE FASTENER

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Application October 6, 1949, Serial No. 119,966

2 Claims. (Cl. 24—205.13)

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This invention relates to slide fasteners or zippers wherein two flexible stringers having interlocking elements are locked and unlocked by a movement of the slider from one end of the stringer to the other.

Slide fasteners of this type usually comprise a pair of tapes having small plate or block-like elements attached along the tape edges in uniformly and closely spaced relationship. The edges of the tapes opposite the edges to which the elements are attached are made secure to the object to which the fasteners are applied. When so attached the two rows of elements face each other and each member at its facing end is provided on its upper side with a projection and on the under side opposite from the projection with a recess large enough to admit the projection of its adjacent element in the opposite stringer and so on to the end. The elements in each row are separated from each other a distance only slightly greater than the breadth or thickness of each element and the elements of the two rows are alternately staggered so that the elements in one row will intermesh with the elements in the other row and interengage their projections in the corresponding recesses by the act of moving the slider along the stringers. This relatively close spacing has heretofore been necessary to prevent the projection from accidentally slipping out of the recess in the adjacent element. With the two stringers so assembled the alternate elements on each stringer become vertically stacked and in more or less contiguous relationship to each other save for such tolerance as is necessary to permit a free movable fit between the adjacent elements.

The object of this invention is to permit a substantially increased spacing of the fastener elements on the stringer without any loss in the security of the interlock between the projections and recesses. This results in lightening the weight of the fastener since less metal is required for a given length of zipper and correspondingly lowering the cost of manufacture. At the same time the strength and serviceability of the fastener is not materially adversely affected because each element will grip the tape in the same manner and the security of the interlock will be as good as with fastener elements of conventional design.

More specifically the object is accomplished by having a supplemental projection of the element material raised directly in back of the interlocking projecting head of each element and at the same time proportionately increase the height

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of the projecting head and the depth of the complementary recess. By having the supplemental head of less height than the projecting head and directly in back of said head it will be in direct line with and in a position to be contacted by the end wall of the adjacent above element when the elements are interlocked together, and while there may be a working tolerance in providing the necessary loose fit between the complementary recess and head, there nevertheless would be no chance for the elements to be accidentally separated laterally due to the stacked contact that the intermeshed elements will have one with the other.

Other objects and advantages of the invention will more fully appear in the following specification and claims.

In the accompanying drawing wherein there is shown, for illustrative purposes, one embodiment which the present invention may take:

Fig. 1 is a plan view of a pair of interfitted stringers with a conventional form of slider unit.

Fig. 2 is a greatly enlarged perspective view of a single element embodying my invention.

Fig. 3 is a view similar to Fig. 1 on an enlarged scale with several of the elements shown in longitudinal cross section.

Fig. 4 is a plan view of the upper side of an element, per se.

Fig. 5 is a plan view of the under side of said element, and

Fig. 6 is a transverse sectional view taken along the line 6—6 of Fig. 4.

Referring now to the drawing wherein like numerals are assigned to like parts throughout the several views, the numerals 10 and 11 designate a pair of complementary fastener tapes or stringers each having enlarged or beaded edges 12 and 13, respectively, to which a series of fastener or interlocking elements 14 are attached. A slider 15 is operated by a pull tab or handle 16 along the series of fastener elements 14 from one end to the other of the stringers in opening and closing the same. The construction and principle of operating a slide fastener is now well known and further detailed description is considered unnecessary.

The interlocking elements of this invention are preferably of that type that may be sheared transversely from a running length of Y-shaped wire stock and the sheared portion of the stock constituting the normal breadth or thickness of each element. Each element 14 consists of a pair of gripping jaws or legs 17 and 18 and a head end 19. The jaws or legs 17 and 18, as

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seen in Fig. 2, are initially in a divergent state and are adapted to be disposed in straddled relationship to the beaded edges of the stringer tapes and closed together to hold the elements securely in place on their respective stringers. Each head end 19 of an element is formed on one surface with a projection 20 and in the opposite surface of said head from the projection is a complementary recess or socket 21.

The fastener element thus far described is more or less in accordance with the conventional elements in general use and as pointed out both require spacing on their respective stringers a distance only slightly greater than the thickness of each element.

In accordance with this invention, such elements are spaced a greater distance apart than the normal spacing without impairing the normal interlocking characteristics of the coupling. However, to have the elements that are intermeshed together when in an interlocked state to be more or less in contact with each other so as to prevent their lateral separation, there is provided an auxiliary projection or head 22 that is disposed directly in back of the rear plane 23 of the projection 20 and extending upwardly from the upper surface 24 of each element. This auxiliary projection or head 22 is preferably made with an arcuate upper surface 25 and with an inclined rear surface 26 that merges with the base edge 27 of the V-shaped area 28 initially provided between the diverging legs 17 and 18. The arcuate upper surface 25 of the auxiliary head 22 connects into the upper surface 24 of the element 14 as at the juncture line 25a which is located a short distance inwardly from the opposite longitudinal edges of the head end 19. By thus minimizing the amount of material for the auxiliary head 22, allows the maximum stock to be provided in the head projection 20.

When the elements 14 are intermeshed together as best shown in Fig. 3, the outer edge of lip 29 that defines the outer end of the recess 21 is substantially in contact with the apex of said arcuate upper surface 25, thus providing for a bearing point between adjacent elements. The fact that the upper surface of the auxiliary projection is arcuate allows for lateral flexing of one element relative to the other. Further, the fact that the elements when in stacked intermeshed relationship have portions contacting each other, will assure that the elements cannot slip out relative to each other due to any lateral strains on the stringer members.

While I have in this application specifically

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shown and described one embodiment which my invention may assume in practice, it will be understood that this embodiment is merely for the purposes of illustration and description, and that various other forms may be devised within the scope of my invention as defined in the following claims.

I claim:

1. In a separable fastener, a pair of flexible stringers having cooperating series of fastener elements thereon, each element comprising a block-like body member with a head end, means for securing said elements about the edge of said stringers, each element head having a projection extending from one surface and a corresponding recess in the opposite surface, and an auxiliary projection on said element between the back side of said first mentioned projection and the adjacent surface of said element in position to be contacted by the outermost wall of the recess of a mating element and serving to prevent shifting of the elements when the spacing of the elements on said stringers is substantially greater than the thickness of the block-like body.

2. A slide fastener element with a block-like body comprising a pair of diverging legs of clamping jaws and a head end, an interlocking projection extending from one side of the head end, a correspondingly shaped recess on the opposite side of said head, and an auxiliary projection on the back side of said interlocking projection and of less height than said latter projection and extending above the level of the block-like body surface, said auxiliary projection extending from the upper surface of said body and of a width less than the width of said head end.

OSBORNE FIRING.

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