

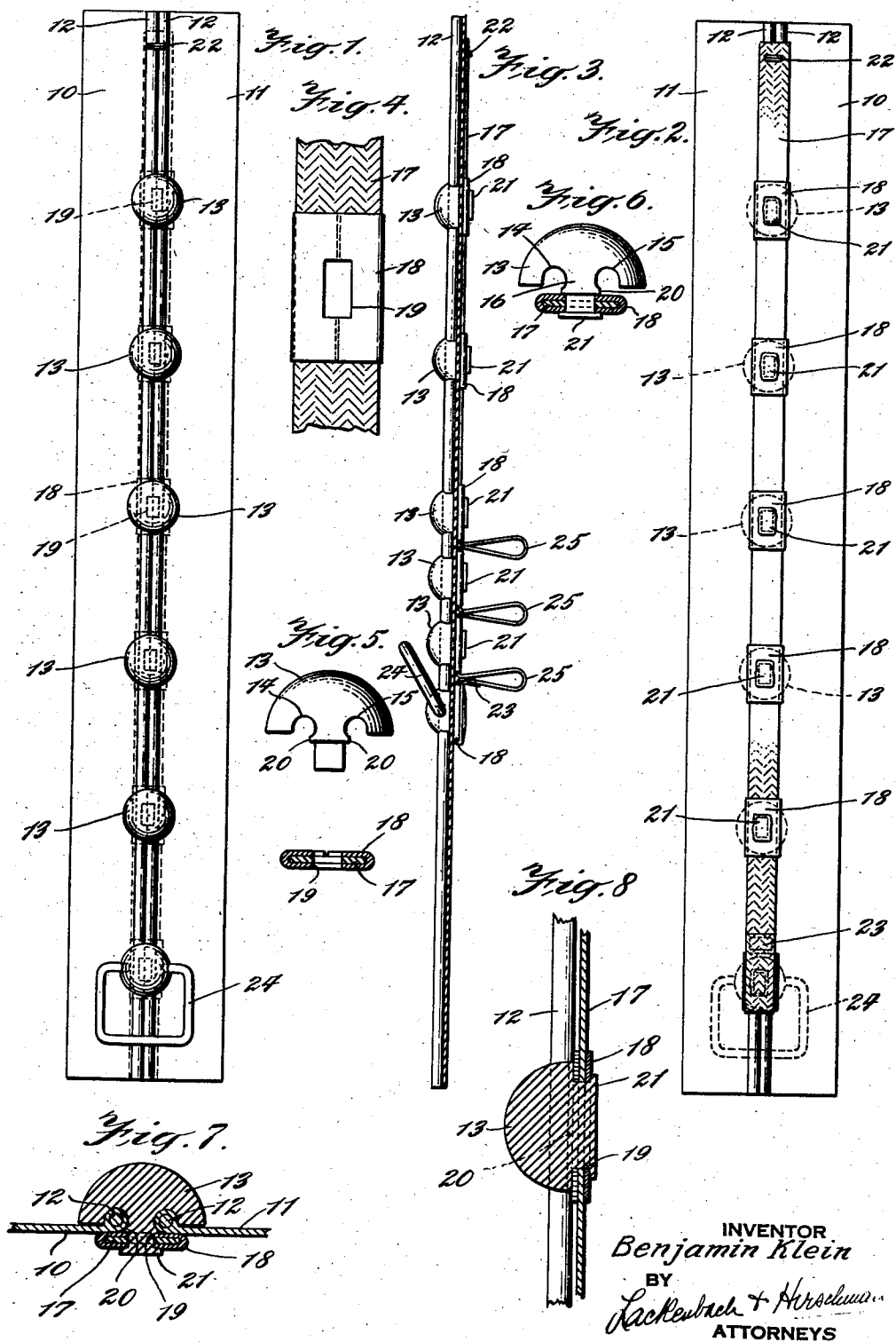
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SLIDE FASTENER

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SLIDE FASTENER

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The invention relates to improvements in slide fasteners and more particularly to the type consisting of a pair of flexible stringers having beads extending along the marginal edges thereof which beads are adapted to and have mounted for sliding movement thereon a plurality of fastener elements such as buttons secured in spaced relation to a tape underlying the stringers, the structure being such as to permit ready correlation of the stringers to close or open a portion of a garment by the movement of the fastener elements toward or away from each other.

Slide fastener structures of this general type have heretofore been suggested but they have not been commercially exploited by reason of several problems arising both with respect to the fabrication thereof and their ineffectiveness to provide a closure means of certainty and smoothness of operation and ability to withstand repeated tension and wear to which the elements are subjected during use.

It is one of the objects of my invention to provide a slide fastener of this general character which is characterized by inexpensiveness of fabrication, so that the various elements may be fabricated at a minimum of cost necessary for quantity production and to insure a facility and smoothness of operation without the fastener structure getting out of order or being subjected to inordinate wear during use.

A particular object of my invention is to provide a construction in which the fastener elements are with facility, and at extremely low cost of fabrication and assembly, slidably mounted upon the beading extending along the marginal edges of the stringers and effectively and permanently secured to an underlying tape at appropriate intervals along such tape. A more particular object of the invention is to provide a structure for fastening the elements or buttons to the underlying tape comprising a metallic or similarly stiff member encompassing the edges of the tape, the member being provided with a centrally disposed aperture through which extends a projecting portion of the fastener element, which projecting portion, after having been passed through the stiff member as well as the tape body, is permanently secured thereto, for instance, by distortion, as by heat or pressure, or both.

A further and more specific object of my invention is to provide a pair of channels in the flat undersurface of the fastener elements in which channels the beads of the stringers may be loosely held and maintained in the proper position by abutting relation with such beads, of the metallic

member securely fastened to the button and also to the underlying tape.

Thus, my novel improvements are constituted of a specific structure of fastener element, a specific means of securing the same to the tape underlying the fastener stringers, and the novel combination of such fastener elements and a means of securing them to the tape in proper position for effective functioning of the slide fastener structure to constitute a closure means, for instance, for a garment such as a blouse, shirt or similar article of apparel, to which a slide fastener of ornamental character and the specific utility is applicable.

A particular embodiment of my inventive structure is illustrated in the accompanying drawing, in which Fig. 1 is a plan view of a pair of stringers to which my novel structure has been applied; Fig. 2 is a bottom plan view of such stringers and slide fastener structure; Fig. 3 is a vertical section through the stringers, showing a portion of the slide fastener structure in closure opening position by the drawing upwardly of the lowermost button so that it causes progressive movement of the other fastener elements; Fig. 4 is a plan view of a portion of the underlying tape with the metallic flattened member encompassing the same and adapted to receive the fastener element; Fig. 5 is a view of the fastener element or button and of the tape and metal member just prior to application of the former to the latter for securement therein; Fig. 6 is a partial sectional view of the two elements of Fig. 5 after they have been joined together and permanently fastened; Fig. 7 is a vertical section through one of the fastener elements in its position in which it is secured upon the beads of the stringers with the tape and fastening metal member in position under the stringers; and Fig. 8 is a vertical section through a fastener element disposed for operative movement along the stringers.

Referring more particularly to the drawing, in which similar reference characters identify similar parts in the several views, to the opening in the garment to which my novel slide fastener structure is to be applied, are secured by stitching or otherwise a pair of flexible stringers 10 and 11, the marginal edges of which are provided with beading 12. It will be understood that instead of providing a pair of flexible stringers, the marginal edges of the garment opening itself, i. e., the material thereof, may be provided with beading. For purposes of facility of manufacture and sale, it is customary to provide such beaded or corded stringers for application to the marginal edges of

the garment opening so that the slide fastener structure may be fabricated and sold in lengths from which the required amount may be detached and secured to the garment at the appropriate places thereof.

The fastener element, in accordance with my invention, is constituted of a button 13, of preferably, but not necessarily, substantially hemispherical form. In the flat undersurface of the button there are provided two substantially semi-circular channels 14 and 15, with a projection 16 extending therebetween and protruding beyond the flat undersurface of the button.

Positioned immediately below the marginal edges of the stringers 10 and 11 is a flexible tape 17 extending throughout the length of the meeting edges of the stringers. Throughout the length of such tape, in spaced relation, substantially that of the spacing between the plurality of buttons desired when they are in closure operative position, are secured a plurality of metal clasps 18. Such metal clasps are constituted of a blank of sheet metal material having a rectangular slot 19 centrally and longitudinally disposed therein, the clasp being secured to the tape by having the free ends thereof straddle the edges of the tape, being bent over upon such tape, so as to have the free edges of the clasp brought into substantial juxtaposition along the vertical central line thereof. Cooperating with the elongated rectangular slot 19 is a slot of the same configuration in the tape 17. The button 13, in accordance with the preferred embodiment of my invention, is constituted of a material of a plastic composition so that in the assembling of the button with the clasp member 18, the projection 16 of the button is passed through the elongated slot 19 of the clasp and the corresponding slot of the tape 17, and the portion 21 of such projection, which extends beyond the undersurface of such clasp, by the application, for instance, of heat or pressure, or heat and pressure combined, be caused, by reason of its plasticity, to assume a spread-out configuration and to become set in such condition to securely fasten the button to the clasp element. It will be understood by those skilled in the art, of course, that any well-known method of causing a firm securement of the end portion of the projection 16 of the button to the clasp and to the tape, to which such clasp is in turn firmly secured, may be utilized.

The result of the operation just described, is illustrated in Fig. 6 of the accompanying drawing, from which figure it will be apparent that by reason of the fact that the width of the projection 16 is slightly reduced between the portions 20 and 21 to conform with the width of the slot 19, the penetration of the projection 16 through the slot 19 will be stopped at precisely the right position, by the shoulder formed by portion 20.

In assembling my novel slide fastener structure, the tape 17 is secured to the fabric of the stringers and marginal beads thereof by stitching 22 at the end of the garment opening, the closure of which is to be effected by the fastener structure. The opposite end of the tape, as at 23, is bent backwards and secured to the portion of the tape adjacent the trailing end of the leading clasp element 18. The plurality of buttons, of which any number may be used, are mounted so as to have the beaded marginal portions of the stringers extend within the channels 14 and 15 in the flat undersurface of the buttons. Any suitable finger grip device, for instance, 24, may be utilized for operating the slide fastener struc-

ture, such device being secured to the leading button or fastener element.

In the operation of effecting a separation of the stringers 10 and 11, the finger grip 24 is grasped and an upward pull exerted thereon so as to effect a movement of the leading button to which it is secured, upwardly, moving such button along the beaded marginal edges of the stringers thereby forming a loop 25 in the tape 17. As the underlying clasp 18 has the end thereof about the opposite end of the adjacent clasp, such adjacent clasp will likewise be moved upwardly, forming another loop in the tape, etc., until all of the clasps and buttons secured thereto are moved towards their uppermost position along the stringers to effect the opening or separation of the stringers, a plurality of loops 25 being thus formed in the tape 17. When all of the clasps and buttons have been moved to their uppermost position adjacent the point of securement by stitching 22 of the tape 17 to the stringers, a complete opening or separation of the stringers will be effected. In order to effect the closure of the garment opening, it is only necessary to grasp the finger grip 24 and to pull the same downwardly to bring the plurality of clasps and buttons into their closure, or spaced relationship, as illustrated in Fig. 1.

It will be noted that the beaded marginal edges of the stringers are easily accommodated within the channels 14 and 15 of the buttons, being loosely held therein by the clasp elements securely fastened to the tape 17 and to which the button elements are, in turn, securely fastened.

It will be also noted that there is sufficient space between the flat under surface of the fastener element 13 and the top surface of the clasp member 18 to permit a free sliding movement of the composite fastener structure upon the beaded stringers 10 and 11.

While I have described a specific embodiment of my invention, it is obvious that various changes therein, particularly in the arrangement and configuration of the several elements thereof, may be made without departing from my invention.

I claim:

1. In a slide fastener structure, a pair of substantially flexible stringers or the like, each having a bead extending along its marginal edge, a tape disposed beneath such beaded marginal edges of such stringers, a clasp element constituted of stiff material fixedly encompassing said tape and positioned in spaced relation upon, said tape, said clasp element having a centrally disposed slot therein, cooperating with a slot in said tape, a fastener element having a projection extending through the slot in said clasp element and in said tape, an enlargement on the end portion of said projection, said fastener element having a pair of channels in the flat undersurface thereof adapted to receive the beaded marginal edges of the stringers whereby said fastener element is slidable along said beaded marginal edges.

2. In a slide fastener structure, a pair of substantially flexible stringers or the like, each having a bead extending along its marginal edge, a tape disposed beneath such beaded marginal edges of such stringers, a metal clasp element fixedly encompassing said tape and positioned in spaced relation upon, said tape, said clasp element having a centrally disposed slot therein, cooperating with a slot in said tape, a fastener element constituted of a plastic material and having a cen-

tral projection extending through the slot in said clasp element and in said tape, an enlargement on the end portion of said projection, said fastener element having a pair of channels in the flat undersurface thereof adapted to receive the beaded marginal edges of the stringers.

3. In a slide fastener structure, a pair of substantially flexible stringers or the like each having a bead extending along its marginal edge, a tape disposed beneath such beaded marginal edges of such stringers, a metal clasp element fixedly encompassing said tape and positioned in spaced relation upon said tape, said clasp element having a centrally disposed rectangular slot therein, a fastener element having a pair of channels in the flat undersurface thereof and having a projection between said channels, extending through the longitudinal slot in said clasp element and through said clasp element, the end portion of said projection extending beneath the tape being wider than the body thereof.

4. In a slide fastener structure, a pair of substantially flexible stringers or the like, each having a bead extending along its marginal edge, a tape of substantially the same width as the two beaded marginal edges of the stringers when they are in substantial juxtaposition, said tape being disposed beneath such beaded marginal edges of such stringers, a clasp element constituted of stiff material fixedly encompassing said tape and positioned in spaced relation thereupon, said clasp element having a centrally disposed rectangular slot therein, cooperating with a slot in said tape, a fastener element of substantially hemispherical configuration having a central projection extending through the longitudinal slot in said clasp element and in said tape, an enlargement on the end portion of said projection, said fastener element having a pair of channels

in the flat undersurface thereof adapted to receive the beaded marginal edges of the stringers.

5. In a slide fastener structure, a pair of substantially flexible stringers or the like, each having a bead extending along its marginal edge, a tape of substantially the same width as the two beaded marginal edges of the stringers when they are in substantial juxtaposition, said tape being disposed beneath such beaded marginal edges of such stringers, a clasp element constituted of stiff metal material fixedly encompassing said tape and positioned in spaced relation thereupon, said clasp element having a centrally disposed slot therein, cooperating with a slot in said tape, a button constituted of a plastic material and of substantially hemispherical configuration having a central projection extending through the slot in said clasp element and in said tape, an enlargement on the end portion of said projection, said button having a pair of channels in the flat undersurface thereof adapted to receive the beaded marginal edges of the stringers, whereby the button is slidable along said beaded marginal edges to cause the separation or bringing into juxtaposition of the stringers.

6. The combination as claimed in claim 1, in which the under surface of the fastener element is spaced from the top surface of the clasp element a sufficient amount to permit a free sliding movement of the composite fastener structure upon the beaded stringers.

7. The combination as claimed in claim 5, in which the under surface of the button is spaced from the top surface of the clasp element a sufficient amount to permit a free sliding movement of the composite fastener structure upon the beaded stringers.

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