Aug. 20, 1940. A. KRAKAUER 2,212,121

SLIDE FASTENER

Filed Aug. 10, 1937

Fig. 1.

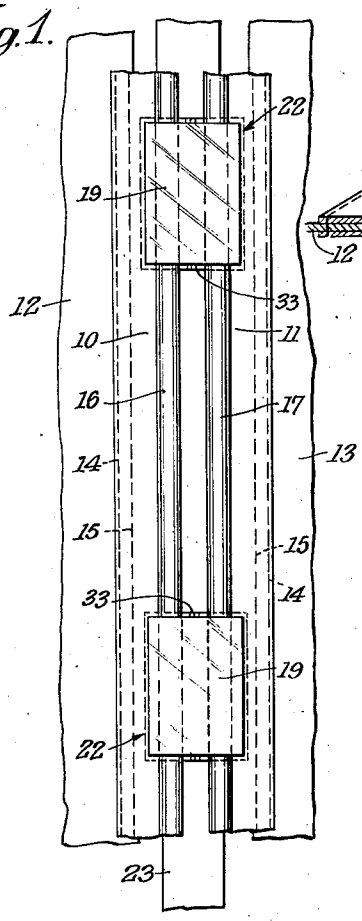


Fig. 2.

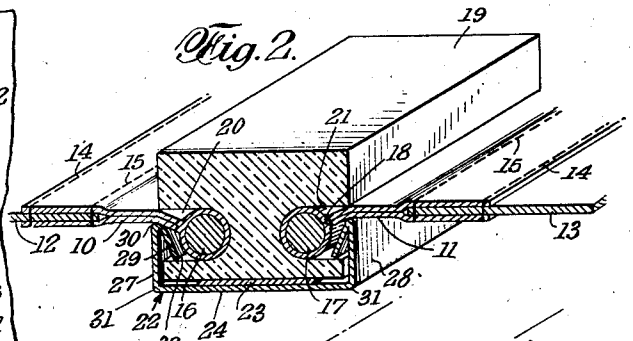


Fig. 3.

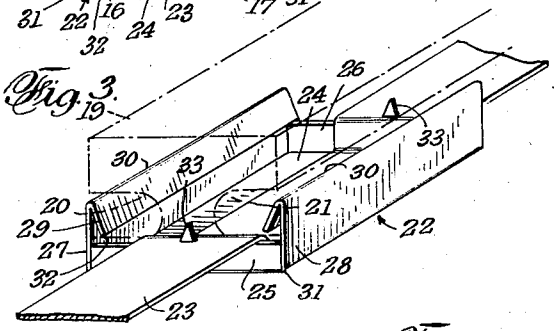


Fig. 7.

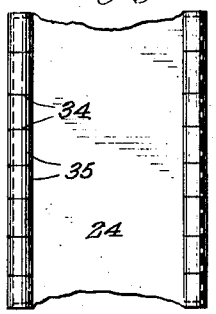


Fig. 4.



Fig. 5.

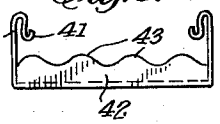


Fig. 6.

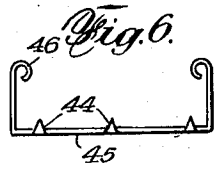


Fig. 9.

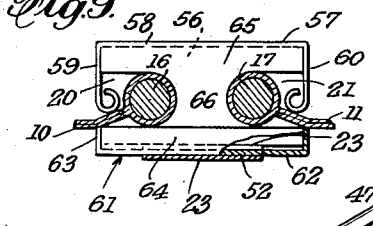
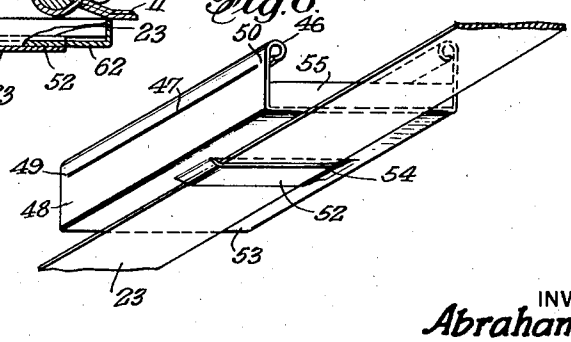


Fig. 8.



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SLIDE FASTENER

Abraham Krakauer, Brooklyn, N. Y.

Application August 10, 1937, Serial No. 158,273

11 Claims. (Cl. 24—207)

This invention relates to slide fasteners, and particularly to that type including a plurality of ornamental buttons or the like secured at spaced intervals by suitable means to a flexible connecting tape, and sliding on a pair of parallel beads provided at the closure of a garment or the like.

My invention contemplates the provision of simple and inexpensive means for effectively and rapidly securing the fastener parts together and to the connecting tape.

My invention further contemplates the provision of suitable means for removably holding the comparatively brittle ornament button member without the necessity for cutting and drilling said member, said means being also provided with simple tape holding elements.

My invention further contemplates the provision of a button member made of suitable plastic material and provided with comparatively wide slots of substantially uniform width for the reception of the beads, said slots being sufficiently obstructed by the tape attaching means to prevent accidental separation of the parts but permitting the sliding of the member on the beads.

My invention further contemplates the provision of a resilient button holding member which may readily be assembled with the button member by snap action and simultaneously fastened to the connecting tape.

The various objects of my invention will be clear as this description progresses and from the accompanying drawing, in which,

Fig. 1 is a top plan view of a closure to which my invention has been applied.

Fig. 2 is a perspective view, partly in section, of the same.

Fig. 3 is a similar view of the button holding member and the connecting tape secured thereto, the button member being shown in dash-dot lines.

Figs. 4, 5 and 6 are end elevations respectively of modified forms of the button holding member.

Fig. 7 is a top plan view of the same partly broken away at its ends, being as well a similar view of a modified form of the button-holding member of Fig. 3.

Fig. 8 is a perspective view of a modified form of the button holding member showing particularly a modified form of the tape holding means.

Fig. 9 is an end elevation of a modified form of my invention wherein the fastener member encloses a rigid inner button member.

In the practical embodiment of my invention which I have shown by way of example; the tapes 10 and 11 are preferably each folded into double thickness, the edge portions 12 and 13 of the article, at the closure to be fastened, being inserted between said thicknesses and secured in place as by means of the stitching 14, 15. In the folds in said tapes are arranged the stiffening beads 16, 17, which are held in place by suitable stitching as 18, and on which it is intended that the button member 19 may slide.

As has been indicated, said button member is preferably made of suitable exposed ornamental plastic material such as synthetic resinous material and may be made in any suitable shape, though illustrated herein as being in the form of a rectangular prism. A pair of similar grooves 20, 21 extend inwardly from the side edges of the member 19 being of sufficient depth to receive the beads 16, 17 and the part of the tapes 10, 11. Preferably, the grooves are of substantially uniform height and need not be constricted as has been herebefore necessary to prevent accidental removal of the beads. Instead, the outer openings of the grooves are partly closed by means of the button holding member designated generally by the numeral 22.

Said button holding means is preferably made of a single piece of sheet metal and serves the double purpose first, of maintaining the beads in the grooves 20 and 21, and second, of securing said member 19 to the flexible connecting tape 23.

The member 22 is therefore made in the general form of a box, open at its top, and provided with a bottom 24, ends 25 and 26, and sides 27 and 28. The upper edge portion of said sides are similar to each other and enter and obstruct the grooves 20 and 21. Said upper edge portions may however take a variety of different shapes, but in any case it is intended that they be sufficiently resilient to permit the member 19 to be forced into the member 22 so that said portions may snap into the grooves 20 and 21.

In the forms shown in Figs. 1, 2 and 3, the upper edge portion 29 of the side 27 is bent downwardly and inwardly into an inclined position at the bend line 30. Said portion 29 may therefore yield about the line 30 and the entire side 27 may also yield about its lowermost edge 31 where said side joins the bottom 24, on outward pressure applied to the side. For example, the member 22 may be secured to the member 19 by first inserting the button member 19 into the box in an inclined position to hook the lowermost edge 32 of the portion 29 on the lower surface of the groove 20 whereafter the other side 28 may be forced against the other side of the member 19 until the corresponding bent portion of said side snaps

into the groove 21 and into the position shown in Fig. 2.

It will be understood that the sides 27 and 28, together with the terminal portions thereof, are so shaped and designed that they may yield on the entrance of the member 19 into the box formed by the member 22. It will also be understood that said members may be assembled merely by forcing them together, since the sides 27 and 28 are sufficiently resilient for that purpose. However, before said members are assembled, I prefer to arrange the connecting tape 23 on the upper edges of the ends 25 and 26. As shown in Fig. 3, a pointed prong as 33 projects upwardly from each of said upper edges so that when the members 19 and 22 are forced together, the tape 23 is forced on to said prongs and is pierced thereby and simultaneously drawn into the interior of the member 22 and against the ends 25, 26 and the bottom 24 into the position shown in Fig. 3.

The portions 29 obstruct the outer ends of the grooves 20 and 21 and thereby normally prevent the beads from leaving said grooves, the sides 27 and 28 being of sufficient height for that purpose but not being too high to create undue friction against the tapes 10 and 11 when the member 19 slides along said tapes. Should the button member 19 become damaged as during a laundry operation, it may readily be removed by spreading the sides 27 and 28 sufficiently to remove one of the portions 29 from its groove, whereafter the member 19 may readily be twisted out of the member 22. The portion 29 may be made of sufficient width so that its lowermost edge 32 engages the bottom of the groove and aids in holding the member 22 in place.

It will be understood that if the member 22 is made of a flat blank by bending up the sides 27, 28 and the ends 25, 26, the sides through their entire height, are independent of the ends and may yield relatively thereto. The member 22 may however be drawn by suitable pressing operations to make the sides thereof integral with the ends, if desired. In either case, however, there may be provided enough resiliency in the sides to function as above described. The rounded upper edges 30 prevent the sides from cutting into the tapes and from wearing or otherwise damaging the tapes excessively on the relative movement thereof.

As shown in Fig. 7, the bent upper edge portions of the sides may, if desired, be provided with a series of spaced parallel slits as 34 providing resilient tongues 35 therebetween, which yield more easily than when the portion remains unslitted.

In Fig. 4, I have shown the prongs 33 replaced by the upper tape-gripping serrated edges 36 on the ends 37. I have also shown the yieldable upper edge portions 38 on the sides of partly circular form, so that said portions 38 may more readily be snapped into the grooves of the member 19.

In Fig. 5, the yieldable portions 39 may be made S-shaped in cross-section to provide an upper rounded edge and the rounded groove-engaging part 41. The upper edges 43 of the ends 42 are there of sinuous or wavy form, to prevent cutting into or piercing of the tape should this be undesirable with certain forms of tapes.

In Fig. 6, a series of comparatively short spaced upstanding prongs 44 are provided on the end edges of the bottom 45, and the ends of the button holding member are therefore omitted. Said prongs serve also to prevent longitudinal movement of the button member within the holding member. The upper edge portions 46 of the sides are shown in Figs. 6 and 8 to be of substantially circular cross-section to provide the required resilience and rounded tape-engaging edges.

In the structure of Fig. 8, however, the slits 34 have been replaced by a longitudinal slit as 47 in each of the sides, said slit 47 being arranged approximately in line with the bottoms of the grooves 20 and 21 and terminating inwardly of the end edges of the side 48 to provide a pair of resilient connecting tongues 49 and 50 between the upper edge portion 50 and the remainder of said side.

Furthermore, the means for engaging and holding the tape 23 consists of a cross-member 52 pressed sufficiently from the bottom 53 between a pair of parallel transverse slits made in the bottom, to permit the passage of the tape 23 through the resulting opening 54.

It will be understood that the ends 55 may be omitted, if desired, in the form of the fastener shown in Fig. 8, to provide the fastener of Fig. 6, regardless of the shape of the upper portions of the sides and regardless of whether or not slits are provided therein.

It will also be understood that for the button member 19 may be substituted any comparatively rigid or suitable padding material such as wood, paper composition or the like to form a support for the beads and intended to be covered with sheet material to complete the fastener. Such structure is shown in Fig. 9, wherein the inner button member 56 is provided with the bead-receiving grooves 20 and 21, said member 56 being substantially covered with suitable preferably resilient sheet material of an ornamental type or adapted to receive ornamentation.

In this form of my invention, the fastener member 57 is similar to the fastener members hereinbefore described, but is used in a reverse or "upside down" position. That is, the top 58 is the ornamental part of the fastener and the sides 59 and 60 depend therefrom and terminate in edge portions which may be bent into any of the shapes shown in Figs. 3, 4, 5, 6 and 8 and which serve to partly close the otherwise completely open sides of the openings 20 and 21 and to retain the beads therein, as well as to hold the fastener member on to the member 56. The means for securing the fastener to the tape 23 also serves to cover the lower portion of the member 56 and may, if desired, be made of a separate member 61 of sheet material. Said member 61 is provided with a bottom 62, and as illustrated, with a bendable portion 52 slitted from the bottom and similar to that shown in Fig. 8 for holding the tape, though it will be understood that any suitable tape holding means may be provided thereon, such as has been hereinbefore described. Sides 63 and ends 64 project upwardly from the bottom 62 and are frictionally held to the button member 56.

In the case where end walls as 65 are provided on the member 57, said end walls may be extended downwardly as at 66 to meet the ends 64 of the tape-holding member 61 and to cover the otherwise exposed end wall of the button member 56.

It will be seen that I have provided a simple, inexpensive but readily assembled fastener structure permitting easy replacement of damaged parts, necessitating a minimum of time for assembly and well designed for practical use.

While I have shown and described certain spe-

cific embodiments of my invention, I do not intend to limit myself thereto, but desire to claim my invention as broadly as may be permitted by the state of the prior art and the scope of the appended claims.

I claim:

1. The combination with a pair of separable edge-closure beads, of a slidable fastening means for said beads comprising a plurality of buttons mounted for sliding movement on said beads, each of said buttons having a groove on one side thereof in which one of the beads is arranged, said groove being of greater width than the width of the bead whereby the bead is loose in and removable by transverse movement from the groove, said button having a similar groove in the other side thereof in which the other bead is slidably arranged, a casing for each button enclosing part of the button and covering parts of the sides and ends of the button, said casing having sides, each of the sides of the casing terminating in a yieldable member arranged in a groove of the button in a position outwardly beyond the closure bead in said groove and thereby serving a retaining means to retain the bead slidably in the groove, flexible means connecting said buttons, and means for operatively securing longitudinal spaced parts of said flexible means to the buttons.

2. In a slide fastener, a pair of closure tapes each having an edge bead thereon, a button having a pair of similar spaced longitudinal grooves therein of substantially uniform width, each of the grooves having an open side, one of said edge beads being arranged in one of the grooves with its tape projecting through said open side, and the other bead being arranged similarly in the other groove, and means for slidably retaining the beads in the grooves, said means comprising a sheet metal member covering parts of the surfaces of the button, said member having inwardly extending resilient marginal edge portions extending into the respective grooves outwardly of the beads and also extending partway across the respective open sides of the grooves.

3. In a slide fastener, the combination with a series of buttons, each button having longitudinal grooves therein, said grooves being open at the sides thereof, of a flexible button connecting member operatively connecting said buttons for relative movement thereof and also against complete separation of the buttons, a casing for each button enclosing part of the button, sides on said casing, a bent portion on each side of the casing entering a groove of the button and extending partway across the open side of the groove, and means for operatively securing said connecting member to the buttons.

4. In a slide fastener, a series of movable buttons, each button having a pair of similar spaced longitudinal grooves therein of substantially uniform width for the reception of the respective beads of a pair of closure tapes, a box-like one-piece button-holding casing for each button, said casing comprising a wall adjacent a face of the button, a pair of opposed sides outstanding from the wall adjacent the sides of the button, each of said opposed sides terminating in a bent edge portion, one of the bent edge portions being arranged in one of the grooves and the other being arranged in the other groove, and a free edge on each of said edge portions in inwardly spaced relation to the remainder of the sides, a flexible tape operatively connecting said buttons for limited relative movement, and means on each casing for securing the casings to the tape at spaced points of the tape.

5. In a slide fastener, a button having a pair of similar spaced longitudinal grooves therein of substantially uniform width for the reception of the respective beads of a pair of beaded edge closure elements, a box-like one-piece button-holding casing enclosing part of the button, said casing comprising a wall adjacent a face of the button and a pair of opposed sides extending from the wall toward said grooves, each of said sides terminating in a bent edge portion, the edge portion of one side being inserted into one of the grooves, and the other edge portion being inserted into the other groove, said edge portions cooperating with the walls of the grooves to hold the beads of the closure elements in the grooves and to hold the casing to the button.

6. The combination with a solid substantially prismatic button having a longitudinal groove in each of the sides thereof, of a button-covering casing for the button, said casing comprising a bottom wall and a pair of similar opposed side walls outstanding from the bottom wall, the button being arranged between the side walls and adjacent the bottom wall, a resilient laterally bent edge portion on each of the side walls, the edge portion of one side wall being removably inserted into the groove in one side of the button and the edge portion on the other side wall being removably inserted into the groove on the other side of the button.

7. In a slide fastener, a button member having side surfaces and a flat face joining said surfaces, one of said surfaces having a longitudinal groove therein, the other of said surfaces having a similar groove therein, a button-holding member in the form of a casing enclosing part of the button, said button-holding member having a wall adjacent said flat face of the button and having resilient sides outstanding from the wall, a laterally bent marginal portion on each of the sides, the marginal portion of one side of the button-holding member entering one of the grooves and the marginal portion of the other side entering the other of the grooves, said marginal portions extending between the edges of said grooves, a similar button member provided with a similar button-holding member, a tape connecting said button members, and means on one of the button-holding members for operatively securing the tape to the button member for movement as a unit with the button member.

8. In a slide fastener, a button provided with a pair of spaced longitudinal grooves therethrough for the reception of a corresponding pair of closure beads, one of said grooves being made in one side of the button, and the other in the other side of the button, the grooves being open respectively at that side of the button in which the groove is made and also open at the ends of the button, each groove having a pair of spaced substantially parallel walls extending inwardly from the corresponding side face of the button, each groove having an innermost terminal wall joining the parallel walls, a sheet metal member covering part of the outer surface of the button, a pair of spaced resilient inwardly projecting bent edge parts on the member, one of said parts being inserted into the open side of one of the grooves and between the parallel walls and the other being similarly inserted into the other groove, and means on the sheet metal member for securing said member to a tape.

9. In a slide fastener, a button having side walls, each of the side walls having a longitudinal groove therein, a casing partially enclosing the button, said casing comprising a bottom, a pair of opposed sides outstanding from the bottom, each of said sides having an upper edge portion bent downwardly and inwardly to provide an upper rounded edge thereon and a free terminal edge in inward spaced relation to the remainder of the sides, and a pair of opposed ends outstanding from the bottom and each having an upstanding prong thereon, the upper edge portion of one of the sides of the casing being removably inserted into the groove in one of the side walls of the button and the upper edge portion of the other side of the casing being removably inserted into the groove of the other side wall of the button, and a tape for the button, said prong passing through the tape and securing the casing to the tape.

10. In a slide fastener, a button having side walls, each of the side walls having a groove therein, a casing for the button, said casing comprising a bottom, a pair of yieldable opposed sides, part of one of the sides entering the groove of the side wall of the button and part of the other side entering the groove in the other side wall of the button, and a pair of opposed ends, said sides and ends outstanding integrally from the bottom, a tape, and tape-penetrating and holding projections on said ends.

11. In a slide fastener, a button having a pair of spaced parallel grooves therein each having an open side, a casing for the button, said casing having a pair of opposed sides, each of said sides having a laterally bent portion thereon, said bent portion of one side removably entering one of the grooves of the button and the bent portion of the other side entering the other groove to hold the casing removably to the button, each of said bent portions extending sufficiently across its groove to partly close the open side of said groove, a flexible connecting tape, and pronged portions on said casing engaging and penetrating said tape and holding the casing thereto.

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