

Sept. 26, 1939.

D. MARINSKY

2,174,159

CORD MOUNTED THERMOPLASTIC ELEMENT

Filed March 6, 1937

Fig. 1.

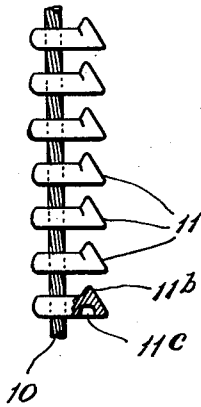


Fig. 2.

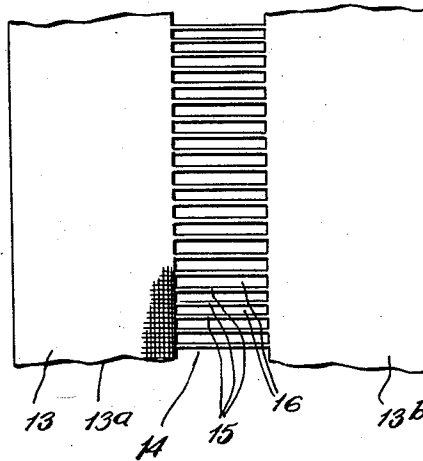


Fig. 3.

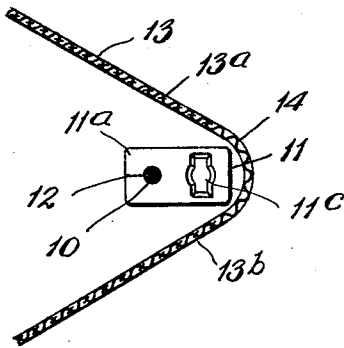


Fig. 4.

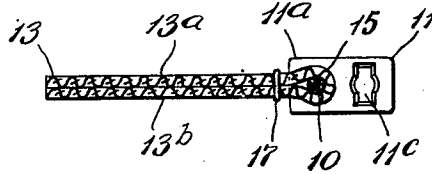


Fig. 5.

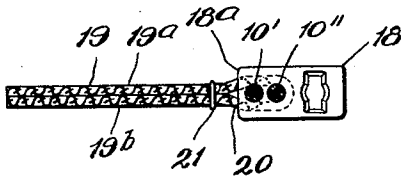


Fig. 6.

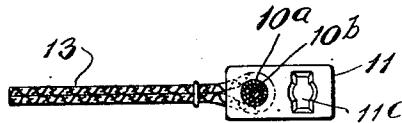


Fig. 8.

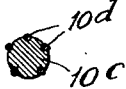
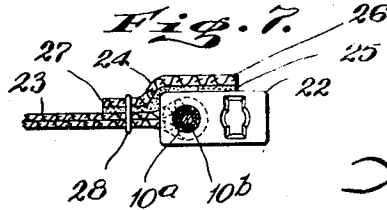


Fig. 7.



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2,174,159

CORD MOUNTED THERMOPLASTIC ELEMENT

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Application March 6, 1937, Serial No. 129,317

6 Claims. (Cl. 24—205)

This invention relates to the manufacture of articles of merchandise in the form of elongated strands, cords or the like having a plurality of plastic or thermoplastic elements secured thereto at longitudinally spaced intervals, and particularly in the formation of stringers of separable fasteners; and the object of the invention is to provide a cord or strand, around the circumference of which a plastic or thermoplastic link or element is arranged so as to completely envelop the strand to securely retain the link or element on the strand; a further object being to employ in conjunction with the strand and a number of the links thereon, a mounting tape or member having a central apertured or openwork portion adapted to be folded around the strand with the links thereon and to project inwardly beyond the attached ends of the links to form the mounting tape proper of the stringer of a separable fastener; a still further object being to provide a device of the class described wherein a number of links or elements are attached to two cords or strands arranged in parallel relation to each other and in close proximity to each other; a still further object being to provide a supplemental tape or strip adapted to be glued or cemented to the links or elements of the device to form a cover or enclosure therefor; and with these and other objects in view, the invention consists in a device of the class and for the purpose specified which is simple in construction and which is constructed as more fully hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a plan view of a cord or strand showing a number of links or elements attached thereto.

Fig. 2 is a plan view of a part of a mounting tape which I employ showing the same in extended position.

Fig. 3 is a sectional view through a part of the device shown in Fig. 1, illustrating the manner of attaching the mounting tape thereto.

Fig. 4 is a view similar to Fig. 3 showing the mounting tape in secured position.

Fig. 5 is a view similar to Fig. 4 showing a modified form of construction.

Fig. 6 is a view similar to Fig. 4 showing another modification.

Fig. 7 is a view similar to Fig. 6 showing a further modification; and,

Fig. 8 is an enlarged sectional detail view of a modified form of cord or strand which I may employ.

For the purpose of illustrating one method of carrying my invention into effect, I have shown in the accompanying drawing the method of producing the stringers of separable fasteners, that is to say, fasteners employing two stringers having at one edge thereof coupling links which are adapted to interlock in securing the stringers together, the stringers being coupled and uncoupled by a slider movable longitudinally thereof, and as such devices are commonly known in the art, no specific showing is herein made, and for illustrative purposes, one stringer or a part of one stringer only is shown.

In practice, I provide a cord or strand 10 which may be composed of any desired material, and in most instances would be composed of a fibrous material or as seen in Fig. 6 of the drawing, a strand 10a having a wire or other core 10b may be employed. On the other hand, as seen in Fig. 8 of the drawing, the cord or strand 10c may have exposed at the outer surface thereof a number of threads or strands 10d of rayon or similar material.

In Fig. 1 of the drawing, I have shown a number of links or elements 11 attached to the cord 10 at equally spaced intervals. These elements have portions 11a which completely envelop the cord 10 as seen in Fig. 3 of the drawing and may consist of plastic or thermoplastic bodies preformed and then attached to the cord 10 and glued or cemented along the dotted line 12, or the elements 11 may be in the form of plastic or thermoplastic die castings which are die cast directly upon the strand 10. The outer end portions of the elements 11 are provided with projecting knobs 11b at one side thereof and sockets 11c at the other side thereof to form the interlocking male and female portions of the respective elements in opposed stringers in forming a separable fastener of the kind mentioned.

While I have shown one method of carrying my invention into effect, other forms of devices may be made in accordance with the invention herein disclosed, the distinctive phase of the present invention residing in the provision of strandlike mounting elements for the plastic or thermoplastic links to insure firm mounting of the links or elements thereon as well as in the provision of the mounting tapes and cover tapes in forming the stringers of separable fasteners.

After attaching the links to the cord or strand 10, the same may also be cemented thereto by simply exposing the cord or strand to a cementing solution or saturant which, by capillary attraction, will extend therethrough and contact the surfaces of the links engaging the cord or strand to cement the same thereon, and if desired, pressure and heat may also be applied to insure a firm mounting of the links in position, and especially to prevent longitudinal movement of the links on the mounting member or cord 10.

In forming the stringer of a separable fastener, I also employ a wide mounting tape 13, the central portion 14 of which is so formed in weaving the same as to eliminate a number of the longitudinal or warp threads so as to leave simply the transverse or weft threads 15 or a part only of such threads so as to provide longitudinally spaced slits or openings 16 or what might be termed an openwork portion through which the links 11 are adapted to pass in the operation of folding the tape 13 or the central portion 14 thereof around the cord 10 in the manner illustrated in Figs. 3 and 4 of the drawing. It will be understood that the illustration in Fig. 2 is diagrammatic.

In this operation, it will be understood that a number of the threads 15 will be forced to either side of each link in forming relatively large openings for said links and the threads 15 are disposed around the cord 10 intermediate the links, and the separate side portions 13a, 13b of the tape 13 are brought together beyond the inner ends 11a of the links and are stitched adjacent said links as seen at 17, thus forming a mounting tape of two-ply thickness, or, if desired, the separate side portions 13a and 13b may be separated outwardly of the stitching 17 to receive a support arranged therebetween in the operation of attaching the stringer to such support.

Instead of treating the cord 10 with the cement saturant, as above stated, this operation may be performed after the tape 13 has been attached, in which event, the said cement may be applied to the tape 13 and transmitted to the cord 10 through said tape, and thus to the surfaces of the links 11 arranged upon the cord to provide the desired cementing operation. In using plastic or thermoplastic links composed, for example, of cellulose acetate, the saturant or cement employed may be acetone, which has a high degree of capillary action and which further is a solvent for the links employed.

By employing the rayon or similar strands 10d in the cord or other mounting member, as, for example, 10c in Fig. 8 of the drawing, a greater bonding of the link with the strand is made possible when treated with the cement solvent as above described. This form of construction disclosed in Fig. 8 is applicable to any of the other forms of construction shown in Figs. 5, 6 and 7, as well as in the first named figures.

In Fig. 6 of the drawing, I have shown a slight modification of the structure shown in Figs. 1 to 4 inclusive which simply consists in including the metallic or wire core 10b in the mounting cord or strand 10a. But, aside from this change, the structure shown in Fig. 6 is the same as that shown in the other figures and may be treated and prepared in the same manner.

In Fig. 5 of the drawing, I have shown another modification which consists in using two similar strands 10', 10'', which are arranged in parallel relation to each other as well as in close proximity to each other. As shown in Fig. 5, the strands

10', 10'' are separated so that the link 18 or the inner end portion 18a thereof will completely envelop each of said strands. This construction not only provides a double mounting for the links of the fastener but also provides a wider mounting therefor which will give greater stability to the link, or, in other words, increase the rigidity thereof.

This form of construction may be desirable in the manufacture of what might be called heavy duty fasteners—that is to say, separable fasteners which are subjected to relatively high stresses or strains. With the construction shown in Fig. 5, a mounting tape 19 similar to the tape 13 is employed with the exception that the apertured portion 20 thereof will be made sufficiently wide to compensate for the dual strands 10', 10'' employed. The side portion 19a and 19b of the tape 19 are stitched together adjacent the links 18 as indicated at 21.

In Fig. 7 of the drawing, I have shown another adaptation of my invention which is applied to the structure shown in Fig. 6, but may be applied to the structure shown in Figs. 1 to 4 inclusive as well as Fig. 5 or on a cord or mounting member such as shown in Fig. 8. In Fig. 7 of the drawing, a strand 10a having a reinforcing core 10b is employed, and the links 22 are similar to the links 11, whereas the mounting tape 23 is similar to the tape 13. In this construction, a cover tape 24 is cemented, glued or otherwise secured to at least one side surface of the links 22 as indicated at 25 in such manner as to completely cover the links of two stringers when attached, it being understood that the outer edge 26 of the cover strip or tape 24 terminates in alignment with the central point of contact or interlock between links of opposed stringers to accomplish this result. The other or inner side portion 27 of the tape 24 may extend onto the tape 23 and be stitched thereto as seen at 28 as well as cemented thereto if desired. In addition to covering the links 22, the tape or strip 24 also provides a means for binding or coupling adjacent links together longitudinally of the stringer. If desired, this tape or strip may be formed on the bias to provide a certain amount of flexibility between the links to facilitate the operation of coupling and uncoupling the same.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a device of the class described, a pair of independent fibrous cords arranged side by side and in spaced relation and close proximity to each other, a plurality of plastic elements arranged directly upon both of said cords at longitudinally spaced intervals on the cords, each element having a coupling end portion protruding beyond one of the cords, and the other of said cords being disposed in the other end portion of said elements, and means for securing the plastic elements to said cords at said spaced intervals to retain the elements against movement longitudinally of said cords.

2. In a device of the class described, a pair of independent fibrous cords arranged side by side and in spaced relation and close proximity to each other, a plurality of plastic elements arranged directly upon both of said cords at longitudinally spaced intervals on the cords, each element having a coupling end portion protruding beyond one of the cords, and the other of said cords being disposed in the other end portion of said elements, means for securing the plastic

elements to said cords at said spaced intervals to retain the elements against movement longitudinally of said cords, and the elements completely enveloping that part of each cord to which they are attached, disposing part of the elements between adjacent edges of said cords.

3. In a device of the class described, a pair of independent fibrous cords arranged side by side and in spaced relation and close proximity to each other, a plurality of plastic elements arranged directly upon both of said cords at longitudinally spaced intervals on the cords, each element having a coupling end portion protruding beyond one of the cords, and the other of said cords being disposed in the other end portion of said elements, means for securing the plastic elements to said cords at said spaced intervals to retain the elements against movement longitudinally of said cords, the elements completely enveloping that part of each cord to which they are attached, disposing part of the elements between adjacent edges of said cords, and a mounting tape coupled with said device and arranged longitudinally of said cords and projecting beyond the second named end of said elements.

4. An article of manufacture of the class described, comprising an elongated strand of fibrous material having a rayon thread extending longitudinally thereof and exposed at the outer surface of said strand throughout the length thereof, a plurality of cellulose acetate elements arranged directly on said strand at longitudinally spaced intervals with each of said elements contacting the exposed rayon thread, means for retaining said elements against movement longitudinally of said strand, said means comprising a solvent for said links and said rayon thread and applied to the strand and contacting the inner surfaces of the elements where they engage the strand, and an apertured mounting tape folded

around the strand and the elements thereon and projecting beyond said strand and the elements attached thereto.

5. The combination with an elongated fibrous strand having a rayon thread extending longitudinally thereof and exposed at the outer surface of said strand throughout the length thereof, of a plurality of cellulose acetate elements arranged directly upon said strand at longitudinally spaced intervals with each of said elements contacting the exposed rayon thread, means retaining said elements against movement longitudinally of said strand, said means comprising a solvent for said links and said rayon thread and applied to the strand and contacting the inner surfaces of the elements to provide a bonding means between the links and strand.

6. An article of manufacture of the class described, comprising an elongated strand of fibrous material having a rayon thread extending longitudinally thereof and exposed at the outer surface of said strand throughout the length thereof, a plurality of cellulose acetate elements arranged directly on said strand at longitudinally spaced intervals with each of said elements contacting the exposed rayon thread, means for retaining said elements against movement longitudinally of said strand, said means comprising a solvent for said links and said rayon thread and applied to the strand and contacting the inner surfaces of the elements where they engage the strand, a wide mounting tape having a longitudinal openwork central portion adapted to be passed over said links and folded around said strand with the side portions of the tape projecting from said strand, means for securing the side portions of the mounting tape together adjacent said elements, and a cover strip cemented to said elements and arranged longitudinally of said strand.

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