

Description

This invention relates to end stop members for slide fasteners and more particularly to an elongated strip of a pliable material having a multiplicity of serially interconnected prospective end stop members.

US-A-2 996 797 on which the preamble of claim 1 is based discloses a method of making a separating end connection in which metallic reinforcing end members are connected together with a single centrally located connecting portion. The end members are not regarded as end stops in a strict sense. Rather, they are provided to guide the opposite ends of two mating stringer tapes into a box-like retainer member. The disadvantage of these conventional end members is that they have sharp edges and projections which can be caught on an object.

End stop members made of a plastic, most commonly thermoplastic material, are usually applied directly by injection molding onto a slide fastener tape at one end thereof to form a top end stop or at the opposite end to form a bottom end stop, such end stops being adapted to limit the movement of a slider thereat to prevent the latter from moving apart from the slide fastener. Injection molding machines used in forming and applying slide fastener end stops are rather difficult to handle with respect to their thermal control and setting the end stops in respective molds, particularly where end stops are switched from one color to another entailing undue waste of time and materials.

With the foregoing drawbacks of the prior art in view, the present invention seeks to provide an elongated strip of a synthetic resin having a succession of interconnected end stops which can be readily cut into an individual end stop and subsequently firmly applied to a slide fastener stringer.

The invention also seeks to provide such elongated strips of various colors having a multiplicity of prospective end stops flexibly interconnected such that each strip can be stored conveniently separately in a reel or other cartridge means.

According to the invention, there is provided an elongated strip formed from a pliable material and providing a multiplicity of prospective end stop members for a slide fastener, said strip comprising a succession of serially interconnected end stop members and connecting means interconnecting adjacent ones of said end stop members in spaced apart relation, each of said end stop members having a pair of identical legs and a bridge formed centrally between said legs and serving as a hinge about which said legs are foldable across the width of said strip, characterized in that said strip is formed from a synthetic plastic material, that said

connecting means comprise a pair of flexible means extending longitudinally between adjacent legs on opposite sides of said bridge, that said bridge formed centrally between said legs is of reduced thickness with respect to that of the legs and that said legs have respective peripheral edges rounded off and protruding beyond the region of said bridge when said legs are folded.

The invention will be described below in more detail in conjunction with the accompanying drawings which illustrate by way of example some preferred embodiments.

Figure 1 is a fragmentary plan view on enlarged scale of an elongated strip according to one form of the invention;

Figure 2 is a transverse cross-sectional view taken on the line II - II of Figure 1;

Figure 3 is a transverse cross-sectional view of an individual end stop showing the same folded for attachment onto a slide fastener tape;

Figure 4 is a cross-sectional view of the end stop shown attached to the tape;

Figure 5 is a fragmentary perspective view on enlarged scale of a slide fastener stringer to which the end stop from the strip is attached;

Figure 6 is a perspective view of the strip shown wound on a reel;

Figure 7 is a view similar to Figure 1 but showing a strip according to another form of the invention; and

Figure 8 is a fragmentary transverse cross-sectional view taken on the line VIII - VIII of Figure 7.

Referring now to the drawings and Figure 1 in particular, there is shown a portion of an elongated strip 10 formed from a synthetic plastic material and having a succession of serially interconnected prospective end stop members 11. Adjacent end stop members 11 are spaced apart by a small distance and interconnected by a pair of flexible connecting cords 12 such as of a textile yarn thread, a synthetic plastic monofilament or other flexible or pliable materials, the cords 12 extending in parallel longitudinally through opposite outer edges of the strip 10. Each of the prospective end stop members 11 has a pair of identical legs 13, 13 which are adapted to fold across the width of the strip 10 in a manner hereinafter described. Each end stop member 11 is notched from opposite ends along a central longitudinal line of the strip 10 to provide a pair of inwardly expanded oblong bights 14 confronting each other across a bridge 15 formed centrally between the legs 13, 13. The edges 14' of each bight 14 merge with rounded-off inner peripheral edges 13', 13' of the respective legs 13, 13. The bridge 15 is reduced in thickness as better shown in Figure 2 to serve as a hinge about which the end stop member 11 can be

accurately and easily folded to bring the two legs 13, 13 in superimposed relation for mounting astride of a tape edge as depicted in Figure 3, in which instance the rounded peripheral edges 13', 13' of the legs 13, 13 protrude outwardly beyond the bridge 15 as shown in Figure 5.

As better shown in Figure 2, the legs 13, 13 of the end stop member 11 each have an arcuate groove 16 extending adjacently along their respective outer longitudinal edges and configured to fit snugly over a beaded edge 17 of a slide fastener stringer tape T which is usually cross-sectionally round.

The elongated end stop forming strip 10 thus constructed is cut transversely along a line 18 extending transversely across the connecting cords 12 between adjacent prospective end stop members 11 to provide an individual end stop 11'. This end stop 11' is shown attached with heat and pressure as by means of the arrangement of a supersonic horn 19 and an anvil 20 schematically shown in Figure 4 onto a top end portion of a slide fastener stringer F which as shown in Figure 5 comprises a support tape T and a row of coupling elements E secured thereto. Advantageously, the end stop 11' when thus attached to the support tape T is free of any sharp edge portions which tend to catch and impair a garment fabric on which the slide fastener is used. This is due to the construction of the end stop 11' in which the bridge 15 about which it is folded is protected by the rounded-off peripheral edges 13', 13' of the legs 13, 13 which protrude beyond the region of the bridge 15 as better shown in Figure 5.

Further advantageously, the prospective end stop members 11 are interconnected by the flexible connecting cords 12 which render the strip 10 flexible and supple as a whole, thus allowing a substantial length of the strip 10 to be conveniently wound on a reel 30 as depicted in Figure 6.

A modified elongated strip 10a according to the invention is shown in Figures 7 and 8 and is substantially geometrically identical to the strip 10 in Figure 1 in that each of the prospective end stop members 11a comprises a pair of identical legs 13a, 13a, a pair of bights 14a, 14a, a bridge 15a and a groove 16a, except that the succession of prospective end stop members 11a are interconnected by a connecting extension 21 integral with adjacent end stop members 11a in lieu of the use of the flexible connecting cords 12. The connecting extension 21 extends between adjacent end stop members 11a and is reduced in thickness as shown in Figure 8 so as to be easily cut along a transverse cut line 18a.

Claims

1. An elongated strip (10; 10a) formed from a pliable material and providing a multiplicity of prospective end stop members (11; 11a) for a slide fastener, said strip comprising a succession of serially interconnected end stop members (11; 11a) and connecting means (12; 21) interconnecting adjacent ones of said end stop members (11; 11a) in spaced apart relation, each of said end stop members (11; 11a) having a pair of identical legs (13; 13a) and a bridge (15; 15a) formed centrally between said legs (13; 13a) and serving as a hinge about which said legs are foldable across the width of said strip (10; 10a), characterized in that said strip (10; 10a) is formed from a synthetic plastic material, that said connecting means (12; 21) comprise a pair of flexible means extending longitudinally between adjacent legs (13; 13a) on opposite sides of said bridge (15; 15a), that said bridge (15; 15a) formed centrally between said legs (13; 13a) is of reduced thickness with respect to that of the legs and that said legs (13; 13a) have respective peripheral edges (13') rounded off and protruding beyond the region of said bridge (15; 15a) when said legs are folded.
2. An elongated strip (10, 10a) according to claim 1 characterized in that said flexible connecting means (12, 12b) is a textile yarn thread.
3. An elongated strip (10, 10a) according to claim 1 characterized in that said flexible connecting means (12) is a synthetic plastic monofilament.
4. An elongated strip (10, 10a) according to claim 1 characterized in that said flexible connecting means (21) comprises an integral extension (21) of said strip which is reduced in thickness.
5. An elongated strip (10, 10a) according to claim 2 characterized in that each of said end stop members (11, 11a) is notched from opposite ends along a central longitudinal line of said strip to provide a pair of oblong bights (14, 14a) confronting each other across said bridge (15, 15a).

Patentansprüche

1. Länglicher Streifen (10; 10a), der aus einem schmiegsamen Material gebildet ist und eine Vielzahl zukünftiger Begrenzungssteile (11; 11a) für einen Reißverschluß bildet, wobei der Streifen eine Folge von reihenweise verbundenen Begrenzungssteilen (11; 11a) und Verbindungs-



accurately and easily folded to bring the two legs 13, 13 in superimposed relation for mounting astride of a tape edge as depicted in Figure 3, in which instance the rounded peripheral edges 13', 13' of the legs 13, 13 protrude outwardly beyond the bridge 15 as shown in Figure 5.

As better shown in Figure 2, the legs 13, 13 of the end stop member 11 each have an arcuate groove 16 extending adjacently along their respective outer longitudinal edges and configured to fit snugly over a beaded edge 17 of a slide fastener stringer tape T which is usually cross-sectionally round.

The elongated end stop forming strip 10 thus constructed is cut transversely along a line 18 extending transversely across the connecting cords 12 between adjacent prospective end stop members 11 to provide an individual end stop 11'. This end stop 11' is shown attached with heat and pressure as by means of the arrangement of a supersonic horn 19 and an anvil 20 schematically shown in Figure 4 onto a top end portion of a slide fastener stringer F which as shown in Figure 5 comprises a support tape T and a row of coupling elements E secured thereto. Advantageously, the end stop 11' when thus attached to the support tape T is free of any sharp edge portions which tend to catch and impair a garment fabric on which the slide fastener is used. This is due to the construction of the end stop 11' in which the bridge 15 about which it is folded is protected by the rounded-off peripheral edges 13', 13' of the legs 13, 13 which protrude beyond the region of the bridge 15 as better shown in Figure 5.

Further advantageously, the prospective end stop members 11 are interconnected by the flexible connecting cords 12 which render the strip 10 flexible and supple as a whole, thus allowing a substantial length of the strip 10 to be conveniently wound on a reel 30 as depicted in Figure 6.

A modified elongated strip 10a according to the invention is shown in Figures 7 and 8 and is substantially geometrically identical to the strip 10 in Figure 1 in that each of the prospective end stop members 11a comprises a pair of identical legs 13a, 13a, a pair of bights 14a, 14a, a bridge 15a and a groove 16a, except that the succession of prospective end stop members 11a are interconnected by a connecting extension 21 integral with adjacent end stop members 11a in lieu of the use of the flexible connecting cords 12. The connecting extension 21 extends between adjacent end stop members 11a and is reduced in thickness as shown in Figure 8 so as to be easily cut along a transverse cut line 18a.

Claims

1. An elongated strip (10; 10a) formed from a pliable material and providing a multiplicity of prospective end stop members (11; 11a) for a slide fastener, said strip comprising a succession of serially interconnected end stop members (11; 11a) and connecting means (12; 21) interconnecting adjacent ones of said end stop members (11; 11a) in spaced apart relation, each of said end stop members (11; 11a) having a pair of identical legs (13; 13a) and a bridge (15; 15a) formed centrally between said legs (13; 13a) and serving as a hinge about which said legs are foldable across the width of said strip (10; 10a), characterized in that said strip (10; 10a) is formed from a synthetic plastic material, that said connecting means (12; 21) comprise a pair of flexible means extending longitudinally between adjacent legs (13; 13a) on opposite sides of said bridge (15; 15a), that said bridge (15; 15a) formed centrally between said legs (13; 13a) is of reduced thickness with respect to that of the legs and that said legs (13; 13a) have respective peripheral edges (13') rounded off and protruding beyond the region of said bridge (15; 15a) when said legs are folded.
2. An elongated strip (10, 10a) according to claim 1 characterized in that said flexible connecting means (12, 12b) is a textile yarn thread.
3. An elongated strip (10, 10a) according to claim 1 characterized in that said flexible connecting means (12) is a synthetic plastic monofilament.
4. An elongated strip (10, 10a) according to claim 1 characterized in that said flexible connecting means (21) comprises an integral extension (21) of said strip which is reduced in thickness.
5. An elongated strip (10, 10a) according to claim 2 characterized in that each of said end stop members (11, 11a) is notched from opposite ends along a central longitudinal line of said strip to provide a pair of oblong bights (14, 14a) confronting each other across said bridge (15, 15a).

Patentansprüche

1. Länglicher Streifen (10; 10a), der aus einem schmiegsamen Material gebildet ist und eine Vielzahl zukünftiger Begrenzungssteile (11; 11a) für einen Reißverschluß bildet, wobei der Streifen eine Folge von reihenweise verbundenen Begrenzungssteilen (11; 11a) und Verbindungs-



mittel (12; 21) umfaßt, die benachbarte Begrenzungsteile (11; 11a) im gegenseitigen Abstand miteinander verbinden, wobei jedes Begrenzungsteil (11; 11a) zwei identische Schenkel (13; 13a) und eine Brücke (15; 15a) aufweist, die mittig zwischen den Schenkeln (13; 13a) gebildet ist und als Gelenk dient, um das die Schenkel über die Breite des Bandes (10; 10a) faltbar sind, dadurch **gekennzeichnet**, daß der Streifen (10; 10a) aus Kunststoff gebildet ist, daß die Verbindungsmittel (12; 21) zwei flexible Mittel umfassen, die sich auf gegenüberliegenden Seiten der Brücke (15; 15a) in Längsrichtung zwischen benachbarten Schenkeln (13; 13a) erstrecken, daß die Brücke (15; 15a) mittig zwischen den Schenkeln (13; 13a) ausgebildet ist und in Bezug auf die Schenkel eine verringerte Dicke hat und daß die Schenkel (13; 13a) entsprechende abgerundete Umfangsränder (13') haben, die über den Bereich der Brücke (15; 15a) hinausragen, wenn die Schenkel umgefaltet sind.

2. Länglicher Streifen (10; 10a) nach Anspruch 1, dadurch **gekennzeichnet**, daß die flexiblen Verbindungsmittel (12; 12b) aus einem Textilfaden bestehen.

3. Länglicher Streifen (10; 10a) nach Anspruch 1, dadurch **gekennzeichnet**, daß die flexiblen Verbindungsmittel (12) aus einem Kunststoffdraht bestehen.

4. Länglicher Streifen (10; 10a) nach Anspruch 1, dadurch **gekennzeichnet**, daß die flexiblen Verbindungsmittel (21) aus einem einstückigen Verbindungsansatz (21) des Streifens bestehen, der eine verringerte Dicke hat.

5. Länglicher Streifen (10; 10a) nach Anspruch 2, dadurch **gekennzeichnet**, daß jedes Begrenzungsteil (11; 11a) entlang einer Längsachse des Streifens von gegenüberliegenden Enden her eingekerbt ist, um zwei längliche Buchten (14, 14a) zu bilden, die über die Brücke (15; 15a) einander zugekehrt sind.

d'extrémité adjacents en les maintenant espacés, chaque élément (11, 11a) formant butée d'extrémité comprenant une paire de branches identiques (13, 13a) et un pont (15, 15a) formé de manière centrale entre lesdites branches (13, 13a) et servant de moyen d'articulation autour duquel lesdites branches peuvent se replier dans la largeur dudit ruban (10, 10a), caractérisé en ce que ledit ruban (10, 10a) est fait d'une matière plastique de synthèse, en ce que lesdits moyens de liaison (12, 21) comprennent une paire d'éléments flexibles qui s'étendent longitudinalement entre branches adjacentes (13, 13a) sur les côtés opposés dudit pont (15, 15a), en ce que ledit pont (15, 15a) formé de manière centrale entre lesdites branches (13, 13a) a une épaisseur réduite par rapport à celle des branches, et en ce que lesdites branches (13, 13a) ont des bords périphériques respectifs (13') arrondis qui dépassent au-delà de la région dudit pont (15, 15a) quand lesdites branches sont repliées.

2. Ruban allongé (10, 10a) selon la revendication 1, caractérisé en ce que ledit moyen flexible de liaison (12, 12b) est un fil textile.

3. Ruban allongé (10, 10a) selon la revendication 1, caractérisée en ce que ledit moyen flexible de liaison (12) est un monofilament en plastique de synthèse.

4. Ruban allongé (10, 10a) selon la revendication 1, caractérisée en ce que ledit moyen flexible de liaison (21) comprend un prolongement intégré (21) de ladite bande qui a une épaisseur réduite.

5. Ruban allongé (10, 10a) selon la revendication 2, caractérisée en ce que chaque élément (11, 11a) formant butée d'extrémité est entaillé depuis les extrémités opposées le long d'un axe central longitudinal dudit ruban pour donner une paire danses oblongues (14, 14a) en regard l'une de l'autre de chaque côté dudit pont (15, 15a).

Revendications

1. Ruban allongé (10, 10a) fait d'un matériau pliable et fournissant une multiplicité d'éléments (11, 11a) formant butées d'extrémité potentielles pour une fermeture à glissière, ledit ruban comprenant une succession d'éléments formant butées d'extrémité (11, 11a) raccordés les uns aux autres en série et des moyens de liaison (12, 21) qui raccordent les uns aux autres les éléments (11, 11a) formant butées