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COMPLETE SPECIFICATION

DRAWINGS ATTACHED

Improvements in or relating to Sliding Clasp Fasteners and to Methods of Manufacturing the Same



Bauendahl

WE, JOSEF RUHRMANN and HANS BUAENDAH, trading as DR. ING. JOSEF RUHRMANN of 24, Bahnhofstrasse, Stuttgart-Vaihingen, Germany, both citizens of the Federal Republic of Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to sliding clasp fasteners, and to methods of manufacturing the same.

The invention consists in a sliding clasp fastener comprising a structure constituted by a filament of metal or plastics (hereinafter called "filamentary structure"), the structure having a series of substantially U-shaped coupling links arranged one behind the other, adjacent links being joined together, each link (except the extreme links of the structure) being joined, at one end, only to the preceding link and, at the other end, only to the succeeding link, the said structure straddling a carrier tape, a beading or tape extending along the structure at the outside thereof to cover a part of the said structure.

The carrier tape, the filamentary structure and the covering beading or covering tape may be sewn together. Two covering beadings or covering tapes may be provided, one at each side of the filamentary structure. Two covering woven tapes may be provided which are joined together by weft threads passing across the structure between links thereof. The filamentary structure may be constituted by a single filament of rectangular cross section.

The invention also consists in a method for use in the manufacture of sliding clasp fasteners, comprising the steps of providing an elongated structure constituted by a fila-

ment of metal or plastics forming a series of links joined together and lying in a substantially plane surface, each link (except the extreme links of the series) being joined, at one end, only to the preceding link and, at the other end, only to the succeeding link, the said elongated structure being bent about a longitudinal centre line so that, in end view, the structure, and thereby each link, is substantially U-shaped, and subsequently applying the U-shaped structure to a carrier tape in straddling position thereon, a covering beading or covering tape being applied to the outside of the U-shaped structure.

The carrying tape, the structure and the covering beading or covering tape may be secured together in a single operation. The carrying tape, the structure and the covering beading or covering tape may be secured together by sewing. Two covering beadings or covering tapes may be applied to the outside of the structure, one to each side thereof. The elongated structure may be provided by bending the filament. A structure may be employed which is constituted by a single filament of rectangular cross section. The links may be deformed to provide locking elements thereon.

In order to make the invention clearly understood reference will now be made to the accompanying drawings which are given by way of example and in which:—

Fig. 1 is a perspective view of a part of an embodiment of the invention and illustrates a method of making the same;

Fig. 2 is perspective view, partly broken away, of part of another embodiment of the invention; and

Fig. 3 is a perspective view, partly broken away, of part of a further embodiment of the invention.

An elongated structure 1 illustrated in Fig. 1 has a filament of plastic material of

[Price 3s. 6d.]

rectangular cross section bent so as to form a series of links joined together by portions 11 and 11'. The links initially lie in a plane as shown in the left-hand part of Fig. 1 and are deformed to provide locking elements 12 thereon. They are bent about a longitudinal centre line of the structure as illustrated in the right-hand part of Fig. 1 so that in end view the structure 1, and thereby each link, is substantially U-shaped. A carrier tape 4 is placed between the arms of the substantially U-shaped structure and a covering beading 3 is applied to the outside of the substantially U-shaped structure. The carrier tape 4 and the covering beading 3 are secured together and to the substantially U-shaped structure in a single operation by sewing.

In the embodiment illustrated in Fig. 2, a carrier tape 4 is placed between the arms of the substantially U-shaped structure 1 and stitched to the links by a line of stitching 2 at positions adjacent the portions 11. Two covering beadings 3 and 3' of a textile material are disposed along the outside of the substantially U-shaped structure 1, one beading at each side of the structure, and stitched by a line of stitching 5 to the structure 1 and the carrier tape 4.

In the embodiment illustrated in Fig. 3, the substantially U-shaped structure 1 is stitched by means of a thread 2 to a carrier tape 4. The outside of the substantially U-shaped structure 1 is covered at each side by a covering beading 72, 72' the two beadings 72, 72' being united by weft threads 71. The beadings 72, 72' are formed by removal of warp threads from a central longitudinal part of a tape 7. The weft threads 71 extending across the central longitudinal part of the tape 7 are thus able to be inserted between the individual links of the structure 1. The beadings 72 and 72' at each side of the structure 1 are stitched to the carrier tape 4 by means of a line of stitching 5.

Modifications are possible, for example the filament may be of metal instead of being of plastic material.

In the drawings, covering beadings have been shown. Such beadings may of course be replaced by covering tapes overlying the carrying tapes.

WHAT WE CLAIM IS:—

1. A sliding clasp fastener comprising a filamentary structure (as hereinbefore defined) having a series of substantially U-shaped coupling links arranged one behind the other, adjacent links being joined together, each link (except the extreme links of the structure) being joined, at one end, only to the preceding link and, at the other end, only to the succeeding link, the said structure straddling a carrier tape, a beading or tape extending along the structure at the outside thereof to cover a part of the said

structure.

2. A sliding clasp fastener as claimed in claim 1, wherein the carrier tape, the filamentary structure and the covering beading or covering tape are sewn together.

3. A sliding clasp fastener as claimed in claim 1 or 2, wherein two covering beadings or covering tapes are provided, one at each side of the filamentary structure.

4. A sliding clasp fastener as claimed in claim 3, wherein two covering woven tapes or beadings are provided which are joined together by weft threads passing across the structure between links thereof.

5. A sliding clasp fastener as claimed in any one of claims 1 to 4, wherein the filamentary structure is constituted by a single filament of rectangular cross section.

6. A method for use in the manufacture of sliding clasp fasteners, comprising the steps of providing an elongated structure constituted by a filament of metal or plastics forming a series of links joined together and lying in a substantially plane surface, each link (except the extreme links of the series) being joined, at one end, only to the preceding link and, at the other end, only to the succeeding link, the said elongated structure being bent about a longitudinal centre line so that, in end view, the structure, and thereby each link, is substantially U-shaped, and subsequently applying the U-shaped structure to a carrier tape in straddling position thereon, a covering beading or covering tape being applied to the outside of the U-shaped structure.

7. A method as claimed in claim 6, wherein the carrier tape, the structure and the covering beading or covering tape are secured together in a single operation.

8. A method as claimed in claim 7, wherein the carrier tape, the structure and the covering beading or covering tape are secured together by sewing.

9. A method as claimed in claim 7 or 8, wherein two covering beadings or covering tapes are applied to the outside of the structure, one to each side thereof.

10. A method as claimed in any one of claims 6 to 9, wherein the elongated structure is provided by bending the filament.

11. A method as claimed in any one of claims 6 to 10, wherein a structure is employed which is constituted by a single filament of rectangular cross section.

12. A method as claimed in any one of claims 7 to 11, wherein the links are deformed to provide locking elements thereon.

13. A method for use in the manufacture of sliding clasp fasteners substantially as hereinbefore described with reference to the accompanying drawings.

14. A sliding clasp fastener constructed and arranged substantially as hereinbefore described with reference to and as illustrated



rectangular cross section bent so as to form a series of links joined together by portions 11 and 11'. The links initially lie in a plane as shown in the left-hand part of Fig. 1 and are deformed to provide locking elements 12 thereon. They are bent about a longitudinal centre line of the structure as illustrated in the right-hand part of Fig. 1 so that in end view the structure 1, and thereby each link, is substantially U-shaped. A carrier tape 4 is placed between the arms of the substantially U-shaped structure and a covering beading 3 is applied to the outside of the substantially U-shaped structure. The carrier tape 4 and the covering beading 3 are secured together and to the substantially U-shaped structure in a single operation by sewing.

In the embodiment illustrated in Fig. 2, a carrier tape 4 is placed between the arms of the substantially U-shaped structure 1 and stitched to the links by a line of stitching 2 at positions adjacent the portions 11. Two covering beadings 3 and 3' of a textile material are disposed along the outside of the substantially U-shaped structure 1, one beading at each side of the structure, and stitched by a line of stitching 5 to the structure 1 and the carrier tape 4.

In the embodiment illustrated in Fig. 3, the substantially U-shaped structure 1 is stitched by means of a thread 2 to a carrier tape 4. The outside of the substantially U-shaped structure 1 is covered at each side by a covering beading 72, 72' the two beadings 72, 72' being united by weft threads 71. The beadings 72, 72' are formed by removal of warp threads from a central longitudinal part of a tape 7. The weft threads 71 extending across the central longitudinal part of the tape 7 are thus able to be inserted between the individual links of the structure 1. The beadings 72 and 72' at each side of the structure 1 are stitched to the carrier tape 4 by means of a line of stitching 5.

Modifications are possible, for example the filament may be of metal instead of being of plastic material.

In the drawings, covering beadings have been shown. Such beadings may of course be replaced by covering tapes overlying the carrying tapes.

WHAT WE CLAIM IS:—

1. A sliding clasp fastener comprising a filamentary structure (as hereinbefore defined) having a series of substantially U-shaped coupling links arranged one behind the other, adjacent links being joined together, each link (except the extreme links of the structure) being joined, at one end, only to the preceding link and, at the other end, only to the succeeding link, the said structure straddling a carrier tape, a beading or tape extending along the structure at the outside thereof to cover a part of the said

structure.

2. A sliding clasp fastener as claimed in claim 1, wherein the carrier tape, the filamentary structure and the covering beading or covering tape are sewn together.

3. A sliding clasp fastener as claimed in claim 1 or 2, wherein two covering beadings or covering tapes are provided, one at each side of the filamentary structure.

4. A sliding clasp fastener as claimed in claim 3, wherein two covering woven tapes or beadings are provided which are joined together by weft threads passing across the structure between links thereof.

5. A sliding clasp fastener as claimed in any one of claims 1 to 4, wherein the filamentary structure is constituted by a single filament of rectangular cross section.

6. A method for use in the manufacture of sliding clasp fasteners, comprising the steps of providing an elongated structure constituted by a filament of metal or plastics forming a series of links joined together and lying in a substantially plane surface, each link (except the extreme links of the series) being joined, at one end, only to the preceding link and, at the other end, only to the succeeding link, the said elongated structure being bent about a longitudinal centre line so that, in end view, the structure, and thereby each link, is substantially U-shaped, and subsequently applying the U-shaped structure to a carrier tape in straddling position thereon, a covering beading or covering tape being applied to the outside of the U-shaped structure.

7. A method as claimed in claim 6, wherein the carrier tape, the structure and the covering beading or covering tape are secured together in a single operation.

8. A method as claimed in claim 7, wherein the carrier tape, the structure and the covering beading or covering tape are secured together by sewing.

9. A method as claimed in claim 7 or 8, wherein two covering beadings or covering tapes are applied to the outside of the structure, one to each side thereof.

10. A method as claimed in any one of claims 6 to 9, wherein the elongated structure is provided by bending the filament.

11. A method as claimed in any one of claims 6 to 10, wherein a structure is employed which is constituted by a single filament of rectangular cross section.

12. A method as claimed in any one of claims 7 to 11, wherein the links are deformed to provide locking elements thereon.

13. A method for use in the manufacture of sliding clasp fasteners substantially as hereinbefore described with reference to the accompanying drawings.

14. A sliding clasp fastener constructed and arranged substantially as hereinbefore described with reference to and as illustrated



in, Fig. 1 of the accompanying drawings.

15. A sliding clasp fastener constructed and arranged substantially as hereinbefore described with reference to and as illustrated

5 in, Fig. 2 of the accompanying drawings.

16. A sliding clasp fastener constructed and arranged substantially as hereinbefore described with reference to, and as illustrated

in, Fig. 3 of the accompanying drawings.

WALTHER WOLFF,

78, Woodlands,

London, N.W.11.

Chartered Patent Agent.

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