

PATENT SPECIFICATION

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(54) SLIDE FASTENER TAPE

(71) We, YOSHIDA KOGYO KABUSHIKI KAISHA, a corporation duly organized under the laws of Japan and existing at No. 1, Kanda Izumi-cho, Chiyoda-ku, Tokyo, Japan, 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:—

This invention relates to slide fasteners and particularly to supporting stringer tapes of a warp-knitted structure for mounting thereon rows of interlocking fastener elements.

There are known various types of warp-knitted tapes for use in the field of slide fasteners or zippers. However, due primarily to their coarse network, the knitted tapes have suffered from reduced mechanical strength and less dimensional stability compared to woven fabric tapes, and the fastener elements mounted thereon were prone to become displaced from their properly aligned position or disengaged from the longitudinal marginal edge of the tape along which they are secured. The knitted supporting tapes were also susceptible to wear at their longitudinal edge portions disposed for abrasive contact with a reciprocating slider.

In order to overcome these difficulties, attempts have been made to increase the mechanical strength of the knitted tape per se by providing laid-in weft threads throughout its entire width. Such knitted tapes proved not entirely satisfactory for the lack of meticulous considerations as to the strength and size of weft threads, and their dimensional stability and mechanical strength were still not adequate for the purpose of slide fasteners.

The present invention aims to provide improved supporting stringer tapes of a warp-knitted structure having sufficient dimensional stability and mechanical

strength to adapt themselves to slide fasteners.

According to the invention, there is provided a supporting stringer tape for slide fasteners which comprises a warp-knitted structure comprising wales formed by pillars of stitches connected coursewise by laid-in weft threads and warp threads inserted between said wales, said laid-in weft threads being thicker and stronger at a longitudinal marginal edge portion of the tape disposed for contact with a slider than at the remaining web thereof and the number of said warp threads between each pair of wales being greater at said longitudinal marginal edge portion than at the remaining web of the tape.

The invention will now be further described, by way of example, with reference to the accompanying drawings which illustrate certain preferred embodiments and in which:—

FIG. 1 is a schematic plan view of the reverse side of a supporting stringer tape embodying the invention, with interlocking fastener elements attached thereon;

FIG. 2 is a schematic plan view of a modification of FIG. 1; and

FIG. 3 is a schematic plan view of another modification.

Referring to FIG. 1 there is shown a pair of opposed supporting stringer tapes T, T' each having mounted along its longitudinal inner edge a row of interlocking fastener elements E. Each of these tapes is of a warp-knitted structure comprising wales W formed by suitable stitches such as open-pillar stitches as shown. Adjacent wales W are connected coursewise by laid-in weft threads 10 which are thicker and stronger than the rest of the threads in the tape system, thereby providing resistance to transverse or weft-wise stretch of the tape T. There are further provided warp threads 11 in between adjacent wales W to render the tape resistant to longitudinal or warp-wise

[Price 33p]

Price 75p

stretch. More of such warp threads 11 are provided particularly at the longitudinal marginal edge portion of the tape T to cooperate with the weft threads 10 in forming a suitable rigid region thereat to maintain the fastener elements E stably in their aligned position and posture under severe stresses applied by a slider (not shown).

The term longitudinal marginal edge portion of the tape as used herein and designated at 15 includes a further region extending laterally from behind the connecting portions Ea of the elements E substantially to a point at which the tape T is engaged with the rails or side flanges of the slider. The longitudinal edge portion 15 thus reinforced with warp threads 11 presents itself to be dimensionally stable and rigid, comparable to a woven fabric tape, so that the fastener elements E mounted thereon are securely retained in their proper position, and the tape T is mechanically strengthened to withstand abrasive contact with the slider over a prolonged period of time. Designated at S is a line of sewing stitches securing the elements E through a filling core 13 to the reinforced longitudinal edge 15 of the tape.

The longitudinal marginal edge portion 15 may be further reinforced to provide increased dimensional stability by employing double weft threads 10' as shown in FIG. 2.

FIG. 3 shows a modification wherein a

thicker weft thread 10 is laid in to connect three wales W particularly at the longitudinal edge portion 15.

WHAT WE CLAIM IS:—

1. A supporting stringer tape for slide fasteners which comprises a warp-knitted structure comprising wales formed by pillars of stitches connected coursewise by laid-in weft threads and warp threads inserted between said wales, said laid-in weft threads being thicker and stronger at a longitudinal marginal edge portion of the tape disposed for contact with a slider than at the remaining web thereof and the number of said warp threads between each pair of wales being greater at said longitudinal marginal edge portion than at the remaining web of the tape.

2. A supporting stringer tape according to claim 1, wherein the number of said weft threads is greater at the longitudinal marginal edge portion than at the remaining web of the tape.

3. A supporting stringer tape according to claim 1, wherein said weft threads are laid-in to connect three pillars.

4. A supporting stringer tape substantially as herein described with reference to the accompanying drawings.

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2. A supporting stringer tape according to claim 1, wherein the number of said weft threads is greater at the longitudinal marginal edge portion than at the remaining web of the tape.
3. A supporting stringer tape according to claim 1, wherein said weft threads are laid-in to connect three pillars.
4. A supporting stringer tape substantially as herein described with reference to the accompanying drawings.

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