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(granted specs)

HEADER TAPE FOR CURTAINS AND THE LIKE ✓

BACKGROUND OF THE INVENTION

1. Field of the Invention:

The present invention relates to a header tape for curtains and the like.

2. Description of the Related Art:

Header tapes are attached along the upper edge of a curtain, or other hanging material, to receive hooks for hanging the curtain and to form pleats in the curtain or gather it.

To form a pleat or a gather, parallel cords run through the length of the tape and, with the tape attached to a curtain, are pulled through from one end to bunch up the body of the tape. The cords are incorporated in the tape in the warp direction during the weaving of the tape, and have a substantially greater diameter than the warp threads.

Hook and loop fasteners have been used in systems for hanging curtains. In one such system, described in EP-A-612 493, a strip of loop material is attached to the top of the curtain. The curtain hooks, for hanging the curtain from a rail, have a plate-like surface with hooks molded on it to serve as engaging elements for engagement with the loops of the header tape. These systems are particularly useful for industrial purposes when curtains are to be removed frequently or with the minimum of effort. However, one

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drawback is the need for a gather tape in addition to the strip of loop material.

FR-A-2 685 926 shows a gather tape into which the loops, of a hook and loop fastener system, have been woven into the tape during manufacture of the tape. The loops are formed using a weft yarn, which is passed over bars which extend in the warp direction. Regions of loops are formed, spaced apart along the length of the tape. Also the regions may be staggered across the width of the tape. When the loops are formed by weft threads, an extent of the vertical movement of the bars are restricted so that the loops are short, and also the size of the mating hooks is restricted so that it is impossible to improve engaging rate with the hooks.

SUMMARY OF THE INVENTION

According to a first aspect of the present invention, a header tape for a curtain or the like, having a plurality of loops as female engaging elements for a hook and loop fastener, the loops being woven in discrete regions disposed at regular intervals along the tape, wherein the loops are formed by a part of warp threads, is provided.

When the loops are formed with the warp threads, openings for engagement with companion hooks face in width direction. Therefore, the loops adopts a higher profile and stand more proud in comparison with loops formed with weft threads as the hook and loop fastener of the above-mentioned FR-A-2 685 926.

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Further, in the header tape of the invention which is attached in a horizontal direction with respect to the hanging direction (vertical direction) of the curtain, since the loops are formed longitudinally of the tape, the openings of the loops are substantially horizontal. Therefore, the companion hooks easily engage with loops during use, and though the peeling strength is the same as that of the hook and loop fastener of the FR-A-2 685 926, the engaging strength can be improved remarkably.

Preferably, the tape is treated to fix the loops to prevent deformation of the loops at the loop regions due to pulling during use. This can be done, for example, by coating the back of the tape with adhesive, as is generally known in the art of forming loop material of this kind which is to be used in various fields. The coating is done by spraying of an adhesive to the back of the tape or applying with roller.

Further preferably, the loops are formed in discrete regions which are spaced apart in the warp direction, namely longitudinally of the tape.

The regions where the loops are fixed by adhesive, etc., tend to be relatively stiff. By forming the loops in discrete regions, and treating only the regions of the loops, the loop-free regions between the loops remain relatively flexible and can be gathered up with ease. For treating only the loop regions, in case of spraying adhesive for example, since the tape is moved at a constant speed, a non-illustrated control unit times and sends command to a

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spray unit every time the predetermined time elapses so as to actuate the spray unit automatically. Instead of timing, an optical device, for example, can be provided to actuate the spray unit at the time of detecting the loop regions or after a certain time elapses from the detection. In case of applying by the roller, the roller is moved vertically together with a bath of adhesive at the time as described above.

Preferably, one or more cords for gathering are woven into the tape. Very preferably, the material of the cord and that of the main body of the tape are different.

By forming the body of the tape with a first material which has an affinity for the adhesive or coating agent, and the cord of a second material which does not have affinity for the adhesive and the coating agent, it is possible to coat the loop regions without bonding the cord to the body of the tape - hence the cord can still be drawn easily through the tape.

Moreover, the cord is threaded through the tape at least twice at the loop regions, and at least once at each of opposite ends of the respective loop-free regions. With this arrangement, when the curtain or the like is bunched up by pulling the cord, the loop regions become hard to be bunched up and the curtain can be bunched up reliably at the loop-free regions.

According to a second aspect of the invention, a header tape for a curtain or the like, having loops for a hook and loop fastener woven into the tape, the tape being coated with a material to fix

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the loops against pulling, and a cord extending through the tape for gathering it, wherein the surface of the cord is coated with a material which does not adhere to the material for coating the tape.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be further described by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is a plan view of a header tape showing a first embodiment of the invention;

FIG. 2 is a perspective view showing the manner of gathering the tape;

FIG. 3 is a plan view of a header tape showing a second embodiment of the invention;

FIG. 4 is a fragmentary prespective view showing a method of forming loops in the tape at the time of weaving of the tape using a loop forming warp thread, and

FIG. 5 schematically shows a process of an example of coating method of the tape.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Now the typical embodiments of the invention will be described in detail with reference to the accompanying drawings.

FIG. 1 shows a curtain header tape 2 woven on a needle loom for making tapes. The tape 2 has three cords 3, 4, 5 which extend along its length and can move freely relative to the body of the

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tape 2, for gathering it. Alternatively, the number of cord may be two or more than three.

Regions 6 of loops 1 are formed at spaced apart intervals discretely along the tape. Each region 6 are formed across substantially the full width of the tape between respective cords 3, 4 and 5. The loop regions 6 may be disposed in a staggering manner longitudinally of the tape 2 at opposite sides of the cord 4 in center.

The loops of the loop regions 6 are formed from warp threads 9a which is a part of warp threads 9 of the tape 2. Namely, the warp threads 9a for forming the loops are woven into the tape 2 so as to form loops 1 at the time of weaving.

FIG. 2 shows the tape 2 with the cords 3, 4, 5 pulled through to make gathers 2a in or bunch the tape 2 at the loop-free regions 7 where no loops 1 are formed. The loop regions 6 occupy only part of the tape length between the gathers 2a. These loop-free regions 6 are positioned so as to have a predetermined space, typically 4 to 12 cm. center to center of the respective loop regions 6, in the tape 2 with gathers 2a. This makes it easier to locate the cooperating curtain hangers or hooks at regular intervals along the tape 2 having the gathers 2a.

In FIG. 3, the tape 2' has loop regions 6' formed only on one half in the width direction of the tape 2', and in this case the loop regions 6' exist even in a selvedge region 15 of the tape 2.

FIG. 4 schematically shows a part of a cord woven section

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where a cord 3 is woven in one edge portion 8. In a cloth fell section where a plurality of bars 10 are disposed parallel in weaving width direction, the loop-forming warp threads 9a are formed into loops 1 by passing the threads 9 backwards and forwards in a lateral view across the respective bars 10 which extend in the warp direction. Successive loops on a thread 9 are formed one after the other in the warp direction, and are spaced part by a few picks or groups of weft threads 12. The tape, in FIG. 4, is moving in the direction of the arrow A.

To provide loop-free regions 7 where no loop 1 exists, the loop-forming warp thread 9a is woven continuously as a warp thread consisting a part of the ground structure, without moving laterally across the bar 10.

After weaving, the back of the tape, at the loop regions 6, is coated with an adhesive coating to fix the warp threads 9, 9a relative to the weft threads 12, to prevent pulling of the loop-forming warp threads 9a in use.

As a preferable example, the material of the warp threads 9, 9a and weft threads 12 is nylon, and the back of the tape 2 is coated with an adhesive composed of such as a synthetic resin. The cord 3, 4, 5 is of polyester, and as the above mentioned adhesive, the one which adheres to nylon, but not to polyester is to be chosen. If the material of the cord adheres to the adhesive, the surface of the cord may be coated with another synthetic resin composed of a material which does not adhere to

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the adhesive.

FIG. 5 illustrates schematically a spray system for coating the back of the tape with an adhesive, the spray 14 being operated as the loop regions 6 pass above the spray 14. As described above, when the material of the tape 2 and that of the cords 3, 4 and 5 are different, and when an adhesive which adheres to the warp threads 9, 9a and the weft threads 12 of the tape 2 but does not adhere to the cords 3, 4 and 5 are chosen as the adhesive, there is no fear that the cords 3, 4 and 5 are bonded in place even when the adhesive is sprayed by the spray 14, and the loop regions 6 of the tape 2 can be coated across the entire width. The coating may be applied in other ways, for example using a roller.

In order to make the gathers 2a reliably, it is preferable that no adhesive is applied to the back of the loop-free regions 7 of the tape 2. Therefore, though not illustrated, it is possible to arrange that a control unit calculates the time, depending on the moving speed of the tape 2, for the loop regions 6 to reach to a position above the spray 14, and the spray 14 is actuated when the calculated time elapsed since the previous spraying. Alternatively, instead of calculating the time, an optical detector may be used to directly detect the loop regions 6 so as to actuate the spray 14. In case of coating using roller etc., instead of actuation of the spray 14, the roller in a waiting position is raised together with an adhesive bath so as to contact with the back of the tape.

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CLAIMS:



1. A header tape (2) for a curtain or the like having a plurality of loops (1) as female engaging elements for a hook and loop fastener, said loops (1) being woven in discrete loop regions (6) disposed at regular intervals along the tape (2), wherein the loops (1) are formed by a part (9a) of warp threads (9).
2. A header tape (2) as claimed in claim 1, wherein said tape (2) has a plurality of spaced apart loop-free regions (7) for forming pleats or the like, and wherein said loop regions (6) extend along the tape (2) between said adjacent loop-free regions (7), whereby when the tape (2) is gathered, the loop regions (6) are spaced apart along the tape (2).
3. A header tape (2) as claimed in claim 1 or 2, wherein said tape (2) is treated at the loop regions (6) to prevent deforming due to pulling of the loops (1) in use.
4. A header tape (2) as claimed in claim 1, 2 or 3, wherein a back surface of said tape (2) is treated by coating with an adhesive.
5. A header tape (2) as claimed in claim 4, wherein a gathering cord (3; 4; 5) runs through the tape and said cord (3; 4; 5) is formed of a material which is not affinitive for the adhesive.

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6. A header tape (2) as claimed in claim 5, wherein the warp threads (9) and weft threads (12) are of nylon and the cord (3; 4; 5) is of polyester material.

7. A header tape (2) as claimed in claim 5 or 6, wherein said cord (3; 4; 5) is threaded through the tape (2) at the time of weaving of said tape (2).

8. A header tape (2) as claimed in claim 5, 6 or 7, wherein said cord (3; 4; 5) is threaded through said tape (2) at least twice at said loop regions (6), and at least once at each of opposite ends of said respective loop-free regions (7).

9. A header tape (2) for a curtain or the like, having a plurality of loops (1) for a hook and loop fastener, the tape (2) being coated with a material to fix the loops (1) against pulling, and a cord (3; 4; 5) extending through the tape (2) for gathering it when in use, wherein a surface of the cord (3; 4; 5) is coated with a material which does not adhere to said material for coating the tape (2).

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