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Hooked fabric fastener tape

The present invention relates generally to surface type fasteners known as hook-and-loop fasteners, and more particularly to a fabric fastener tape carrying on its one surface a number of improved hook-shaped material engaging means.

According to a known method (FR—A—11887145), a hooked fabric fastener tape of the type described has on one of opposite surfaces of a foundation structure a number of hook-shaped material engaging elements and stems which have been produced in pair by cutting loops on the respective one leg sections thereof, the loops being made of synthetic resin monofilaments woven into the foundation structure and raising from said one surface thereof. The prior art hooked fabric fastener tape is disadvantageous in that the stems have their respective free ends disposed adjacent to and substantially confronting relation to the free ends of the corresponding hook-shaped material engaging elements. Such stems have no function to hook the cooperating loops on a mating looped fabric fastener tape, or rather hinder the loops from being introduced into hooking engagement with the hook-shaped material engaging elements as the two fasteners tapes are pressed into face-to-face contact together. As a result, the possibility of hooking between hooks and loops, i.e., the firmness of engagement of a hook-and-loop fastener decreases considerably.

According to the invention, there is provided a hooked fabric fastener tape including a foundation structure and a number of material engaging means projecting from one surface of the foundation structure and each made by cutting one loop of synthetic resin thread woven into the foundation structure, each of the loops including a pair of leg sections and a head section interconnecting the leg sections. Each of material engaging means comprises a pair of hooks, one of said hooks being larger in height than the other hook.

The present invention seeks to provide a hooked fabric fastener tape for hook-and-loop fasteners which can adhere to or engage with a mating looped fabric fastener tape with an increased degree of firmness.

The invention also seeks to provide a hooked fabric fastener tape having hook-shaped material engaging means which can hook cooperating loops of a mating looped fabric fastener tape reliably without causing mis-engagement therewith.

The invention further seeks to provide a hooked fabric fastener tape having improved hooks reliably engageable with any cooperating loops fanned apart on a mating looped fabric fastener tape.

The above and other objects, advantages and features of the present invention will become

apparent from the following purely illustrative and not limitative description of preferred embodiments taken in conjunction with the accompanying drawings, in which:

5 Figure 1 is a fragmentary diagrammatic side elevational view of a hooked fabric fastener tape according to the present invention; and

10 Figure 2 is a view similar to Figure 1, showing a modified hooked fabric fastener tape of the present invention which is brought into hooking engagement with a mating looped fabric fastener tape.

Referring now to the drawing, and more particularly to Figure 1, there is shown a hooked fabric fastener tape 10 constructed in accordance with the present invention. The hooked fabric fastener tape 10 includes a foundation structure 11 and a number of material engaging means 12 projecting from one surface of the foundation structure 11. The foundation structure 11 is constituted by weaving together a weft thread and a plurality of warp threads in a well-known manner. Each of the material engaging means 12 comprises a pair of hooks 13, 14 which have been made by cutting one loop of synthetic resin thread woven, as a plurality of axially warp threads, into the foundation structure 11 as the latter is woven, each loop including a pair of leg sections and a head section interconnecting the leg sections. The loops, hence the hooks 13, 14 are preferably made of thermoplastic monofilaments.

One of the hooks 13 of each material engaging means 12 is larger in height than the other hook 14. The one or large hook 13 is formed jointly with one of the leg sections, the head section and a portion of the other leg section which has been cut whereas the other or small hook 14 is formed with the remainder of the other or cut leg section, the free end of the remainder leg being curved to form a locking end portion 15. The locking end portion 15 of the small hook 14 curved toward the large hook 13 and directed to one of the surfaces of the foundation structure 11, thereby providing between the locking end portion 15 and the free end 16 of the large hook 13 a large opening 17 for easy reception of cooperating loops 18a, 18b of mating fabric fastener tape 19 shown by phantom lines in Figure 2. Although such small hooks 14 as illustrated are very advantageous to give the hooked fabric fastener a maximum number of hooks per unit area, they may have their respective locking end portions curved into any directions with respect to the corresponding large hooks 13.

Figure 2 shows a modified hooked fabric fastener tape 20 having material engaging means 21 each comprising a pair of hooks 22, 23 projecting from one surface of a foundation structure 24, one of the hooks 22 being larger in

height than the other hook 23. The small hooks 23 are the same as the small hooks 14 shown in Figure 1, but the large hooks 22 are different from the aforesaid large hooks 13 in that their respective free ends of locking portions 25 are curled so as to hold more securely the cooperating loops 18a, 18b in hooking engagement therewith against force tending to separate the fabric fastener tapes 19, 20. Provided between the locking end portion 25 and a locking end portion 26 of small hook 23 is an opening 27 larger than the opening 17 shown in Figure 1, the opening 27 allowing the cooperating loops 18a, 18b of the looped fabric fastener tape 19 to enter more smoothly into hooking engagement with the hooks 22, 23 as the two fastener tapes 19, 20 are pressed together.

As best shown in Figure 2, the hooked fabric fastener tape 20 (10) of the invention can adhere to or engage with the mating looped fabric fastener 19 with an increased degree of firmness through the hooking engagement between, on one hand, the large hooks 13 (22) and recumbent ones 18a of fanned-apart loops 18a, 18b and, the other hand, the small hooks 14 (23) and relatively upstanding loops 18b.

Claims

1. A hooked fabric fastener tape (10; 20) including a foundation structure (11; 24) and a number of material engaging means (12; 21) projecting from one surface of the foundation structure (11; 24) and each made by cutting one loop of synthetic resin thread woven into the foundation structure (11; 24), each of the loops including a pair of leg sections and a head section interconnecting the leg sections, characterized in that each of the material engaging means (12; 21) comprises a pair of hooks (13, 14; 22, 23); one (13; 22) of said hooks being larger in height than the other hook (14; 23).

2. A hooked fabric fastener tape according to claim 1, characterized in that said larger hook (13; 22) is formed jointly with one of said leg sections, said head section and a part of the other leg sections, said other hook (14; 23) being formed with the remainder of said other leg section.

3. A hooked fabric fastener tape according to claims 1 or 2, characterized in that said other hook (14; 23) has a locking end portion (15; 26) curved toward said larger hook (13; 22) and directed to said surface of said foundation structure (11; 24).

4. A hooked fabric fastener tape according to any preceding claim, characterized in that said large hook (22) has a curled locking end portion (25).

5. A hooked fabric fastener tape according to any preceding claim, characterized in that said hooks (13, 14; 22, 23) are formed with thermoplastic monofilaments.

Patentansprüche

1. Ein Stoffbefestigungs-Hakenband (10; 20) mit einem Grundaufbau (11; 24) und einer Anzahl Stoffbefestigungsmittel (12; 21), die von einer Oberfläche des Grundaufbaus (11, 24) vorstehen und jeweils durch Aufschneiden einer Schlinge aus Kunstharzfaserfaden gemacht sind, der in den Grundaufbau (11; 24) eingewoben ist, wobei jede Schlinge ein Paar Schenkelabschnitte und einen Kopfabschnitt enthält, der die beiden Schenkelabschnitte verbindet, dadurch gekennzeichnet, dass jedes der Stoffbefestigungsmittel (12; 21) ein Paar Haken (13, 14; 22, 23) umfasst, wobei einer (13; 22) der Haken breiter in der Höhe ist als der andere Haken (14; 23).

2. Ein Stoffbefestigungs-Hakenband gemäss Anspruch 1, dadurch gekennzeichnet, dass der genannte breitere Haken (13; 22) gemeinsam mit einem der Schenkelabschnitte, dem genannten Kopfabschnitt und einem Teil der anderen Schenkelabschnitte geformt wird und der genannte andere Haken (14; 23) aus dem Rest des genannten anderen Schenkelabschnitts geformt wird.

3. Ein Stoffbefestigungs-Hakenband gemäss Anspruch 1 oder 2, dadurch gekennzeichnet, dass dieser andere Haken (14, 23) ein Schliessendteil (15; 26) hat, das in Richtung auf den genannten breiteren Haken (13; 22) zu gekrümmt ist und der genannten Oberfläche des Grundaufbaus (11; 24) zugewandt ist.

4. Ein Stoffbefestigungs-Hakenband gemäss einem beliebigen der vorstehenden Ansprüche, dadurch, gekennzeichnet, dass dieser genannte breitere Haken (22) ein gekräuseltes Schliessendteil (25) hat.

5. Ein Stoffbefestigungs-Hakenband nach einem beliebigen der vorstehenden Ansprüche, dadurch gekennzeichnet, dass die genannten Haken (13, 14; 22, 23) aus thermoplastischen Monofilaments (selbständigen Einzelfäden) gebildet sind.

Revendications

1. Ruban (10; 20) de fixation en tissu à crochets comprenant une structure de base (11; 24) et un grand nombre de moyens d'accrochage (12; 21) faisant saillie d'une des faces de la structure de base (11; 24) et réalisé chacun par sectionnement d'une boucle d'un fil en résine synthétique tissé dans la structure de base (11; 24), chacune des boucles comprenant une paire de sections formant branches et une section formant tête reliant entre elles les sections formant branches, caractérisé par le fait que chacun des moyens d'accrochage (12; 21) comprend une paire de crochets (13, 14; 22, 23), l'un (13; 22) desdits crochets ayant une hauteur plus grande que l'autre crochet (14; 23).

2. Ruban de fixation en tissu à crochets suivant la revendication 1, caractérisé par le fait

que ledit crochet (13; 22) de plus grande hauteur est formé conjointement par une desdites sections formant branches, ladite section formant tête et une partie de l'autre desdites sections formant branches, ledit autre crochet (14, 23) étant formé par le restant de ladite autre section formant branche.

3. Ruban de fixation en tissu à crochets suivant les revendications 1 ou 2, caractérisé par le fait que ledit autre crochet (14; 23) comporte une partie terminale de verrouillage (15; 26) courbée vers ledit crochet (13; 22) de

plus grande hauteur et dirigé vers ladite face de ladite structure de base (11; 24).

4. Ruban de fixation en tissu à crochet suivant n'importe quelle revendication précédente, caractérisé par le fait que ledit crochet (22) de plus grande hauteur comporte une partie terminale de verrouillage (25) en forme de boulce.

5. Ruban de fixation en tissu à crochets suivant n'importe quelle revendication précédente, caractérisé par le fait que lesdits crochets (13, 14; 22, 23) sont formés par des monofilaments thermoplastiques.

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FIG. 1

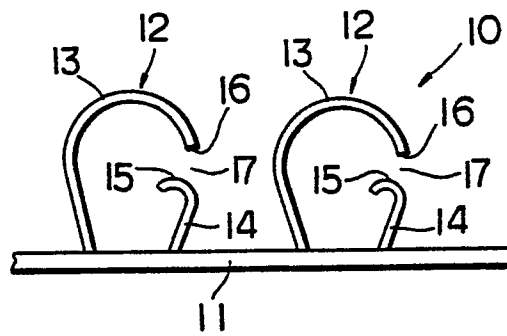


FIG. 2

