Description

The present invention relates to a loop-forming assembly in a waving machine for waving a web of surface fastener tape having a muliplicity of warp pile loops formed of loop-forming warp threads on one side thereof, said assembly comprising: a lancet unit including a plurality of parallel spaced lancets each extending forwardly between and in parallel to a corresponding adjacent pair of ground warp threads beyond a cloth fell of the machine and a leno deflector extending transverely of said lancets between the fell and a harness of the machine, and including a plurality of eyelets through which the loop-forming warp threads are threaded respectively, said deflector being kept free from the lancets and reciprocable in a substantially axial direction thereof so as to deflect the course of the loop-forming threads alternately to one side and then to the other side of corresponding lancets respectively.

A loop-forming assembly of this type is disclosed in US-A-2 896 671. In this prior art loop-forming assembly the deflector comprises a plurality of needle arms each being provided with an eyelet and being secured to a horizontal shaft. The shaft is rotatably mounted in a slide slidably connected with a machine frame. Driving means are provided to oscillate and to reciprocate the said shaft. Thus the needle arms can be moved vertically up and down as well as shifted horizontally in order to pass the warp thread over a corresponding lancet.

Because of this combined motion of the needle arms the driving means are of complex construction.

The present invention seeks to provide a loop-forming assembly which is simple in construction and which is capable of following a relatively high speed operation of a weaving machine.

According to the invention a loop-forming assembly satisfying these requirements is characterized by a gat hook unit including a plurality of pairs of spaced gate hook bars disposed immediately downstream of said leno deflector and each pair extending vertically at the opposite sides of the corresponding one of said lancets such that said gate hook bars are kept free from the respective lancets and from said leno deflector, and each pair of gate hook-bars being vertically reciprocable in timed relation to said leno deflector to thereby capture the thus laterally deflected loop-forming warp thread by one of hook portions defined thereon to lower the thread alternately at one side and then at the other side of the corresponding lancet so as to pass the thread over the latter in a staggering fashion to thereby form of the warp pile loops.

Further developments of the invention are set forth in the depending claims.

The invention will now be described in more detail with reference to an exemplifying, non-limiting embodiment thereof illustrated in the accompanying drawings, in which

Figure 1 is a schematic side elevational view, partly sectional, of primary parts of a loop-forming assembly according to one embodiment of the present invention;

Figure 2 is a schematic plan view of the assembly of Figure 1 with portions of the lancets omitted;

Figure 3 is a front elevational view of a leno deflector and a gate hook assembly both incorporated in a loop-forming assembly according to another embodiment of the invention;

Figures 4A and 4B are schematic perspective views each illustrating an individual loop-forming unit consisting of a pair of gate hook bars, a corresponding eyelet and a lancet;

Figure 5 is a vertical cross-sectional view of a surface fastener tape blank having loops formed on one side thereof with the lancets remaining therein; and

Figure 6 is a vertical cross-sectional view of a male member of the surface fastener having hooks formed thereon;

A loop-forming assembly generally designated by 10 constructed according to one embodiment of the present invention comprises a substantially comb-shaped lancet unit 11, a leno deflector 12 extending transversely of the lancet unit, and a gate hook unit 13 disposed immediately forwardly (or leftwardly as viewed in Figure 1) of the deflector. The loop-forming assembly 10 is incorporated in a weaving machine having a heddle unit or harness 14 for forming a shed of ground warp threads (not shown), a reed 15 for beating up a weft thread, and a table 16 for supporting a woven fabric F. More specifically, the loop-forming assembly 10 is located between the harness 14 and the reed 15 as shown in Figure 1.

A woven fabric produced by the weaving machine is provided with loops formed on an extra set of warp threads in the loop-forming assembly. The woven fabric referred to herein finds a particular application for a surface fastener or loop-and-hook fastener.

As better shown in Figure 2, the comb-shaped lancet unit 11 includes a support bar 17 extending transversely of the ground warp threads, and a plurality of parallel spaced lancets or bars 18 extending from the support bar 17 in between respective adjacent pairs of the ground warp threads and reaching the woven fabric F beyond a cloth fell 19. The support bar 17 is secured at opposite ends to a guide block 20.

The leno deflector 12 is disposed between the harness 14 and the read 15, and includes a pair of front and rear guide bars 21a, 21b extending in parallel with and transversely of the lancets 18. The guide bars 21a, 21b extend through the guide block 20, and are driven by a power source (not shown) via piston rods 22 connected at respective one ends of the block 20 to move substantially axially in a reciprocating manner, as shown by the arrows Y. Each guide bar has a series of eyelets 23a,23b through which loop-forming warp threads WP are threaded as shown in Figures 1 and 2. Reciprocal movement of the guide bars 21a, 21b causes the loop-forming warp threads WP received in the eyelets 23 to be deflected alternately to one side and then to the opposite side of the lancets 18. The front guide bar 21a has a plurality of eyelets 23a for receiving and deflecting a given even number group of threads WP with respect to corresponding ones of lancets 18, and the rear guide bar 21b has a plurality of eyelets 23b for receiving and deflecting an odd number group of the threads WP with respect to coresponding ones of lancets 18.

The gate hook unit 13 includes a support block 24 and a plurarity of pairs of parallel spaced gate hook bars 25a, 25b extending upwardly from the support block 24. Every gate hook bar 25a, 25b has a guide recess 26 for receiving the thread WP. The paired gate hook bars are divided into two groups, one or first group oparatively associated with the front guide bar 21a and the other or second group with the rear guide bar 21b. The first and second groups of the gate hook bars 25a, 25b are disposed downstream of the guide bar 21a, 21b respectively and each pair of the hook bars are disposed at the opposite sides of the corresponding lancet 18. Importantly, the gate hook bars 25a, 25b, the lancets 18 and the guide bars 21a, 21b, are always spaced apart one from another. The first group of the paired gate hook bars 25a is assigned for alternate ones of the lancets 18 together with the front guide bar 21a, and the other group of the paired gate hook bars 25b is assigned for the remaining ones of the lancets 18 together with the rear guide bar 21b as best shown in Figure 2. This arrangement again serves to avoid an objectionable mutual interference of the respective operative parts. The support block 24 is vertically movable to reciprocate the two groups of the gate hook bars 25a, 25b simultaneously in timed relation to the guide bars 21a, 21b, in the direction of the arrows Z.

Figure 3 shows another embodiment of the invention, in which a double units 13,13 of the gate hook bars are provided side by side to produce two parallel webs of tape at a time.

The operation of the loop-forming assembly 10 thus constructed is described hereinbelow with reference to Figs 4A, 4B in which only a single loop-forming unit of the assembly is shown for the purposes of clarity as any one of these units operates in a similar manner.

The beat-up operation of the reed 15 is followed by axial movemment of the guide bar 21a, 21b of the deflector 12 in one or rightward direction (as viewed in Figure 4A) until it reaches the position shown in Figure 4A in which the eyelet 23a has passed completely across the lancet 18 so that the loop-forming warp thread WP is deflected to one or right-hand side of the lancet 18.

The paired gate hook bars 25a are lowered to capture the thus deflected thread at the guide recess 26 of the right-hand gate hook bar 25a and move the same down to the right-hand position shown in Figure 4A below the level of the lancet 18, whereat the thread is temporarily retained to establish a shed 30 of loop-forming warp threads WP.

A weft thread WF indicated by a dot is now inserted from one edge of the fabric F through the shed 30 by means of a weft inserter 31 disposed at one selvage side of the fabric F as shown in Figure 2, and is caught by a latch needle 32 disposed at the other selvage side of the fabric F. The reed 15 is then actuated to beat up the weft thread WF, during which time the warp thread WP extending around the lancet 18 is advanced therealong past the fell 19 to be interlaced with the beaten weft thread WF, thereby forming warp pile loops P. The gate hook bars 25a then ascend to release the thread WP, and thus completing a first half cycle of the operation.

The second half cycle of the operation begins with movement of the guide bar 21a to the other or leftward direction in Figure 4B to deflect the same thread WP to left-hand side of the lancet 18 and stops the position shown in Figure 4B, whereupon the gate hook bars 25a are lowered again to capture the deflected thread at the guide recess 26 of left-hand gate hook bar 25a. Thereafter the thread WP is formed into a warp pile loop P in a similar manner to the first half cycle, and thus completing a second half cycle of and hence one cycle of the operation.

This cycle is repeated by reciprocally moving the guide bar 21a and the gate hook bars 25a in the direction of the arrows Y, Z, respectively, thereby forming a multiplicity of warp pile loops on the fabric F. During this operation, the upper and lower sets of the ground warp threads are both moved by the heddles of the harness 14 to open and close their shed (not shown) to form the fabric F jointly with the weft thread WF in a wellknown manner.

Accordingly, the fabric F serving for instance as surface fastener tape with the warp pile loops P woven thereinto is progressively formed and withdrawn forwardly away from free ends of the lancets 18 with a portion of the loops engaged by the lancets 18. Some of the thus formed loops P are loosely engaging each lancets 18 therearound as shown in Figures 1 and 5.

Figure 6 illustrates a male member or loop-carrying tape of the surface fastener including a multiplicity of hooks Q, which are formed by cutting partially away the warp pile loops P produced by the present loop-forming assembly.

Claims

1. A loop-forming assembly (10) in a weaving machine for weaving a web of surface fastener tape having a muliplicity of warp pile loops (P) formed of loop-forming warp threads on one side thereof, said assembly comprising: a lancet unit (11) including a plurality of parallel spaced lancets (18) each extending forwardly between and in parallel to a corresponding adjacent pair of ground warp threads beyond a cloth fell (19) of the machine; and a leno deflector (12) extending transversely of said lancets (18) between the fell (19) and a harness (14) of the machine, and including a plurality of eyelets (23a,23b) through which the loop-forming warp threads (WP) are threaded respectively, said deflector (12) being kept free from the lancets (18) and being reciprocable in a substantially axial direction thereof so as to deflect the course of the loop-forming threads alternately to one side and then to the other side of corresponding lancets (18) respectively; characterized by a gate hook unit (13) including a plurality of pairs of spaced gate hook bars (25a,25b) disposed immediately downstream of said leno deflector (12) and each pair extending vertically at the opposite sides of the corresponding one of said lancets such that said gate hook bars (25a,25b) are kept free from the respective lancets and from said leno deflector, and each pair of gate hook-bars being vertically reciprocable in timed relation to said leno deflector (12) to thereby capture the thus laterally deflected loop-forming warp thread (WP) by one of the hook portions (26) defined thereon to lower the thread alternately at one side and then at the other side of the corresponding lancet (18) so as to pass the thread over the latter in a staggering fashion to thereby form of the warp pile loops (P).

2. A loop-forming assembly according to claim 1, characterized in that said deflector includes a pair of front and rear guide bars (21a,21b) having two series of the eyelets (23a,23b) through which a given even number group and an odd number group of the loop-forming threads (WP) are threaded, respectively, while said gate hook unit (13) includes front and rear series of the paired gate hook bars (25a,25b) disposes at the opposite sides of the corresponding lancets (18) so that said front guide bars (21a) and said front series of the paired gate bars (25a) cooperatively work to pass said even number group of the threads over the corresponding lancets, and said rear guide bars (21b) and said rear series of the paired gate hook bars (25b) cooperatively work to pass said odd number group of the threads over the corresponding lancets.

3. A loop-forming assembly according to claim 2, characterized in that said front and rear guide bars (21a,21b) are actuated to move at a time in the same direction.

4. A loop-forming assembly according to claim 1, characterized in that all of said gate hook bars (25a,25b) are connected to an unitary support block (24) adapted to be actuated by a drive means.

5. A loop-forming assembly according to claim 2, characterized in that all of said gate hook bars (25a,25b) are connected to an unitary support block (24) adapted to be actuated by a drive means.

6. A loop-forming assembly according to claim 2, characterized in that the loop-forming warp threads (WP) are devided into two sets, said front and rear guide bars (21a,21b) each having first and second series of said eyelets (23a,23b) for guidely receiving said two sets of the threads respectively, and each of said front and rear series of said paired gate hook bars (25a,25b) being also divided into first and second groups (13,13), such that said first series of eyelets and said first group of gate hook bars cooperatively work on one set of the threads, and such that said second series of eyelets and said second group of gate hook bars cooperatively work on the other set of the threads, thus forming two webs of surface fastener tapes (P) at a time in a juxtaposed relationship.

7. A loop-forming assembly according to claim 1, characterized in that each of said hook portions is in the form of a recess (26) formed on the respective gate hook bar (25a,25b).

Accordingly, the fabric F serving for instance as surface fastener tape with the warp pile loops P woven thereinto is progressively formed and withdrawn forwardly away from free ends of the lancets 18 with a portion of the loops engaged by the lancets 18. Some of the thus formed loops P are loosely engaging each lancets 18 therearound as shown in Figures 1 and 5.

Figure 6 illustrates a male member or loop-carrying tape of the surface fastener including a multiplicity of hooks Q, which are formed by cutting partially away the warp pile loops P produced by the present loop-forming assembly.

Claims

1. A loop-forming assembly (10) in a weaving machine for weaving a web of surface fastener tape having a muliplicity of warp pile loops (P) formed of loop-forming warp threads on one side thereof, said assembly comprising: a lancet unit (11) including a plurality of parallel spaced lancets (18) each extending forwardly between and in parallel to a corresponding adjacent pair of ground warp threads beyond a cloth fell (19) of the machine; and a leno deflector (12) extending transversely of said lancets (18) between the fell (19) and a harness (14) of the machine, and including a plurality of eyelets (23a,23b) through which the loop-forming warp threads (WP) are threaded respectively, said deflector (12) being kept free from the lancets (18) and being reciprocable in a substantially axial direction thereof so as to deflect the course of the loop-forming threads alternately to one side and then to the other side of corresponding lancets (18) respectively; characterized by a gate hook unit (13) including a plurality of pairs of spaced gate hook bars (25a,25b) disposed immediately downstream of said leno deflector (12) and each pair extending vertically at the opposite sides of the corresponding one of said lancets such that said gate hook bars (25a,25b) are kept free from the respective lancets and from said leno deflector, and each pair of gate hook-bars being vertically reciprocable in timed relation to said leno deflector (12) to thereby capture the thus laterally deflected loop-forming warp thread (WP) by one of the hook portions (26) defined thereon to lower the thread alternately at one side and then at the other side of the corresponding lancet (18) so as to pass the thread over the latter in a staggering fashion to thereby form of the warp pile loops (P).

2. A loop-forming assembly according to claim 1, characterized in that said deflector includes a pair of front and rear guide bars (21a,21b) having two series of the eyelets (23a,23b) through which a given even number group and an odd number group of the loop-forming threads (WP) are threaded, respectively, while said gate hook unit (13) includes front and rear series of the paired gate hook bars (25a,25b) disposes at the opposite sides of the correspondng lancets (18) so that said front guide bars (21a) and said front series of the paired gate bars (25a) cooperatively work to pass said even number group of the threads over the corresponding lancets, and said rear guide bars (21b) and said rear series of the paired gate hook bars (25b) cooperatively work to pass said odd number group of the threads over the corresponding lancets.

3. A loop-forming assembly according to claim 2, characterized in that said front and rear guide bars (21a,21b) are actuated to move at a time in the same direction.

4. A loop-forming assembly according to claim 1, characterized in that all of said gate hook bars (25a,25b) are connected to an unitary support block (24) adapted to be actuated by a drive means.

5. A loop-forming assembly according to claim 2, characterized in that all of said gate hook bars (25a,25b) are connected to an unitary support block (24) adapted to be actuated by a drive means.

6. A loop-forming assembly according to claim 2, characterized in that the loop-forming warp threads (WP) are devided into two sets, said front and rear guide bars (21a,21b) each having first and second series of said eyelets (23a,23b) for guidely receiving said two sets of the threads respectively, and each of said front and rear series of said paired gate hook bars (25a,25b) being also divided into first and second groups (13,13), such that said first series of eyelets and said first group of gate hook bars cooperatively work on one set of the threads, and such that said second series of eyelets and said second group of gate hook bars cooperatively work on the other set of the threads, thus forming two webs of surface fastener tapes (P) at a time in a juxtaposed relationship.

7. A loop-forming assembly according to claim 1, characterized in that each of said hook portions is in the form of a recess (26) formed on the respective gate hook bar (25a,25b).

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Patentansprüche

1. Vorrichtung (10) zur Bildung von Kettenflorgewebe in einer Webmaschine zum Weben eines Bandes eines Oberflächenhaftverschlusses, das auf einer Seite eine Vielzahl von aus Florschlingen bildenden Kettfaden gebildete Florschlingen (P) aufweist, umfassend: eine Lanzetteneinheit (11) mit einer Vielzahl von im Abstand parallel angeordneten Lanzetten (18), die sich jeweils zwischen und parallel zu einem entsprechenden benachbarten Paar von Grundkettfäden nach vorne über einen Warenschluß (19) der Maschine hinaus erstrecken; und
eine Ablenkeinrichtung (eng. "leno deflector") (12) die sich quer zu den Lanzetten (18) zwischen dem Warenschluß (19) und einem Schaftrahmen (14) der Maschine erstreckt und eine Vielzahl von Ösen (23a, 23b) aufweist, durch die die Florschlingen bildenden Kettfaden (WP) laufen, wobei die Ablenkeinrichtung (12) im Abstand gehalten und in einer im wesentlichen axialen Richtung zu sich hin- und herbewegbar ist, um den Lauf der Florschlingen bildenden Kettfäden abwechselnd nach einer und sodann nach der anderen Seite der zugeordneten Lanzetten (18) abzulenken; **gekennzeichnet** durch eine Auslenkhakeneinheit (13) mit mehreren Paaren aus beabstandeten Auslenkhakenstangen (25a, 25b), die unmittelbar stromabwärts von der Ablenkeinrichtung (12) angeordnet sind, wobei sich jedes Paar auf gegenüberliegenden Seiten der zugeordneten Lanzette vertikal erstreckt, so daß diese Auslenkhakenstangen (25a, 25b) von den zugeordneten Lanzetten und von der Ablenkeinrichtung im Abstand gehalten sind, wobei jedes Paar Auslenkhakenstangen synchron zu der Ablenkeinrichtung (12) vertikal auf und abbewegbar ist, um dadurch den auf diese Weise seitlich abgelenkten Florschlingen bildenden Kettfaden (WP) mit einer an denselben ausgebildeten Führungskerbe (26) zu erfassen, um den Faden abwechselnd an einer Seite und sodann an der anderen Seite der zugeordneten Lanzette (18) nach unten zu bewegen, um den Faden in gestaffelter Weise über dieselbe hinweg zu bewegen und dadurch die Florschlingen (P) zu bilden.

2. Vorrichtung zur Bildung von Kettenflorgewebe nach Anspruch 1, dadurch **gekennzeichnet**, daß die Ablenkeinrichtung ein Paar vorderer und hinterer Führungsstangen (21a, 21b) umfaßt, die zwei Serien von Ösen (23a, 23b) aufweisen, durch die eine bestimmte geradzahlige Gruppe und eine ungeradzahlige Gruppe der Florschlingen bildenden Kettfäden (WP) verläuft, während die Auslenkhakeneinheit (13) eine vordere und eine hintere Serie von paarweisen Auslenkhakenstangen (25a, 25b) umfaßt, die auf gegenüberliegenden Seiten der zugeordneten Lanzetten (18) angeordnet sind, so daß die vordere Führungsstange (21a) und die vordere Serie der paarweisen Auslenkhakenstangen (25a) zusammenwirken, um die geradzahlige Gruppe von Fäden über die zugeordneten Lanzetten hinwegzuführen, und wobei die hintere Führungsstange (21b) und die hintere Serie von paarweisen Auslenkhakenstangen (25b) zusammenwirken, um die ungeradzahlige Gruppe von Fäden über die zugeordneten Lanzetten hinwegzuführen.

3. Vorrichtung zur Bildung von Kettenflorgewebe nach Anspruch 2, dadurch **gekennzeichnet**, daß die vordere und die hintere Führungsstange (21a, 21b) zu einer gleichgerichteten Bewegung betätigt werden.

4. Vorrichtung zur Bildung von Kettenflorgewebe nach Anspruch 1, dadurch **gekennzeichnet**, daß alle Auslenkhakenstangen (25a, 25b) mit einem einstückigen Stützblock (24) verbunden sind, der von einer Antriebseinrichtung betätigbar ist.

5. Vorrichtung zur Bildung von Kettenflorgewebe nach Anspruch 2, dadurch **gekennzeichnet**, daß alle Auslenkhakenstangen (25a, 25b) mit einem einstückigen Stützblock (24) verbunden sind, der von einer Antriebseinrichtung betätigbar ist.

6. Vorrichtung zur Bildung von Kettenflorgewebe nach Anspruch 2, dadurch **gekennzeichnet**, daß die Florschlingen bildenden Kettfaden (WP) in zwei Gruppen unterteilt sind, wobei die vordere und die hintere Führungsstange (21a, 21b) jeweils eine erste und zweite Serie von Ösen (23a, 23b) zum Führen der zwei Gruppen von Fäden aufweist, und wobei jede vordere und hintere Serie der paarweisen Auslenkhakenstangen (25a, 25b) ebenfalls in erste und zweite Gruppen (13, 13) unterteilt ist, so daß die erste Serie von Ösen und die erste Gruppe von Auslenkhakenstangen gemeinsam auf eine Gruppe der Fäden einwirken, und die zweite Serie von Ösen und die zweite Gruppe von Auslenkhakenstangen gemeinsam auf die andere Gruppe von Fäden einwirken, wodurch gleichzeitig zwei nebeneinanderliegende Bänder eines Flächenhaftverschlusses (P) gebildet werden.

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7. Vorrichtung zur Bildung von Kettenflorgewebe nach Anspruch 1, dadurch **gekennzeichnet**, daß jeder der besagten Hakenbereiche von einer in der betreffenden Auslenkhakenstange (25a, 25b) angeordneten Kerbe (26) gebildet ist.

Revendications

1. Agencement (10) pour la formation de boucles dans un métier à tisser destiné à tisser une bande de ruban de fermeture de surface comportant une multiplicité de boucles de poils de chaîne (P), formées par des fils de chaîne disposés en boucle sur l'un des côtés de celle-ci, ledit agencement constitué d'un ensemble (11) de lancettes comprenant une pluralité de lancettes (18) parallèlement espacées dont chacune s'étend vers l'avant entre une paire de fils de chaîne correspondante voisine, et parallèlement à ceux-ci, au-delà de la ligne de serrage de duite (19) du tissu de la machine ; et un élément de déviation de la gaze s'étendant transversalement auxdites lancettes (18) entre la ligne de serrage de duite (19) du tissu et une lisse (14) de la machine, et comportant une pluralité d'oeillets (23a, 23b) dans lesquels sont respectivement enfilés les fils de chaîne (WP) servant à former les boucles, ledit élément de déviation (12) étant maintenu à l'écart des lancettes (18) et pouvant être déplacé en mouvement de va-et-vient sensiblement dans sa direction axiale de façon à dévier la course des fils servant à former des boucles en alternance d'un côté, puis de l'autre côtés des lancettes (18) correspondantes ; caractérisé par une unité de griffes (13) de déviation comportant une pluralité de paires de barres à griffe de déviation (25a, 25b) disposées immédiatement en aval dudit élément de déviation de la gorge (12) et chaque paire s'étendant verticalement sur les côtés opposés de la lancette correspondante de façon telle que lesdites barres à griffe de déviation (25a, 25b) soient maintenus à distance des lancettes respectives et dudit élément de déviation de la gaze, et chaque paire de barres à griffe de déviation pouvant être mise en va-et-vient en synchronisme avec ledit élément de déviation de la gaze (12) afin, de ce fait, de saisir le fil de chaîne (WP) destiné à former une boucle qui se trouve ainsi dévié latéralement grâce l'une des parties (26) formant griffe de celle-ci définie sur celle-ci en vue d'abaisser le fil alternativement d'un côté, puis de l'autre côté de la lancette correspondante (18) de manière à faire passer le fil au-dessus de celle-ci de façon alternée afin de réaliser les boucles (P) de poil de chaîne.

2. Agencement de formation de boucles selon la revendication 1, caractérisé en ce que ledit élément de déviation comporte une paire de tiges de guidage avant et arrière (21a, 21b) comportant deux séries d'oeillets (23a, 23b) dans lesquels un groupe constitué par un nombre pair de fils de chaîne (WP) pour la formation de boucles, et un groupe constitué par un nombre impair de fils de chaîne (WP) pour la formation de boucles, sont respectivement enfilés, tandis que ladite unité (13) de déviation comprend des séries avant et arrière de barres à griffe (25a, 25b) de déviation formant des paires, disposées sur les côtés opposés des lancettes (18) correspondantes si bien que lesdites tiges de guidage avant (21a) et lesdites séries avant de barres à griffe (25a) formant des paires coopèrent entre elles pour faire passer ledit groupe formant un nombre pair de fils au-dessus des lancettes correspondantes et lesdites tiges (21b) de guidage arrière et lesdites séries arrière de barres à griffe (25b) de déviation disposées par paires coopèrent entre elles pour faire passer ledit groupe formant un nombre impair de fils au-dessus des lancettes correspondantes.

3. Agencement pour la formation de boucles selon la revendication 2, caractérisé en ce que lesdites tiges de guidage (21a, 21b) avant et arrière sont actionnées afin d'être déplacées en même temps dans la même direction.

4. Agencement pour la formation de boucles selon la revendication 1, caractérisé en ce que toutes lesdites barres à griffe (25a, 25b) de déviation sont reliées à un bloc de support unique (24) adapté pour être entraîné par un moyen d'entraînement.

5. Agencement pour la formation de boucles selon la revendication 2, caractérisé en ce que toutes lesdites barres à griffe (25a, 25b) de déviation sont reliés à un bloc de support (24) unique adapté pour être actionné par un moyen d'entraînement.

6. Agencement pour la formation de boucles selon la revendication 2, caractérisé en ce que les fils de chaîne (WP) servant à la formation de boucles sont divisés en deux jeux, lesdites tiges de guidage avant et arrière (21a, 21b) comportant chacune une première et une seconde série desdits oeillets (23a, 23b) en vue de recevoir en les guidant les deux jeux respectifs de fils, et chacune desdites séries

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avant et arrière desdites barres à griffe (25a, 25b) de déviation disposés par paires étant également divisées en un premier et un second groupe (13, 13) de façon telle que ladite première série d'oeillets et ledit premier groupe de barres à griffe de déviation travaillent ensemble sur un des jeux de fils, et de façon telle que ladite seconde série d'oeillets et ledit second groupe de barres de déviation travaillent ensemble sur l'autre jeu de fils, en formant ainsi en même temps deux bandes de rubans (P) de fermetures de surface, de façon juxtaposée.

7. Agencement pour la formation de boucles selon la revendication 1, caractérisé en ce que chacune desdites parties formant griffe a la forme d'un évidement (26) formé sur la barre à tige (25a, 25b) de déviation respective.