March 3, 1964 J. A. HENDLEY 3,123,103

MEANS FOR WEAVING A PRE-FORMED SLIDE FASTENER FILAMENT TO A TAPE

Filed Aug. 28, 1962 6 Sheets-Sheet 1

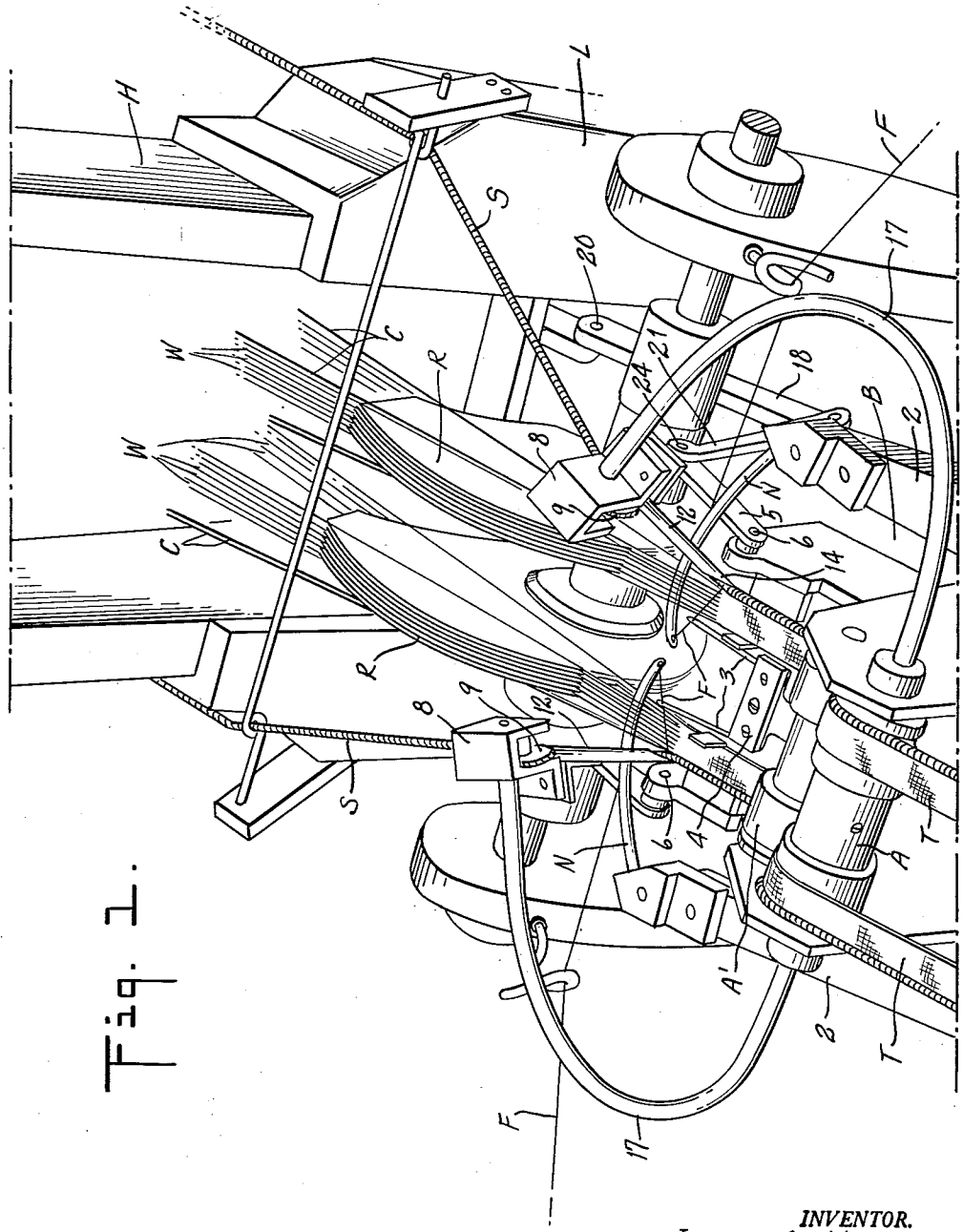


Fig. 1.

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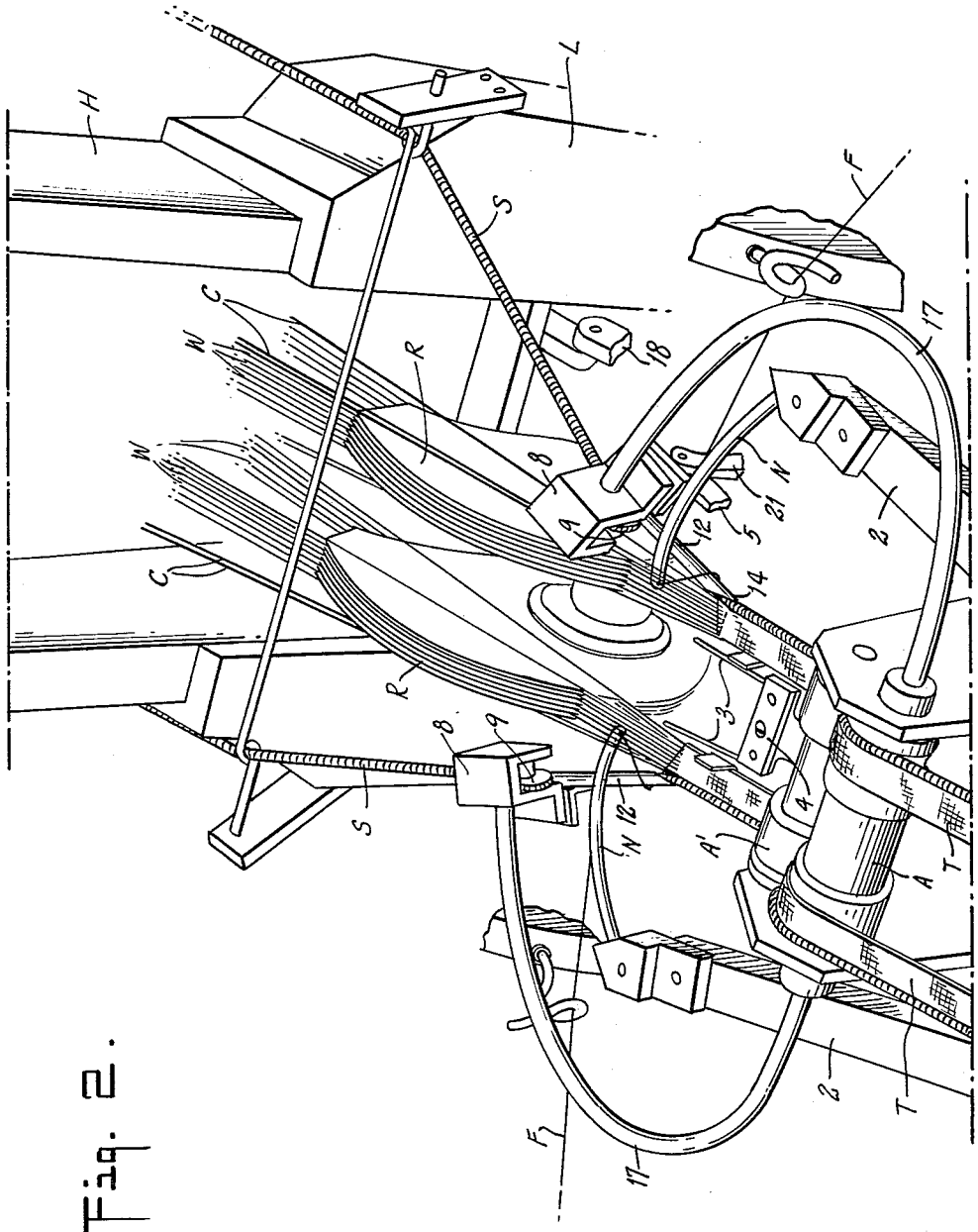


Fig. 2.

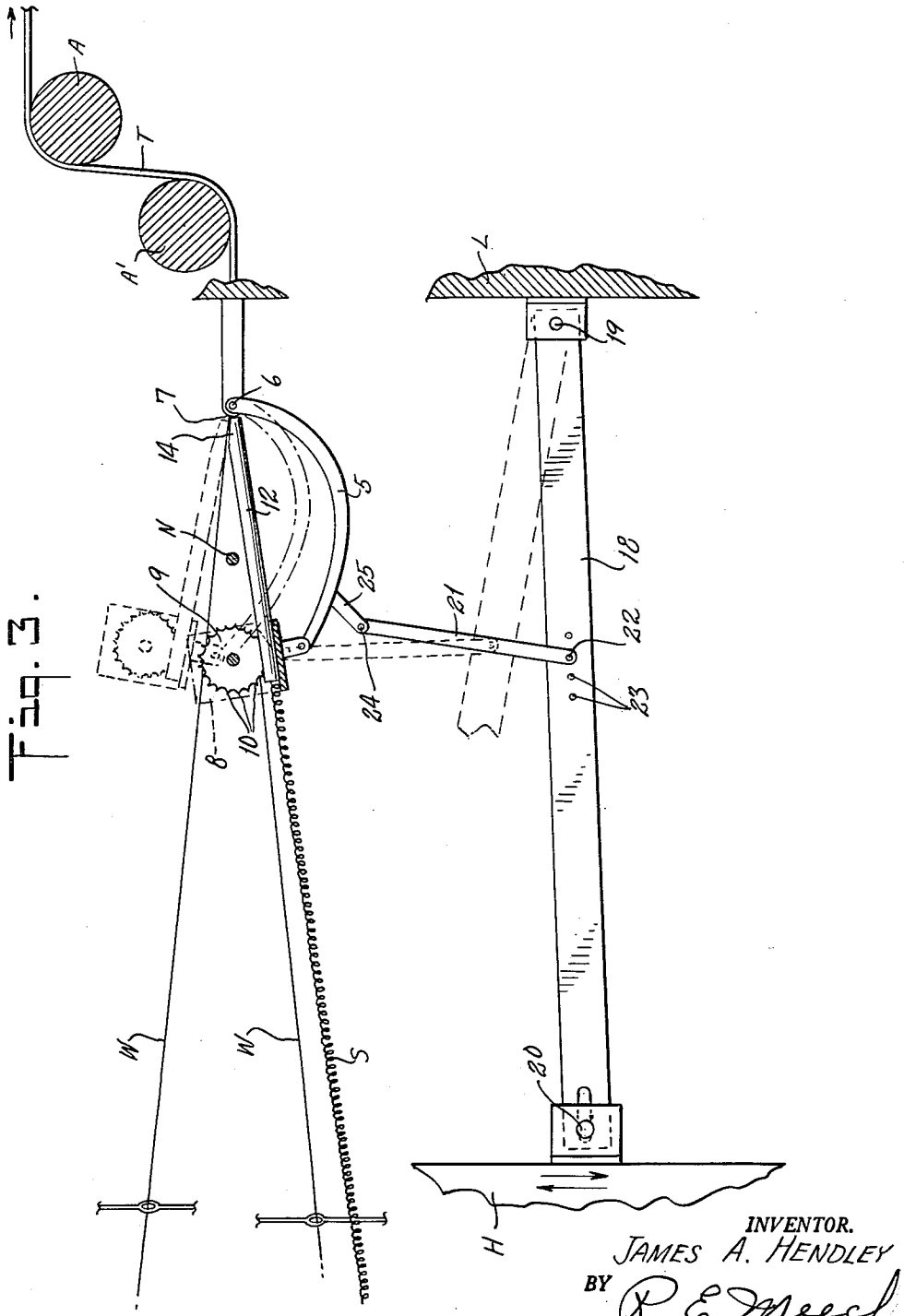
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MEANS FOR WEAVING A PRE-FORMED SLIDE FASTENER FILAMENT TO A TAPE

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Fig. 3.



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MEANS FOR WEAVING A PRE-FORMED SLIDE FASTENER FILAMENT TO A TAPE

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Fig. 4.

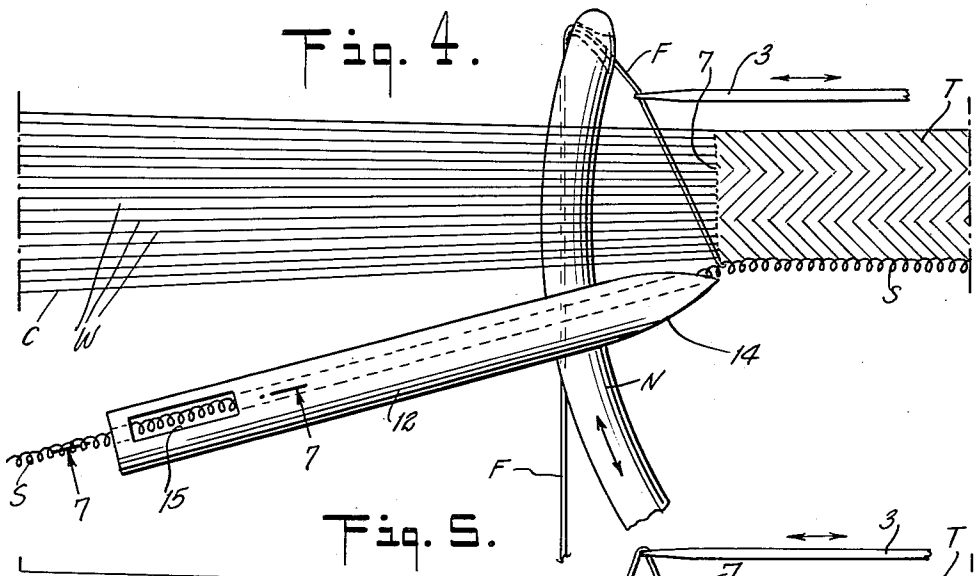
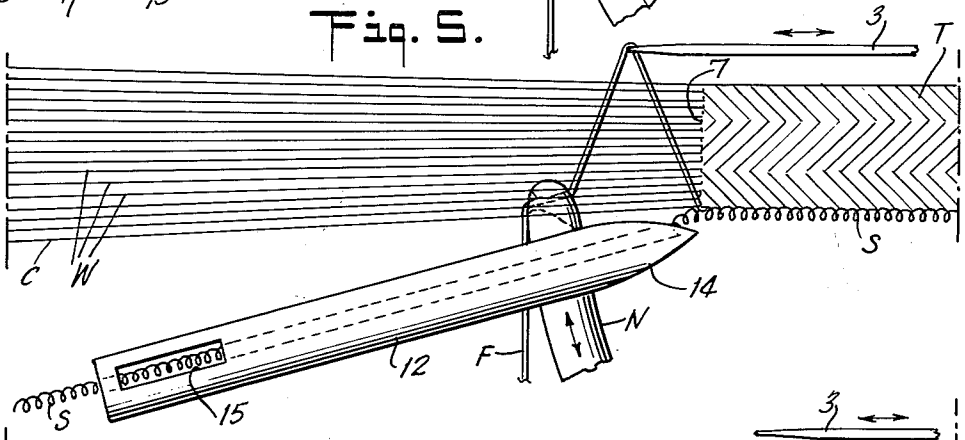


Fig. 5.



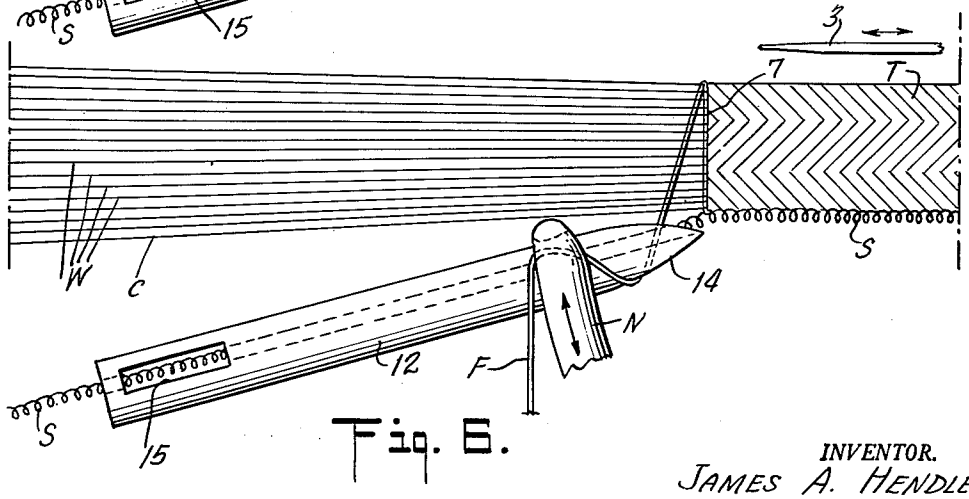


Fig. 6.

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MEANS FOR WEAVING A PRE-FORMED SLIDE FASTENER FILAMENT TO A TAPE

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Fig. 7.

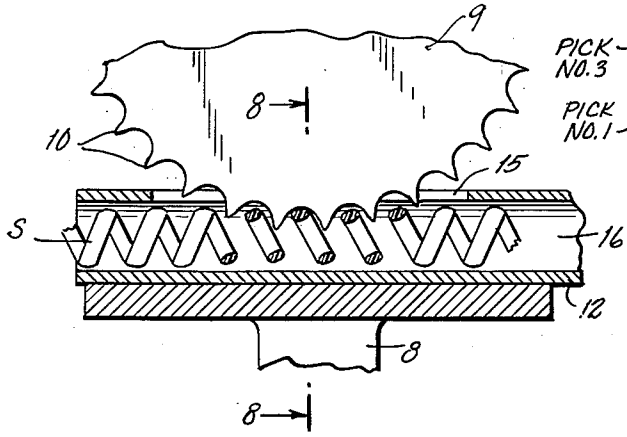


Fig. 9.

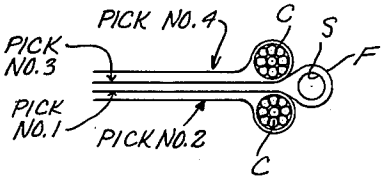


Fig. 10.

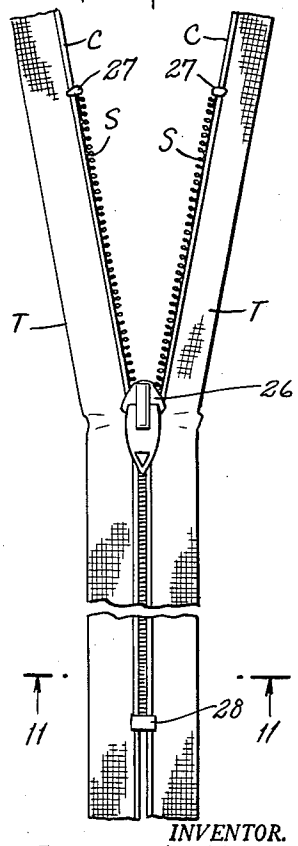


Fig. 8.

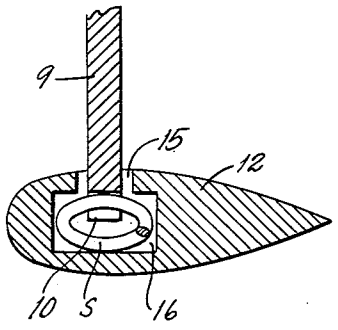
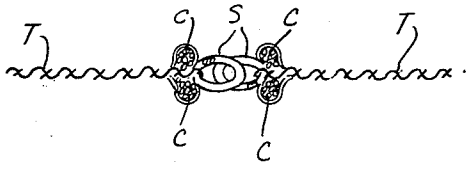


Fig. 11.



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MEANS FOR WEAVING A PRE-FORMED SLIDE FASTENER FILAMENT TO A TAPE

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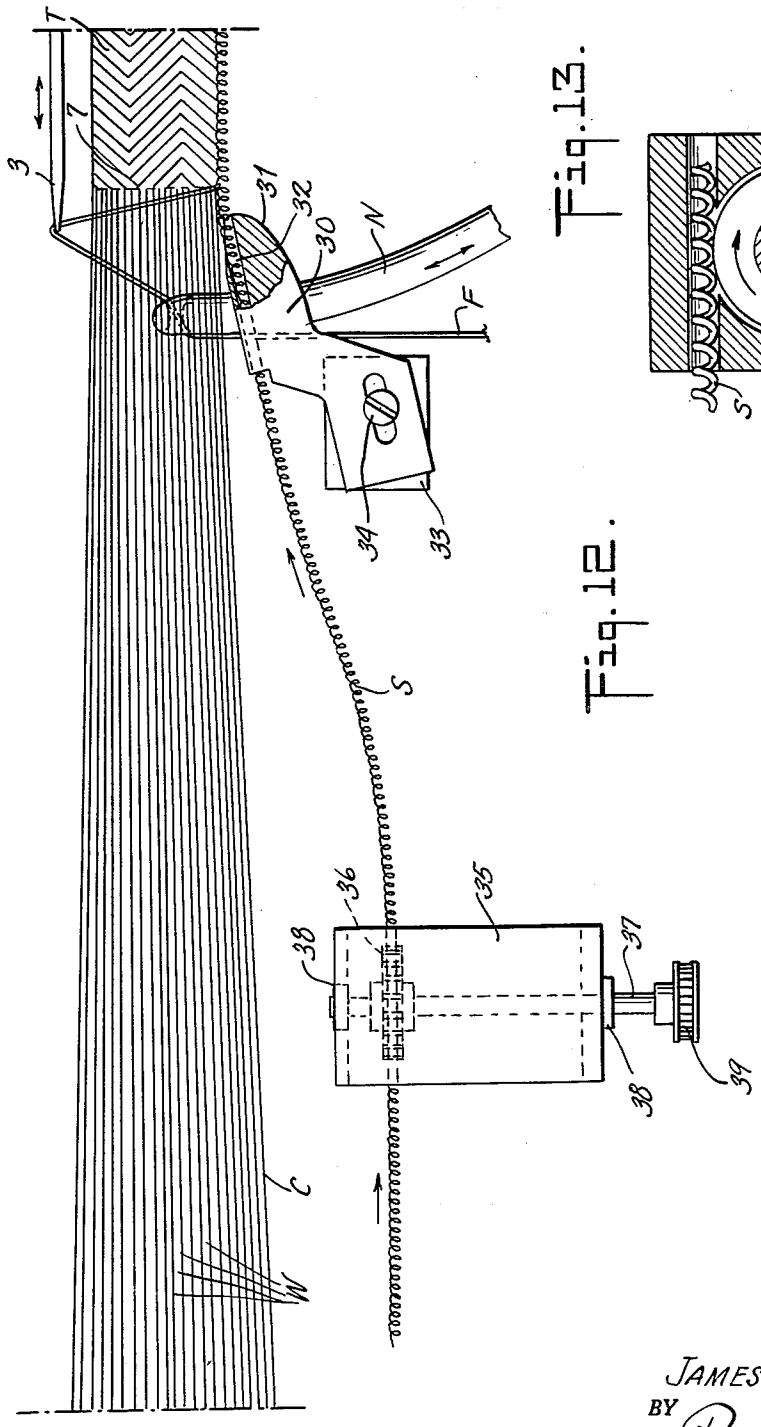


Fig. 12.

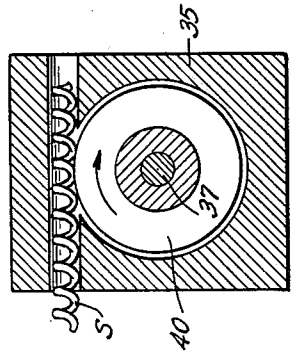


Fig. 13.

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United States Patent Office

3,123,103

Patented Mar. 3, 1964

3,123,103

MEANS FOR WEAVING A PRE-FORMED SLIDE FASTENER FILAMENT TO A TAPE

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Filed Aug. 23, 1962, Ser. No. 220,091

24 Claims. (Cl. 139—11)

This invention relates to the manufacture of stringers for slide fasteners of the type having a pre-formed interlocking fastener filament arranged along the edge of a tape, and more particularly, to a new and improved means of weaving the filament into the edge of the tape simultaneously with the weaving thereof on a needle or shuttleless loom.

This application is a continuation-in-part of my pending patent application Serial No. 18,905, filed March 31, 1960, now abandoned, entitled "Means For Weaving a Pre-formed Slide Fastener Filament to a Tape."

Heretofore, it has been the general practice in making slide fasteners of this type to provide a pre-formed fastener filament, such as a continuous spiral filament, sew it to the edge of the tape and then sew one or more cords to the tape therealong, usually one on each side thereof, on or adjacent the filament so as to provide a finished fastener stringer which cords act as means for guiding the slider therealong in its movement to engage and disengage the opposed filaments on the edges of the opposed stringers. Such a practice is not only tedious and laborious but it necessitates expensive and time consuming operations and often-times results in an unsatisfactory product. According to the present invention, these sewing operations are eliminated and the pre-formed fastener filament is woven into the edge of the tape simultaneously with the weaving thereof which is a decided advantage.

While devices for weaving such a fastener filament into the edge of the tape have been heretofore suggested, they were never used commercially as they were impractical and did not produce a satisfactory and acceptable product. In weaving a pre-formed fastener filament, which is generally made of a plastic material such as nylon and the like into the edge of a tape it is important that the filament which is usually flimsy and limp be delivered to the edge of the tape directly at the fell and woven thereinto in its natural state, i.e., free of tension, or otherwise the pre-formed interlocking portions of the fastener filament might become distorted and deformed and an unsatisfactory product results. It is to a means for delivering and guiding the preformed fastener filament to the edge of the tape directly at the weaving operation in such natural pre-formed state and weaving it therein so as to provide an acceptable and satisfactory product that the present invention relates.

Accordingly, it is the general object of the present invention to provide, in combination with a needle loom, an improved mechanism or means for weaving a pre-formed interlocking fastener filament into the edge of a tape simultaneously with the weaving thereof so as to provide a complete fastener stringer.

It is another object of the invention to provide an improved means for weaving a pre-formed fastener filament into the edge of a tape simultaneously with the weaving thereof which assures that the filament will be properly woven thereinto without distortion so as to provide a satisfactory stringer and product.

It is a further object of this invention to provide such a means which is simple and efficient in its operation and which can be conveniently and inexpensively incorporated with conventional needle looms.

Various other objects and advantages of this invention will be more apparent in the course of the following specification, and will be particularly pointed out in the appended claims.

In the accompanying drawings, there is shown for the purpose of illustration, an embodiment which my invention may assume in practice.

In these drawings:

FIG. 1 is a perspective view of the forward part of a needle loom as seen from the front looking diagonally rearwardly with which one embodiment of the improvement of the preset invention is shown incorporated and with the weft needles shown extending into and through the shed in their protracted position.

FIG. 2 is a perspective view of the forward part of a needle loom, similar to FIG. 1, showing the position the weft needles assume as they are just entering the shed,

FIG. 3 is a side elevational view of the operating mechanism for guiding and delivering the pre-formed filament to fell of the tape,

FIGS. 4 to 6 are enlarged diagrammatic plan views showing the action of one of the weft needles,

FIG. 7 is an enlarged sectional view taken on line 7—7 of FIG. 3,

FIG. 8 is a sectional view taken on line 8—8 of FIG. 7,

FIG. 9 is an enlarged cross sectional view of one of the tapes showing the filament woven into the beaded edge thereof.

FIG. 10 is a plan view of a completed fastener,

FIG. 11 is a sectional view taken on line 11—11 of FIG. 10,

FIG. 12 is a fragmentary plan view of another embodiment of the present invention showing the weft needle, partly in section, extending into the shed below the guide finger, and

FIG. 13 is a cross sectional view of a modified form of mechanism for feeding and delivering the fastener filament into the loom.

Referring more particularly to the drawings, there is shown in FIGS. 1 and 2, a needle loom generally of the type and construction shown and described in the patent to R. G. Turner, No. 2,902,057, dated September 1, 1959, and, accordingly, a detailed description and operation of such a loom will not be described herein, but merely a general description thereof will be given as the loom constitutes no part of the present invention. Reference can be made to the aforesaid patent for a more detailed description. In such a loom, the loom frame L includes a table or bed B supported on legs (not shown) and extending upwardly at the rear end thereof are posts which support a warp creel, yarn cones and thread guides (all of which are not shown). The warp threads, designated generally as W, lead from the creel to a delivery drum (not shown) and thence forwardly to a warp stop motion (not shown). The harness or shedding mechanism is suitably supported on the table in harness frames H. Forwardly of the harness frames H, is a rotary reed R and in front of the latter is a weft laying mechanism including a pair of oppositely disposed laterally actuated weft needles N for laying the weft or filler thread F in the respective sheds. In the front of the table, there is mounted thereon take-up mechanism including cooperating take-up or advancing rolls A and A^1 which advance the woven tape T and deliver it from the loom. The driving means for the various mechanisms is not shown but it will be understood any suitable means may be provided.

It will be seen that the loom is adapted for weaving two tapes T and in side-by-side relation so as to provide a more efficient weaving operation and, consequently, to weave simultaneously two fastener stringers by means of improvements added to the loom which are the subject matter of the present invention and which will be

described in detail hereinafter. The mechanism for weaving the tape or stringer on each side of the loom is identical and operate in unison. Accordingly, the mechanism for weaving one tape will be described.

The weft or filling needle N is attached securely to the outer end of an oscillating arm 2 with the inner end of this arm being attached to a rotatable shaft (not shown) for actuating the same so as to move the outer end of needles N into and out of the shed for laying the weft or filling thread F therein in a well known manner. There is provided selvage mechanism on the inner side of the tape, utilizing a knitting needle 3, preferably a latch type needle, which is mounted on a reciprocating carrier member 4.

Having described the general construction of the weaving mechanism of the loom, the improvement thereto in accordance with the present invention will now be described. As more clearly shown in FIG. 3 of the drawings, there is provided an oscillating member 5 having one end thereof pivotally attached to the frame of the loom, as at 6, adjacent the fell 7 of the tape. On the opposite free end of this arcuated member 5, there is mounted a substantially inverted U-shaped bracket 8 in which there is rotatably mounted in suitable bearings therein, preferably a rotatable toothed member or wheel 9 having evenly spaced teeth 10 arranged around the periphery thereof similar to a sprocket.

There is provided an elongated open-ended tubular member 12 having its forward end securely affixed to the bracket 8 with the outer pointed end thereof terminating adjacent the fell of the tape. It will be seen that this tubular member 12 is positioned along side of shed and the warps W. It is the purpose of this tubular member to guide and deliver the pre-formed fastener filament S to the edge of the tape at a point adjacent the fell where it is woven into the edge of the tape in a manner hereinafter to be described. The forward end of this tubular member is preferably tapered toward the forward end on the outer side thereof, as at 14. In the rearward end portion of the tubular member 12, there is arranged in the upper side thereof, preferably a slotted opening 15 which opens into the elongated open-ended passageway 16 in the tubular member. Incidentally, this passageway 16 extending throughout the tubular member may be of any desired cross section to conform to the fastener filament adapted to be passed and guided therethrough. As more clearly shown in FIGS. 7 and 8, the periphery and teeth 10 of the rotatable wheel 9 extend through this slot 15 and into the opening 16 of tubular member so as to engage with and move the filament along the tubular member upon rotation of the wheel 9.

This rotatable wheel 9 is driven by a flexible cable 17 having one end thereof attached to the wheel and with the outer end attached to the driven take-up or advancing roll A, as more clearly shown in FIGS. 1 and 2. Thus, it will be seen that this toothed wheel 9 will be driven in timed relation with the take-up or advancing roll A.

Below the arcuated member 5, there is positioned an elongated lever 18 having one end thereof pivotally attached to the loom frame, as at 19, with the opposite end preferably pivotally attached to the innermost harness from H, as at 20. Centrally of this lever 18, there is provided an upwardly extending lever 21 having the lower end thereof pivotally attached, as at 22, to any one of a series of holes 23 arranged in the lever 18 intermediate the length thereof. The upper end of this lever 21 is pivotally attached, as at 24, preferably to the outer end of an extension 25 carried by the arcuated member 5 on the lower side thereof.

As shown in FIGS. 1 and 2 of the drawings, there is provided in the present instance a pair of cords C and these cords and the filament S are woven into the edge of the tape in the following manner. It will be understood that while a pair of cords are shown one or more than two cords may be employed, if desired. It will be

assumed that the loom is in operation with the take-up or advancing rolls A and A^1 rotating so as to pull the tape or stringer T together with wraps W and cords C through the loom and with the harness frames H being actuated to change the shed and the arms 2 in oscillation so as to move the weft needles N into and out the shed to weave the tape in a manner well known to those skilled in the art. The toothed wheel 9 is likewise being rotated by the action of the flexible cable 17 due to the rotation of the take-up advancing roll A to which it is connected. As the loom is now in operation the warps W together with the pair of cords C at the outer side thereof, which together form a beaded edge, pass into and through the loom. The pre-formed filament S, which is delivered from a suitable source of supply (not shown), is fed into and through the tubular guide member 12 to the edge of the tape at the fell 7 to a point adjacent the two cords C.

As the weft needle N is moved into and through the shed a double pick of the weft thread F is layed therein. As shown in FIG. 9, the first pick passes around the filament S, into and through the shed, the second pick passes around the bottom cord C, the third pick again passes around the filament S and the fourth pick passes around the other or top cord C. This weaving cycle is repeated throughout the weaving of the tape or stringer.

As the shed changes due to the action of the harnesses or shedding mechanism, it will be understood that the angular position of the tubular member 12 will also change from the position as shown in the full lines of FIG. 3 to the position shown in the broken lines of this figure, and vice versa, due to the oscillating movement of the member 5 which is connected to lever 21 which in turn is connected to lever 18, this latter lever being actuated by the harness frame H. The position of the tubular member 12 is so changed so as to permit the weft needle N together with the weft thread F carried thereby to pass into the shed over the top of the tubular guide member 12 in one movement of the needle into the shed and to pass under the tubular member when the shed is changed and in the next movement of the needle into the shed.

When the first and third picks of the weft thread F, as shown in FIG. 9, are adapted to be positioned around the filament S, a loop of the weft thread F will be disposed around the tubular member 12 due to the position change thereof, as above described, adjacent the tapered end 14 thereof, as shown in FIGS. 2 and 4 of the drawings, and upon further movement of the needle into the shed this loop of the weft is pulled off the pointed end of the tubular member and slides into place around the filament at the fell of the tape. It will be seen that such an arrangement assures that the weft will engage properly the filament and tie it securely into the edge of the tape at the fell which is one of the most important aspects of the present invention. It will be understood that the knitting needle 3 grasps each lay of the weft thread F on the inner side of the warps W so as to weave a selvage edge on that side of the tape in a well known manner.

In FIG. 12 of the drawings, there is shown a slight modification of the improvement of the present invention. In this construction, there is provided a relatively flat guide finger or member 30 for guiding the filament S along the side of the warps W with the outer end terminating adjacent the fell 7 of the tape in a manner similar to that of the tubular member 12 in the embodiment previously described. The outer side of the guide finger 30 is preferably arcuated or tapered, as at 31, at the outer end thereof so as to permit the weft thread F to slide thereover and off the end thereof, as above described. Along the inner edge of this guide finger, there is provided an elongated open ended passageway 32 into and through which the filament S is guided to the fell of the tape. This guide finger 30, like the

tubular member 12, is also mounted on an oscillating bracket 33 by means of an adjusting screw 34 and which bracket is oscillated when the shed is changed in a manner similar to that of the tubular member 30 by any suitable mechanism (not shown).

Forwardly of the guide finger 30, there is arranged in a stationary bracket 35 which may be attached to the frame of the loom in any suitable manner, a rotatable toothed wheel 36, similar to the toothed wheel 9 in the embodiment previously described, and it will be understood that it is the purpose of this toothed wheel 36 to move the filament S along and deliver it to the passageway 32 in the guide finger 30. This toothed wheel 36 is securely mounted on a rotatable shaft 37 which in turn is mounted in suitable bearings 38 carried by the bracket 35. This shaft is preferably driven by a chain 39 which in turn is driven in any suitable manner (not shown).

It will be understood that the mechanism of this modified construction functions substantially in the same manner as the mechanism of the embodiment first described to lay the weft thread F into the shed and around the filament S at the edge thereof.

It will be understood that while rotatable toothed wheels 9 and 36 are shown in the embodiments previously described, a plain surfaced cylindrical metallic roller 40, as shown in FIG. 13, may be used, which, if desirable, may be covered with rubber or some other suitable material whereby the fastener filament S will be fed and delivered into the loom merely by frictional contact with the periphery of the roller.

While the pre-formed filament S is shown in the form of a spiral, it will be understood that the filament may be of any desired form such as a so-called serpentine formation or any other suitable formation which will provide a satisfactory interlocking arrangement when two filaments are mated together. It is preferable that such a filament be made from such materials as nylon, perlon, or some other suitable plastic material.

As a result of this weaving operation it will be seen that there is provided a completed stringer for slide fasteners having a flat or web portion, a pair of cords C, one on each side of the tape to form a beaded edge at the edge thereof and an interlocking filament S securely interwoven therewith and positioned between the cords C on the outer side thereof. All that is necessary then to provide a completed fastener, as shown in FIG. 10, is to mate the interlocking filament of two stringers and assemble thereon a slider 26, top stops 27, and a bottom stop 28.

As a result of the present invention, it will be seen that there is provided mechanism consisting of a minimum number of inexpensive parts which can be easily and inexpensively incorporated with existing conventional needle looms. In the use of such mechanism, it will be seen that the pre-formed filament flows smoothly through the tubular guide member and is delivered to edge of the tape directly at the fell and securely woven into the edge of the tape at that point thereby eliminating any danger of the filament being subjected to tension or distortion so as to provide a uniform stringer and a satisfactory fastener.

While I have shown and described an embodiment which my invention may assume in practice, it will be understood that this embodiment is merely for the purpose of illustration and description, and that other forms may be devised within the scope of my invention as defined in the appended claims.

What I claim as my invention is:

1. In a loom of the class described for weaving tape having means for feeding warp threads thereto, means for forming a shed between the warp threads, a weft needle for laying a weft thread in the shed, and beat-up means for moving the weft thread into the fell of the tape, the combination of an elongated open-ended passageway member into and through which a pre-formed fastener filament is delivered along one edge of the warp threads to a point adjacent the fell co-extensively with the movement of the warp threads, said member having an opening arranged therein adjacent the rearward end thereof, and a rotatable member mounted adjacent the rearward end of said elongated member having a portion of the periphery thereof extending into said opening so as to engage the filament to move the same along said passageway member toward the fell of the tape, the weft thread being passed around the filament immediately after it is delivered from the forward end of said passageway as the weft thread is moved into and through the shed by the weft needle so as to weave the filament into the edge of the tape.

2. In a loom of the class described for weaving tape, the combination as defined in claim 1, wherein the forward end portion of the first member is tapered on its side remote from the warp threads and at its forward end which is adjacent the fell of the tape being formed, the weft thread being passed around the tapered end portion and moved to position around the filament by the weft needle as it passes into the shed.

3. In a loom of the class described for weaving tape, the combination as defined in claim 1, including means for oscillating said first member so as to change the position thereof as the shed changes.

4. In a loom of the class described for weaving tape, the combination as defined in claim 1, including a take-up roll for advancing the tape and delivering it from the loom, a flexible cable having one end thereof connected to said take-up roll and the opposite end thereof attached to said rotatable member whereby said rotated member will be rotated in timed relation with said take-up roll upon the rotation thereof.

5. In a loom of the class described for weaving tape having means for feeding warp threads and at least one cord thereto along one side of said warp threads, means for forming a shed between the warp threads, a weft needle for laying a weft thread in the shed, and beat-up means for moving the weft thread into the fell of the tape, the combination of means for feeding a pre-formed fastener filament co-extensively with the warp threads and cord along the edge of the warp threads, and means for guiding the filament to a point adjacent the fell, the weft thread being passed around said cord and around the filament immediately after it is delivered from the forward end of said guiding means as the weft thread is moved into and through the shed by successive movements of the weft needle thereinto so as to weave the filament into the edge of the tape adjacent said cord on the outer side thereof.

6. In a loom of the class described for weaving tape, the combination as defined in claim 5, wherein the means for feeding the pre-formed fastener filament co-extensively with the warp threads includes a rotatable member and means for rotating said member.

7. In a loom of the class described for weaving tape, the combination as defined in claim 5, wherein the means for guiding the filament to the fell includes a member having an elongated open-ended passageway therein positioned along the shed and extending to a point adjacent the fell, said member being tapered on its side remote from the warp threads and at its forward end which is adjacent the fell of the tape being formed, said filament adapted to be fed into and through said passageway to a point adjacent the fell, the weft thread being passed around the tapered end portion and moved to position around said cord and around the filament by the weft needle as it passes into the shed.

8. In a loom of the class described for weaving tape having means for feeding warp threads and at least one cord thereto along one side of the warp threads, means for forming a shed between the warp threads, a weft

needle for laying a weft thread in the shed, and beat-up means for moving the weft thread into the fell of the tape, the combination of means for feeding a pre-formed fastener filament co-extensively with the warp threads and cord along side of the shed, a member having an elongated open-ended passageway therein into and through which the pre-formed filament is delivered along the edge of the warp threads to a point adjacent the fell co-extensively with the movement of the warp threads and cord, said member having an opening arranged therein adjacent the rearward end thereof, and a rotatable member mounted adjacent the rearward end of said tubular member having a portion of the periphery thereof extending into said opening so as to engage the filament to move the same along said elongated member toward the fell of the tape, the weft thread being passed around said cord and around the filament immediately after it is delivered from said guiding means as the weft thread is moved into and through the shed by the weft needle so as to weave the filament into the edge of the tape adjacent said cord on the outer side thereof.

9. In a loom of the class described for weaving tape, the combination as defined in claim 8, wherein the forward end portion adjacent the fell of the first member is tapered on its side remote from the warp threads and at its forward end which is adjacent the fell of the tape being formed, the weft thread being passed around said cord and around the filament immediately after it is delivered from said guiding means as the weft thread is moved into and through the shed by the weft needle so as to weave the filament into the edge of the tape adjacent said cord on the outer side thereof.

10. In a loom of the class described for weaving tape, the combination as defined in claim 8, including a take-up roll for advancing the tape and delivering it from the loom, a flexible cable having one end thereof connected to said take-up roll and the opposite end thereof attached to said rotatable member whereby said rotatable member will be rotated in timed relation with said take-up roll upon the rotation thereof.

11. In a loom of the class described for weaving tape having means for feeding warp threads thereto, means for forming a shed between the warp threads, a weft needle for laying a weft thread in the shed, and beat-up means for moving the weft thread into the fell of the tape, the combination of an oscillating member having one end thereof pivotally attached to the loom adjacent the fell of the tape, a bracket arranged on the opposite end of said first member, means carried by said bracket for guiding and delivering a pre-formed fastener filament along the edge of the warp threads to a point adjacent the fell, means for moving the filament along said guiding means, and means for oscillating said first member about its pivotal connection as the shed changes, the weft thread being passed around the filament immediately after it is delivered from said guiding means as the weft thread is moved into and through the shed by the weft needle so as to weave the filament into the edge of the tape.

12. In a loom of the class described for weaving tape, the combination as defined in claim 11, wherein the means for feeding the pre-formed fastener filament co-extensively with the warp threads includes a rotatable member and means for rotating said rotatable member.

13. In a loom of the class described for weaving tape, the combination as defined in claim 11, wherein the means for guiding the filament to the fell includes a member having an elongated open-ended passageway therein positioned along the shed and extending to a point adjacent the fell, said member being tapered on its side remote from the warp threads and at its forward end which is adjacent the fell of the tape being formed, said filament adapted to be fed into and through said passageway to a point adjacent the fell, the weft thread being passed around the tapered end portion and moved to position around the filament by the weft needle as it passes into the shed.

14. In a loom of the class described for weaving tape having means for feeding warp threads thereto, means for forming a shed between the warp threads, a weft needle for laying a weft thread in the shed, and beat-up means for moving the weft thread into the fell of the tape, the combination of an oscillating member having one end thereof pivotally attached to the loom adjacent the fell of the tape, a bracket arranged on the opposite end of said member, a member having an elongated open-ended passageway therein carried by said bracket and having the forward end thereof terminating adjacent the fell for guiding and delivering a pre-formed fastener filament along the edge of the warp threads to a point adjacent the fell, said first member having an opening therein adjacent the rearward end thereof opposite said bracket, a wheel rotatably mounted on said bracket having a portion of the periphery thereof extending into said opening for moving the filament along said second member toward the forward end thereof, means rotating said wheel, and means for oscillating said first member about its pivotal connection as the shed changes, the weft thread being passed around the filament immediately after it is delivered from the forward end of said second member as the weft thread is moved into and through the shed by the weft needle so as to weave the filament into the edge of the tape.

15. In a loom of the class described for weaving tape, the combination as defined in claim 14 wherein the means for oscillating the first member includes a lever having one end thereof pivotally attached to the loom and the other end pivotally attached to the shed forming means, and means interconnecting said lever with said first member so as to transmit oscillating movement thereto upon movement of the shed forming means to change the shed.

16. In a loom of the class described for weaving tape, the combination as defined in claim 14, wherein the second member is tapered on its side remote from the warp threads and at its forward end which is adjacent the fell of the tape being formed, the weft thread being passed around the tapered end portion and moved to position around the filament by the weft needle as it passes into the shed.

17. In a loom of the class described for weaving tape, the combination as defined in claim 14, including a take-up roll for advancing the tape and delivering it from the loom, a flexible cable having one end thereof connected to said take-up roll and the opposite end thereof attached to said rotatable wheel whereby said rotatable wheel will be rotated in timed relation with said take-up roll upon the rotation thereof.

18. In a needle loom for weaving tape having means for feeding warp threads and at least one cord thereto along one side of said warp threads, means for forming a shed between the warp threads, a weft needle for laying a weft thread in the shed, and beat-up means for moving the weft thread into the fell of the tape, the combination of an oscillating member having one end thereof pivotally attached to the loom adjacent the fell of the tape, a bracket arranged on the opposite end of said first member, a member having an elongated open-ended passageway therein carried by said bracket having the forward end thereof terminating adjacent the fell for guiding and delivering a pre-formed fastener filament along the edge of the warp threads to a point adjacent the fell, said second member having an opening therein adjacent the rearward end thereof opposite said bracket, a wheel rotatably mounted on said bracket having a portion of the periphery thereof extending into said opening for moving the filament along said passageway toward the forward end thereof, means rotating said rotatable wheel, and means for oscillating said first member about its pivotal connection as the shed changes, the weft thread being passed around said cord and around the filament immediately after it is delivered

from the forward end of said second member as the weft thread is moved into and through the shed by the weft needle so as to weave the filament into the edge of the tape adjacent said cord on the outer side thereof.

19. In a middle loom for weaving tape, the combination as defined in claim 18, wherein the means for oscillating the first member includes a lever having one end thereof pivotally attached to the loom and the other end pivotally attached to the shed forming means, and means interconnecting said lever with said first member so as to transmit oscillating movement thereto upon movement of the shed forming means to change the shed.

20. In a needle loom for weaving tape, the combination as defined in claim 18, including a take-up roll for advancing the tape and delivering it from the loom, a flexible cable having one end thereof connected to said take-up roll and the opposite end thereof attached to said rotatable wheel whereby said rotatable wheel will be rotated in timed relation with said take-up roll upon the rotation thereof.

21. In a loom of the class described for weaving tape having means for feeding warp threads thereto, means for forming a shed between the warp threads, means for laying a weft thread in the shed, and beat-up means for moving the weft thread into the fell of the tape, the combination of means for feeding a pre-formed fastener filament coextensively with the warp threads along the side of the shed, a movable member arranged to one side of the path of the warp threads around which the weft thread is adapted to be initially disposed in each lay of the weft thread, said member having a passageway arranged therethrough with the forward end thereof terminating adjacent the fell of the tape through which passageway the filament is guided to a point adjacent the fell, and means for oscillating the rearward end of said member relative to said weft laying means and relative to the forward end thereof which acts as a pivotal point and remain substantially stationary as the shed changes whereby the weft thread is adapted to be initially disposed around the forward end of said movable member in the movement of the weft laying means into the shed and sliding therefrom to position around the filament immediately after the filament is delivered from the inner end of said passageway as the weft thread is moved into and through the shed by the weft laying means so as to weave the filament into the edge of the tape.

22. In a loom of the class described for weaving tape, the combination as defined in claim 21, wherein the forward end portion of the movable member is tapered on its side remote from the warp threads at its forward end which is adjacent the fell of the tape being formed, the weft thread being passed around the tapered end portion and moved to position around the filament by the weft laying means as it passes into the shed.

23. In a loom of the class described for weaving tape having means for feeding warp threads thereto, means for forming a shed between the warp threads, a weft needle for laying a weft thread in the shed, and beat-up means for moving the weft thread into the fell of the tape, the combination of means for feeding a pre-formed fastener filament co-extensively with the warp threads along the side of the shed, a movable member arranged to one side of the path of the warp threads adjacent the weft needle around which the weft thread is adapted to be initially disposed in each lay of the weft thread by the weft needle, said member having a passageway arranged therethrough with the forward end thereof terminating adjacent the fell of the tape through which passageway the filament is guided to a point adjacent the fell, and means for oscillating the rearward end of said member relative to said needle and relative to the forward end thereof which acts as a pivotal point and remains substantially stationary as the shed changes whereby the weft thread is adapted to be initially disposed around the forward end of said movable member in the movement of the weft needle into the shed and sliding therefrom to position around the filament immediately after the filament is delivered from the inner end of said passageway as the weft thread is moved into and through the shed by the weft needle so as to weave the filament into the endge of the tape.

24. In a loom of the class described for weaving tape, the combination as defined in claim 23, wheein the forward end portion of the movable member is tapered on its side remote from the warp threads at its forward end which is adjacent the fell of the tape being formed, the weft thread being passed around the tapered end portion and moved to position around the filament by the weft needle as it passes into the shed.

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