

[54] **WEFT INSERTING CARRIER**
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[51] Int. Cl. **D03d 47/18**
[58] Field of Search **139/122 R, 122 N, 127 R**

[56] **References Cited**
UNITED STATES PATENTS
3,014,503 12/1961 Flamand 139/122

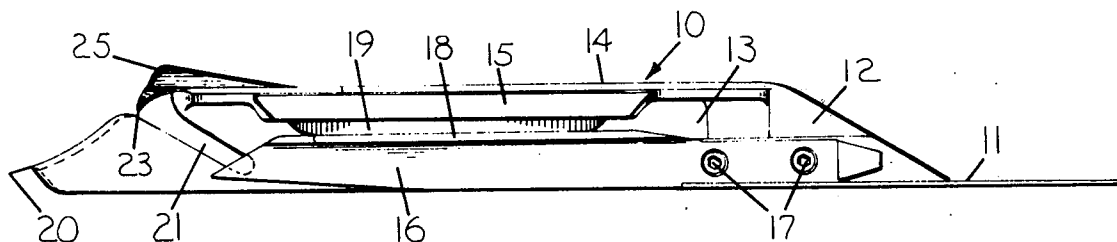
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Primary Examiner—Henry S. Jaudon

[57] **ABSTRACT**

A weft inserting carrier for shuttleless looms of the type adapted to insert single picks of weft into separate sheds formed by warp threads. The carrier being provided with a weft receiving pocket into and from which any one of a plurality of weft threads from separate sources may be selectively guided having a guide element associated with the pocket that assures entry of a selected weft yarn therein and broadens the weft pick up range of the carrier.

1 Claim, 4 Drawing Figures



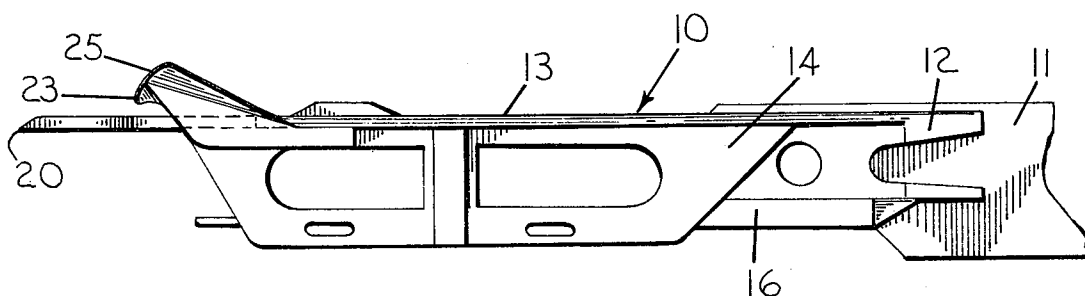


Fig. 1

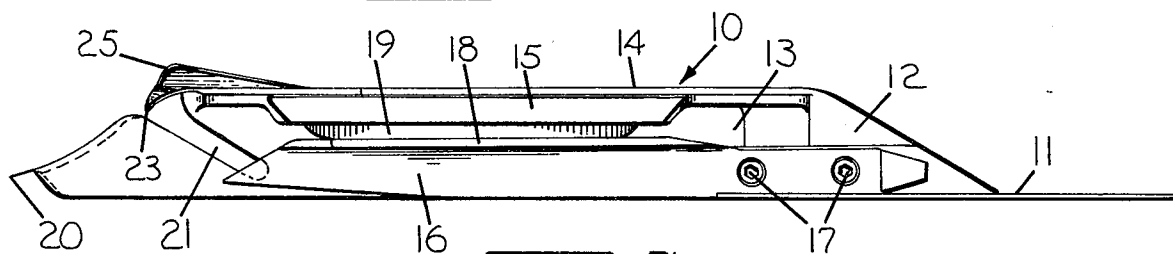


Fig. 2

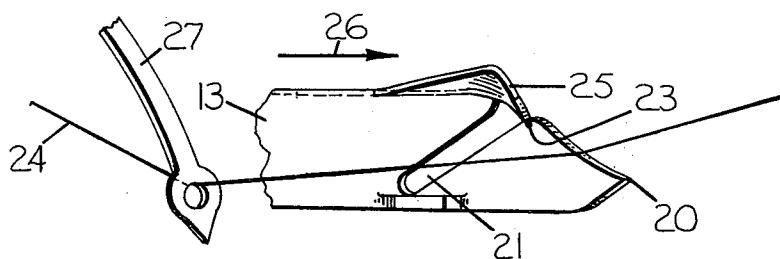


Fig. 3

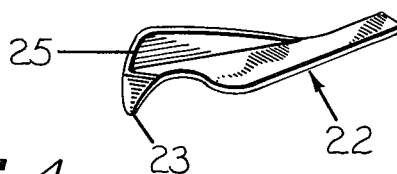


Fig. 4

WEFT INSERTING CARRIER

BACKGROUND OF THE INVENTION

In shuttleless looms which draw weft yarn from a stationary source outside of the loom, and which is not carried to and fro through the shed by the shuttle or carrier itself it is common practice to insert each pick of weft by two reciprocating elements. That element which introduces the weft into the warp shed is known as the inserting carrier and that which receives or has transferred to it the introduced weft to be drawn through the remainder of the shed is known as the weft receiving or extending carrier.

Known shuttleless looms of the single pick insertion type, such as described in U.S. Pat. No. 3,431,951, the weft yarn is drawn from a single source and extends through an opening in the rearwall of the inserting carrier and remains threaded therethrough during the entire performance of said carrier's intended function.

A weft inserting carrier for inserting single picks of weft yarn from a single source of supply in looms of the type to which the instant invention is applicable is shown and described in application Ser. No. 343,797 filed Mar. 22, 1973 and assigned to the same assignee as the present invention.

The weft inserting carrier according to the present invention is provided with a means for receiving and inserting into sheds of warp threads any one of a plurality of weft threads drawn from separate sources and which are presented to the carrier in accordance with the dictates of a predetermined pattern. A selected weft thread is directed into a pocket formed on the rear wall of the carrier and remains threaded therein during the carrier's intended function. Associated with the weft retaining pocket, the carrier includes a combined weft trapping and guide member for assuring entry of the weft into the pocket and for maintaining it therein.

SUMMARY OF THE INVENTION

The weft inserting carrier comprising the invention is provided with a rear sidewall and a flat top surface connected to said rear sidewall that extends laterally therefrom. A weft receiving pocket is provided in and adjacent one end of the carrier's rear sidewall. In overlying relation to the weft receiving pocket, the flat top surface is provided with a member having a lower portion which defines a hooked member that is effective in maintaining a selected weft yarn within the confines of the weft receiving pocket. This integrally formed member also includes an upper portion that defines a camming surface and is effective in engaging a selected weft yarn which has failed to enter the weft receiving pocket, due to a change in thread tension or a slight vertical movement of the carrier, as the carrier moves toward the shed so as to guide said weft to a position beneath the hook and into said weft receiving pocket.

It is a general object of the invention to structurally improve the weft engaging portions of the inserting carrier herein described.

A further and more specific object of the invention is to provide an inserting carrier having means for assuring positive pick up of a selected weft thread and within a range not critical to the location at which a selected weft thread is placed for pick up by said carrier.

These and other objects of the invention will become more fully apparent by reference to the appended

claims and as the following detailed description proceeds in reference to the figures of drawing wherein:

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a plan view of a weft inserting carrier showing the features of the invention applied thereto;

FIG. 2 is a side elevation of the carrier shown in FIG. 1;

FIG. 3 is a view in side elevation of the forward portion of the carrier in FIG. 2 as seen looking from the opposite side thereof, showing a selected weft thread in position for pick up by the carrier; and

FIG. 4 is a perspective view of the forward upper portion of the carrier showing the combined hooked member and camming surface for assuring entry and retention of the weft yarn in the carrier.

DETAILED DESCRIPTION OF THE DRAWINGS

Now referring to the figures of drawing, the inserting carrier comprising the invention and generally indicated in FIGS. 1 and 2 by numeral 10 is formed as a functionally integral member at the free end of a flexible reciprocating member or tape 11. The carrier includes a base portion 12 which by any suitable means such as brazing, is fixed to the end of the tape 11.

Integral with and extending from the base portion 12, the carrier includes a rear sidewall 13 having a substantially flat top surface 14 extending laterally therefrom. Spaced from the rear sidewall 13 and extending parallel therewith, the flat top surface 14 terminates in the form of a depending lip 15 which forms a portion of the front wall of the carrier 10. Below and in vertical alignment with the lip 15 the carrier is provided with a weft guide member 16 which extends parallel with the rear sidewall 13 and has one end thereof attached to the base portion 12 by means of screws 17.

The upper portion of the guide member 16 includes a laterally extending lip 18 (FIG. 2) which is disposed in spaced relation to the lower side of the depending lip 15. A weft clamping member 19 (FIG. 2) is biased into contact with lip 18 by a means not shown and serves to hold an end of weft in a known manner as it is inserted into a shed for presentation to the weft extending carrier.

The rear sidewall 13 of the carrier has a V-shaped leading edge extending from a point 20 which is forwardmost of said carrier. Adjacent point 20 and communicating with the upper portion of the carrier's V-shaped leading edge, a guide means or weft receiving pocket 21 is provided which extends downwardly at an angle oblique to the direction of movement of the carrier 10.

Referring to FIG. 4, a combined weft trapping and guide member generally identified by numeral 22 is shown in perspective and is fixed to the flat top surface 14 by any suitable means or in the fabrication of the carrier it may be formed as an integral part thereof. This combined weft trapping and guide member 22 includes a downwardly directed or lower hooked portion 23 which as shown in FIGS. 2 and 3 is disposed in overlying relation to the carrier's weft receiving pocket 21. The lower hooked portion serves to maintain a selected weft thread 24 (FIG. 3) within the confines of the pocket 21 during the carrier's travel into and from the sheds of warp threads. Immediately above the hooked portion 23 an upwardly and rearwardly flared portion or protrusion is provided which defines a camming sur-

face 25. Camming surface 25 is effective in directing the selected weft thread downwardly and into the pocket 21 in the event it is not in the proper position to be received by said pocket as the carrier moves to the weft pick up position during its initial movement toward the shed.

Under preferred weaving conditions, the weft inserting carrier 10 will contact the selected weft yarn 24 with its V-shaped leading edge at a location thereon approximate to that shown in FIG. 3. As the carrier continues to move in the direction of the indicating arrow 26, the weft will slip into the pocket 21 and be trapped therein by the hooked portion 23. Due to unpredictable weft yarn reactions due to any number of reasons such a decrease or increase in tension thereon or even a slight ballooning of the weft can prevent said weft from entering the pocket 21. When such a condition presents itself, the weft rises above the pocket 21 and hooked portion 23 where it then makes contact with the camming surface 25. When the weft 24 makes contact with this camming surface 25 the angular direction in which it extends in combination with the movement of the carrier in the direction of arrow 26 causes said weft to be cammed downwardly to a position below the hooked portion 23 where it then moves into its proper position within the pocket 21.

To summarize the operation any one of a plurality of weft thread drawn from separate sources of supply is lowered to the carrier pick up position (FIG. 3) by a guide finger 27 individual thereto. In this position the selected weft thread extends generally horizontally from the edge of the fabric through the eyelet in the guide finger 27 and then to its source of supply. In this position the weft thread 24 extends in a direction oblique to the direction of movement of the carrier 10. The carrier 10 then starts its movement toward the warp shed and makes contact with the selectively positioned weft with its V-shaped leading edge. Continued movement of the carrier in the direction of arrow 26 (FIG. 3) directs the weft along the leading edge of the carrier and into the pocket 21. In the event the weft thread fails to enter the pocket 21, for reasons hereto-

fore described, the weft thread will make contact with the camming surface 25 and by continued movement of the carrier said weft is cammed downwardly and into the pocket 21 where it is trapped by the hooked portion 23. This camming surface provides an increased range for pick up of the weft by the carrier and lessens the criticality of the timing and gaged settings of the carrier which are necessary to accomplish the reception of a selected weft thread therein.

Although the present invention has been described in connection with a preferred embodiment, it is to be understood that modifications and variations may be resorted to without departing from the spirit and scope of the invention as those skilled in the art will readily understand. Such modifications and variations are considered to be within the purview and scope of the invention and the appended claims.

I claim:

1. A weft inserting carrier for shuttleless looms for inserting single picks of weft into separate sheds of warp threads selectively drawn from any one of a plurality of independent sources of weft supply, comprising:

- a. a base portion having a rear sidewall protruding therefrom with a flat top surface connected to and extending forwardly from said rear sidewall;
- b. guide means in said rear sidewall for receiving and guiding a selected weft thread as it is inserted into a warp shed;
- c. a combined weft trapping and guide member extending forwardly and outwardly from said top surface, said member including
 1. a downwardly directed hooked portion located adjacent the upper end of said guide means and spaced laterally outwardly therefrom; and also including
 2. a portion that is flared upwardly and rearwardly from said hooked portion to define a camming surface that will move a weft yarn that misses the entrance into the guide means, drawn past said hooked portion, into said guide means.

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