Nov. 11, 1958 E. PORSCHE 2,859,602

YARN CARRIER

Filed May 17, 1955

Fig.1

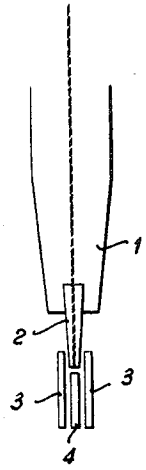



Fig.2

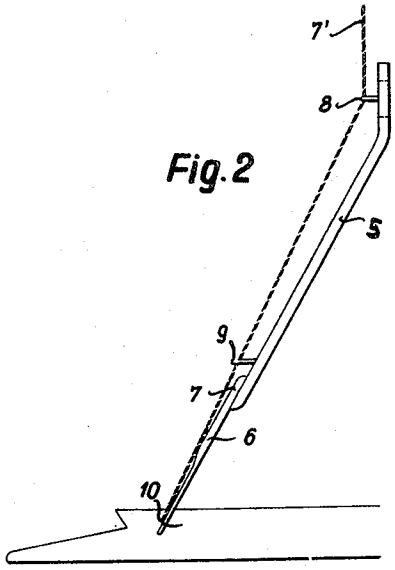



Fig.3

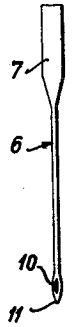
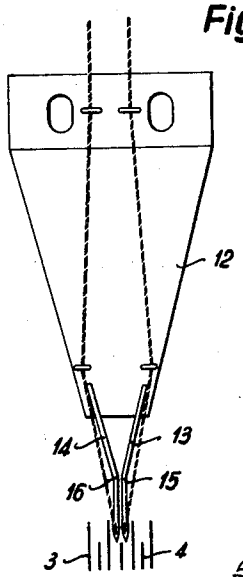



Fig.4




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# YARN CARRIER

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Claims priority, application Germany May 18, 1954

2 Claims. (Cl. 66—126)

The present invention relates to improvements in yarn carriers, and more particularly to yarn carriers for full-fashioned hosiery knitting machines wherein the thread is finally payed out through a thin thread-guiding member which extends intermediate the sinkers and is slightly inclined toward the rear, terminating slightly above the upper edge of the distributing bar.

Prior to this invention such thin thread-guiding member usually consisted of a fine-gauge tube which was mounted on the lower end of a yarn carrier or yarn carrier finger and through which the thread was payed out to the sinkers.

In actual practice, these thin thread-guiding tubes especially for fine-gauge machines are very difficult to produce and require considerable space laterally since the walls thereof may not be made below a certain strength, as otherwise the thread might be cut by the edge of the thread opening. This danger prevails especially if thread or fully synthetic yarn is used which may be knitted on machines of this type up to a weight of 5 denier. Owing to the small inner diameter of these tubes, they are easily clogged, and the removal of such obstruction requires a considerable time as well as frequent replacing of the tube.

It is an object of the present invention to eliminate these disadvantages by providing the yarn carrier with a needle having an eye at its free end similar to a sewing needle.

Another object of the present invention is thus to provide a thread guide which is much more easily threaded than a thread-guiding tube, through which it is very difficult to pass the thread, especially if resinous matter or lint has settled therein.

A further object of the present invention is therefore to provide a thread guide which does not exert an uncontrollable binding or braking action upon the thread which occurs very frequently when using thin, and easily clogged thread-guiding tubes, resulting in uneven tension of the thread in the stocking.

Another object of the present invention is also to obtain a thread guide which is resilient and will deflect toward the side if it should engage with a sinker, or any part thereof. If the free end of such a thread-guiding needle according to the present invention is also provided with a sharp point, it will be practically impossible for it ever to damage a sinker.

Another material advantage of the thread-guiding needle according to the present invention is that, owing to its smaller diameter as compared with a thread-guiding tube, it may be adjusted to a single gauge, whereas the latter, because of its larger diameter, will always overlap two gauges or distributing bars. Thus, it is another important feature of the invention that it permits the use of two thread-guiding needles on a single yarn carrier, for example, when the work requires two threads to be used simultaneously.

Still another advantage of the thread-guiding needle is that it can be made of a better steel and can be more



easily and more highly polished than the customary thread-guiding tube.

Further objects, features, and advantages of the present invention will be apparent from the following detailed description thereof, as well as from the accompanying drawings, in which

Fig. 1 shows a customary yarn carrier with a thread-carrying tube mounted thereon in its position relative to the sinkers;

Fig. 2 shows a side view of the yarn carrier according to the invention with a thread-guiding needle at its free end;

Fig. 3 shows a front view of the thread-guiding needle; while

Fig. 4 shows a front view of a yarn carrier with two needles according to the invention mounted thereon.

Referring to the drawings, Fig. 1 shows the customary yarn carrier with a thread-carrying tube 2 mounted on its lower end so as to be in a position intermediate two sinkers 3 above the upper edge of distributor bar 4.

The relative thickness of the tube 2 to the bars 3 and 4 as shown in the drawing substantially corresponds to the conditions prevailing in actual practice. It is evident from this drawing that the tube 2 will be subject to considerable stresses and difficulties if used with small gauges.

Fig. 2 shows a yarn carrier finger 5 with a thread-guiding needle 6 mounted on its free end. The thread 7 runs through the lead eye 8 and then through the eye 9 on the yarn carrier finger 5 to the thread eye 10 in the needle 6.

A preferred embodiment of the thread-guiding needle 6 is shown, for example, in Fig. 3. The needle shaft 7 is thickened so as to permit the needle to be more easily secured to the free end of the yarn carrier finger 5. Its free end is provided with a thread eye 10, and the needle preferably terminates in a sharp point 11. As illustrated in Fig. 2, the end of the thread 7' preferably leads forwardly along the needle 6 and then passes through the needle eye 10 toward the rear.

Fig. 4 illustrates the application of the invention to a yarn carrier 12 which is provided with two thread-guiding needles 13 and 14, which are bent relative to each other above the sinkers at a point 15 and 16, respectively, so that, when seen from the front, the lower ends thereof are disposed at a right angle to the sinkers and may be so close to each other as to permit both needles to pass safely between two adjacent sinkers 3, that is, each needle within one division or gauge 3–4. It is evident from a comparison of Figs. 1 and 4 that a thread-guiding needle may be made of considerably thinner diameter than a thread-guiding tube as previously used, thus even permitting two needles to be used within the same area where only one tube could be used, apart from its advantage over such a tube of being more easily threaded and not liable to collect lint or resinous matter which easily clogged the passage and opening of a tube and exerted a binding or braking action upon the thread which might affect the quality of the hosiery knitted on the machine.

Although my invention has been illustrated and described with reference to the preferred embodiments thereof I wish to have it understood that it is in no way limited to the details of such embodiments or to the specific examples described, but is capable of numerous modifications within the scope of the appended claims.

Having thus fully disclosed my invention, what I claim is:

1. In a hosiery knitting machine including sinkers, in combination, a carrier finger means; and a pair of thread guiding needles having rear end portions mounted on said carrier finger means and arranged at an angle to the central axis of said carrier finger means and with respect to

each other, each of said needles having a solid slim straight forward portion having a pointed free end and being formed with a transverse thread eye, said forward portions of said pair of needles being bent at an angle to said rear portions and extending parallel to each other and to said carrier finger axis, said forward portions of said needles being spaced from each other a distance adapted to be smaller than the spacing between adjacent sinkers.

2. In a hosiery knitting machine including sinkers, in combination, a carrier finger means; a pair of thread guiding means symmetrically arranged on both sides of the central axis of said carrier finger means and being spaced a predetermined distance from each other; and a pair of thread guiding needles having rear end portions mounted on said carrier finger means and arranged at an angle to the central axis of said carrier finger means and with respect to each other, the rear ends of said rear end



portions being respectively located adjacent said thread guiding means, each of said needles having a solid slim straight forward portion having a pointed free end and being formed with a transverse thread eye, said forward portions of said pair of needles being bent at an angle to said rear portions and extending parallel to each other and to said carrier finger axis, said forward portions of said needles being spaced from each other a distance substantially smaller than said predetermined distance and adapted to be smaller than the spacing between adjacent sinkers.

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