E. SCANLIN AND C. REATH.

YARN FEED MECHANISM FOR KNITTING MACHINES.

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Fig. 3.

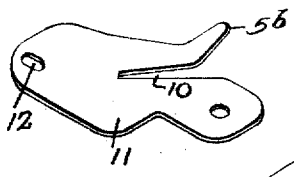
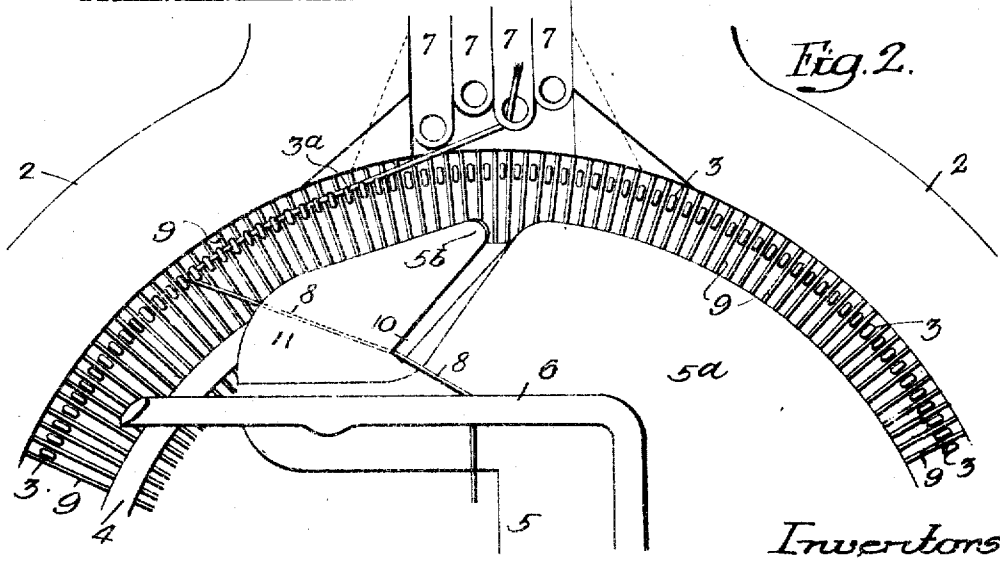


Fig. 1.

Fig. 2.



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YARN-FEED MECHANISM FOR KNITTING-MACHINES.

1,349,298. Specification of Letters Patent. Patented Aug. 10, 1920.

Application filed October 23, 1919. Serial No. 332,581.

To all whom it may concern:

Be it known that we, EDWARD SCANLIN and CALVIN REATH, citizens of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Yarn-Feed Mechanism for Knitting-Machines, of which the following is a specification.

This invention relates to knitting machines, and particularly to that type of machine having a revolving cylindrical needle head which is employed for making hosiery and other tubular articles.

In the attached drawings:

Figure 1 is a plan view of a portion of the knitting head of what is commonly known as a full automatic hosiery knitting machine;

Fig. 2 is an enlarged view of a portion of Fig. 1;

Fig. 3 is a detached perspective of that portion of the machine immediately involving the invention.

The common failing of machines of the type illustrated has been the lack of precision with which the needles take up the threads in starting and in the transfer operation. This failure of the needles to take hold of the threads on starting is the rule rather than the exception in these machines and great care must be exercised to pick up all such dropped stitches in order to avoid imperfect articles. The exercise of this care entails continuous watchfulness upon the part of the operator, particularly after each fresh start and transfer, and frequent stopping of the machine is necessitated to permit the picking up of dropped stitches, with a consequent considerable loss in time and a further loss in efficiency of operation due to the excessive strain placed upon the operators. The object of this invention is to provide means for making the action of the needles in taking hold of the threads a positive one, and for insuring the taking up of the thread by the proper needle at the proper time without fail.

With reference to the drawings, 1 indicates the sinker cap of the machine, 2 the carrier ring, and 3 the needles carried by the cylinder 4. Supported by the carrier ring is the anchor piece 5, which in turn carries the yarn binder wire 6.

In feeding the yarn to the needles, the thread is passed first through one of the yarn levers 7, which are mounted on the carrier ring, then between the needles, and across the anchor plate 5^a which forms a part of the anchor piece 5, the thread being clamped to the anchor plate 5^a by the yarn binder wire 6 which bears down upon it.

Fig. 1 illustrates the position of the yarn at the moment the machine is started and the cylinder and needles begin to revolve, the yarn or thread being indicated by the reference character 8. As the cylinder and needles revolve, the yarn, 8, is carried to the position shown in Fig. 2, and for illustrative purposes we will say that at this point in the operation the first needle, 3^a, comes into play to carry the thread 8 down to the point where the jacks, 9, may take hold and retain it until the next downward movement of the needle 3^a will cause it to be thrown off. It is at this point that the stitches are usually dropped, the first needle to come into play, represented in the present instance by the needle 3^a, frequently failing to take hold of the thread which consequently slips over the top of the needle.

So far as we are aware there has been, until our invention, no positive way of avoiding this frequent stitch dropping. We have discovered, however, that by forming a slot, 10, in the plate 5^a, into which the thread is carried by the revolution of the cylinder, as illustrated in Fig. 2, this defective action is completely remedied.

As the yorn slides across the face of the plate 5, it is guided into the slot by the upturned corner, 5^b, of the plate. As a consequence the yarn is carried underneath the plate 5, and this underfeeding of the yarn not only carries the thread to a lower position on the needles, but retains it in this low position, thereby allowing the needles an extra period of time in which to take hold of the yarn. In other words, when the underfeeding device which carries the thread farther down upon the shank of the needle is employed, the needle progresses a little farther along its rotary path as well as in its downward travel before the hooked upper end thereof meets the thread, and this extra progress made before the upper end of the needle meets the thread suffices to insure the taking hold of the yarn by the needle.

The slotted anchor plate may be made in any manner desired, and in the present instance we have shown the slot formed in an independent piece, 11, which may be at-

tached to the anchor plate proper by screws or in any other suitable manner. Anchor plates of any type may be made or altered to accommodate these slotted attachments, and the attachments may be made of any size or shape to suit machines of varying size and type. Such attachments may also be made adjustable upon the anchor plate to which it may be secured by elongating the apertures, 42, through which the attaching screws pass.

The use of this device makes positive the feed of the yarn to the needles, and losses of time and imperfect articles which are due to frequently dropped stitches are reduced to a minimum. The starting and transfer operations are made entirely safe and the machines may be operated without fear of dropped stiches and without the necessity for frequent stopping of the machine for inspection and replacement of dropped stitches.

We claim:

1. In a knitting machine, the combination with a revolving needle cylinder, of mechanism for feeding yarn between the needles, and means independent of said feeding mechanism for further depressing that portion of the yarn which passes between the needles.

2. In a knitting machine, the combination with a revolving needle cylinder, of mechanism for directing yarn between the needles, and a guide functioning in conjunction with the revolving cylinder to carry the yarn downwardly along the shanks of the said needles.

3. In a knitting machine, the combination with a revolving needle cylinder, of mechanism for feeding yarn between the needles including an anchor plate, and means for clamping the yarn thereto, and a guide upon said plate adjacent the point where the yarn is fed to the needles for directing the said yarn downwardly between the needles.

4. In a knitting machine, the combination with a revolving needle cylinder, of mechanism for feeding yarn between the needles including an anchor plate, and means for clamping the yarn thereto, and a slot extending through said plate adjacent the point where the yarn is fed to the needles and adapted to be entered by the yarn whereby the latter is conducted downwardly between the needles.

5. In a knitting machine, the combination with a revolving needle cylinder, of a yarn lever, an anchor piece, a slot extending through the said anchor piece adjacent the point where the yarn is fed to the needles, and means for guiding the yarn into said slot as the said cylinder revolves for depressing that portion of the yarn which passes between the needles.

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