C. J. APPLETON.

KNITTING-MACHINE NEEDLE.

No. 169,943. Patented Nov. 16, 1875.

Fig. 1.

Fig. 2.

Fig. 3.

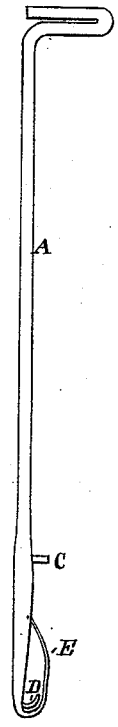

Fig. 4.

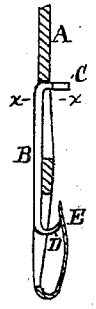

Fig. 4a

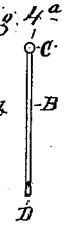

Fig. 4b

Fig. 5.

Witnesses

Georg D. Ripley

John W. Ripley

Inventor.

Charles J. Appleton

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. **169,943**, dated November 16, 1875; application filed May 24, 1875.

To all whom it may concern:

Be it known that I, CHARLES J. APPLETON, of the city of Philadelphia and State of Pennsylvania, have invented a new and Improved Knitting-Machine Needle; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and the letters of reference marked thereon, in which the same letter represents the same thing in each figure.

Figure 1 is a front view of my improved needle; Fig. 2, a back view thereof; Fig. 3, a side view thereof; Fig. 4, a partial sectional view, showing the improvement; Fig. 4^a, a detached top view of hook-slide; Fig. 4^b, a detached cross-section through the line *x x* of Fig. 4; Fig. 5, a side view of my improved needle, with the pin in the form of a hook.

The object of my invention is to produce an automatic loop-preserving knitting-machine needle—that is, one, the beard of which shuts into the eye of the needle, and is opened by the action of the last-finished loop, and closed by the yarn which is to form the next loop, thereby obviating the necessity of presser-wheels or other devices for closing the beard of the needle. Another important object is to prevent the work running off and the dropping of stitches. I accomplish these results by a slide turned up at one end, and having a hook at the other, within the beard of the needle.

A represents the body of the needle; B, the slide; C, the turned-up end thereof; D, the hook at the other end thereof; E, the beard; G, the groove in which slide B moves.

The action is as follows: When the needle slides out the last-formed loop catches end C, and draws slide B down, causing hook D to open beard E to receive the yarn to form the new loop, which yarn catches hook D, draws slide B to the head of the needle, whereupon the beard springs into the eye of the needle, and the last-formed loop slides over the beard and off the head of the needle. The slide is kept in place in the groove by flattening the portion working in it, which leaves shoulders on the turned end and hook, which prevent the slide from falling out when the slot is closed upon the flattened part.

The work is prevented from running off, and dropping of stitches made impossible, as the last-formed loop must enter beard G, forced open by hook D.

In Fig. 5 is shown a modification of the turned-up end of the slide in the form of hooks, so that the last-formed loop will operate the slide both ways.

The action of the loop on the turned-up end, when in hook form, is the same when the needle is sliding out, as has been described; but if the yarn fails to enter the hook the last-formed loop catches just above the part of the hook resting in the body of the needle, thereby moving the slide to the head of the needle, and the loop is released when it reaches the recess just in front of the end of the beard, which is then within the eye of the needle, and slips off over the beard.

What I claim, and desire to secure by Letters Patent, is—

A knitting-machine spring-bearded needle, provided with a slide, having a hook located within the beard, and adapted to open it, substantially as described.

CHARLES J. APPLETON.

Witnesses:
GEORGE D. RIPLEY,
JOHN W. RIPLEY.