

L. E. SALISBURY.

KNITTING-MACHINE NEEDLES.

No. 189,500.

Patented April 10, 1877.

Fig. 1

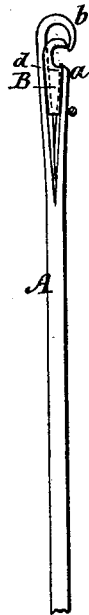


Fig. 2



Fig. 3



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## IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. **189,500**, dated April 10, 1877; application filed January 22, 1877.

*To all whom it may concern:*

Be it known that I, LEVI E. SALISBURY, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in Knitting-Machine Needles; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description thereof.

My improved needles are intended to perform the same general service as that for which latch-needles are adapted, although preferably employed with a stitch-wheel; and the object of my invention is to obviate the dropping of stitches when the yarn breaks or a bobbin is exhausted.

In a separate application for Letters Patent I have shown and described certain novel improvements of my own invention for securing the same object by means of a hook pivoted to a shank, which may or may not have the usual hook.

My present invention consists in the combination, with a suitable shank and a rigid main hook, of a sliding guard provided with an auxiliary hook, which is located within the main hook, and a heel, which guards the opening to the main hook, whereby the main hook may be opened and closed by the newly-fed yarn, or the loop last formed on the needle.

To more particularly describe my invention, I will refer to the accompanying drawings, in which—

Figure 1 represents one of my improved needles in side view, as if ready to receive yarn. Fig. 2 represents a sliding guard detached from the needle. Fig. 3 represents the needle, Fig. 1, with yarn occupying the hook, and the sliding guard across the entrance to the hook.

A denotes a shank, provided with a suitable heel, as at *a*, and a hook, as at *b*. B denotes the sliding guard. It is fitted within the shank, which is slotted to receive it, in such a manner that neither the newly-fed yarn nor the loop last formed on the needle can move it except when in contact with certain portions thereof, as will be hereafter described.

There are various obvious methods of mounting the sliding guard in the shank, although

I have shown but one of several methods which I have tested.

The upper end of the guard is provided with an auxiliary hook, as at *c*, which, although smaller, corresponds generally in form with the main hook *b*. Adjacent to the hook of the guard is a heel, as at *d*, which, when the hook should be closed, is placed in contact with the point of the hook, so as to afford its ready passage through a loop. When the guard is depressed the hook is open, and when elevated the hook is closed.

In operation it will be seen, as the needle is moved downward, with the newly-fed yarn in contact with the front of the needle, as in Fig. 1, that the yarn enters the open hook, and the sliding guard is prevented from moving downward with the needle until the heel *d* closes the opening of the main hook, as in Fig. 3, the yarn then occupying the hook. As the needle descends the loop last formed is readily passed by the hook, the guard serving as a bridge across the opening of the hook, thus performing the function of a latch in the ordinary latch-needle.

After passing a loop, when the needle next ascends, the yarn in the hook prevents the sliding guard from rising with the needle, thus opening the main hook and slipping the loop, after which the guard rises with the needle until fully elevated.

Should a yarn break, or a bobbin be exhausted, the empty needle descends until the loop last formed enters the hook and engages with the sliding guard, after which the guard remains stationary. The hook of the needle is closed, and the loop retained securely therein, instead of being cast off, as in the case of an ordinary latch-needle, under similar circumstances.

I am aware that sliding guards have heretofore been combined with knitting-machine needles. So far as my knowledge extends, however, such guards have either been actuated or controlled by cams or their equivalent, instead of being controlled by the yarn, as herein described; or the slide has been provided with a long shank, and a projecting finger at its lower end, with the upper side of which the yarn engages for depressing the slide; but in this latter case the slide has

been combined with a normally-closed spring-barb needle, and it has no heel which guards the opening of a rigid hook, as herein shown.

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

A knitting-machine needle having a suitable shank and a rigid main hook, in combination with a sliding guard, provided with a hook

and a heel, substantially as described, whereby said guard may be wholly controlled by the yarn, as set forth.

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Witnesses:

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