

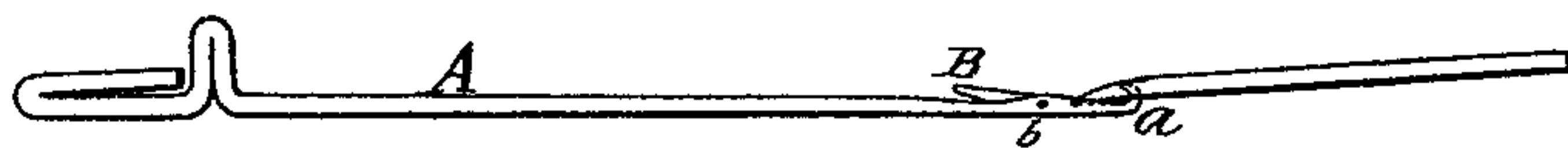
J. PEPPER.

LATCH NEEDLES FOR KNITTING-MACHINES.

No. 180,785.

Patented Aug. 8, 1876.

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Witnesses:*

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# UNITED STATES PATENT OFFICE.

JOHN PEPPER, OF LAKE VILLAGE, NEW HAMPSHIRE.

## IMPROVEMENT IN LATCH-NEEDLES FOR KNITTING-MACHINES.

Specification forming part of Letters Patent No. **180,785**, dated August 8, 1876; application filed June 7, 1876.

*To all whom it may concern:*

Be it known that I, JOHN PEPPER, of Lake Village, in the county of Belknap and State of New Hampshire, have invented certain new and useful Improvements in Latch Knitting-Needles and Point-Shifters for Knitting-Machines; and that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a side view of my improved latch-needle and point-shifter. Fig. 2 represents a longitudinal section of the same on an enlarged scale. Fig. 3 represents a top view of my improved needle. Fig. 4 represents a top view of my improved point-shifter.

Similar letters of reference, where they occur, denote like parts in all the figures.

My invention relates to certain modifications produced in the form of the latch-needles of knitting-machines, and also in certain modifications in the form and construction of the point-shifters used with these latch-needles, whereby the point-shifters can be operated automatically and with certainty by power machinery in transferring stitches from one needle, or series of needles, to another, in forming the selvage on goods, or for other purposes.

And my invention consists in swaging the eye or slit, technically called the "nucate" of the needle, between the hook and the pivot of the latch, to double the width or thereabout of the other portion of the slit, so as to receive with certainty the point of the tickler or point-shifter without any other guidance than that furnished by the machine itself.

It further consists in forming a fine-pointed tickler or point-shifter, with an elongated eye cut through it, so as to completely receive and cover the hook of the needle, so as to permit finer stitches to slip easily from the needle upon the point-shifter, while the latch remains open ready to receive the stitch again from the machine.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The body of the needle is represented at A, and *a* is the hook at its extremity. B is the

latch pivoted at *b* to the needle in a slit cut for its reception. This slit or eye is swaged out and enlarged or milled at *c*, Fig. 3, to nearly double its ordinary width, so as to receive with certainty the point-shifter D, even when the latter has no other guidance than the mechanism of the knitting-machine, and, to add to this certainty, the extremity of the point-shifter or tickler D, terminates in a point, *d*, to enter and rest in the swaged or milled eye *c* of the needle. This point-shifter D is provided with a slit, *e*, cut through it to receive and completely cover the hook *a* of the needle, without enlarging the thickness of these parts when united for the purpose of transferring stitches from one needle to the point-shifter, and back again to another needle, without closing the latch.

This improvement is of much importance in producing and narrowing with latch-needles fine knitted goods, or when there is not much elasticity in the yarn used, as the stitch or loop does not require to be enlarged while transferring it from the needle to the point-shifter.

This device is intended to be used, mainly, in a flat or open-frame knitting-machine; but it may also be used in others.

Three or more point-shifters are generally connected together in a frame at the same distance apart, as the needles to form each selvage or to narrow the knitting.

Having fully described my invention, what I claim is—

1. A latch knitting-needle having the swaged eye or nucate *c* between the latch-pivot *b* and hook *a*, to readily receive the pointed extremity of a point-shifter, constructed and operating, substantially as described.

2. In a knitting-machine, a point-shifter, D, having an eye or opening, *e*, near its point, extending entirely through, in combination with a needle having its eye or nucate between the latch-pivot and the hook, substantially as described, and for the purpose set forth.

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Witnesses:

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