

*J. F. Daniels,*

*Knitting-Needle.*

*Nº 99,647.*

*Patented Feb 8. 1870.*

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*  
*a. b. c.*

*Fig. 4.*  
*a. b. c.*

*Fig. 5.*  
*a. b. c.*

*Fig. 6.*  
*A. B. C.*

*Fig. 7.*  
*A. B. C.*

*Witnesses:*

*L. J. Brown.*  
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*Inventor:*

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# UNITED STATES PATENT OFFICE.

JOHN F. DANIELS, OF LAKE VILLAGE, NEW HAMPSHIRE.

## IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. 99,647, dated February 8, 1870.

*To all whom it may concern:*

Be it known that I, JOHN F. DANIELS, of Lake Village, in the county of Belknap and State of New Hampshire, have invented an Improved Latch-Needle for Knitting-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a side view of the improved needle; Fig. 2, a side view of the latch with the improved pivot in its eye; Fig. 3, a side view of the improved pivot; Figs. 4 and 5, views of different modifications of the pivot; Fig. 6, a cross-section of the needle through the center of the pivot; Fig. 7, a similar cross-section, showing the modified form as in Fig. 5.

Like letters designate corresponding parts in all of the figures.

The nature of my invention consists in making the middle part of the pivot, or that part on which the latch turns, of greater diameter than the ends or bearing portions which pass through the sides of the needle N, and of a little greater width than the thickness of the latch, thereby forming shoulders against which the sides of the needle bear when the pivot is riveted in place, substantially as herein specified.

Let A represent the body of the needle, B the latch, and C the pivot on which the latch turns.

The diameter of the middle portion, *a*, of the pivot is larger than that of the end portions, *b b*, as shown, and this portion is of a little greater width than the thickness of the latch. The latch B has an eye large enough to receive this enlarged part *a*, and the holes in the needle at the side of the latch-slot receive the end parts or bearings, *b b*. Thus there are shoulders around the said bearings at the ends of the middle part. These improved pivots are formed with any suitable tools for shaping or swaging them, and then the needle-slot is spread open to receive the pivot, the latch in the meantime being placed over the pivot. The holes in the sides of the needle being prop-

erly countersunk on the outside, the ends of the pivot are riveted down, thereby securing the pivot in place and leaving the sides of the needle flush and smooth.

In Figs. 3 and 6 the bearings *b b* are represented as cylindrical; but in Fig. 4 they are shown as conical.

In Figs. 5 and 7 the pivot is made of a small pin, *b*, of equal diameter throughout its length, and a perforated disk or washer, *a*, through which the pin passes. The disk *a* fits in the eye of the latch, and the projecting ends of the pin are riveted in the sides of the needle, and in the act of riveting the pin may be so enlarged in diameter as to tighten it in its disk *a*, so that the two parts become as one pivot.

The advantages of this improved pivot are marked and important.

First, the shoulders or enlarged middle portion of the pivot prevent its working endwise if the riveting wears loose—a great desideratum to prevent bad work and broken yarn.

Second, the riveting of the sides of the slot in the needle against the shoulders or enlarged part of the pivot makes the needle firmer and stronger and more durable.

Third, the ends *b b*, being smaller than the ordinary rivet, require smaller holes in the sides of the needle, thus weakening the needles less.

Fourth, there is no danger of upsetting and enlarging the diameter of the pivot, so that the latch will not turn easily thereon, nor is there any danger of pinching the latch in riveting, so as to impede its free motion.

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

The needle A, having its latch-pivot C made with the enlarged middle part, *a*, and smaller shouldered bearings *b b* at the ends, substantially as and for the purposes herein specified.

Specification signed by me January 6, 1870.

JOHN F. DANIELS.

Witnesses:

HIRAM FOSS,  
ORESTES H. KEY.