C. P. S. Wardwell,

Knitting Needles.

No. 62,382. Patented Feb. 26. 1867.

Fig. 1.

Fig. 2.

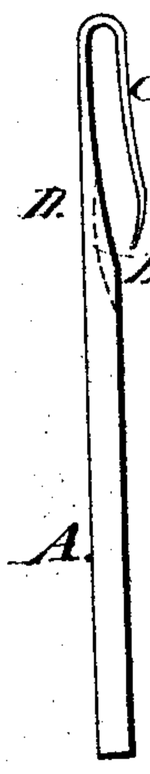

Fig. 3.

Fig. 5.

Fig. 6.

Fig. 7.

Witnesses:
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C. P. S. WARDWELL, OF LAKE VILLAGE, NEW HAMPSHIRE.

Letters Patent No. 62,382, *dated February* 26, 1867.

IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, C. P. S. WARDWELL, of Lake Village, in the county of Belknap, and State of New Hampshire, have invented a new and useful Improvement in Needles 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, and to the letters of reference marked thereon.

The nature of my invention consists in flattening the outside of that part of a needle called the "barb or beak," so as to more equally distribute the strain on that part of the needle into the substance of the barb, thus lessening its liability to break by allowing the barb to be pressed inward, or operated a greater number of times before breaking, and thus increasing its durability correspondingly.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 is a front view of the needle.

Figure 2 is a side view of the same.

Figure 3 is a cross-section through the bend of the barb.

Figure 4 is a cross-section of the back of the needle, on line E.

Figure 5 will be described hereafter.

Figures 6 and 7 are cross-sections through the bend of the barb of needles in general use.

A is the body or shank of a needle, B is the eye of the same, neither of which differ from those of needles in common use. C is the barb or beak, commencing at D, and extending round the bend to the point which is opposite the eye B, and is flat, or nearly so, on its inner surface. The outside of the barb is flattened, beginning at or near D on the back side, and gradually increasing in width till near the beginning of the bend of the barb, where it extends nearly or quite as wide as the barb, and thus continues round to the point, though it may begin at or near point C to disappear, and terminate at or near the place where the "presser" operates on the barb, to press it inward when in use. The precise point of beginning or terminating the flattening is not material providing it is at its fulness at the place where needles break, in or near the bend of the barb, and should be in cross-section at the point where they generally break, like fig. 3. The edges may or may not be flattened, beginning and terminating at or near the same points of the outside flattening. The process of polishing rounds the corners sufficiently to avoid all danger of cutting the thread or yarn. The inside of the barb may be rounded, like section, fig. 5, with the outside flat, but the nearer they approximate to the shape shown by fig. 3, or a rectangle, in or near the bend, or where there is the greatest tendency to break, the better they are. Figs. 6 and 7 are sections through the bends of the barbs of needles in general use.

The operation of a needle is as follows: The yarn is carried inside of the barb, forming a loop; this loop is then pressed or slipped down on to the shank of the needle below the point of the barb, so as to allow the barb to receive the yarn again for another loop. The barb is now pressed inward till the point shall rest in the eye B, which will allow the loop on the shank to be carried over the barb and off the needle, thus forming a stitch; after which the barb springs outward, to allow the loop inside the barb to be slipped down over the eye B on to the shank, also to receive the yarn for the next loop, &c. Consequently the barb is successively pressed inward and springs out again for every stitch formed. The strain upon a needle is on the outside of the barb while being pressed inward, and, except in case of accident, the fracture always begins on the outside. A needle only breaks after a number of vibrations of the barb, (or pressing it in,) which, after a time, destroys its elasticity, and causes it to break; hence a needle is durable in proportion to the number of vibrations, (or times the barb will allow to be pressed inward,) without breaking. As needles are now made, the barb being semicircular on the outside, (figs. 6 and 7,) the thickness varying throughout its width, there is a great inequality of strain upon its outside while being pressed inward, and consequent liability to break; whereas, the outside of my improved needle being flat, the thickness of the barb is equal across the bend, thus equalizing the strain on it, rendering it capable of standing a greater number of vibrations, (or bending inward,) before breaking, and hence proportionately durable.

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

A needle for knitting machines, flattened on the outside of its barb, substantially as and for the purpose herein specified.

C. P. S. WARDWELL.

Witnesses:

JOHN ALDRICH,

MARION L. WARDWELL.