

E. STRAIN.
NEEDLE FOR SEWING MACHINE.

No. 104,660.

Patented Jan. 21, 1870.

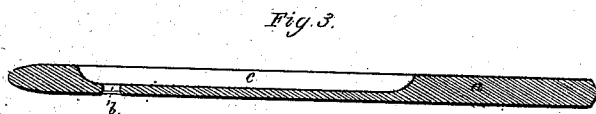
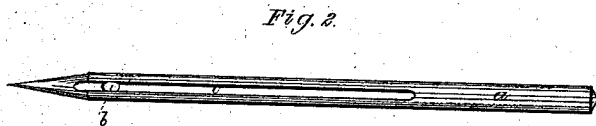


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

EDWIN STRAIN, OF NEWTON, MASSACHUSETTS.

IMPROVEMENT IN NEEDLES FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 104,660, dated June 21, 1870.

To all whom it may concern:

Be it known that I, EDWIN STRAIN, of Newton, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Sewing-Machine Needles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figures 1 and 2 are side elevations of sewing-machine needles (enlarged) having my improvement applied thereto. Fig. 3 is a central longitudinal section (enlarged) through my improved needle. Fig. 4 is a transverse section on the line $x x$ of Fig. 1.

The ordinary sewing-machine needle as now constructed is provided on each side with a groove for the reception of the thread, one groove being of greater length than the other. The depth of the long groove, however, is not sufficient to prevent the thread from projecting beyond the surface of the needle and bearing against the material being sewed, and when the latter is hard or of a close texture the thread is subjected to much friction, and is frequently chafed and broken from this cause. Attempts have been made to overcome this objection by deepening the groove; but the "stock" remaining in the center of the needle between the two grooves was then rendered so thin as to cut the thread at the eye. In a needle with a groove on each side, when the material being sewed is fed forward the thread is brought at an angle across the sharp edge of the side wall of the short groove, which frequently causes it to be cut off at this point.

My invention has for its object to overcome these difficulties and objections; and it consists in a sewing-machine needle grooved only on one side. Such groove, extending to or beyond the eye, is countersunk or beveled all around its edge, and by this construction I am enabled to make the groove of sufficient depth to entirely prevent the thread lying within it from being chafed or broken by contact with the material being sewed, and at the same time retain a sufficient thickness of metal between the bottom of the groove and the opposite side of the needle to avoid any liability of the thread being cut at the eye, while, as that side of the needle opposite to the groove

presents a smooth round surface, and as the eye is countersunk on that side, all danger of the thread being cut by being drawn at an angle across the needle when the material is fed forward is entirely avoided.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, a represents the shank of the needle, and b the eye thereof. The needle (the point of which may be of any desired form) is provided upon one side only with a longitudinal groove, c , to receive the thread, the depth of the groove which extends to or beyond the eye being equal to about two-thirds of the diameter of the needle, and by thus dispensing with the short groove (which I have found by repeated experiments not to be essential to the proper working of the needle) and grooving the needle upon one side only I am enabled to deepen the groove to such an extent as to entirely prevent the thread lying within it from being chafed or broken by coming into contact with the material being sewed, and at the same time leave a sufficient thickness of metal between the bottom of the groove and the opposite surface of the needle to prevent any liability of the thread being cut at the eye. After the eye is punched it is countersunk or beveled all around its edge on the side of the needle not provided with a groove, as seen in Fig. 1, by means of a reamer or other suitable tool, and this countersinking of the eye, taken in connection with the smooth round surface of the needle upon the side opposite to the groove, effectually prevents the cutting of the thread as it is drawn at an angle when the material is fed forward.

Among other advantages resulting from the employment of a needle constructed as above described may be enumerated the following: The absence of the short groove heretofore used causes the thread to be brought nearer to the shuttle or under needle, thus lessening the liability of skipping stitches.

My improved needle can be manufactured at a less cost than those now in use, as there is but a single groove to form and polish.

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

A sewing-machine needle grooved only on one side, such groove extending to or beyond the eye and being sufficiently deep to protect the thread, and with the eye on that side of the needle not provided with a groove countersunk or beveled all around its edge, substantially as and for the purpose set forth.

Witness my hand this 26th day of April, A
D. 1870.

EDWIN STRAIN.

in presence of--

P. E. TESCHEMACHER,
L. E. BATCHELLER.