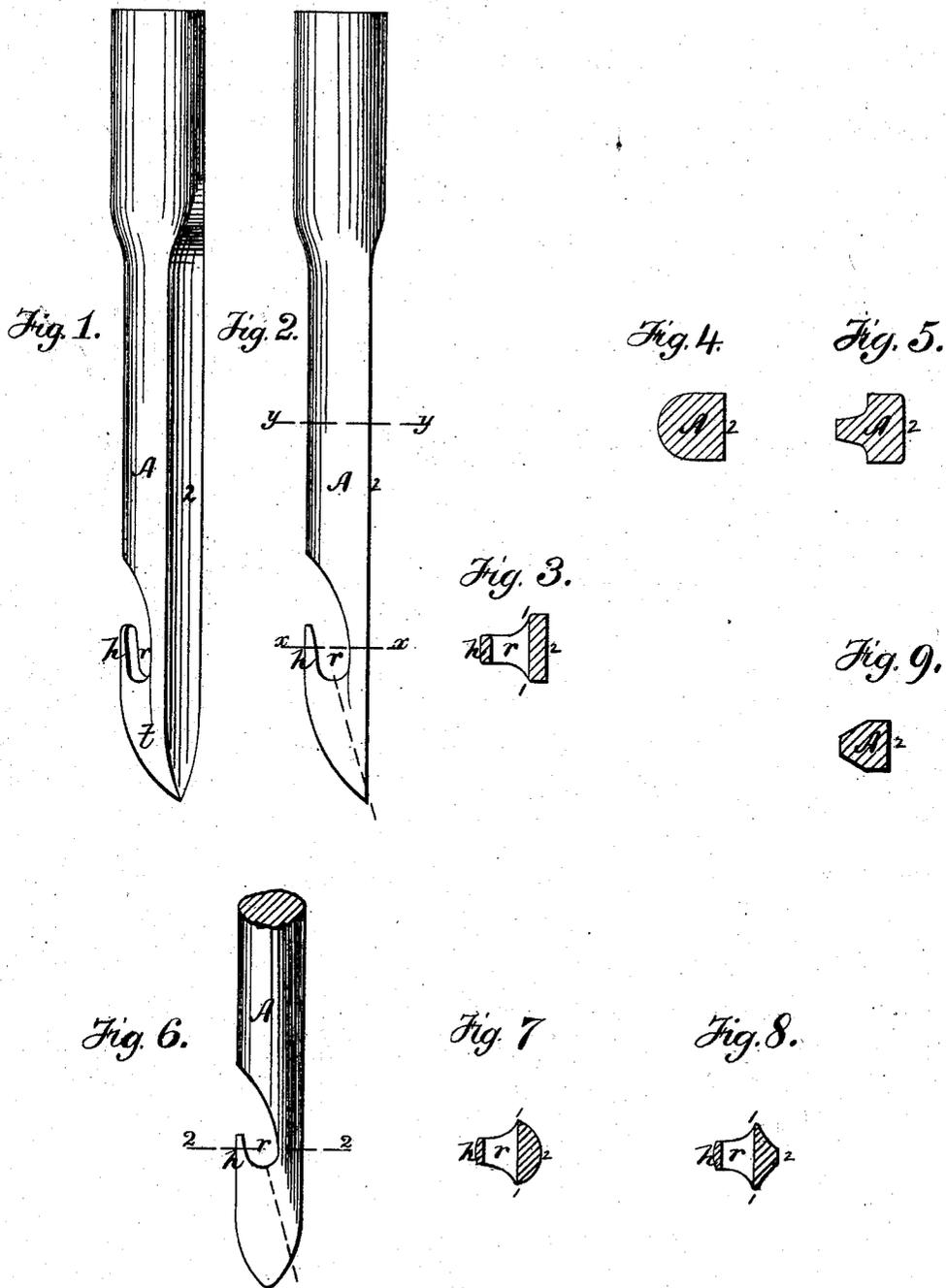


G. W. LASCELL.
Sewing-Machine Needle.

No. 211,242.

Patented Jan. 7, 1879.



Witnesses
Geo. W. Pierce,
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UNITED STATES PATENT OFFICE.

GEORGE W. LASCELL, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. 211,242, dated January 7, 1879; application filed March 11, 1878.

To all whom it may concern:

Be it known that I, GEORGE W. LASCELL, of Lynn, in the county of Essex and State of Massachusetts, have invented certain Improvements in Sewing-Machine Needles, of which the following is a specification:

This invention relates to needles for wax-thread sewing-machines, and has for its object to provide certain improvements in the construction of such needles, whereby their strength and durability are increased and certain objections heretofore existing are overcome.

To these ends my invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a perspective view of a needle embodying my improvements. Fig. 2 represents a side view of the same. Fig. 3 represents a transverse section on line $x x$, Fig. 2. Fig. 4 represents a transverse section on line $y y$, Fig. 2; Figs. 5 and 9, sections on said line, showing modifications. Fig. 6 represents a side view of a common form of needle. Figs. 7 and 8 represent sections on line $z z$, Fig. 6.

Similar letters of reference refer to like parts.

In the drawings, A represents the needle of a wax-thread sewing-machine, the same being usually provided with a perforating point or end, t , and a barb or hook, h . In making this barb or hook it is necessary to cut a transverse recess, r , in one side of the needle, this recess forming the eye or thread-receiving space. To make the eye of sufficient size to receive the thread which a needle of any given size is required to carry, the recess r has to be made of a depth exceeding half the diameter of the needle, so that in forming the recess a considerable proportion of the thickness of the needle is cut away.

Heretofore, the back of a hook-needle of this class, or the side opposite the hook, has been rounded or equivalently shaped, so that its cross-section will gradually diminish in thickness from the edges 1 1 of the back side of the eye or recess r to the extreme rear point or back 2 of the needle, as shown in Figs. 7 and 8.

It will be seen that in a needle of this con-

struction the formation of the eye or recess r necessitates the removal of about two-thirds of the cross-section of the metal, so that the needle is materially and seriously weakened at this point; and acute angles are formed by the meeting of the back with the rear or inner side of the eye or recess r , which angles are liable to have burrs or sharp edges formed in them by contact with the whirl, which revolves around the needle to throw the thread onto the hook, the edges thus formed cutting the thread as it is drawn through the hook.

Heretofore, the point of a hook or barb needle, or any sewing-machine needle, has been about on a line with the longitudinal center of the needle—that is to say, between the longitudinal planes of the front and back sides of the needle, as shown in Fig. 6. This arrangement of the point obviously requires the beveling or rounding of all sides of the needle in forming the point, and necessitates the location of the point at one side of a vertical plane passing through the center of the narrow portion of the needle, that is located back of the recess or eye r . Consequently the pressure of the point of the needle against the stock, which the needle passes through, has a tendency to bend the point of the needle toward the front or hook side thereof, this tendency often resulting in the breakage of the needle at said narrow portion. Moreover, in pulling the loop of thread through the stock by the hook, which is done under very strong tension, the draft or strain of the thread on the hook is exerted downwardly and backwardly at about the angle indicated by dotted lines in Figs. 2 and 6, and the removal of metal at the end of the needle involved in locating the point at the center, as shown in Fig. 6, often renders the thickness of metal along the line of draft indicated insufficient to resist the strain; hence breakage from this cause is often the result.

I overcome the objections and difficulties recited by making the needle of substantially uniform thickness in cross-section from the edges 1 1 of the back side of the recess r to the extreme back, 2, of the needle, as shown in Fig. 3. To effect this I form the back 2 substantially flat and of about the same diameter as the center of the needle, so that the

cross-section of the needle at the rear of the eye is substantially oblong in shape. I prefer to extend the flat back as a substantially plane surface from the enlarged tang of the needle to the point thereof, as shown in Fig. 1.

By this construction I virtually add corners to a round-backed needle at its narrow portion opposite the hook, and thus supply the needed strength at this point, besides making substantially right angles at the edges of the rear or inner side of the recess r instead of acute angles, as heretofore, thus obviating the above-recited liability of forming sharp edges or burrs by the action of the whirl. The continuation of the back as a plane surface to the point of the needle causes the point to be located substantially in line with the narrow portion of the needle, and thus obviates the above-recited liability of breaking the needle, either by the pressure of the needle against the stock or by the strain of the thread exerted on the hook.

It will be seen that my improvement enables me to make a larger and deeper eye or recess, r , than can be made in a round-backed needle of equal diameter, so that the needle is made capable of carrying a much larger thread in proportion to its size than would be possible otherwise.

A needle with a flat back forms a hole with one straight or flat side, which, as the thread is drawn over it, causes the thread to spread and form a fair or square-ended stitch. The corners of the flat back may be exactly square and sharp, or they may be slightly rounded or chamfered off. I prefer to make the corners square on all sizes, from the smallest to the medium or No. 8 (Blake) machine-needle, and on all sizes above this number, from the eye up to and beyond the diameter of the tang of the needle, the corners should be chamfered or rounded off more or less, to allow the needle to pass through the needle-hole in the throat-plate and the whirl beneath. The square back may be used in connection with the grooved front shown in my patent of

August 24, 1875, as shown in Fig. 5, or in connection with a needle having a beveled front, as shown in Fig. 9. In each of these forms the removal of metal from the front of the needle compensates to a great extent for the addition of metal to the back involved in making the same flat; hence the area of the hole made by the needle is not necessarily larger than that of a hole made by an ordinary round needle.

I do not limit myself to the location of the point in the line of the back in connection solely with a flat-backed needle, as the point may be similarly arranged on a round-backed or other shaped needle; neither do I limit myself to a flat back extended as a plane surface to the point of the needle, as the lower end of the needle may be beveled or rounded off at the back to form a point arranged in advance of the line of the back in the usual manner.

The improvements described are equally applicable to an eye-pointed sewing-machine needle as to a hook or barb needle; hence I do not limit myself to either kind.

I claim as my invention—

1. A sewing-needle having a perforating-point, an eye adjacent thereto, and flat at the back, substantially as and for the purpose set forth.

2. A sewing-machine needle having its back composed of a flat or plane surface terminating in a point, all on one plane throughout the operating portion of the needle, as set forth.

3. A sewing-machine needle having a flat back and a point in line therewith, and contracted in width in front above the eye, as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE W. LASCELL.

Witnesses:

GEO. W. PIERCE,
C. F. BROWN.