

F. H. DRAKE.
Needles for Sewing Machines.

No. 29,648.

Patented Aug. 14, 1860.

Fig. 2.

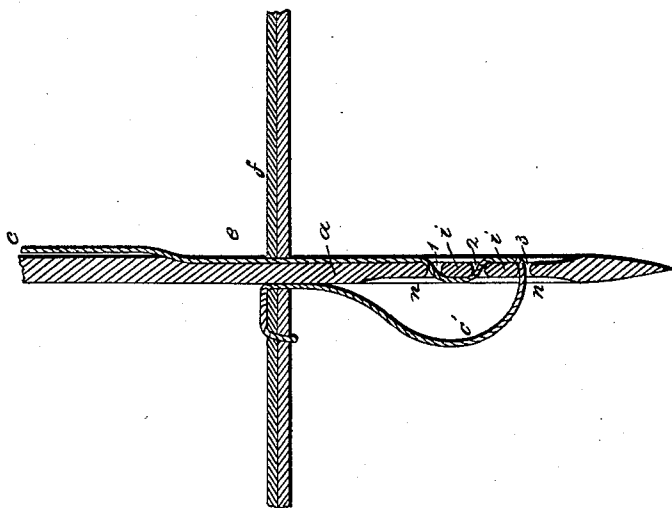
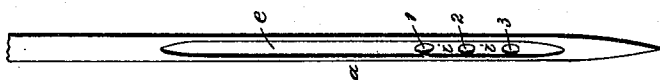


Fig. 1.



Witnesses:

J. Cohen
J. Hirsch.

Inventor:

Frederick H. Drake.
per his atty A. B. Stoughton.

UNITED STATES PATENT OFFICE.

FREDERICK H. DRAKE, OF MIDDLETOWN, CONNECTICUT, ASSIGNOR TO HIMSELF AND JONATHAN S. CHRISTIE.

IMPROVEMENT IN SEWING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. 29,648, dated August 14, 1860.

To all whom it may concern:

Be it known that I, FREDERICK H. DRAKE, of Middletown, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Needles for Sewing-Machines; and I do hereby declare the following to be 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 view of a portion of a sewing-machine needle sufficient to illustrate my invention. Fig. 2 represents a section through the same, and having the thread represented as passing through the eyes thereof, to show the manner of insuring the forming of the loop.

The high speed at which sewing-machines are driven makes the forming of a loop in the thread a very uncertain matter, even where mechanism is used to facilitate that operation.

The object of my invention is to make the receding of the needle from the loop, which is to be caught up to make the seam with certainty whatever may be its speed or motion; and my invention consists in making two or more eyes in the needle near its point, or where the eye of a sewing-machine needle is ordinarily made, through which eyes the needle-thread is passed.

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.

a represents a portion of a needle having near its point three eyes through it, 1 2 3, through which the thread from the spool is passed, as shown in red in Fig. 2. As it is desirable to have the thread pass out of the needle on the side thereof opposite to that on which it enters, there should be in the series of eyes an odd number, as three, five, seven, &c., though it would be possible to use two, four, six, &c.; and while, therefore, I suggest the number found to answer the best purpose, I do not limit myself to any number of eyes more than one. It would be possible, too, to make the needle tubular, and have one eye above the other, each extending into the hollow of the tube, so that there would be a broken line of thread where it passed through the needle, and thus make friction

enough on the thread to insure the throwing up or forming of a loop, instead of allowing the slack to pass through the eye onto the opposite side of the needle to that on which the loop should form. It may be said that with a single eye in the needle the thread goes in on one side of the needle and comes out on the opposite side. This is true; but there is no broken line in the thread, and hence no friction such as is necessary to cause the thread to slack up on one side of the needle without passing back through the eye in the direction whence it comes from the spool. The passing back of the thread through the eye of the needle can in a measure be prevented if great care is taken to change the needle every time the thread is changed, and to have the latter fit or suit the eye of the former exactly; but this would scarcely ever be done. With a needle such as I propose, with two or three or more eyes through which the thread is passed, it is not material as to the comparative size of the needle and thread, as I make other provision to prevent the thread from slipping back through the eyes than that of exact conformity between the eye and the thread.

So great has heretofore been the difficulty in forming and preserving the loop in sewing-machines that the shuttle or looper may take it with certainty that many mechanical devices have been invented to catch, spread, and hold open the loop; but all these, owing to the delicacy of the operation and the high speed at which they must work, will at times fail to accomplish their purpose. I can dispense with all these mechanical devices and make the needle form its own loop at the right time and in the right place without making so many moving parts, that must of necessity be timed exactly with the movement of the needle to catch, spread, and hold open its loop and give it up again when the stitch is to be drawn up. In some sewing-machines as many as ten pieces are used for making and operating a loop catcher, spreader, or opener. I can dispense with all these pieces by simply making two or more eyes at or near the point of the needle.

c represents the thread as it is drawn or fed from the bobbin. It lies partially in a groove, *e*, formed in the needle, so as to pre-

vent undue friction between itself and the cloth *f*, and passes through the eye 1, thence back through the eye 2, thence through the eye 3 to where the stitches or seam is being made in the cloth. There several points of contact between the thread and the eyes of the needle through which it is laced, the metal portions *i* between the eyes acting like friction bars or brakes to keep the thread from slipping through or past them and compelling it to throw up the loop, as shown at *c'*, whenever the needle is retracted to form a loop. The thread on the opposite side of the needle from where the loop *c'* is formed has some tension or friction upon it, sufficient to prevent it from slacking up too much on that side, but not enough to draw the thread back in that direction through the eyes 1 2 3; or, in other

words, while the fullest provision is made for allowing the loop to form in the right place, due preventives are applied for preventing it from forming in the wrong place. Besides the groove *e* on one side of the needle, there is a shorter one, *n*, on the opposite side, the purpose of both being the same—namely, to prevent undue pinching of the thread between the needle and the cloth.

Having thus fully described the nature and object of my invention, what I claim is—

Making a perforating sewing-machine needle, substantially as herein described and represented.

F. H. DRAKE.

Witnesses:

A. B. STOUGHTON,
I. HIRSCH.