

J. FRENCH.  
SEWING MACHINE NEEDLE.  
APPLICATION FILED MAR. 4, 1907.

947,485.

Patented Jan. 25, 1910.

2 SHEETS—SHEET 1.

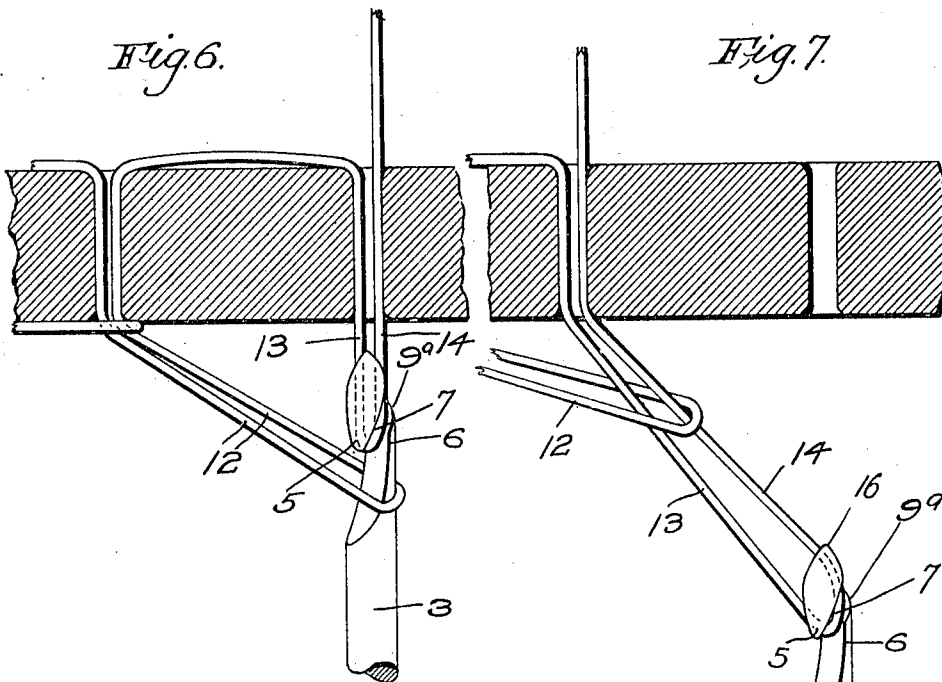
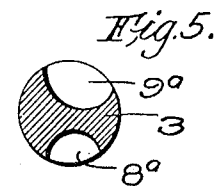
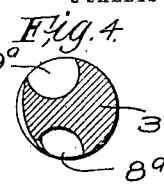
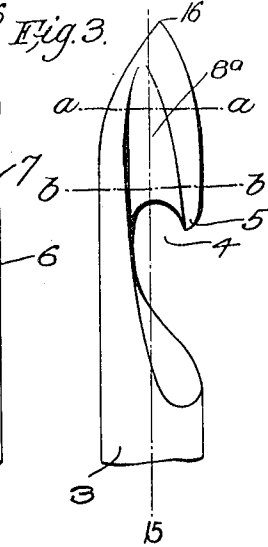
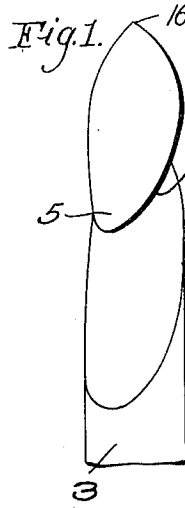
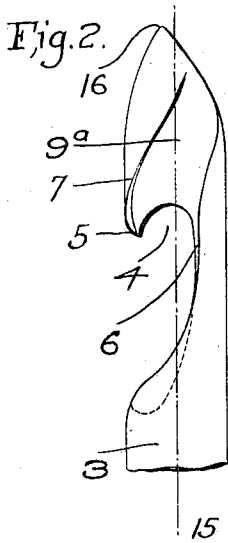
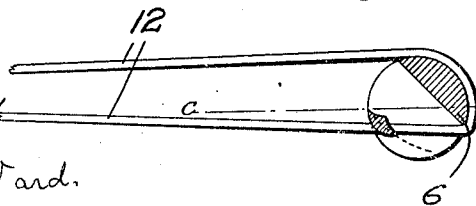


Fig. 8.



Witnesses.  
W.C. Lumsford.  
Joseph M. Ward.

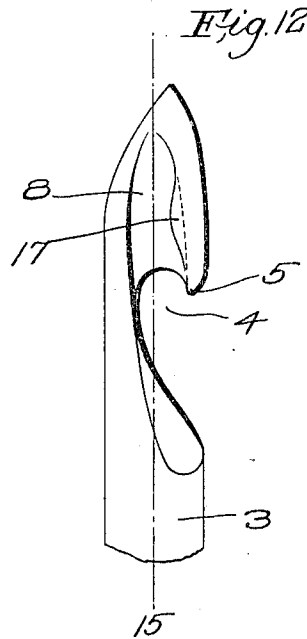
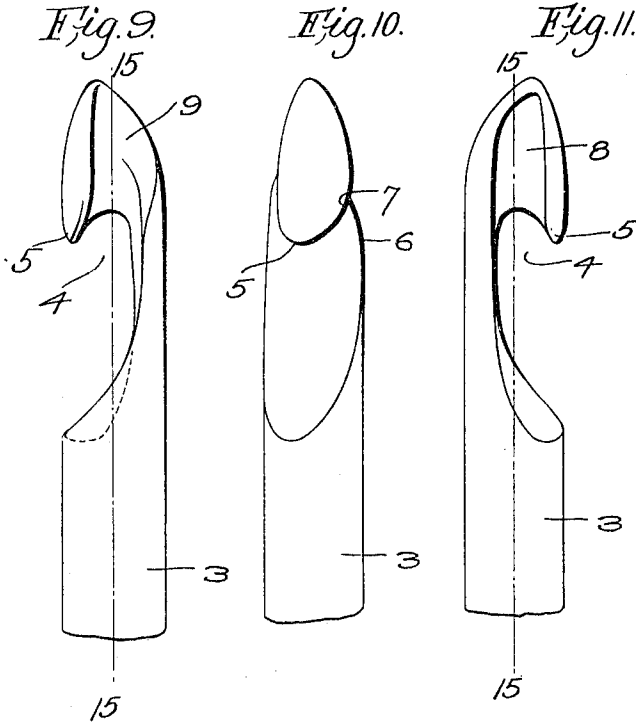
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Joseph French.  
by Crosby & Gregory  
Attys.

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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

JOSEPH FRENCH, OF WOONSOCKET, RHODE ISLAND.

## SEWING-MACHINE NEEDLE.

947,485.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Application filed March 4, 1907. Serial No. 360,364.

*To all whom it may concern:*

Be it known that I, JOSEPH FRENCH, a citizen of the United States, residing in Woonsocket, county of Providence, and State of Rhode Island, have invented an Improvement in Sewing-Machine Needles, of which the following description, in connection with the accompanying drawing, is a specification, like numerals on the drawing representing like parts.

This invention relates to sewing machine needles, and especially to straight needles having an open eye therein. Needles of this type are commonly used in chain-stitch sewing machines.

The object of the invention is to provide a novel needle of this class which can be used without a cast-off and also without any danger of the needle missing the last-formed loop when said needle is moved toward the work to penetrate the latter.

If needles of this class are set in a sewing machine with the eye and barb facing the direction toward which the work is fed, the previously-formed loop will be readily shed from the needle while the latter is drawn through both the work and the last-formed loop owing to the fact that the bight or closed end of said previously-formed loop rests around the back of the needle and the barb is faced away from said bight. When the needle is set in this position, however, there is nothing to hold the last-formed loop in the eye, so that when the needle begins its penetrative movement toward the work said last-formed loop is very apt to be dropped from the eye. If the needle is turned around or with the eye facing in the opposite direction, then there is no danger of the last-formed loop being dropped when the needle makes its penetrative movement, but a cast-off or other similar device is necessary to enable the previously-formed loop to be shed from the needle and to prevent said previously-formed loop from being caught in the barb while being so shed.

As stated above, it is the object of my invention to provide a needle which is so constructed that the last-formed loop will be securely held thereon and held in position so that the needle will always pass through said loop during its penetrative movement, and the previously-formed loop will not be

caught in the barb while being shed from the needle and enchained on the last-formed loop. To accomplish this object I make my improved needle with a barb which is cut away on that side of the needle having engagement with the previously-formed loop as the latter is shed and also so form the needle that the point on the side which is apt to catch in said previously-formed loop is properly guarded so that the barb cannot catch in the loop. This construction permits me to set the needle at an angle to the line of feed without danger of the previously-formed loop being caught in the barb and also permits me to dispense entirely with the cast-off.

These and various other objects and advantages of my invention will more clearly appear from the following description of some embodiments of the invention.

In the drawings, Figure 1 is a front view of a needle embodying my invention; Fig. 2 is a side view thereof; Fig. 3 is a view showing the opposite side of the needle from that shown in Fig. 2; Fig. 4 is a section on the line *a-a*, Fig. 3; Fig. 5 is a section on the line *b-b*, Fig. 3; Fig. 6 is a view showing the operation of the needle in the formation of stitches; Fig. 7 is a view showing the position of the needle and the loops as the needle begins its penetrative movement; Fig. 8 is a diagram showing the position of the needles relative to the line of feed; Fig. 9 shows one side of a needle embodying a different form of the invention; Fig. 10 is a front view of the needle shown in Fig. 9; Fig. 11 shows the opposite side of the needle shown in Fig. 9; Fig. 12 shows still another embodiment of the invention.

The needle 3 is provided with the eye 4 and barb 5, as usual. One side of the needle is formed with the guard portion 6 which projects beyond the edge 7 and the point of the barb, as best shown in Fig. 1, for the purpose of protecting the previously-formed loop from the barb when said loop is shed from the needle. This guard portion 6 operates to hold said previously-formed loop away from the barb so that it will not be caught thereon as it is shed from the needle.

In my improved needle the edge 7 of the barb which is situated on the side of the needle having engagement with the previ-

ously-formed loop while the latter is shed is cut away somewhat, as plainly seen in Fig. 7, so that when the previously-formed loop is shed, said loop will slip freely over the  
 5 barb without any danger of being caught therein. While the guard portion 6 may be formed on the needle in various ways, I prefer to make it by cutting the eye 4 on an inclination to the length of the needle  
 10 so that the side of the eye on the right-hand side of the needle, Fig. 1, is higher or nearer to the point than on the left-hand side of the needle in said figure. The open eye of an ordinary needle is cut or formed so that  
 15 the two sides of the eye are located opposite each other and the same distance from the point of the needle, but by cutting the eye so that said eye terminates on one side of the needle nearer the point than on the other  
 20 side of the needle, the edge 7 and the point of the barb will be cut away, as seen in Fig. 1, and the guard portion 6 will be left on the body of the needle to protect the barb, said guard portion 6 standing sufficiently  
 25 beyond the edge 7 of the barb to protect not only said edge but the point thereof from getting caught in the previously-formed loop when the latter is shed from the needle.

In Figs. 9 10 and 11 I have shown the  
 30 needle as having the usual thread-receiving grooves 8 and 9 which extend from the eye toward the point in a direction substantially parallel to the median line of the needle.

In Figs. 2 and 3 which show the preferred  
 35 embodiment of the invention, the thread-receiving grooves 8<sup>a</sup> and 9<sup>a</sup> extend from the eye in an inclined or diagonal direction, said grooves terminating on the back side of the needle between the eye and the point. These  
 40 thread-receiving grooves may both be of the same depth, or I may make the groove 9<sup>a</sup> on that side of the needle having the guard 6 slightly deeper than the other groove, as shown in Fig. 4. In using a needle having  
 45 these improvements, the needle may be set as shown in Figs. 6, 7 and 8, that is, with the eye at an angle of somewhere in the neighborhood of 45° from the line of feed which is indicated by the line *c—c*, Fig. 8, the  
 50 needle being turned so that the side having the guard 6 is turned away from the direction toward which the work is fed. When in this position, the previously-formed loop 12 has engagement with the side of the needle having the guard 6 and the side on which  
 55 the edge 7 of the barb is cut away, but because of the presence of said guard and the barb being cut away, as shown, said previously-formed loop will be readily shed from the needle without any danger of being caught by the barb while the last formed loop 13 is being drawn through the material, as shown in Fig. 6, because the guard portion 6 completely protects the barb from  
 65 said loop 12.

The thread-receiving groove or recess 9<sup>a</sup> which is situated on that side of the needle that faces toward the direction from which the work is fed which is the groove that receives the strand 14 of the last-formed loop  
 70 leading to the thread supply is deeper than the other groove, and because of this fact and also because said groove inclines backwardly, as shown in Fig. 2, said groove 9<sup>a</sup> serves to guide the strand 14 of the last-formed loop 13 back of the point of the needle when the work is fed forward, as seen in Fig. 7, so that when the needle is given its penetrative movement the point thereof will not miss said last-formed loop 13.  
 80

While I prefer to make the thread-receiving grooves inclined or on the diagonal, as shown in Figs. 2 and 3, yet this is not essential to the invention as my invention may be embodied in a needle with the grooves extending parallel to the length of the needle, as seen in Figs. 9, 10 and 11.  
 85

In Fig. 12 I have shown a slightly different way of forming the thread-receiving grooves. In said figure, these grooves are  
 90 formed with the overhanging lip 17 which partially overlies the thread and serves to more securely hold it in the groove.

In Figs. 2 and 3 of the drawings the end of the needle is so shaped that the point 16 thereof is situated in front of the median line 15. This has the advantage that when the work is fed forward, as seen in Fig. 7, and the needle begins its penetrative movement, the point 16 is situated so far to one  
 95 side of the last-formed loop 13 that said point cannot miss the loop. I prefer to so construct the needles, although a needle with a centrally-arranged point which embodies the other features of the invention can be  
 100 successfully used.  
 105

A needle embodying my invention can be used without a cast-off and without danger of the last-formed loops being dropped or of the previously-formed loops 12 being  
 110 caught in the barb, as will be obvious.

I have not attempted to show herein all embodiments of my invention, but have illustrated merely the preferable forms thereof.

Having fully described my invention,  
 115 what I claim as new and desire to secure by Letters Patent is:—

1. A straight sewing machine needle having an open eye formed by a slot or cut in the side of the needle which extends from  
 120 one side of the needle body to the other in a direction inclined to the length of the needle.

2. A straight sewing machine needle having an open eye extending from one side to the other thereof in an inclined direction  
 125 relative to the length of the needle, and a thread-receiving groove on each side extending toward the opposite or back side of the needle and inclined toward the point thereof.

3. A straight sewing machine needle hav-  
 130

ing an open eye extending in an inclined direction relative to the length of the needle, and a thread-receiving groove on each side extending toward the back side of the needle  
5 and inclined toward the point thereof, the groove which faces the direction from which the work is fed being deeper than the other groove.

In testimony whereof, I have signed my name to this specification, in the presence of 10 two subscribing witnesses.

JOSEPH FRENCH.

Witnesses:

LOUIS C. SMITH,  
BERTHA F. HEUSER.