J. A. BROGAN.

NEEDLE.

APPLICATION FILED FEB. 12, 1914.

1,187,032. Patented June 13, 1916.

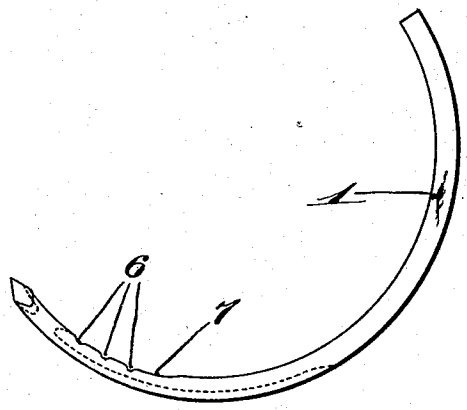



Fig. 1.

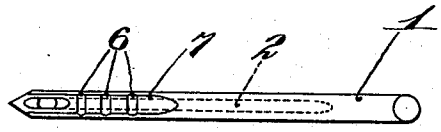



Fig. 2.

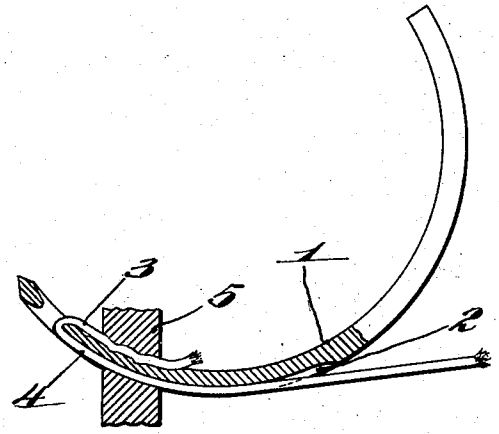



Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## NEEDLE.

1,187,032. Specification of Letters Patent. **Patented June 13, 1916.**

Application filed February 12, 1914. Serial No. 818,245.

*To all whom it may concern:*

Be it known that I, JAMES A. BROGAN, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Needles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to needles for sewing machines and more particularly to needles for sewing machines which are designed to insert in the work a series of individual, unconnected thread fasteners.

An example of the type of sewing machine in which the present invention is particularly useful is one for temporarily fastening together the upper and insole of a lasted shoe preliminary to the permanent sewing of the inseam. In such an operation each thread fastener is formed, from a portion of the thread at the end of the thread supply, by means of a needle which forces the thread through the work to form a loop of thread preparatory to completing the formation of the thread fastener.

The object of the present invention is to provide an improved form of needle which shall clamp the short end of a loop of thread formed from a portion of the thread at the end of the thread supply, as the needle is forced through the work, and prevent this short end from being withdrawn from the needle by the tension upon the supply, or opposite, side of the loop.

With this object in view, a feature of the invention consists in a needle provided upon one side with a longitudinal groove, in which the thread leading from the thread supply lies and is allowed to slide freely. In its preferred construction the needle is also provided at its opposite side with a roughened or uneven surface to additionally clamp the thread end as the needle is forced through the work to form a loop.

The preferred embodiment of the invention is shown in connection with a curved eye-pointed needle for use on a shoe sewing machine, but it is to be understood that the invention is equally applicable to other types of needles.

In the accompanying drawings; Figure 1 is a side view of the needle; Fig. 2 a plan view, and Fig. 3 a longitudinal, sectional view of the needle and work illustrating the manner in which the short end of the thread is clamped as the needle passes through the work.

In operating upon certain classes of work as already indicated, it is necessary to handle the thread close to its free end and when doing this it is essential that the needle be so constructed as to provide for clamping the thread end in the work to prevent the needle from losing control of the thread. In the specific embodiment of the invention disclosed in the drawings, a curved, eye-pointed needle 1 is shown, and a longitudinal groove 2 is formed in the under side of the needle in which one side of the loop of thread to be formed lies, and is thus allowed to slide freely through the work as the loop is being formed. As shown in Fig. 3, the short side 3 of the loop lies upon the upper, ungrooved side of the needle and the side 4 of the loop leading to the supply lies in the groove 2 at the lower side, the purpose of this arrangement being to produce a frictional clamp for the short side of the loop as the needle is forced through the work 5 (Fig. 3) and thus cause the thread for the loop to be drawn from the supply. It has been found in practice, however, that the tension upon the thread is sometimes sufficient, when the needle is passing through the work, to pull the short end of the thread through the eye of the needle, against the clamping effect exerted thereon by the work and upper side of the needle. For instance, at times there may be a quick pull or an extra tension on the supply side, owing to an unevenness in the thread, or owing to the operation of the thread finger in reaching to pick up the loop. In such cases it is desirable to provide means for additionally clamping the short side of the loop to prevent the needle from losing control of the thread. To this end the needle is preferably provided with a roughened or uneven surface formed, in the specific embodiment of the invention, by a series of transverse recesses or grooves 6 located on the upper side of the needle at the rear of its eye or other thread receiving part. In addition, the upper side of the needle may be slightly flattened as at 7, to cause the thread to lie evenly upon the upper side of the needle.

With this construction, as shown in Fig. 3, as the needle is forced through the work the short side of the loop is jammed into the recesses or grooves 6 by the work and is firmly clamped against further movement with the needle, preventing either the tension upon the supply side of the loop, or the action of the thread finger, from reeving the short end of the thread through the work and out of the eye of the needle.

The nature and scope of the invention having been indicated and the preferred embodiment of the invention having been specifically described, what is claimed as new is:—

1. A needle provided with a roughened frictional surface on one side at the rear of its thread receiving part to hold the thread end on that side from reeving through the work as the needle is forced through the work to form a loop.

2. A needle provided with a frictional surface comprising a series of transverse recesses or grooves on one side at the rear of its thread receiving part to hold the thread end on that side from reeving through the work as the needle is forced through the work to form a loop.

3. A needle having one side at the rear of its thread receiving part flattened and roughened, forming a bearing for the thread preventing the thread end on that side from reeving through the work as the needle is forced through the work to form a loop.

4. An eye-pointed needle having a longitudinal groove extending rearwardly from its eye on one side for the reception of the thread end on that side, and an oppositely disposed flattened surface provided with a series of transverse grooves to frictionally hold the thread end on the other side from reeving through the needle eye, as the needle is forced through the work to form a loop.

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**Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."**