

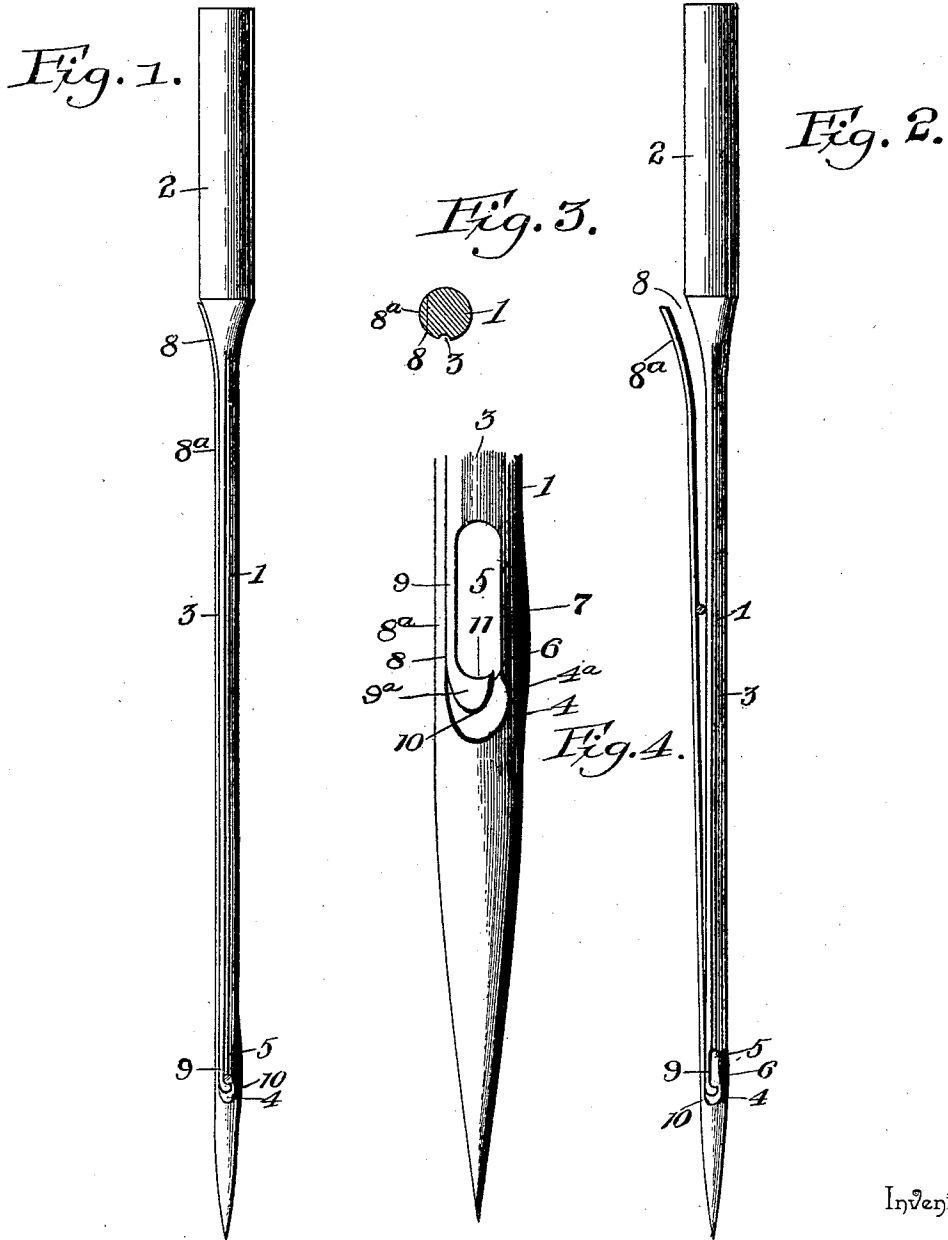
No. 653,886.

Patented July 17, 1900.

L. A. ROBERTS.
NEEDLE.

(Application filed Sept. 9, 1897.)

(No Model.)



Inventor

Witnesses

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UNITED STATES PATENT OFFICE.

LOTTIE ANTONITTE ROBERTS, OF SAN FRANCISCO, CALIFORNIA.

NEEDLE.

SPECIFICATION forming part of Letters Patent No. 653,886, dated July 17, 1900.

Application filed September 9, 1897. Serial No. 651,121. (No model.)

To all whom it may concern:

Be it known that I, LOTTIE ANTONITTE ROBERTS, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Needle, of which the following is a specification.

My invention relates to sewing-machine needles of that class wherein the construction is such as to provide for introducing the thread laterally or sidewise into the eye instead of inserting the same endwise, as in the ordinary practice.

The object of my invention is to provide an improved needle of the construction described wherein the passage through which the thread is introduced is normally closed to complete the exterior contour of the needle by means of a yielding guard or cover adapted to be sprung outwardly or displaced sufficiently with relation to the body portion of the needle to allow the introduction of the thread.

It is not broadly new to provide a sewing-machine needle with a laterally-accessible thread-passage having a guard or cover which forms the outer side of the passage, nor is it broadly new to provide a laterally-accessible passage having a guard of yielding construction which normally maintains the passage closed and of which the edges are normally in close contact with the contiguous portions of the surface of the body portion of the needle to avoid edges and preserve the unbroken contour of the needle. I have found, however, in practice that in order to construct a needle, as above indicated, with a laterally-accessible thread-passage which is normally closed by a yielding guard it is necessary to provide auxiliary means capable of yielding to allow the thread to pass without chafing along the base of the yielding guard, (said base obviously being that portion which is attached to and forms a connection with the body portion of the needle,) and hence I have devised in connection with the guard a supplemental tongue extending in the opposite direction from the guard, whereby its free end is located at or near the base of the guard, whereby as the guard approaches the base or less yielding portion of the guard the necessary opening of the thread-passage is accom-

plished by the increased yielding of the tongue, the tongue being protected by the guard to prevent contact of the former with the fabric which is penetrated by the needle.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side view of a needle constructed in accordance with my invention, a thread being shown in the eye thereof and the guard and tongue being shown in their normal positions. Fig. 2 is a similar view showing the guard deflected as when the thread is at an intermediate point of the thread-passage or as when during the act of threading the needle. Fig. 3 is a transverse sectional view of the needle to show the normal position of the guard with its exterior surface completing the contour of the needle. Fig. 4 is a detail side view of the eye portion of the needle to show the relative positions of the base of the guard and the auxiliary tongue.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The body portion 1 of the needle embodying my invention is provided with the usual butt 2, which may differ in construction according to the machine in connection with which the needle is to be used, said body portion having the usual thread-groove 3.

At the usual point in the needle is formed an eye 5, elongated parallel with the needle and having at its lower end an enlarged extension forming a cavity 4. One wall of the eye proper, 5, is formed by an inwardly-yielding tongue 9, fixed at its upper end by being integral with the body portion of the needle and terminating at its lower end in an enlargement or head 9^a, which extends transversely across and partly closes the lower end of the eye proper, said head occupying a position in the cavity 4 and having its upper surface concaved to form a seat 11 to receive the downward pressure of the thread during the upward movement of the needle. Said head 9^a of the inwardly-yielding tongue extends toward the fixed or stationary wall of the eye and terminates sufficiently short thereof to form a throat 6, through which the

thread is adapted to pass from the enlarged eye extension or cavity 4 into the eye proper, 5, and in order that this operation of the thread may be facilitated the contiguous wall 4^a of the cavity 4 is curved inwardly toward its upper portion to meet the stationary or fixed wall of the eye proper, while the adjacent surface 10 of the head or enlargement 9^a is inclined toward said wall 4^a to contract the throat toward its upper end or toward its point of communication with the eye proper.

The eye extension 4 is accessible to a thread through a thread-passage 8, which preferably has its initial point near the butt of the needle and extends longitudinally of the needle, as clearly shown in Figs. 1 and 2, while the separated portion of the needle, due to this longitudinal slitting thereof, constitutes a guard 8^a, which springs from or has its butt-end arranged at that side of the needle-eye adjacent to the free end of the tongue 9, the opposite or upper end of said guard being free to allow the introduction of a short length of thread held between the hands of the operator. The inner surface of the guard bears snugly against the contiguous surface of the body portion of the needle throughout its length from the free end to the base or butt-end, which, as above indicated, is located at one side of the needle-eye, and the inwardly-yielding wall formed by the tongue 9 extends downwardly from the upper end of the eye proper parallel and in contact with the adjacent portion of the guard to a point in the plane of the lower end of said eye proper. From this point the tongue-head 9^a is deflected inwardly from the plane of the inner surface of the guard to form an upwardly-tapered space which is sufficient in practice to allow a slight outward yielding of said tongue-head to spread the throat 6 sufficiently to allow a thread which has been introduced into the eye extension 4 through the passage 8 to pass from the eye extension into the eye proper.

In connection with the above-described construction it will be noted, first, that the thread-passage is normally maintained closed by reason of the contact of the guard or movable wall of the thread-passage with the opposite or fixed wall of said passage, whereby the exterior contour of the needle is normally unbroken. Furthermore, it will be seen that as a thread is passed from the upper free end of the guard toward the base or butt-end thereof said guard yields outwardly, but that the resistance to such lateral yielding which is offered by the guard at a point near its base or butt-end is compensated for by the inwardly-yielding tongue 9, of which obviously the yielding tendency increases downwardly or toward its free end. Thus at that point of the guard where the lateral yielding quality thereof is reduced I have disposed the above-described tongue 9, which facilitates the movement of the thread in its approach to the eye extension 4. After the thread has passed the free end of the tongue 9 both the

tongue and the guard resume their normal positions, and subsequently the thread may be carried to the opposite side of the cavity 4 and drawn upwardly through the throat 6, which is preferably made narrow in order to prevent downward displacement of the thread through the eye proper, 5. There is sufficient yielding quality in the tongue-head 9^a, however, to allow the thread to pass through the throat in its entrance to the eye proper. It will be noted, furthermore, that after the thread has been introduced into the eye proper the downward movement thereof with relation to the needle, as during the upward movement of the needle, will cause the contact of the thread with the concaved seat 11, formed by the upper surface of the tongue-head 9^a, and as the throat 6 is positioned contiguous to one side wall of the eye proper—namely, that side wall which is fixed or stationary—the liability of displacement of the thread from the eye proper is reduced to the minimum.

The body portion of the needle is preferably enlarged or thickened, as shown at 7, at one side of the thread-eye, opposite to said tongue 9, in order to give increased strength and rigidity.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A needle comprising a shank having an eye therein, one wall and a portion of the base of which eye is formed by a spring-tongue extending downwardly at one side of and part way across the base of the eye and separated normally from the opposite wall by an interspace, said tongue being adapted for movement throughout its length to close and open said interspace, an eye extension below the tongue and communicating with the eye proper through said interspace, an upwardly-directed opening leading from the eye extension, and a spring-guard for said opening forming a continuation of one wall thereof and extending upwardly in the direction of the spring-tongue and beyond said tongue, and normally in engagement with the spring-tongue continuously and with the shank of the needle, whereby there will be a mutual yielding of the tongue and guard at their normally-engaging points.

2. A needle of the class described, having a laterally-accessible eye of which one wall consists of an inwardly-yielding downwardly-extending tongue, and also having a thread-passage communicating with said eye and provided with an outer yielding wall, consisting of a guard which springs from the body portion of the needle at one side of said eye, and adjacent to the free lower end of said tongue, whereby the tongue is adapted to yield inwardly during the passage of a thread

between the same and the adjacent butt-end of the guard, substantially as specified.

3. A needle of the class described, having a thread-eye, proper, of which one wall consists of an inwardly-yielding tongue having a free lower end and terminating in a head or enlargement which partly closes said eye at its lower end, and also having an eye extension below said head or enlargement of the inwardly-yielding tongue, and communicating with the eye, proper, by a throat, and also having a thread-passage, communicating with the eye extension and closed at its outer side by an outwardly-yielding guard, extending upwardly from a point at one side of the eye and adjacent to the free end of the tongue, substantially as specified.

4. A needle of the class described, having a thread-eye, proper, of which one wall consists of an inwardly-yielding tongue having a free lower end and terminating in a head or enlargement which partly closes said eye at its lower end, and also having an eye extension below said head or enlargement of the inwardly-yielding tongue, and communicating with the eye, proper, by a throat, located contiguous to one side wall of the eye, proper, the upper side of the head or enlargement of the tongue being concaved to form a thread-seat, and also having a thread-passage, communicating with the eye extension and

closed at its outer side by an outwardly-yielding guard, extending upwardly from a point at one side of the eye and adjacent to the free end of the tongue, substantially as specified. 35

5. The herein-described sewing-machine needle, having a thread-eye comprising an upper portion or eye, proper, having an inwardly-yielding side wall consisting of a downwardly-extending tongue 9, terminating in a head or enlargement by which the lower end of said eye, proper, is partly closed, and a lower portion or eye extension, of a width greater than the eye, proper, and also having a thread-passage communicating with the eye extension, and closed at its outer side by a laterally-yielding guard, extending upwardly from that side of the eye adjacent to the said tongue, and bearing against the outer side of the tongue, and also, throughout its length, against that wall of the thread-passage which is formed by the adjacent side surface of the body portion of the needle, substantially as specified. 40 45 50

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses. 55

LOTTIE ANTONITTE ROBERTS.

Witnesses:

ADDIE E. GEER,
L. E. MOULTON.