

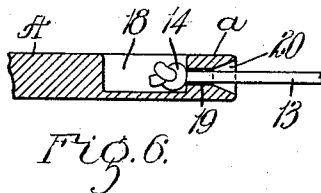
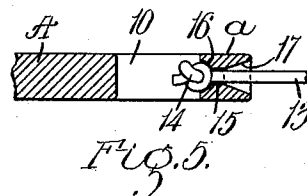
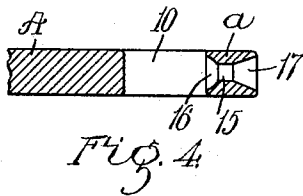
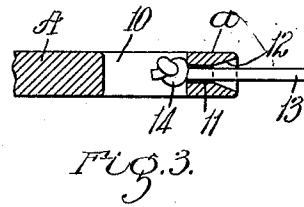
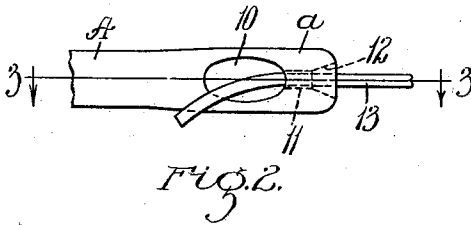
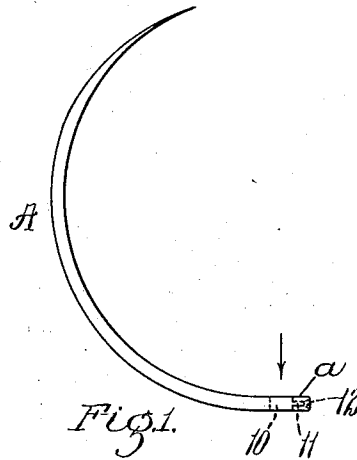
May 6, 1930.

W. L. McCLURE

1,757,129

ATRAUMATIC RETHREADABLE SURGICAL NEEDLE

Filed Feb. 16, 1928



Inventor:
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UNITED STATES PATENT OFFICE

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ATRAUMATIC RETHREADABLE SURGICAL NEEDLE

Application filed February 16, 1928. Serial No. 254,863.

This invention relates to a needle and particularly to an atraumatic type of rethreadable surgical needle. There are at the present time to my knowledge two types of surgical needles in common use. The best known and most used of these types is provided with an eye in which the thread is inserted in the usual well known manner, and different methods are employed by surgeons to prevent the short end of the thread from being accidentally pulled through the eye and thereby unthreading the needle, as, for example, tying the thread or forming loops of various types therein. In any event, the thread injures the flesh, increases the size of the opening created by the needle and makes it more difficult to pull the head of the needle through the flesh, and when knots or loops are formed in the thread, it is still more difficult to pull the thread through the flesh, the danger of tearing the flesh is increased and the pain is intensified if anæsthetics are not administered to the patient.

The other needle which is not so commonly used by surgeons is an atraumatic needle, but it is not provided with an eye and is not rethreadable. In this needle, the thread is permanently secured in the head portion thereof when the needle is manufactured and cannot be removed or replaced. Because of this fact, this type of needle is very expensive to use, as it is evident that it must be discarded after it has been used once.

The object of this invention is to provide an atraumatic needle which may be rethreaded and used indefinitely, the needle being provided with an eye in which the thread may be inserted and in which it may also be secured in a firm and efficient manner by forming a knot in the end of the thread, said knot, however, being enclosed within the head of the needle in such a manner that neither the needle nor thread will increase the size of the opening made by the needle or retard the passage of the thread through the flesh, or increase the pain to which the patient may be subjected.

The invention consists in a surgical needle as set forth in the following specification and

particularly as pointed out in the claims thereof.

Referring to the drawings:—

Figure 1 is a side elevation of a surgical needle embodying my invention.

Fig. 2 is an enlarged elevation of the head portion of the needle looking in the direction of the arrow, Fig. 1.

Fig. 3 is a longitudinal section through the head portion of the needle as taken on the line 3—3 of Fig. 2.

Figs. 4 and 5 are sectional views similar to Fig. 3 illustrating a modified embodiment of my invention and the manner of securing the thread therein.

Fig. 6 is another sectional view illustrating a modified embodiment of my invention. Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, referring particularly to Figs. 1, 2 and 3, A represents a surgical needle having a head portion *a* in which is located an eye 10, the latter extending transversely through said head.

Extending longitudinally through the head portion *a* from the extremity thereof to the eye 10 is a thread passage 11. The outer end portion of the passage 11 is tapered at 12, preferably flaring outwardly where it emerges at the extremity of the head in order that a thread 13 may be easily inserted therein. After the thread 13 has been threaded into the passage 11 as illustrated in Fig. 2, a knot 14 is formed at the end of the thread and said knot is then pulled into the eye 10 as illustrated in Fig. 3, being entirely enclosed within the head portion *a*.

In Figs. 4 and 5 I have illustrated a modified embodiment of my invention in which a passage 15 is located within the head portion *a* of a needle, the inner portion of said passage flaring outwardly at 16 where it emerges into the eye 10. The outer portion of the passage 10 flares outwardly at 17. After the thread 13 has been inserted within the passage 15 through the flared entrance thereto, a knot 14 is formed in the end portion of said thread, after which said knot is pulled into the flared portion 16. In this form of the device the knot 14 is entirely enclosed within the head

portion *a*, a portion of said knot being located within the flared portion 16 and the remainder of said knot being located within the eye 10.

5 In Fig. 6 still another modified embodiment of the invention is illustrated in which 18 represents a recess which extends inwardly from one side of the needle. The recess 18 is located in the same position as the eye 10 and is
10 formed the same as said eye, except that it only extends a portion of the distance through the head *a*. A passage 19 extends longitudinally through the head *a* from the recess 18 to the extremity of the head, and the
15 outer portion of said passage flares outwardly at 20. After the thread 13 has been threaded into the passage 19, a knot 14 is formed therein which is then pulled into the recess 18 where it is enclosed within the head *a*.

20 In all of the various embodiments of this invention, the thread 13 is inserted in exactly the same manner into the head portion of the needle and after a knot 14 has been formed in the end of said thread, the latter is pulled
25 outwardly to draw said knot into the head, and no portion of either said thread or knot interferes in any way with the passage of the needle through the flesh. At the same time if the knot 14 is properly tied, the thread 13
30 will be securely held within the needle.

I claim:—

1. A surgical needle provided with an eye extending transversely through the head portion thereof and having an enclosed passage
35 extending longitudinally through said head portion upon the median line from the extremity thereof and communicating with said eye, the outer end portion of said passage flaring outwardly where it emerges from said
40 head.

2. A surgical needle provided with an eye extending transversely through the head portion thereof and having an enclosed passage extending longitudinally through said head
45 portion upon the median line from the extremity thereof and communicating with said eye, the inner portion of said passage flaring outwardly where it emerges into said eye.

3. A surgical needle provided with an eye
50 extending transversely through the head portion thereof and having an enclosed passage extending longitudinally through said head portion upon the median line from the extremity thereof and communicating with said
55 eye, the opposite end portions of said passage flaring outwardly.

In testimony whereof I have hereunto set my hand.

WILLIAM L. McCLURE.