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"ATRAUMATIC" SURGICAL NEEDLE

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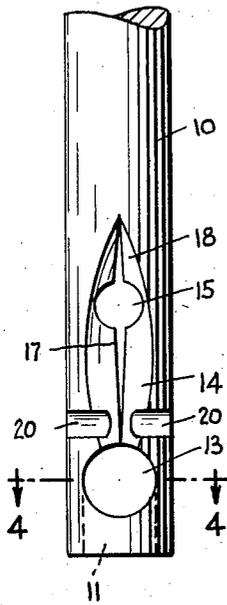


FIG. 1.

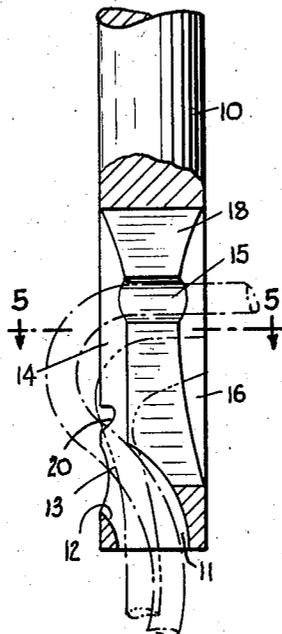


FIG. 2.

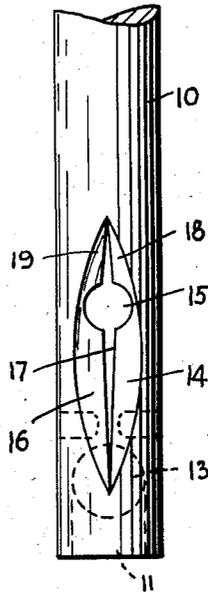


FIG. 3.

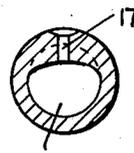


FIG. 4.

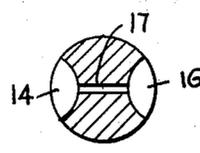


FIG. 5.

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**"ATRAUMATIC" SURGICAL NEEDLE**

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Claims priority, application Italy April 8, 1954

6 Claims. (Cl. 128—339)

This invention relates to a new and improved "Atraumatic" surgical needle and particularly to a new eye design for such needle.

One of the most used instruments for sutures in the surgical practice is the needle. It is known that the most perfect and modern type of such needle is the cylindrical, either straight or curved "Atraumatic" needle. The typical feature of such needle is that the flax, silk or catgut thread is leading axially from the back end of the needle. The advantage of this arrangement is, that when passing through tissue, no increase of the trauma occurs, as it is the case with other needles having an enlarged diameter in the eye area or having the bend of the doubled thread alongside the shaft of the needle.

Objects and advantages of the invention will be set forth in part hereafter and in part will be obvious herefrom or may be learned by practising the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

It is an object of this invention to provide for a surgical needle and particularly for an eye of such needle which permits threading from the end of said needle, only using a single thread.

Another object of the invention is to provide for a surgical needle having the thread extending axially from the end of said needle, so that no increase of the diameter of said needle takes place due to the thickness of thread.

Furthermore, it is an object of this invention to provide for a surgical needle in which the thread to be used is locked safely in a tapered slit.

Another object of the invention is to provide for a surgical needle which can be prepared any time during a surgical operation with threads having exactly the required length.

A further object of the invention is to provide for a surgical needle, the thread of which can be threaded in or taken out easily in the preferred length and thickness.

Various further and more specific purposes, features and advantages will clearly appear from the detailed description given below taken in connection with the accompanying drawings which form part of this specification and illustrate merely by way of example one embodiment of the device of the invention.

In the following description and in the claims, parts will be identified by specific names for convenience, but such names are intended to be as generic in their application to similar parts as the art will permit. Like reference characters denote like parts in the several figures of the drawing, wherein—

Fig. 1 shows a side view of the lower end of the "Atraumatic" needle;

Fig. 2 is a longitudinal section through the center of the threading end of the needle;

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Fig. 3 shows a side view of the lower end of the needle, seen from the opposite side as in Fig. 1;

Fig. 4 is a cross section taken along the line 4—4 of Fig. 1; and

Fig. 5 is a cross section taken along the line 5—5 of Fig. 2.

Referring now in more detail to the drawings illustrating a preferred embodiment by which the invention may be realized, there is illustrated in Fig. 1 the lower end of a surgical needle, designated by the general numeral 10, having a central opening 11 in its end and a curved passage 12 leading therefrom to a side opening 13. In order to receive the bend of the thread which may be inserted through opening 11 and passage 12, there is a groove 14, preferably oval-shaped and extending from the side opening 13 upwardly in axial direction. In the upper part of the groove 14 is a transverse hole 15 through which a thread may be inserted. Diametrically opposite the groove 14 and extending over the same length as groove 14 is a similar groove 16 in the shaft of the needle. The two grooves 14 and 16 are connected by a slit 17, preferably wedge-shaped. The grooves 14 and 16, and the wedge-shaped slit 17 are arranged with respect to the transverse hole 15 to having extensions 18 and 19 beyond said hole 15 in order to provide for a greater elasticity of the eye. At the lower part of the groove 14 and approximately near the side opening 13 is a small transverse notch 20 which permits an easy cutting of the thread after the stitch has been made.

The operation is as follows:

A thread is inserted through the opening 11 in the end of the needle and is threaded through passage 12 from whence it is guided through side opening 13 and the lower part of groove 14 to the transverse hole 15 and is then threaded through said hole 15, as shown in dash-dot lines in Fig. 2. Thereafter, the end of the thread is pulled downwardly into the wedge-shaped slit 17 whereby it is anchored securely to the needle, as shown in the heavy dash-triple-dot lines in Fig. 2.

While the invention has been described and illustrated with respect to a certain particular preferred example which gives satisfactory results, it will be understood by those skilled in the art after understanding the principle of the invention, that various other changes and modifications may be made without department from the spirit and scope of the invention and it is intended therefore in the appended claims to cover all such changes and modifications.

I claim:

1. An "Atraumatic" surgical needle comprising a shaft having a front surface portion, a back surface portion and an eye portion at substantially one end thereof, a passage having an opening in said one end of said shaft and an opening in said front surface portion adjacent said eye portion to allow thread to enter through said one end of said shaft and to project from said front surface portion, a groove in said front surface portion communicating with said opening in said front surface portion, a groove in said back surface portion opposite said groove in said front surface portion, a transverse through hole spaced from said passage and communicating with said grooves, said through hole being adapted to permit the passage of said projected thread, and an elongate slit extending from said hole toward said front surface opening and opening frontward and backward into said front and back surface grooves.

2. An "Atraumatic" surgical needle according to claim 1, said slit tapering in the direction away from said hole and being wedge-shaped.

3. An "Atraumatic" surgical needle according to claim 1, further comprising a recess in said shaft intermediate said opening in said front surface portion and said transverse through hole.

4. An "Atraumatic" surgical needle according to claim 1, said slit being wedge-shaped, and further comprising a notch in said shaft intermediate said opening in said front surface portion and said transverse through hole.

5. An "Atraumatic" surgical needle according to claim 1, said slit being wedge-shaped, said grooves continuing beyond said through hole, and further comprising a recess in said shaft intermediate said opening in said front surface portion and said transverse through hole.

6. An "Atraumatic" surgical needle according to claim 15

1, said slit being wedge-shaped, said grooves continuing beyond said through hole, said grooves being substantially oval-shaped, and further comprising a recess in said shaft intermediate said opening in said front surface portion and said transverse through hole.

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