C. D. LUKENS.

SURGICAL NEEDLE.

APPLICATION FILED MAY 4, 1914.

1,122,210.

Patented Dec. 22, 1914.

Fig. 1

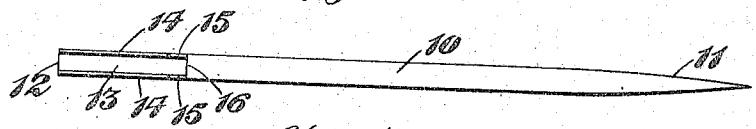


Fig. 3.

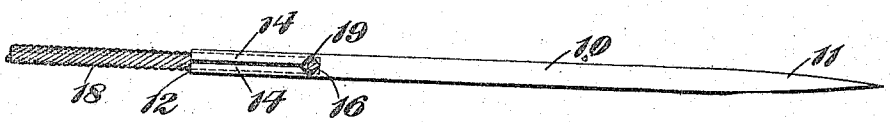


Fig. 4.

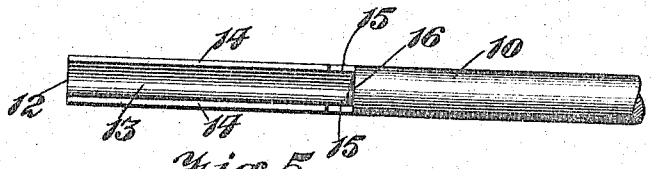


Fig. 6.



Fig. 5.

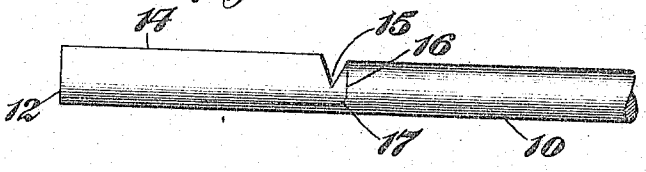


Fig. 8.

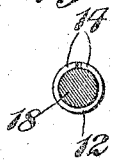


Fig. 7.

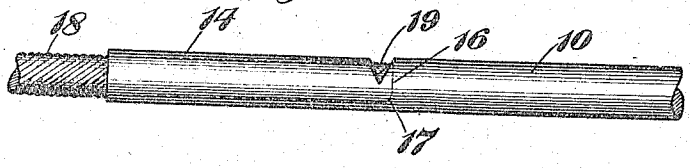
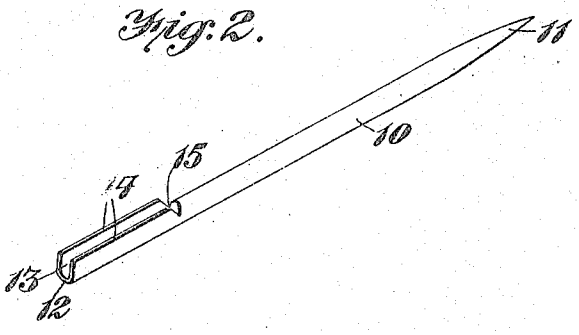


Fig. 2.



Attest:

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UNITED STATES PATENT OFFICE.

CLARENCE D. LUKENS, OF ST. LOUIS, MISSOURI, ASSIGNOR TO C. DEWITT LUKENS SURGICAL MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

SURGICAL NEEDLE.

1,122,210. Specification of Letters Patent. Patented Dec. 22, 1914.

Application filed May 4, 1914. Serial No. 836,349.

To all whom it may concern:

Be it known that I, CLARENCE D. LUKENS, a citizen of the United States, and residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Surgical Needles, of which the following is a specification.

This invention relates to needles, and more particularly to surgical needles.

In suturing a wound, it is desirable that the needle holes made in the wound be as small as possible. Where an ordinary needle provided with an eye is used, the suture is, of course, doubled at its point of connection with the needle, and this necessarily results in making the holes several times larger than the single strand of suture which is to unite the parts of the wound. This is not obviated by making the diameter of the needle larger, as has been the practice. Moreover, where the suture is passed loosely through the needle eye, the end is liable to slip through the eye and interrupt and prolong the operation, which is not only painful for the patient, but often dangerous.

Some of the objects of this invention, therefore, are, to provide a surgical needle adapted to receive a single strand of a suture, without doubling, which needle is constructed to positively grip and hold the suture assembled therewith while being passed through the tissue, which has a diameter practically the same as the suture, and which is smooth externally and free from projecting parts.

Further objects will appear from the detail description, taken in connection with the accompanying drawing, in which,

Figure 1 is a plan view of a needle embodying this invention. Fig. 2 is a perspective view, Fig. 3 is a view showing the suture attached to the needle, Fig. 4 is an enlarged plan view of the head of the needle, Fig. 5 is a side view of Fig. 4, Fig. 6 is an end view of Fig. 5, Fig. 7 is an enlarged side view showing the suture attached to the needle, and, Fig. 8 is an end view of Fig. 7.

Referring to the accompanying drawing, 10 designates a needle shank having a point 11 and a head 12. The needle shank may be of any desired form, that is, either straight or curved.

The head 12 is grooved as shown at 13 to provide a U-shaped socket for the suture. This socket is formed by suitable dies, and, in the formation of this socket, the side walls or wings 14 thereof are drawn out so as to rise some distance beyond the contour of the needle, as shown in the drawing. These side walls are also notched transversely at or near their junction with the needle shank, as shown at 15, the notches extending preferably to the center of the shank, and being preferably V-shaped in form. The end wall 16 of the socket as shown preferably rises abruptly from the base of the socket at substantially right angles to the longitudinal axis of the needle and is slightly rounded where it merges into the shank, as shown at 17. The socket walls are drawn out very thin, and these walls are left unhardened and untempered, so as to remain pliable.

In using this needle, the suture 18 is placed in the socket 13 with its end abutting against the abrupt end wall 16, and the side walls 14 are then turned or bent over the suture so as to grip the same, as shown in Figs. 3, 7 and 8. This may be accomplished by means of a pair of pliers or any other suitable tool. The side walls or wings are preferably made long enough so that the edges will nearly come together, as shown in Fig. 8, whereby the socket will practically inclose the end of the suture. The formation of the notch 15 at the junction of the socket with the needle shank, not only permits the side walls to extend beyond the contour of the needle shank, but also permits these side walls to be turned over uniformly to conform along their entire length to the contour of the needle shank. When, therefore, the suture is attached to the needle, the needle shank, including the head, will have a uniform cross-section, devoid of projections liable to catch in the tissue. When the side walls are turned over the suture, this suture will be slightly compressed, thereby causing the uncompressed end 19 thereof, which abuts against the end wall 16 opposite the notch, to extend slightly into this notch and act as an additional holding means for retaining the suture in position. The provision of the rounded surface 17 increases this action, but not sufficiently to cause the end of the suture to project beyond the contour of the needle. The walls of the socket can be made very thin, so that when the needle

head is clamped on the suture, thereby slightly compressing the clamped end thereof, this head will have a diameter no greater than the diameter of the suture. The needle can, therefore, be so constructed as to have a diameter no greater than the suture. The suture will thus be a simple continuation of the needle, and this needle is devoid of all projecting parts.

It is obvious that the notch 15 may be a mere transverse cut made at the junction of the socket with the needle shank. Furthermore, the needle head, as finally formed, may have a nearly closed socket as shown in Fig. 8, this socket having a diameter slightly greater than the suture to be used. In such a case, the suture can be clamped in position by completely closing the socket. It is further obvious that various changes may be made in details of construction without departing from the spirit of this invention, and it is to be understood, therefore, that this invention is not to be limited to the specific construction shown and described.

Having thus described the invention, what is claimed is:

A surgical needle adapted to receive a suture having a shank portion and a head portion, said head portion being grooved to form a substantially U-shaped socket, the side walls thereof being unhardened and untempered and drawn out beyond the contour of the needle, said side walls being notched transversely near their juncture with the needle shank, said notches being substantially V-shaped and extending to the center of the shank, the end wall of the socket being at right angles to the axis of the needle and slightly rounded where it merges into the shank, whereby when the walls are turned over to conform to the contour of the needle shank the inclosed suture will be slightly compressed and the uncompressed end thereof opposite the opening formed by said V-shaped notches will extend slightly into said opening and act as an additional holding means for retaining the suture in position.

In testimony whereof I affix my signature in the presence of these two witnesses.

CLARENCE D. LUKENS.

Witnesses:
J. H. Bruninga,
Henry S. Cooke.