

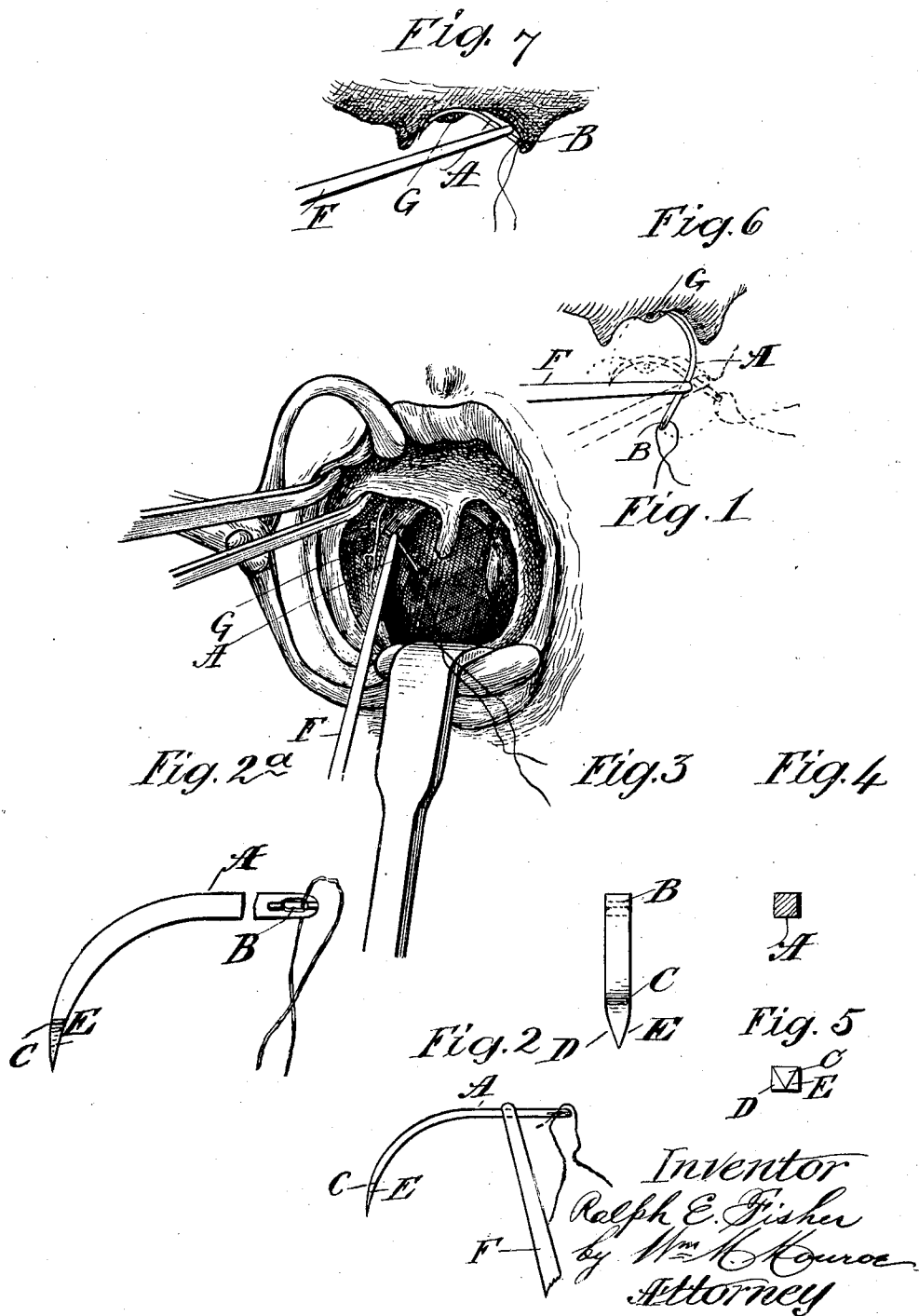
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SURGICAL NEEDLE

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UNITED STATES PATENT OFFICE.

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SURGICAL NEEDLE.

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The invention relates to improvements in surgical needles and provides a type of needle that is particularly adapted to throat surgery such as applying sutures in the cavities remaining in the throat following the removal of the tonsils and for use in the walls of otherwise inaccessible cavities.

The device is also constructed of non-corrosive metal, such as stainless steel, which is practically rust proof and can readily be sterilized by boiling. It is also constructed of malleable metal that is not brittle and will not break, and can be bent or altered in its curvature to enable it to enter cavities of peculiar shape, in which it must be used, but is slightly tempered so as to retain a sufficient amount of rigidity, to enable it to do its work successfully.

In throat surgery the needle must ordinarily be inserted in the tissues from the rear in order to pass underneath a vein or nerve, at right angles thereto, for suturing and tying, and the improved needle is so designed that it can be inserted by the operator from behind the vein or from any direction, that is, from the front or rear, or from either side, without changing his position, and can therefore be employed with the least amount of work and inconvenience to the operator in cavities otherwise difficult or impossible of access.

The needle is square in cross section thus making it possible to grasp it instantly with the forceps in all positions without danger of its turning on its long axis in the forceps, as it would do if it were round in cross section, and it also holds its position better in the tissues and is more reliable on that account.

The needle is also provided with a curved and pointed end of peculiar shape, substantially parabolic, and with a straight short shank thus making its use for insertion from the rear possible by enabling it to be grasped by the forceps, and midway of the straight portion to assume the various positions required to enable it to penetrate the tissues from the rear, and after passing under the vein to emerge in front thereof. The point is also bevelled on its rear face and sides to enable it to automatically rise from the tissues and make its exit therefrom the point being at substantially a right angle to said shank portion.

It is also provided with an eye positioned at right angles to the plane of the needle,

thus permitting the head to be grasped by the forceps without danger of damaging the eye.

The invention is illustrated in the accompanying drawings, hereinafter more fully described and specifically pointed out in the claims.

In the accompanying drawings, Fig. 1 is a perspective illustrating the use of the needle in applying sutures to a vein in the cavity, from which one of the tonsils has been removed; Fig. 2 is a plan of the needle, showing the manner of grasping it with the forceps; Fig. 2^a is a plan of the needle enlarged; Fig. 3 is an end elevation thereof; Fig. 4 is an enlarged section of the same; Fig. 5 is an end elevation of the bevelled point; Fig. 6 illustrates the manner of grasping the needle when inserting it from the rear, and Fig. 7 illustrates the position of the forceps and needle when the needle begins to emerge from the tissues.

In these views A represents the needle having a straight shank and an elliptically curved outer end. B is the eye placed in the head vertically, or at right angles to the plane of the needle, so that when the needle is grasped by the forceps at the head, the eye will not be damaged.

C, D, and E are the bevelled outer side and upper and lower sides of the pointed extremity of the needle, forming a point that will automatically emerge from the tissues when the shank is pressed back by the forceps as shown in Fig. 7.

The result of this conformation is to enable the point of the needle to be inserted in a narrow cavity behind the vein, and to rise or emerge automatically from the tissues after passing behind the vein, as shown in Fig. 7, and permits the use of the needle from the rear as shown in Fig. 6, where a suture is being applied to the vein G. Here the needle is grasped midway of the straight portion of the forceps F, and pivots in the point of the forceps F, and by pressing down on the eye end of the needle, after its insertion, the needle will pivot upon the forceps and the bevelled surface of the point will cause the point to emerge from the tissues in the direction of the operator. For the same reason the needle can be easily inserted from either side, or from in front, and the point will automatically emerge when the head is pressed backward, since the needle will revolve on its curved portion.

In this manner difficult surgical operations can be performed and sutures can be applied in remote and deep cavities otherwise inaccessible to the operator, and in such situations that they could not be applied with ordinary surgical needles.

In this manner all danger of hemorrhages following a difficult operation upon the throat can be easily avoided, since sutures can be applied to all veins and bleeding points.

Having described the invention what I claim as new and desire to secure by Letters Patent is:

1. In a surgical needle, a body of rectangular shape in cross section, and having a short straight shank portion adjacent to the head and a curved portion, and having a flat bearing surface on its convex side adjacent to the point, said point being bevelled upon its convex and lateral sides and having a substantially flat inner face, substantially as and for the purpose set forth.

2. In a surgical needle, a body of rectangular shape in cross section, and having a short straight shank portion adjacent to the head and a curved portion, having a flat bearing surface on its convex side, adjacent to the point, said point being bevelled upon its lateral and convex sides, the bevelled surface upon the convex side having a greater inclination than that of the other bevels, and the convex face of said point being flat.

3. In a surgical needle, a body formed with a short straight portion and a curved portion, said body being of rectangular shape in cross section, and having a flat bearing surface on its lower side, and being provided with an eye at right angles to the plane thereof, the lateral and convex sides of the extremity of the curved portion of said needle being bevelled to form a point thereon.

4. A surgical needle for applying sutures in a deep body cavity, said needle having a

short shank and a short upwardly curved pointed end extended therefrom, said needle being constructed from a metal wire of rectangular cross section throughout its length, and having a flat convex face serving as a bearing therefor in the flesh of the wound, the pointed end of the needle being diagonally cut away on the two lateral sides and on the front extremity of the convex side, said inclined extremity of said convex side serving to cause said needle to emerge after it has been inserted in a wound.

5. A surgical needle for applying sutures in a deep body cavity, said needle having a short shank and a short upwardly curved pointed end, extended therefrom, said needle being constructed from a metal wire of rectangular cross section throughout its length, and having a flat convex face serving as a bearing therefor in the flesh of the wound, the pointed end of the needle being diagonally cut away on the two lateral sides and on the outer front extremity of the convex side, said inclined extremity of said convex side serving to cause said needle to emerge after it has been inserted in a wound, the lateral flat sides of said needle providing pivotal bearings for the extremities of the forceps upon which said needle may be revolved while passing through the flesh.

6. In a surgical needle, a body formed with a short straight portion and a curved portion, said body being of rectangular shape in cross section, and being provided with an eye at right angles to the plane thereof, the lateral and convex sides of the extremity of the curved portion being beveled to form a point thereon, said needle being constructed of a semi-rigid metal to permit adjustment thereof to the shape of the throat cavity in which it is employed.

In testimony whereof, I hereunto set my hand this nineteenth day of December, 1923.

RALPH E. FISHER.