

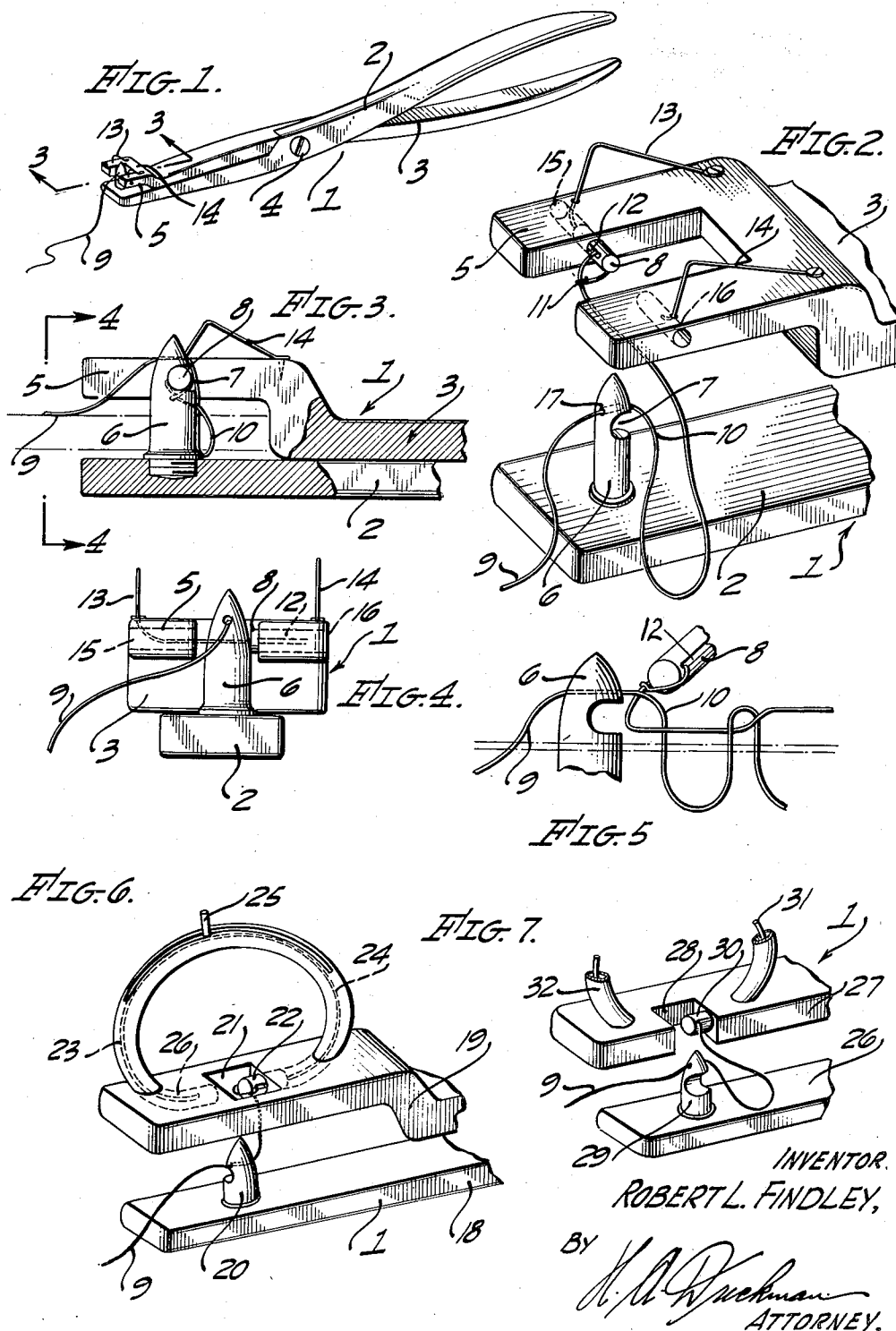
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SUTURE HEMOSTAT

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SUTURE HEMOSTAT

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This invention relates to a novel suture hemostat whereby the edges of a wound may be drawn together by sewing or inserting a thread in an appropriate manner well known in the medical profession. The purpose of this suturing is to prevent bleeding at the incision.

An object of my invention is to provide a novel suture hemostat in which an effective knot or loop can be tied in a simple and effective manner by the physician for the purpose of drawing together the edge of a wound.

Another object of my invention is to provide a novel suture hemostat including a bobbin and involving a novel means of moving the bobbin or shuttle from side to side in order to form a knot or stitch.

A feature of my invention is to provide a novel suture hemostat in which the needle and the shuttle or bobbin are self contained in the instrument, as well as a novel means to move the shuttle or bobbin from side to side while the stitching is continuing.

Another feature of my invention is to provide a novel manually operable means to move the shuttle or bobbin from side to side while the suturing is continuing.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

In the drawing—

Figure 1 is a perspective view of my suture hemostat.

Figure 2 is an enlarged fragmentary perspective view of the jaws of the hemostat.

Figure 3 is a fragmentary sectional view taken on line 3—3 of Figure 1.

Figure 4 is an end view of my suture hemostat taken from the direction of the line 4—4 of Figure 3.

Figure 5 is a diagrammatic view showing the method of looping the thread and moving the shuttle through this loop.

Figure 6 is an enlarged fragmentary perspective view of a modified form of my invention.

Figure 7 is a fragmentary perspective view of the jaws of a hemostat showing still another modification of my invention.

Referring more particularly to the drawing, my suture hemostat 1 includes a pair of jaws 2—3 which are pivotally secured together by the pin 4. The outer end of the upper jaw 3 is bifurcated, as shown at 5, the purpose of which will be further described.

A needle 6 is fixedly mounted in the jaw 2 and

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this needle projects upwardly from the jaw 2 and is adapted to fit between the bifurcations 5 of the jaw 3 in the closed position of the instrument. This closed position of the instrument is perhaps best shown in Figure 4.

A lateral groove or recess 7 is formed in the needle 6 and in the closed position of the instrument this groove is aligned with the bifurcations 5 of the jaw 3 and also is directly in alignment with the shuttle or bobbin 8. This shuttle is adapted to move laterally of the instrument and from one bifurcation to the other of the jaw 3.

In moving laterally, the shuttle 8 passes through the groove 7 of the needle 6 and in this movement the end of the thread 9 is passed through the loop 10, thus forming the proper knot or stitch which permits the edge of the incision to be drawn together to prevent bleeding, which is well known in the art. The end of the thread is attached to the bobbin 8, as shown at 11, and the thread passes through a slot 12 in the bobbin, thus permitting the thread to move lengthwise of the bobbin and permitting the bobbin to move into the opening 15 or 16 in the bifurcation of the jaw 3 and without binding the bobbin.

To move the shuttle 8 back and forth from one bifurcation to the other, I provide a pair of flexible spring fingers 13—14 preferably formed of wire, which are attached at one end to the jaw 3, the other end of each spring finger projecting into the outer ends of a lateral bore 15 or 16 which are formed in the bifurcations of the jaw 3. The spring fingers 13—14 thus will engage the outer end of the shuttle 8 and by depressing these fingers the shuttle will be forced laterally from one bifurcation 5 to the other, thus moving through the groove 7 of the needle 6 and forming a proper tie with the loop 10, which is constantly formed in the thread 9. The needle 6 is provided with a bore 17 adjacent its tip and the thread 9 passes through this bore, as best shown in Figure 2. The shuttle 8 is somewhat longer than the distance between the bifurcation of the jaw 3 so that the shuttle can span this opening. In operation, the jaws 2 and 3 are brought together which places the parts in the position shown in Figure 1. The operator now depresses either the spring finger 13 or the finger 14, depending upon which side the shuttle 8 is resting. When the finger 13 or 14 is thus depressed, it will pass into the end of the bore 15 or 16, thus pushing against the end of the shuttle 8 and forcing this shuttle across the opening

and pass the needle 6 and into the opposite lateral bore.

In Figure 6, I have shown a modified form of my invention, again including pivoted jaws 18—19, the lower jaw 18 being provided with a needle 20, which is identical in construction to the needle 6, previously described. The needle moves into a vertical opening 21 in the upper jaw 19 when the instrument is closed. A shuttle 22 is mounted in the upper jaw 19 and this shuttle is adapted to move lengthwise of the jaw 19, as shown. A guide tube 23 is secured to the upper jaw 19 and a flexible spring wire 24 is mounted in this arcuate tube and is moved within the tube by the pin 25 attached to the spring wire. The shuttle 22 moves into suitable bores 26 in the jaw 19 and is moved across the opening 21 by means of the wire 24 which presses against the back of the shuttle 22 in the same manner as previously described. The loop or knot is formed in exactly the same manner as previously described in the thread 9 except that the shuttle 22 moves lengthwise of the jaws 19 instead of laterally.

In Figure 7 I have shown a construction very similar to Figure 6 in which the jaws 26—27 are similar to the jaws 18—19, the upper jaw having a slot 28 extending from one edge thereof, as shown. The needle 29 extends into this slot in the closed position of the instrument and the shuttle 30 moves across this slot in the same manner as the shuttle 22, and is actuated in the same manner as the shuttle 22, namely, by a flexible wire 31, which moves in a guide tube 32. In Figures 6 and 7, the shuttles 22 or 30 are moved across the openings 21 or 28 by the flexible wire 24 or 31, and this wire is caused to engage either end of the shuttle by the manual manipulation of the pin 25, all of this occurring after the jaws 18—19, or 26—27 are closed.

My suture hemostat will facilitate the securing of the hemostasis of long incisions, such as hysterectomy or the cutting of greater omentum in gastric surgery. That is, my instrument will effectively tie off the edge of an incision to prevent bleeding.

Having described my invention, I claim:

1. A suture hemostat comprising a pair of pivoted jaws, a needle projecting from one of said jaws and extending towards the other jaw, the other jaw having an opening therein into which said needle may extend, said needle having a hole therein through which the thread extends, a shuttle mounted in said other jaw for movement across said opening, and manually operable means to move said shuttle across said opening and adjacent the needle, means on the shuttle to secure the end of the thread thereto and cooperating with the thread carried by the needle to form a knot.

2. A suture hemostat comprising a pair of pivoted jaws, a needle projecting from one of said jaws and extending toward the other jaw, the other jaw having an opening therein into which said needle may extend, said needle having a hole therein through which the thread extends, a shuttle mounted in said other jaw for movement across said opening, and means to move said shuttle across said opening and adjacent the needle, said means including a flexible wire mounted on said other jaw engageable with the shuttle to move the same.

3. A suture hemostat comprising a pair of pivoted jaws, a needle fixedly mounted in one of said jaws and projecting towards the other jaw,

said other jaw having an opening therein into which the needle may extend, a shuttle mounted in the other jaw and movable across said opening and from one side of the needle to the other side thereof, said needle having a hole therein through which the suturing thread extends, and said shuttle having a slot therein for the securement of the end of a suturing thread, and manually operable means engageable with the shuttle to move the same from one side of the needle to the other.

4. A suture hemostat comprising a pair of pivoted jaws, a needle fixedly mounted in one of said jaws and projecting towards the other jaw, said other jaw having an opening therein into which the needle may extend, a shuttle mounted in the other jaw and movable across said opening and from one side of the needle to the other side thereof, said needle having a hole therein through which the suturing thread extends, and said shuttle having a slot therein for the securement of the end of a suturing thread, and manually operable means engageable with the shuttle to move the same from one side of the needle to the other, and said needle having a groove in the side thereof through which the shuttle passes as it moves from one side of the needle to the other.

5. A suture hemostat comprising a pair of pivoted jaws, a needle fixedly mounted in one of said jaws and projecting towards the other jaw, said other jaw having an opening therein into which the needle may extend, a shuttle mounted in the other jaw and movable across said opening and from one side of the needle to the other side thereof, said needle having a hole therein through which the suturing thread extends, and said shuttle having a slot therein for the securement of the end of a suturing thread, and manually operable means engageable with the shuttle to move the same from one side of the needle to the other, said manual means to actuate the shuttle, including a flexible wire engageable with the shuttle and manually operable to move said shuttle in the other jaw.

6. A suture hemostat comprising a pair of pivoted jaws, a needle fixedly mounted in one of said jaws and projecting towards the other jaw, said other jaw having an opening therein into which the needle may extend, a shuttle mounted in the other jaw and movable across said opening and from one side of the needle to the other side thereof, said needle having a hole therein through which the suturing thread extends, and said shuttle having a slot therein for the securement of the end of the suturing thread, and manual means engageable with the shuttle to move the same from one side of the needle to the other, and said needle having a groove in the side thereof through which the shuttle passes as it moves from one side of the needle to the other, said manual means to actuate the shuttle, including a flexible wire engageable with the shuttle, and manually operable to move said shuttle in the other jaw.

7. A suture hemostat comprising a pair of pivoted jaws, a needle fixedly mounted in one of said jaws and projecting towards the other jaw, said other jaw having an opening therein into which said needle projects, a shuttle reciprocally mounted in said other jaw and movable across said opening and adjacent the needle, said needle having a hole extending therethrough, through which the suturing thread passes, said shuttle having a slot therein for the securement of the end of the suturing thread, a tubular guide on

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the other jaw, and a flexible wire in said tubular guide and slidably mounted therein, the ends of said flexible wire engaging the shuttle to move said shuttle across the opening and adjacent the needle.

8. A suture hemostat comprising a pair of pivoted jaws, a needle fixedly mounted in one of said jaws and projecting towards the other jaw, said other jaw having an opening therein into which said needle projects, a shuttle reciprocally mounted in said other jaw and movable across said opening and adjacent the needle, said needle having a hole extending therethrough, through which the suturing thread passes, said shuttle having a slot therein for the securement of the end of the suturing thread, a tubular guide on the other jaw, and a flexible wire in said tubular

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guide and slidably mounted therein, the ends of said flexible wire engaging the shuttle to move said shuttle across the opening and adjacent the needle, said needle having a groove in one side thereof through which said shuttle passes as it moves across said opening.

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REFERENCES CITED

10 The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,352,508	Ftacek	Sept. 14, 1920
2,507,814	Rantanen	May 16, 1950