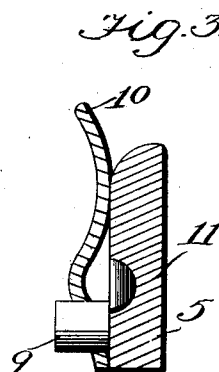
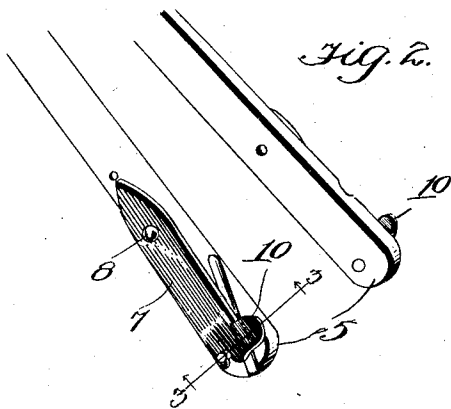
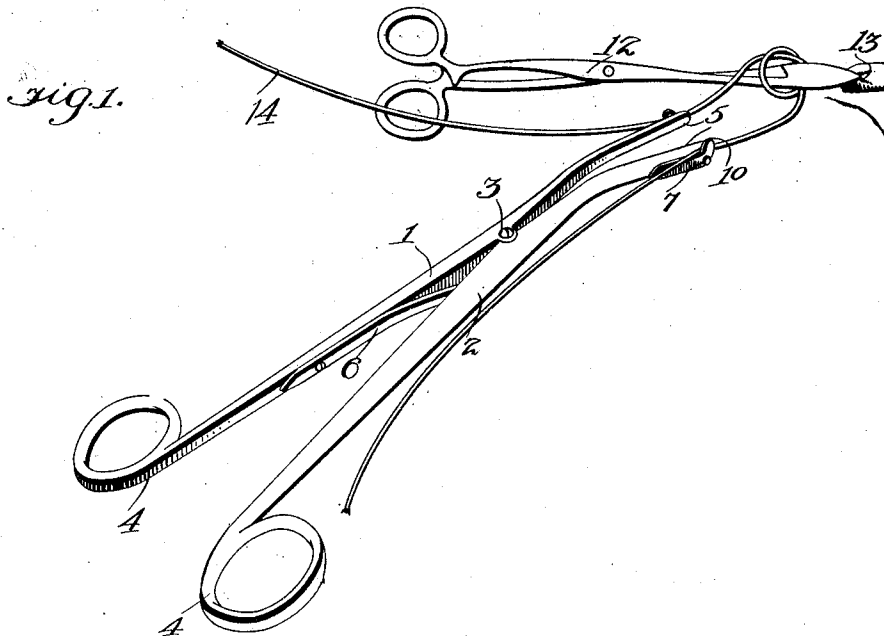


L. O. ROBERTS.
SURGICAL APPLIANCE.

APPLICATION FILED MAY 22, 1919. RENEWED MAR. 16, 1920.

1,340,501.

Patented May 18, 1920.



WITNESSES
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UNITED STATES PATENT OFFICE.

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SURGICAL APPLIANCE.

1,340,501.

Specification of Letters Patent.

Patented May 18, 1920.

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To all whom it may concern:

Be it known that I, LAFE O. ROBERTS, a citizen of the United States, and a resident of Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Surgical Appliances, of which the following is a specification.

My invention is an improvement in surgical appliances, and has for its object to provide an appliance of the character specified especially adapted for tying knots in ligatures, in cavities where it is difficult or impossible to reach with the hands.

In the drawings:

Figure 1 is a perspective view of the improved appliance in use;

Fig. 2 is an enlarged perspective view of the tying jaws; and

Fig. 3 is a section on the line 3—3 of Fig. 2, looking in the direction of the arrows adjacent to the line.

The present embodiment of the invention comprises a pair of handles 1 and 2, which are pivotally connected as indicated at 3, the handle members being provided at one end with loops 4 for engagement by the fingers and at the other end with smooth plain jaws 5.

The pivotal connection between the members 1 and 2 is such that when the loops 4 are moved toward each other the jaws 5 will be moved away from each other, and a plate spring 6 arranged between the members and secured to the member 1 acts normally to move the loops apart and the jaws 5 together.

A plate 7 is secured to the outer face of each of the jaws 5, each plate being held in place by a screw 8 or the like, and the said screw engages the plate at the inner end thereof. The outer end of each plate has an opening through which extends a pin 9 on the adjacent jaw, the said pins preventing swinging movement of the plates on the screw 8. Each plate has a laterally extending lip 10, the said lips extending in the same direction, and these lips overlies grooves 11 extending approximately longitudinally of the outer face of the jaw, but inclined with respect to the axis of the jaw. These grooves at the ends of the jaw are at about the center of the said ends, and they incline laterally as they extend inwardly, opening at the side of the jaw and at the side adjacent to the lug 10. Referring to Fig. 1, it

will be noted that the jaws 5 are bent at an oblique angle with respect to the handle members.

The improved appliance is used in connection with ordinary hemostatic forceps indicated at 12. These forceps 12 are clamped upon the vessel, indicated at 13, in the usual manner, and the ligature 14 with the knot formed is slipped over the forceps, the ends of the ligature being engaged in the grooves 11, beneath the lugs 10, and there is sufficient friction on the ligature to prevent slipping of the same when the loops of the handles are moved together to tie the ligature.

In placing the ligature, with the first knot tied, as shown in Fig. 1, and the ends of the ligature beneath the plate 7, the said ends are drawn through until the ends of the jaws are close to the vessel, the looped ligature having been meanwhile slipped down upon the vessel. With the parts in this position the loops 4 are moved together, thus tying the first knot. The second knot is tied, the ends of the ligature are again inserted beneath the plate 7 and the second knot is tied in the same manner.

The improved device may be used in any cavity where it is difficult or impossible to insert the hands. In tying the knots the hemostatic forceps will be held by an assistant.

I claim:

1. A device of the character specified, comprising a pair of handle members pivoted together intermediate their ends and provided at one end with grips, the pivotal connection being such that when the grips are moved together the other ends of the handle members will be moved apart, a spring normally holding the grips apart, and a plate secured to the outer face of each handle member at the end remote from the grip, each plate being resilient and forming a clamp cooperating with the handle member for gripping a ligature, each handle member having a groove lying obliquely beneath the outer end of the plate, and each plate having a lateral lug extending over the groove for holding the ligature in place.

2. A device of the character specified, comprising a pair of handle members pivoted together intermediate their ends and provided at one end with grips, the pivotal connection being such that when the grips are moved together the other ends of the handle members will be moved apart, a

spring normally holding the grips apart, and a plate secured to the outer face of each handle member at the end remote from the grip, each plate being resilient and forming
5 a clamp cooperating with the handle member for gripping a ligature.

3. A device for tying ligatures, comprising handle members pivoted together to move away from each other at one end
10 when they are pressed together at the other,

said handle members having grips at one end and gripping jaws at the other, normally in contact with the said members, and resilient to yield therefrom when the ligature is forced beneath the jaws.

LAFE OREN ROBERTS.

Witnesses:

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