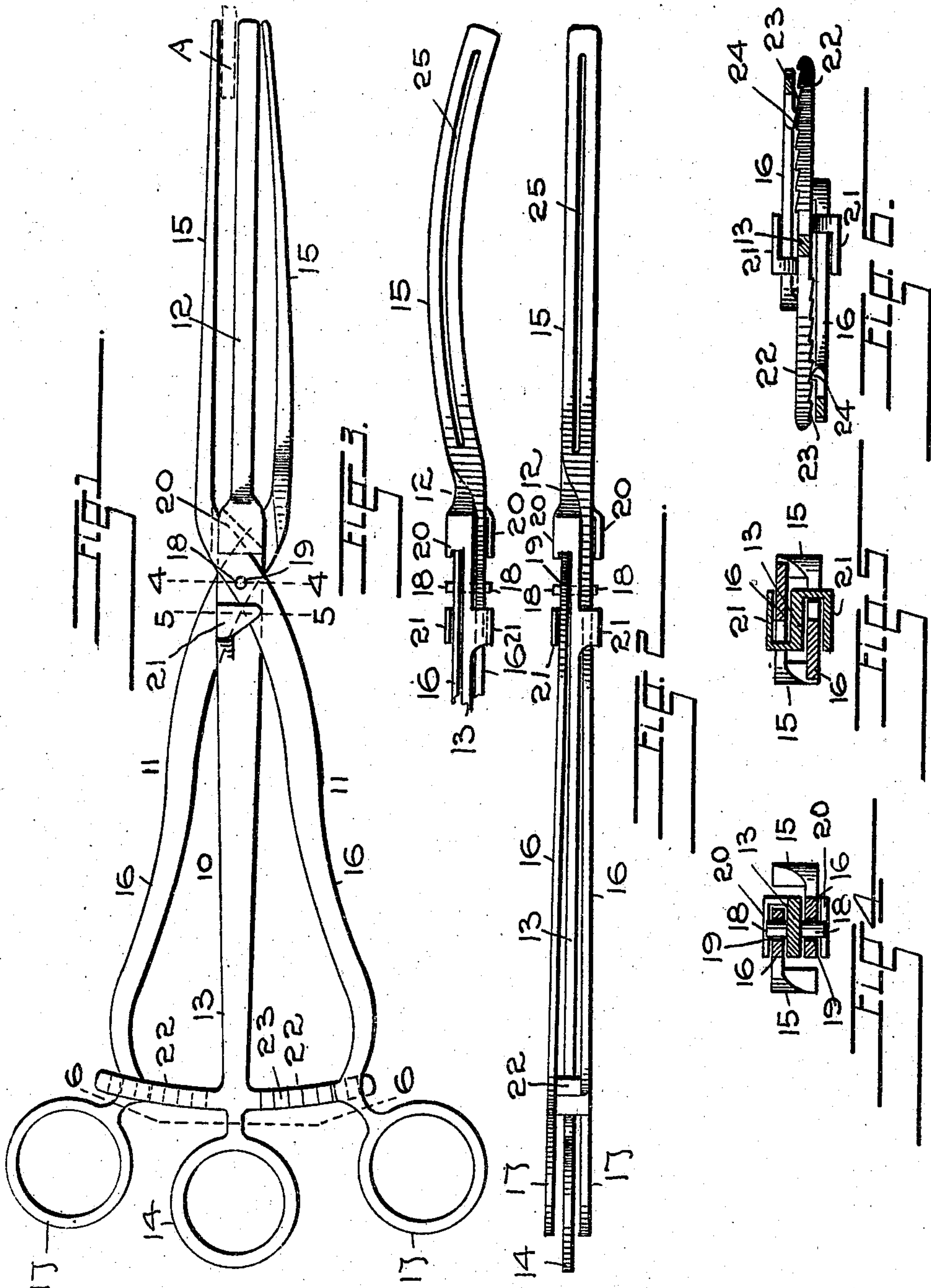


No. 848,126.

PATENTED MAR. 26, 1907.

G. F. ROOSEVELT.
ANASTOMOTIC CLAMP.
APPLICATION FILED JULY 27, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

H. M. Stump
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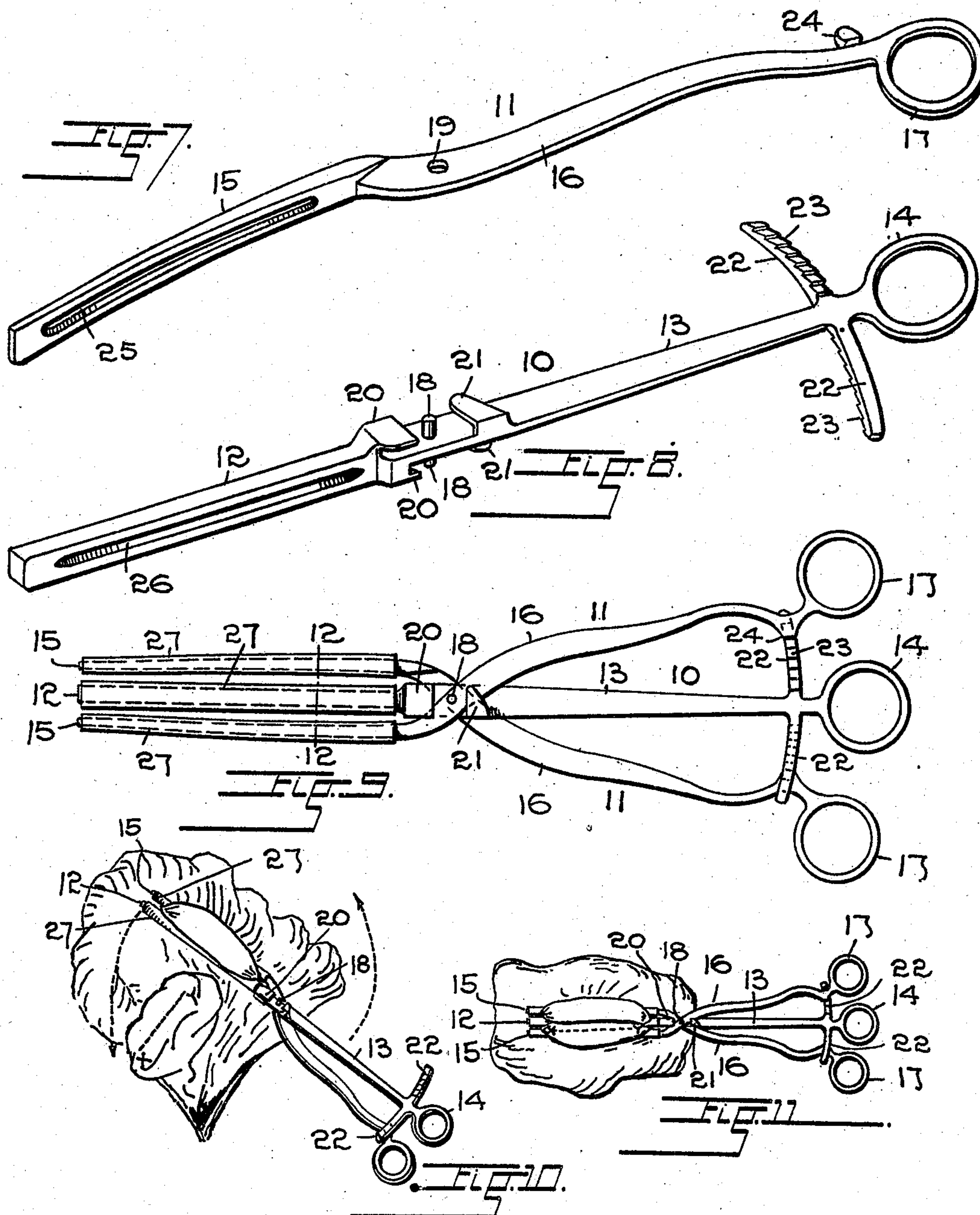
ATTORNEY.

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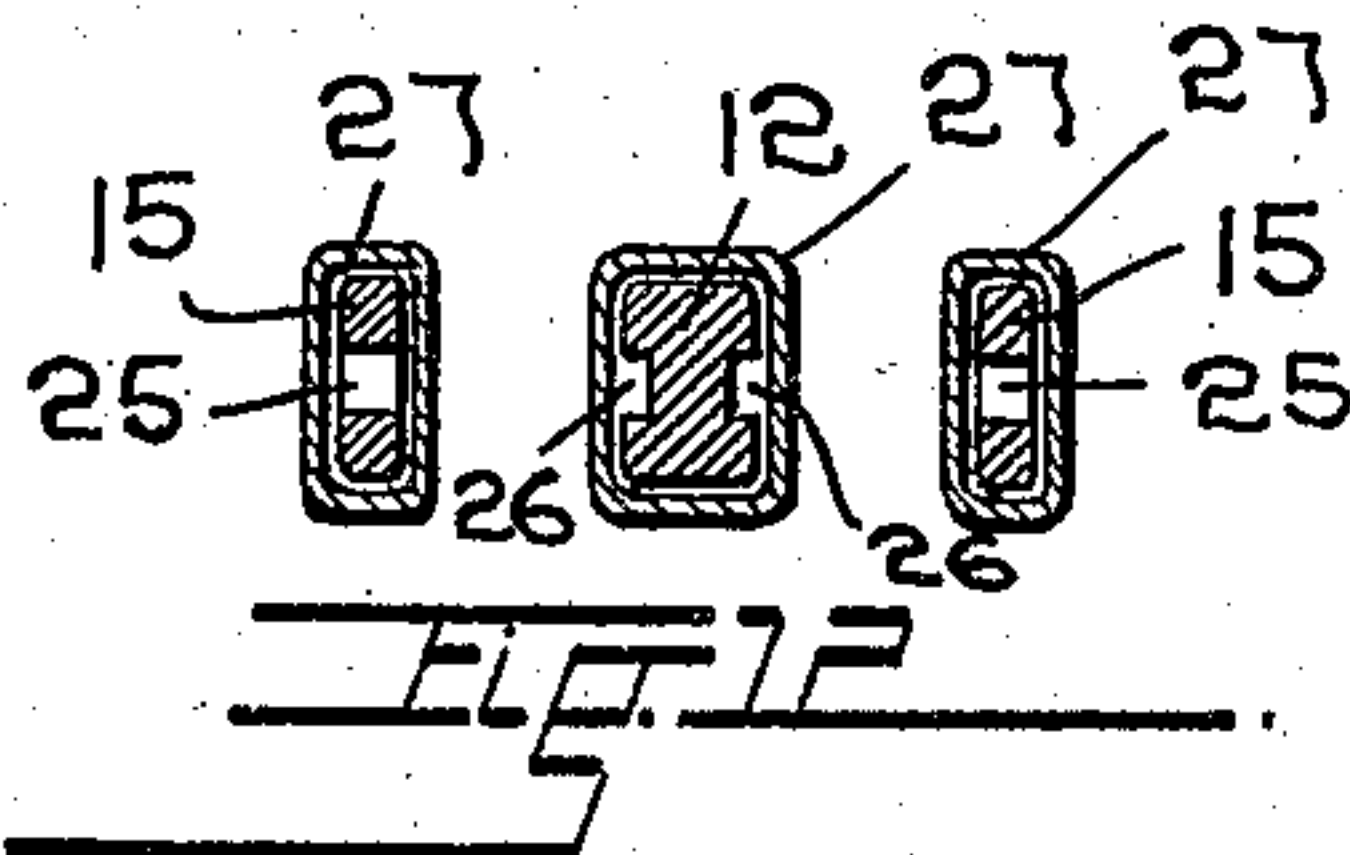
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GILES F. ROOSEVELT, OF DENVER, COLORADO.

ANASTOMOTIC CLAMP.

No. 848,126.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed July 27, 1906. Serial No. 328,036.

To all whom it may concern:

Be it known that I, GILES F. ROOSEVELT, a citizen of the United States of America, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Anastomotic Clamps, of which the following is a specification.

My invention relates to improvements in surgical clamps, and more particularly in the class of instruments employed to retain the portions to be united in anastomotic operations.

The object of the invention is to provide a compound clamp by means of which the parts to be anastomosed are clasped and held in relative position during the operation and which thus takes the place of two separate clamps heretofore required and obviates the presence of an assistant to maintain the clamped portions in the proper relative position. I attain this object by the device illustrated in the accompanying drawings, in the various views of which like parts are similarly designated, and in which—

Figure 1 represents a plan view of the device; Fig. 2, a side or edge view thereof; Fig. 3, a fragmentary view illustrating a modified form of the blades; Fig. 4, a cross-section taken along a line 4 4, Fig. 1; Fig. 5, a cross-section taken along a line 5 5, Fig. 1; Fig. 6, a cross-section taken along a line 6 6, Fig. 1; Fig. 7, a perspective view of one of the interchangeable laterally-movable jaw members; Fig. 8, a perspective view of the stationary central jaw member; Fig. 9, a plan view, drawn to a reduced scale, illustrating the application of the rubber sleeves; Figs. 10 and 11, views illustrating the manner in which the device is used; and Fig. 12, an enlarged cross-section taken along a line 12 12, Fig. 9.

The instrument, as illustrated in the drawings, comprises a central, in practice, stationary member 10 and two therewith pivotally-connected laterally-movable members 11, which together constitute a compound or double clamp.

The central member 10 consists of a rigid bar 12, which in practice constitutes the common stationary jaw of the two clamps and which terminates in an axially-alined shank 13, the outer extremity of which is provided with a finger-loop 14.

The exterior movable members 11 of the

device are in a straight-jawed clamp identical and interchangeable and consist of a slightly-curved flexible blade 15 at the end of an inwardly-bent shank 16, the opposite extremity of which is, like shank 13, provided with a finger-loop 17. The shanks of the movable members 11, extending in a plane with the edges of the blades, are in practice disposed along opposite sides of the shank 13 of the stationary member and pivotally connected therewith in proximity to their junction with the blades by means of a so-called "Collins lock," which permits ready detachment of the outer members from the central one. The shank 13 of the central member 10 has to this end been provided with the outwardly-ranging pivot-pins 18, which in practice protrude through corresponding apertures 19 in the shanks of the movable members and with lugs 20 and 21, which, extending from opposite edges of the shank in parallel relation thereto, engage the upper surface of the shanks 16 when the blades are in the closed position and permit removal of the members when the latter are turned at approximate right angles to the stationary member.

In connection I wish it understood that the lock or joint as described being in common use on surgical instruments is not claimed by me as my invention and that any suitable method may be employed to hinge the two movable members of my compound clamp to the stationary portion.

Shank 13 of the stationary member is furthermore provided in proximity to the finger-loop 14 with two opposite laterally-extending segmental arms 22, the opposite faces of which are respectively provided with a series of ratchet-teeth 23; with the object to maintain the movable portions of the instrument in any desired position. Members 11 have to this end suitably-shaped detents 24, which, extending from one of the edges of their shanks in juxtaposition to their looped extremities, engage the interdental spaces on the segmental arms when the blades are in the closed position. Blades 15 of members 11 are preferably provided with longitudinally-extending slots 25, which not only increase the flexibility of the blades, but materially lighten the instrument. The rigid jaw 12 is also provided in its opposite faces with recesses 26, which in addition to lessening

the weight increases the holding qualities of the jaw.

To obtain satisfactory results in using my device, the flexible blades 15, which, as stated heretofore, normally curve inwardly toward the stationary jaw, should be curved to a degree to compensate for the usual thickness of the flesh or matter to be held between them and the rigid jaw 12, so that when the portions to be anastomosed are held in the proper relative position the inner surface of the blades will extend parallelly to the opposite faces of the common jaw 12, and the pressure exerted thereby will in consequence be uniform from end to end. This feature is illustrated in Fig. 1, in which one of the blades is shown in its normal position, while the opposite one is brought in clamping position by interposition of a stop A.

To prevent injury to the tissues of the patient and to incidentally augment the holding qualities of the clamps, I provide sleeves or tubes 27, which, being composed of rubber or other suitable material, may be slipped over the rigid jaws and the movable blades, as illustrated in Figs. 9 and 12. It will be understood that when the sleeves are used the curvature of the blades 15 may be modified to compensate for the thickness of the rubber, which in practice is added to the thickness of the clamped portions. In the modified form illustrated in Fig. 3 the jaws of the clamps are curved instead of straight for the purpose of adapting the instrument to different kinds of operations.

Having thus described the mechanical construction of the device, its operation and advantages derived therefrom will be readily understood.

The instrument, as stated above, is practically adapted for use in suture anastomic work, where it takes the place of the two clamps hitherto employed and which, by reason of the difficulty encountered by the assistant in maintaining the proper relative position of the two portions to be united, often become a source of annoyance to the surgeon and frequently lead to actual damage to the tissues. In addition it should be observed that the use of the two clamps requiring the use of both hands of the assistant prevents his being of service in other ways, whereas my device, resting upon the edge of the incision, maintains unaided the parts in their relative position.

The method of using my device, although varying in accordance with circumstances, remains in principle the same in all anastomotic operations. In case of posterior gastrojejunostomy, for example, the stomach is grasped, as usual, at the desired angle between one of the blades 15 and the jaw 12, (see Fig. 10,) which are then locked at the desired tension by the detent 24 engaging the

corresponding rack 22, and thus virtually form a single blade carrying the fold of the stomach. The handle is now carried around to the new angle parallel to the line xy or as near to it as the tissue will permit. The intestine is picked up by the fingers or by an intestinal clamp applied in the desired line of incision and raised up to its position against jaw 12. The third member 11, which had been previously detached, is now replaced on the central member of the device and moved in engagement with the intestinal portion resting against jaw 12 with the result shown in Fig. 11. A strip of gauze-sponge is subsequently placed along the middle blade and the operation completed. After the anastomosis has been made the detachable members may be removed, leaving the central portion in place until the field has been examined for bleeding, &c., when it may be withdrawn. It will thus be seen that the clamp does not have to be touched from the time it is applied until the anastomosis is complete, and being supported on the edges of the incision maintains a constant even tension on the stomach.

Having thus described my invention, what I claim is—

1. An instrument of the class named, comprising a central jaw and two oppositely-disposed clamping members having a lateral movement in relation thereto.

2. An instrument of the class named, comprising a central member and two oppositely-disposed clamping members pivotally and individually detachably mounted thereon.

3. An instrument of the class named, comprising a central rigid jaw and two resilient, inwardly-curved blades, laterally movable in relation thereto.

4. In an instrument of the class named, a central member including a rigid jaw and an axially-alined shank, and two clamping members pivotally mounted upon the said shank on opposite sides thereof.

5. An instrument of the class named, comprising a central member, opposite clamping members pivotally connected therewith and means to hold the latter at any of a plurality of predetermined points.

6. A device of the class named, comprising a central member having oppositely-extending, toothed arms and two opposite clamping members pivotally mounted on the first-named member and having detents arranged to respectively engage the interdental spaces in the arms.

7. A device of the class named, comprising a central member having a rigid jaw and two clamping members pivotally connected therewith and having blades disposed on opposite sides of the jaw, and elastic sleeves on the said jaw and blades.

8. An instrument of the class named com-

prising a curved central jaw and two similarly-curved oppositely-disposed clamping members having a lateral movement in relation thereto.

- 5 9. A clamp of the class named comprising three pivotally-connected members, including a central jaw curved in a plane parallel to the longitudinal axis of the pivot, and two

similarly-curved clamping members having a lateral movement in relation thereto. 10

In testimony whereof I have affixed my signature in presence of two witnesses.

GILES F. ROOSEVELT.

Witnesses:

G. J. ROLLANDET,
K. W. C. STUMP.